The Great Grid Upgrade

Sea Link

Sea Link

Volume 5: Consultation Report

Document 5.1.3 Appendix B EIA Scoping

Planning Inspectorate Reference: EN020026

Version: A
March 2025

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(q)
Section 37(3) and Section 37(7) of the Planning Act 2008



nationalgrid

Page intentionally blank

Contents

1. Section 1 EIA Scoping Report – Cover Letter 1

2. Section 2 EIA Scoping Report 2

3. Section 3 EIA Scoping Opinion 3

1. Section 1 EIA Scoping Report – Cover Letter

National Grid, National Grid House, Warwick Technology Park, Gallows Hill, Warwick. CV34 6DA

T: 0333 006 9535
www.nationalgrid.com

The Planning Inspectorate
Temple Quay House
Temple Quay
Bristol
BS1 6PN

For the Attention of Marie Shoesmith

24 October 2022

Your Reference EN020026

Dear Marie Shoesmith,

Sea Link - National Grid Electricity Transmission

Planning Act 2008
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 - Regulation 8(1)(B) Notification That An Environmental Statement Will Be Provided Regulation 10(1) Application For A Scoping Opinion

As you are aware, National Grid Electricity Transmission plc is intending to apply for development consent for the Sea Link development ('the Scheme') pursuant to provisions in the Planning Act 2008. The Scheme also falls within the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ('the EIA Regulations').

EIA Notification

We are writing to notify the Secretary of State under Regulation 8(1)(b) of the EIA Regulations that we propose to provide an Environmental Statement (ES) with the application for development consent in relation to the Sea Link development.

We note that paragraph 3.8 of the Planning Inspectorate's Advice Note Seven ('EIA: Process, Preliminary Environmental Information and Environmental Statements', May 2020) requests that the information required under Regulation 8(3) be provided with an EIA Notification. Accordingly, the required information is provided in the accompanying EIA Scoping Report.

EIA Scoping Opinion

We are also writing to request under Regulation 10(1) that the Secretary of State gives an opinion as to the scope and level of detail of the information to be provided in the ES (a Scoping Opinion) for the Scheme. In accordance with Regulation 10(3), we include the information required to support our request in the form of a Scoping Report.

We can confirm we have submitted the required GIS shapefile to the Planning Inspectorate by email on 27 September 2022 in accordance with paragraph 7.3 of Advice Note Seven.

We are submitting this request via a file sharing service on 24th October 2022.

EIA consultation bodies

In accordance with Regulation 11(1)(b) of the EIA Regulations, we request that you provide us with a list of the notified consultation bodies and any Regulation 11(1)(c) persons and non-prescribed consultees.

For the purpose of your duties under Regulation 11(1)(a) of the EIA Regulations 2017, the postal and email addresses of the Applicant, National Grid Electricity Transmission, are:

For attention of Louise Lewin, National Grid, National Grid House, Warwick Technology Park, Gallows Hill, Warwick.CV34 6DA. Email: contact@sealink.nationalgrid.com

We can confirm we have already had a number of meetings and discussions with host planning authorities and statutory environmental bodies. These include those listed in the Appendix to this letter, along with the names of the key contacts within the organisations referenced.

Yours sincerely,

[redacted]

Lead Consents Officer (Terrestrial), Sea Link Project

National Grid, National Grid House, Warwick Technology Park, Gallows Hill, Warwick. CV34 6DA

T: 0333 006 9535
www.nationalgrid.com

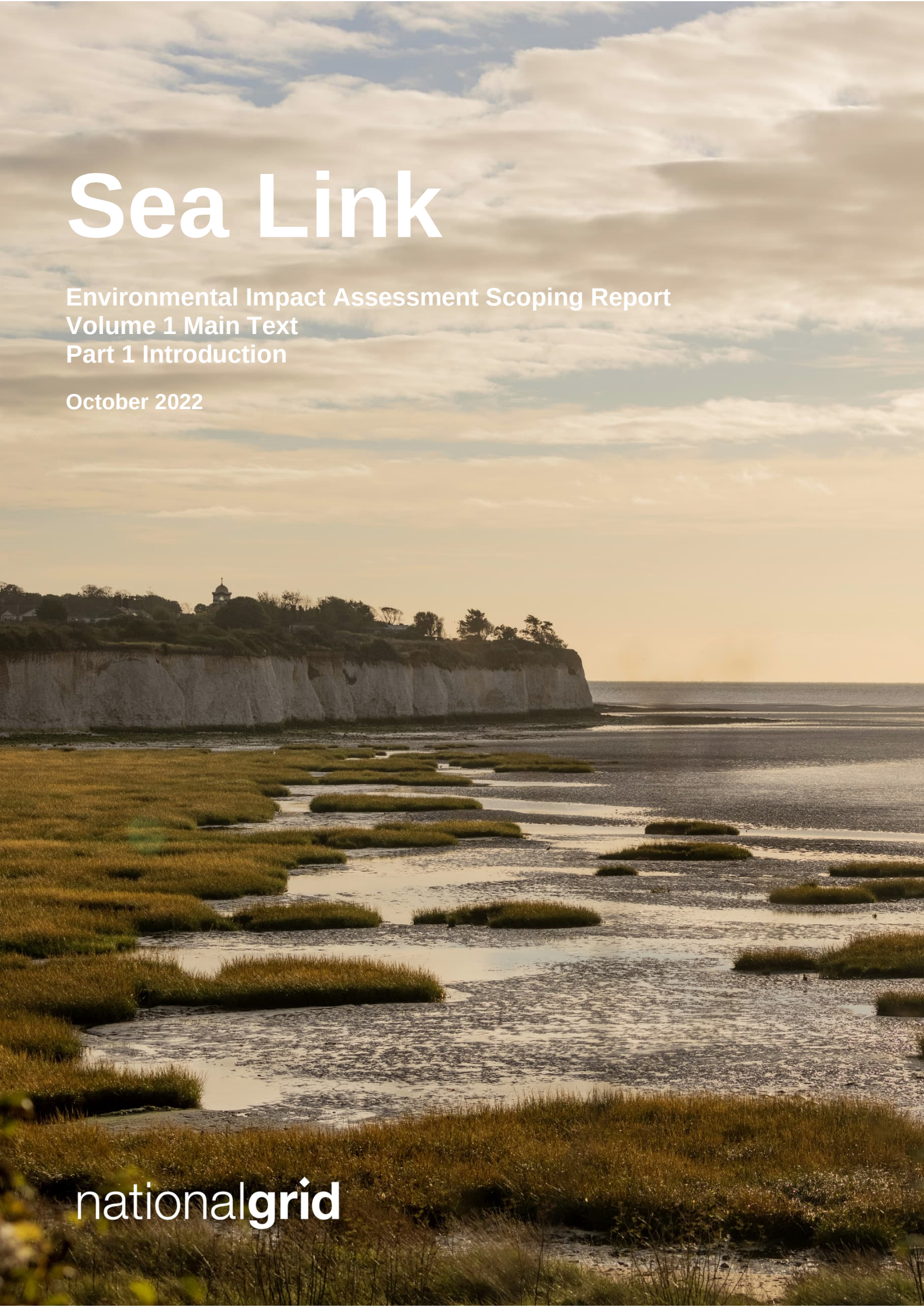
Appendix 1: Key Stakeholder List and Contact Details:

Stakeholder	Name	Email address
Kent Council	[redacted]	
Thanet Council		
Dover Council		
Suffolk Council		
East Suffolk Council		
Environment Agency		.uk
Historic England		
Natural England		rg.uk
Eastern Inshore Fisheries Conservation Authority		

Kent and Essex Inshore Fisheries Conservation Authority	[redacted]
RSPB	
Kent Wildlife Trust	
Suffolk Wildlife Trust	
Wildlife Trust	
MMO	
The Crown Estate	
Trinity House	
Maritime and Coastguard Agency	
Ramsgate Royal Harbour	
Port of London Authority	
Harwich Haven Authority	

Port of Felixstowe	[redacted]
Port of Ipswich	
Port of Lowestoft	
Chamber of Shipping	
Canal and Rivers Trust	

2. Section 2 EIA Scoping Report



Sea Link

Environmental Impact Assessment Scoping Report
Volume 1 Main Text
Part 1 Introduction

October 2022

nationalgrid

Contents

1.1 Introduction 1

1.1.1. Overview of the Project 1
1.1.2. The need for the Project 2
1.1.3. The Need for an Environmental Impact Assessment 3
1.1.4. Geographical Context 4
1.1.5. Purpose of this Report 5
1.1.6. Structure of this Scoping Report 8
1.1.7. Other Assessments 10
1.1.8. Net Gain Commitments 11
1.1.9. Competence 11

1.2 Regulatory and Planning Policy Context 12

1.2.1. Introduction 12
1.2.2. Key Legislation 12
1.2.3. Related Assessments 14
1.2.4. National Planning Policy 15
1.2.5. Local Planning Policies 17
1.2.6. Marine Policy Statement 18
1.2.7. Marine Plans 18

1.3 Main Alternatives Considered 19

1.3.1. Introduction 19
1.3.2. National Grid Approach to Options Appraisal 19
1.3.3. Overview 20
1.3.4. Routeing and Siting 22

1.4 Description of the Project 34

1.4.1. Introduction 34
1.4.2. Project Description 34
1.4.3. Construction 41
1.4.4. Operation 57
1.4.5. Maintenance 58
1.4.6. Decommissioning 60

1.5 EIA Approach and Method 62

1.5.1. Introduction 62
1.5.2. General Approach 62
1.5.3. Approach to Scoping 64
1.5.4. Assessment of Effects and Determination of Significance 67
1.5.5. Cumulative Effects 72
1.5.6. Monitoring 77

1.6 Approach to the Environmental Statement 78

1.6.1. Introduction 78

Tables

Table 1.1.1: Compliance with regulation 10(3) and PINS Advice Note Seven 6
Table 1.1.2 Structure of this Scoping Report 8
Table 1.4.1: Typical characteristics of HVAC underground cables – Suffolk 35
Table 1.4.2: Typical characteristics of HVDC underground cables – Suffolk 37
Table 1.4.3: Typical characteristics of a HVAC connection – Kent 38
Table 1.4.4: Typical characteristics of HVDC underground cables – Kent 40
Table 1.4.5: Indicative construction programme 41
Table 1.5.1: Impact magnitude criteria 68
Table 1.5.2: Sensitivity criteria 69
Table 1.5.3: Generic significance description 71
Table 1.5.4 'Other Development' for inclusion in the Inter-project cumulative effects assessment 75
Table 1.7.1: Indicative structure of the ES 78

Images

Image 1.3.1 National Grid's approach to project development and delivery 20
Image 1.5.1: EIA Process 63
Image 1.5.2: Approach to the Identification of the proposed Scope 65
Image 1.5.3: Basis of Assigning Significance 71
Image 1.5.4: Methodological approach to identifying intra-project cumulative effects 74
Image 1.5.5: Defining the ZOI 77

Glossary

Term	Definition
Abnormal Indivisible Loads (AIL)	Large loads to be delivered to the construction site which by their nature cannot be broken into smaller multiple deliveries.
Above Ordnance Datum (AOD)	An Ordnance Datum or OD is a vertical datum used by an ordnance survey as the basis for deriving altitudes on maps. A spot height may be expressed as AOD. Usually mean sea level is used for the datum.
Access points	A location connecting a construction site to the public highway
Access routes	Public highway used by construction traffic to access a construction site
Accidents and safety	In the context of traffic and transport, the risk of accidents occurring where the Project is expected to produce a change in the character of traffic.
Acoustic environment	The sound with contribution from all sources, as modified by the current environment and associated conditions. This is related to the ambient sound, which is the totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far.
Acute health effect	An adverse health effect that manifests itself immediately or shortly after exposure to a causative factor (e.g. soil contamination). Associated with short-term exposures.
Additional measures	Further measures required in order to achieve the anticipated outcome. These may be implemented as part of the development consent or through inclusion in the ES. These are referred to as ‘secondary measures’ in accordance with Institute of Environmental Management and Assessment (IEMA) guidelines.
Admiralty Chart	Nautical charts issued by the United Kingdom Hydrographic Office and subject to Crown Copyright
Agricultural Land Classification (ALC)	A standardised method for classifying agricultural land according to its versatility, productivity, and workability, based upon inter-related parameters including climate, relief, soil characteristics and drainage. These factors form the basis for classifying agricultural land into one of five grades (with Grade 3 land divided into Subgrades 3a and 3b), ranked from excellent (Grade 1) to very poor (Grade 5). ALC is determined using the MAFF Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land,1988.
Agri-environment scheme	Government programme set up to help farmers manage their land in environmentally friendly way.
Air Quality Management Areas (AQMAs)	If a local authority finds any places where the Air Quality Objectives (AQO) are not likely to be achieved, it must declare an AQMA there. This area could be just one or two streets, or it could be much bigger.

Term	Definition
	Then the local authority will put together a plan to improve the air quality - a Local Air Quality Action Plan (AQAP).
Air Quality Objectives (AQO)	The AQOs are policy targets often expressed as a maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedances, over a specified averaging period.
Air Quality Standards (AQS)	The AQS Regulations report limit values at differing averaging periods for certain pollutants. There are limits provided for the protection of human health for SO2, NO2, Benzene, CO and Pb. Target values have been set for the concentration of PM2.5.
Alternating current	The electrical current changes direction in a cycle. Mains electricity is alternating current.
Anchorage area	A place where boats and ships or other water vessels can safely drop anchor.
Anchor handling vessel or Anchor Handling Tug Supply	Anchor Handling Tug Supply (AHTS) vessels are mainly built to handle anchors for oil rigs, tow them to location, and use them to secure the rigs in place
Ancient woodland	Land that has been continually wooded since at least 1600 in England. Regarded as irreplaceable habitat' in national planning guidance. Ancient woodland greater than 2ha is recorded on the National England Woodland Inventory.
Annex 1 habitat	Annex 1 Habitat refers to a habitat as defined under the EU Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.
Aquifer	Water-bearing rock or sediment below the soil layer.
Archaeological Interest	A heritage asset with value from the potential to hold evidence about the past that can be retrieved though specialist investigation.
Archaeological remains	The material remains of human activity from the earliest persons of human evolution to present. These may be buried traces of human activities, sites visible above ground, or moveable artifacts.
Architectural/Artistic Interest	A heritage asset with value from contemporary appreciation of a heritage asset's aesthetics.
Area of Outstanding National Beauty (AONB)	An AONB is land protected by the Countryside and Rights of Way Act 2000 (CROW Act). It protects the land to conserve and enhance its natural beauty.
Artificial ground	Deposits that have accumulated or been placed through human activity.
Associated development	Development which is associated with a Nationally Significant Infrastructure Project (NSIP), as defined in the Planning Act 2008. It should be subordinate to, and necessary for, the construction and/or

Term	Definition
	the effective operation of the NSIP that is the subject of the Development Consent Order (DCO) application.
Auger bore	A form of trenchless crossing in which a pit is created wither side of the constraint or infrastructure being crossed and a bore is created by augering from one pit to the other.
Automatic Identification System	An AIS-equipped system on board a ship presents the bearing and distance of nearby vessels in a radar-like display format
Automatic RADAR Plotting Aid	A marine radar with automatic radar plotting aid (ARPA) capability can create tracks using radar contacts. The system can calculate the tracked object's course, speed and closest point of approach (CPA), thereby knowing if there is a danger of collision with the other ship or landmass.
Background sound/noise level	The A weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of decibels. This represents the underlying sound level in the absence of contributions from the sound source under assessment relating to the residual sound level but characterised by LA90,T.
Baseline	The situation prevailing before the Project is commenced (the current baseline), and also to the situation that would prevail in the future without the Project (the projected future baseline).
Basis Noise Level	A reference noise level at 10m from the nearside carriageway, calculated as a function of traffic flow, percentage of Heavy Goods Vehicles, average speed, road gradient and road surface.
Bathymetry	Bathymetry is the information that describes the topography of the seabed. It is an essential component in understanding the dynamics of the marine environment, both in terms of sediment transport but also in the prediction of tides, currents and waves
Bellmouth	An access point from the public highway for construction purposes.
Best and Most Versatile (BMV) agricultural land	Defined as land of excellent (ALC Grade 1), very good (Grade 2) and good (Subgrade 3a) agricultural quality. BMV agricultural land is afforded a degree of protection against development within planning policy.
Biodiversity	The variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.
Biodiversity Net Gain (BNG)	BNG is an approach to development which aims to leave nature in a better state than it was before the project was completed. National

Term	Definition
	Grid has made a commitment to delivering a BNG target of 10% above baseline on its development projects (as agreed with Ofgem).
Biodiversity Action Plan	A strategy for conserving and enhancing wild species and wildlife habitats in the UK.
Biosecurity	Measures aimed at preventing the spread of harmful organisms (e.g. viruses and bacteria) to crops and livestock in order to reduce the risk of transmission of infectious diseases.
Birds of Conservation Concern	Quantitative criteria are used to assess the population status of bird species found in the UK, which are placed on the red, amber or green list. With those on the red list being at most risk.
Bronze Age	-2,600 to -700
Cable	An insulated conductor designed for underground installation.
Cable Lay Barge	A Cable Laying Barge (cable layer or cable ship) is a sea going vessel specially designed to lay underwater cables (telecommunications, electric power transmission, or other).
Cable Lay Vessel	A Cable Laying Vessel (cable layer or cable ship) is a sea going vessel specially designed to lay underwater cables (telecommunications, electric power transmission, or other).
Cable Sealing End Compound (CSEC)	Electrical infrastructure used as the transition point between overhead lines and underground cables. A compound on the ground acts as the principal transition point.
Chronic health effect	An adverse health effect that occurs as a result of long-term regular or continuous exposure to a causative factor (e.g. soil contamination).
Code of Construction Practice (CoCP)	Sets out the standards and procedures to which a developer or contractor must adhere in order to manage the potential environmental impacts of construction works.
Concrete mattressing	A rectangular unit made of concrete blocks joined together by polypropylene ropes. The mattress is flexible in two dimensions and is available in a range of thicknesses to suit the conditions required. Concrete matresses are used for the anchorage and protection of underwater pipelines and cables and for protecting the foundations of structures against water scouring.
Construction Environmental Management Plan (CEMP)	The purpose of the CEMP is to outline how construction of the Project will avoid, minimise or mitigate effects on the environment and surrounding area. The CEMP will detail the implementation of measures in accordance with environmental commitments outlined in the ES. It is a ‘live’ document which is to be reviewed and updated at regular intervals throughout the Project life cycle.
Conductor	The overhead wire that carries electricity from one place to another. For example, the line between two pylons.

Term	Definition
Conservation Area	An area of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance as defined in Section 69(1)(a) in the Planning (Listed Building and Conservation Areas) Act 1990.
Contaminated land	Land where substances are causing or could cause significant harm to people, property or protected species or could cause significant pollution of surface waters or groundwater
Corona discharge	An electrical discharge caused by the ionisation of fluid such as air surrounding a conductor carrying a high voltage. It represents a local region where the air (or other fluid) has undergone electrical breakdown and become conductive. A corona occurs at locations where the strength of the electric field (potential gradient) around a conductor exceeds the dielectric strength of the air.
Converter Station	A converter station is part of a HVDC system and converts High Voltage Direct Current to High Voltage Alternating Current and vice versa.
Corridor	A broad area, within which a new overhead line could be routed.
County Wildlife Site	Non-designated areas of land important for their wildlife and nature conservation value
Cumulative effects	There are two types of effect, in-combination effects and cumulative effects. The former occurs as a result of two or more impacts acting together (i.e. combined), to result in a new or changed effect on a single receptor. The latter arise as a result of the Project in combination with other large-scale developments or projects.
Decibel (dB)	Noise is conventionally measured in decibels (dB). The ratio between the quietest audible sound and the loudest tolerable sound is a million to one in terms of the change in sound pressure. Due to this wide range, a scale based on logarithms is used in noise level measurement. The scale used is the dB scale which extends from 0 to 140dB corresponding to the intensity of the sound pressure level.
Demographic	Relating to the structure of populations.
Development Consent Order (DCO)	Where the Secretary of State (SoS) proposes to grant consent for a NSIP, this will be through a DCO which is normally made as a statutory instrument – a form of secondary legislation. The DCO not only provides planning consent for the Project but may also incorporate other consents and include authorisation for the compulsory acquisition of land.
Dewatering	The removal of groundwater (e.g. by pumping) to keep a below-ground works area dry. This can be used during construction of the underground cable sections.
Direct effects	Direct effects are those that result directly from the Project.

Term	Definition
Disaster	A disaster is a man-made/external hazard (such as an act of terrorism) or a natural hazard (such as an earthquake) with the potential to cause an event or situation that meets the definition of a major accident.
Double tee	A connection from both circuits on either side of the same structure, creating a third and fourth circuit on another structure.
Dredging vessels	Dredging vessels are used for the removal of sediments and debris from the bottom of lakes, rivers, harbours, and other water bodies. It is a routine necessity in waterways around the world because sedimentation—the natural process of sand and silt washing downstream—gradually fills channels and harbours.
Driver delay	Traffic delays to non-development traffic.
Ducting	The installation of ducts (pipes) within which a cable can be pulled through.
Dust	Generic term used to describe larger non-respirable airborne particulates (typically those which are deposited rapidly and normally associated with soiling / marking of property, cars, vegetation etc.).
Early Medieval	410 to 1066 CE
Easement	An easement is a right benefiting a piece of land (known as the dominant land) that is enjoyed over another piece of land owned by someone else (the servient land). Usually, an easement allows the owner of the dominant land to do something on the servient land, such as use a right of way, or run services over it.
Ecological feature	Habitats, species or ecosystems.
Ecosystem	A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.
Effects	For the purposes of the EIA and this Scoping Report, the term ‘effects’ are the consequences of changes (e.g. habitat becomes degraded by changes in drainage pattern).
Electricity System Operator (ESO)	Body required to support and guide the future development of the electricity transmission system in Britain.
Electricity transmission system	The electricity transmission system is made up largely of 400kV, 275kV and 132kV assets connecting separately owned generators and interconnectors with the demand for electricity fed directly from the transmission system, and distribution systems. The ‘transmission’ classification applies to assets at 132kV or above in Scotland or offshore. In England and Wales, it relates to assets at 275kV and above. The electricity transmission system is designed to make sure there is sufficient transmission capacity to ensure that the system can be operated in an economic and efficient way by the ESO, ensuring power can be moved from where it is generated to demand centres across Britain. This planning and development of the electricity

Term	Definition
	transmission system is governed by the Security and Quality of Supply Standard (SQSS) which ensure that the network is developed and operated securely and is resilient to any foreseeable network faults and disruption.
Electromagnetic Compatibility	The interaction of electrical equipment with its electromagnetic environment and with other equipment.
Electromagnetic fields (EMF)	Electric fields are created by differences in voltage: the higher the voltage, the stronger will be the resultant field. Magnetic fields are created when electric current flows: the greater the current, the stronger the magnetic field. An electric field will exist even when there is no current flowing. If current does flow, the strength of the magnetic field will vary with power consumption but the electric field strength will be constant.
Embedded measures	Modifications to the location, design or operation of the development made during the pre-application phase that are an inherent part of the Project, and do not require additional action to be taken. These are referred to as 'primary measures' in accordance with IEMA guidelines and will be embedded within the design of the Project.
Environmental Gain (EG)	National Grid has defined 'Environmental Gain' with Ofgem as being an amalgam of BNG and the status of Natural Capital (NC). This sees a simple formula being used to calculate overall EG.
Environmental Impact Assessment (EIA)	An EIA is a tool for systematically examining and assessing the impacts and effects of a development on the environment. The objective of the EIA is to identify any likely significant effects which may arise from the Project and identify measures to prevent, reduce or offset any adverse effects.
Environmental Statement (ES)	The outcome of the EIA process is reported within a document called an ES.
European Protected Species	Animals and plants listed under the Habitats Directive and protected under the Conservation of Habitats and Species Regulations 2017, as amended.
Fall pipe vessel	A fallpipe vessel (FPV) is a self-propelled vessel that is equipped with a flexible fallpipe. The vessel's design allows the fallpipe to be lowered into the water beneath the vessel allowing it to position rock with extreme accuracy down to a depth of 1,500 meters.
Fear and intimidation	In the context of traffic and transport, these may be experienced by people as a result of an increase in traffic volume and its proximity or the lack of protection caused by such factors as narrow pavement widths.
Fisheries Liaison Officer	FLOs liaise between fishing vessels and Clients, using local knowledge and fisheries experience to encourage co-operation and help ensure operations run smoothly and efficiently

Term	Definition
Flood Risk Assessment (FRA)	The FRA will assess the flood risk both to and from the Project and demonstrate how that flood risk will be managed over the Project's lifetime.
Flood Zone 1	Land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%).
Flood Zone 2	Land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.
Flood Zone 3	Land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.
Fragmentation	Breaking up of, for example, an area of land or habitat resulting in difficulties in accessing or using some or all of that land.
Future baseline	This is the theoretical situation that would exist in the absence of the Project. This is based upon extrapolating the current baseline using technical knowledge of likely changes over the identified period (for example anticipated habitat change over time, climate change projections, traffic and waste volume growth over time, etc.).
Future Energy Scenarios (FES)	Published annually by the ESO to indicate future power requirements and where future connections may occur across the network.
Geographical Information Systems	GIS is a framework for gathering, managing and analysing data. It analyses spatial location data and organises layers of information into visualisations on maps.
Good practice measures	Actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements or actions that are considered to be standard practice used to manage commonly occurring environmental effects. These are referred to as 'tertiary measures' in accordance with the IEMA guidelines and would also be embedded within the design of the Project.
Graduated Swathes	Indicate the broad areas where the components of the new overhead lines forming part of the Project are likely to be located.
Ground dissolution (of limestone)	A reduction in the solid mass of rock as a result of groundwater dissolving it. This loss of mass can cause ground instability at the surface.
Ground gas	A general term to include all gases occurring and generated within the ground whether originating from Made Ground or from natural soil or rock. Typically used to mean only potentially hazardous ground gases, such as carbon dioxide, methane, hydrogen sulphide and carbon monoxide.

Term	Definition
Groundwater Dependent Terrestrial Ecosystems	The process by which plans and projects are assessed as to whether they are likely to have a significant effect on a European Site either alone or in combination with other plans or projects, under the Conservation of Habitats and Species Regulations 2017, as amended.
Guard vessel	During the construction stage of an offshore wind farm, a substation platform or a cable route, the construction site needs to be secured by a guard vessel. The vessel must constantly monitor marine traffic near the construction site visually and with radar and AIS.
Habitat of Principal Importance (HPI)	HPI are covered under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The term is interchangeable with 'UK Priority BAP Habitat', 'Section 41 habitat' and 'NERCs41 habitat'.
Habitats Regulations Assessment (HRA)	A HRA refers to the several distinct stages of Assessment which must be undertaken in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) to determine if a plan or project may affect the protected features of a habitats site before deciding whether to undertake, permit or authorise it.
Habitat Suitability Index	A technique used for evaluating the suitability of habitats for great crested newt in order to assess the likelihood of their presence or absence.
Habitat Suitability Modelling	A statistical technique that predicts the distribution of a species from environmental variable data and bat occurrence records which can produce heat maps, identifying the most important flight paths and habitat connections for bats. The model identifies which of the environmental variables assessed (such as roads, the presence of woodland, or water) will most affect the distribution of a species.
Heavy Duty Vehicle (HDV)	Goods vehicles + buses >3.5 t gross vehicle weight.
Heritage asset	A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage assets include designated heritage assets and assets identified by the local planning authority (including local listing).
Heritage Significance	The significance of a heritage asset is the product of the value it holds for this and future generations as a result of its historic, archaeological, architectural or artistic interests.
High Water Springs or Mean High Water Springs	Mean high water springs is the highest level that spring tides reach on the average over a period of time. The height of mean high water springs is the average throughout the year of two successive high waters during those periods of 24 hours when the range of the tide is at its greatest

Term	Definition
Historic buildings	Architectural, designed, or other structures with a significant historical value. These may include structures that have no aesthetic appeal or structures not usually thought of as buildings, such as milestones or bridges.
Historic landscape	The current landscape, whose character is the result of the action and interaction of natural and/or human factors.
Historical Interest	A heritage asset with value from its association with past events or past people; or where a heritage asset is illustrative of a particular asset type, theme, or period.
Horizontal directional drill	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
Hydromorphology	The physical character and water content of water bodies.
Impacts	For the purposes of the EIA and this Scoping Report, the term 'impacts' is used to describe the changes that arise as a result of the Project (e.g. changes in drainage pattern).
Index of Multiple Deprivation (IMD)	The IMD is the official measure of relative deprivation for small areas (neighbourhoods) in England. The IMD are calculated based on the following factors: income deprivation, employment, health and disability, education, skills and training, barriers to housing and services, crime and living environment.
Indicative Alignment	The alignment of the overhead lines and underground cables that has been identified through the options appraisal process to date.
Indirect and secondary effects	Indirect and secondary effects are those which are not caused immediately by the Project but arise as a consequence of it. As such they would normally occur later in time or at locations farther away than direct effects. An example would be where water or gas pipes are damaged as a result of the Project, and the consequences of that damage is fire or flood risk to other receptors.
Infiltration	Incident rainfall that percolates into the ground, rather than evaporating or running off.
Inter-project effects	Arise as a result of the Project in combination with other large-scale developments or projects.
Intra-project effects	Effects that occur as a result of two or more impacts acting together (i.e. combined, to result in a new or changed effects on a single receptor).
Intertidal area	The extent of soft sediment beach that lies between High Water Springs and Low Water Springs at the landfall location.
Intervisibility	Intervisibility is defined as the ability to see in a direct line of sight from one position on the earth's surface to another, considering the intervening terrain.

Term	Definition
Invasive non-native species	An invasive non-native species is any non-native animal or plant that has the ability to spread, causing damage to the environment, the economy, health, and way of life.
Iron Age	-800 BCE to 43 CE
Jack-up barge	A jackup barge or a self-elevating unit is a type of mobile platform that consists of a buoyant hull fitted with a number of movable legs, capable of raising its hull over the surface of the sea. Often used as a base for servicing other structures such as offshore wind turbines, long bridges, and drilling platforms.
Joint bay	Underground structures constructed at regular intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Kilovolts (kV)	A unit of electromotive force, equal to 1,000 volts.
$L_{Aeq\ T}$	The A-weighted L_{eq} sound level measured over a specified period of time.
Land cover	The surface cover of the land, usually expressed in terms of vegetation cover or lack of it. Related to but not the same as land use.
Landform	The shape and form of the land surface resulting from combinations of geology, geomorphology, slope, elevation and physical processes.
Land use	What land is used for, based on broad categories of functional land cover such as urban and industrial use and the different types of agricultural and forestry.
Landscape	An area, as perceived by people, the character of which is the result of the action and integration of natural and/or human factors.
Landscape character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.
Landscape Character Area (LCA)	Discrete geographical areas of a particular landscape type with a broadly consistent character, which might include: pattern of topography, land use, vegetation cover, geology, cultural and ecological features, pattern of evolution, visual and perceptual qualities and habitats.
Landscape Character Type (LCT)	Generic, typically homogenous types of landscape that may occur in different parts of the country. They have similar geology, topography, drainage patterns, vegetation, land use, patterns of settlement and aesthetic character.
Landscape susceptibility	The ability of the landscape (whether it be the overall character or quality/condition of a particular landscape type or area, or an individual element and/or features, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation.

Term	Definition
Landscape value	The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons.
Light Goods Vehicle (LGV)	Cars and small vans <3.5 t gross vehicle weight.
Limit of Deviation	A maximum distance or measurement of variation within which the works must be constructed. These are lateral (i.e. on the ground) and vertical limits (in relation to height).
Listed Building	A building or structure of special historical or architectural/artistic interest. Designated by the Department for Digital, Culture, Media and Sport. All buildings built before 1700 which survive in anything like their original condition are likely to be listed, as are most buildings built between 1700 and 1850.
Local Geological Sites	A non-statutory designation for regionally important geological and geomorphological sites that have been identified as being of importance locally.
Local Nature Reserve	Sites dedicated by the local authority under Section 21 of the National Parks and Access to the Countryside Act 1949 for nature conservation which have wildlife or geological features that are of special interest locally.
Local planning authority	The public authority whose duty it is to carry out specific planning functions for a particular area
Local Wildlife Site (LWS)	Non-statutory nature conservation sites of local value.
Low Water or Low Water Springs	The height of mean low water springs is the average throughout a year of the heights of two successive low waters during those periods of 24 hours (approximately once a fortnight) when the range of the tide is greatest
Lower Layer Super Output Area (LSOA)	LSOAs are a geographic hierarchy designed to improve the reporting of small area statistics in England and Wales.
Lowest Observed Adverse Effect Level (LOAEL)	This is the level above which adverse effects on health and quality of life can be detected.
Macroinvertebrate	Any invertebrate organism which can be seen with the naked eye.
Macrophyte	Aquatic plants that grow in or near water.
Magnetic field	A measure of the force experienced by a moving electric charge, due to the motion of other charges.
Magnitude of change	A term that combines judgements about the size and scale off the effect, the extent of the area over which it occurs, whether it is

Term	Definition
	reversible or irreversible and whether it is short or long term in duration.
Major accident	A major accident is an event that threatens immediate or delayed serious environmental effects to human health, welfare and/or the environment and requires the use of resources beyond those of the client or its appointed representatives (i.e. contractors) to manage. Major accidents can be caused by disasters resulting from both man-made and natural hazards
Main river	Usually larger rivers and streams that the Environment Agency maintain and improve to manage flood risk.
Marine conservation zone	Marine areas that protect a range of nationally important, rare or threatened habitats and species
Mean High water Springs or High Water Springs	Mean high water springs is the highest level that spring tides reach on the average over a period of time. The height of mean high water springs is the average throughout the year of two successive high waters during those periods of 24 hours when the range of the tide is at its greatest
Mean Low Water Springs or Low Water Springs	The height of mean low water springs is the average throughout a year of the heights of two successive low waters during those periods of 24 hours (approximately once a fortnight) when the range of the tide is greatest
Mechanical ploughing	A mechanical plough is a device towed along the seabed and is optimised to help deliver reductions in the cost of offshore wind installation and to minimise project risk by combining operations to reduce the time required to install subsea cables
Medieval	1066 to 1540 CE
Mesolithic	-10,000 to -4,000 BCE
Metocean	Metocean conditions refer to the combined wind, wave and climate (etc.) conditions as found on a certain location.
Micro bore	A type of trenchless crossing technique in which a pit is created wither side of the constraint or infrastructure being crossed and a micro bore is created from one pit to the other.
Mineral reserve	Mineral deposit whose extraction is economically feasible.
Mitigation	The action of reducing the severity and magnitude of change (impact) to the environment. Measures to avoid, reduce, remedy or compensate for significant adverse effects.
Modern	1901 to present
Mooring	Lassoing, tethering, tying, or otherwise securing your boat to a fixed object, such as a mooring buoy, rather than dropping an anchor to secure your vessel

Term	Definition
National Cycle Network (NCN)	The NCN is a UK-wide network of signed paths and routes for walking, cycling, wheeling and exploring outdoors.
National Grid Electricity Transmission (NGET) ('National Grid')	National Grid operate the national electricity transmission network across Great Britain and own and maintain the network in England and Wales, providing electricity supplies from generating stations to local distribution companies. National Grid does not distribute electricity to individual premises, but its role in the wholesale market is vital to ensuring a reliable, secure and quality supply to all.
National Nature Reserve	Sites that are dedicated by the statutory country conservation agencies, under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981, for nature conservation and which have wildlife or geological features that are of special interest nationally.
Nationally Significant Infrastructure Project (NSIP)	NSIPs are developments (relating to energy, transport, water, or waste) which are identified in the Planning Act 2008 and require a type of consent known as "development consent".
National Vegetation Classification	System of classifying natural habitat types in Great Britain according to their vegetation types.
Natural Capital (NC)	The total stock of natural resources and services provided by natural assets which benefit people.
Natural Superficial Deposits	Geologically recent deposits that consist of various sediments (clay, sand, gravel etc.) and sit on top of the bedrock.
Nautical Mile	A nautical mile is a unit of measurement used in air, marine, and space navigation, and for the definition of territorial waters. It is based on the circumference of the earth and is equal to one minute of latitude. It is slightly more than a statute (land measured) mile (1 nautical mile = 1.1508 statute miles). Nautical miles are used for charting and navigating.
NAVAREA warnings	NAVAREAs are the maritime geographic areas in which various governments are responsible for navigation and weather warnings.
Navigational dredging sites	Dredging sites to deepen berths and channels for the purpose of navigation. Navigational dredging will usually require a licence but there is an exemption available for low volume dredging and harbour authorities in certain circumstances.
Navigational Risk Assessment	Navigation (Marine) Risk Assessment identifies and assesses the hazards and risks affecting vessel navigation, before considering current controls to mitigate risks and further controls that could be adopted to minimise risk as low as reasonably practicable (ALARP).
Navigational Telex	NAVTEX (NAVigational TEleX), sometimes styled Navtex or NavTex,[1] is an international automated medium frequency direct-printing service for delivery of navigational and meteorological

Term	Definition
	warnings and forecasts, as well as urgent maritime safety information (MSI) to ships.
Neolithic	-4,000 to -2,200 BCE
Nitrous Dioxide (NO2)	Reddish brown gas (in high concentrations), respiratory irritant and precursor to photochemical processes which produce other pollutants, photochemical smog and contribute to global warming.
Nitrous Oxide (NOx)	Inert product of combustion, which does not contribute to local air pollution.
Noise Important Area	Determined via strategic noise maps and highlight the residential areas experiencing the highest 1% of noise levels from road and rail sources in England.
Non-Road Mobile Machinery (NRMM)	A broad category which includes mobile machines, and transportable industrial equipment or vehicles which are fitted with an internal combustion engine and not intended for transporting goods or passengers on roads.
Non-statutory designated site	A site designated at a local level for its biodiversity and/or geological value. These are not underpinned by legislation.
Notice to Mariners	A notice to mariners advises mariners of important matters affecting navigational safety, including new hydrographic information, changes in channels and aids to navigation, and other important data. Over 60 countries which produce nautical charts also produce a notice to mariners
Options appraisal	A robust and transparent process used to compare options and to assess the positive and negative effects they may have across a wide range of criteria including environmental, socio-economic, technical and cost factors. The outcome is to identify a Strategic Proposal for the Project.
Options Identification and Selection	Work undertaken to determine the preferred corridor and preliminary routeing and siting options for the Project. It is intended to demonstrate how National Grid's statutory duties, licence obligations, policy considerations, environmental, socio-economic, technical, cost, and programme issues have been considered and provide information on the approach to the identification and appraisal of route corridors and siting locations.
Order Limits	The presently anticipated maximum extent of land within which the proposed development may take place.
Ordinary watercourse	Watercourses that are not main rivers, and that Lead Local Flood Authorities, district councils and Internal Drainage Boards maintain.
Outage	A period of interruption to electricity supply.
Overhead line	Conductor (wire) carrying electric current, strung from pylon to pylon.

Term	Definition
Palaeolithic	-1,000 000 to -10,000 BCE
Particulate matter (PM10 and PM2.5)	PM is the term used to describe condensed phase (solid or liquid) particles suspended in the atmosphere. Their potential for causing health problems is directly linked to the size of the particles. PM10 is particulate matter with a diameter of 10 microns or less (also referred to as micrometres or 1/1000th of a meter). PM2.5 is particulate matter 2.5 microns or less in diameter.
Pathway (for contamination)	A route or means by which a receptor could be, or is, exposed to or affected by a contaminant.
Peak Particle Velocity	A measurement of vibration level, being the maximum rate of displacement of the vibration propagation medium (such as the ground) for a given event, such as the impact of a piling hammer, at specific locations.
Pedestrian amenity	The effect on the relative pleasantness of a pedestrian journey as a result of changes in traffic flow, traffic composition and pavement width / separation from traffic.
Pedestrian delay	The ability of people to crossroads as a result of changes in traffic volume, composition and speed, the level of pedestrian activity, visibility and general physical conditions.
Permanent effects	These are effects that will remain even when the Project is complete, although these effects may be caused by environmental changes that are permanent or temporary.
Phytotoxic	Displaying toxicity towards plants.
Pipe jack	A type of trenchless crossing technique in which a pit is created wither side of the constraint or infrastructure being crossed and applying force to push a pipe through from one pit to the other.
Post Lay Burial	This is the final stage of the cable laying process where the subsea cable is buried.
Post Medieval	1540 to 1901
Potential roost feature	Potential roosting features in buildings are features used as bat roosts include (but are not limited to) gaps between stone or brickwork or cracks and splits in trees.
Power control devices	Power control devices are designed to increase or decrease the apparent reactance of a line, thereby pushing power away from or pulling more power towards the circuit on which they are installed.
Pre-lay grapnel run	The Pre Lay Grapnel Run – or PLGR – occurs a few days before the installation. The ship dredges a grapnel to clear any obstacle that could obstruct the plough, such as fishing nets, ropes, lines.
Pre-sweep dredging	Before installation of a pipeline or cable, pre-sweeping of sand waves is usually required in order to level the seabed. One or more dredgers may do the pre-sweeping with pipe-laying vessels following behind.

Term	Definition
	The pre-sweeping operation prepares a smooth enough seabed upon which to lay the pipeline or cable.
Project Need Case	Sets out the reasons why the Project is required.
Protected wreck	A shipwreck designated under the Protection Wrecks Act 1973
Preliminary Environmental Information Report	Information that has been compiled by the applicant to support statutory consultation held in advance of submitting an application for development consent. The Preliminary Environmental Information Report should contain information reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development and any associated development.
Priority habitat	Habitats identified as of principal importance in England, in accordance with requirements of the NERC Act 2006. These are based on the UK Biodiversity Action Plan Priority Habitats.
Priority Hazardous Substance	Substances which are toxic and persistent in the water environment, defined by the Water Framework Directive.
Priority species	Species identified as of principal importance in England, in accordance with requirements of the NERC Act 2006. These are based on the UK Biodiversity Action Plan Priority Species
Protected Lane	Country lanes and byways of historic and landscape value that make an important contribution to rural character, which have been designated as having ‘Protected Lane’ status in development planning policy.
Public Rights of Way (PRoW)	These are designated routes under the CroW Act 2000, which the public can use at any time.
Pylon	Overhead line structure used to carry overhead electrical conductors, insulators and fittings.
Radon	A naturally occurring radioactive chemical element, which occurs as a gas.
Ramsar sites	Wetlands of international importance designated under the Ramsar Convention.
Rating level	The specific sound level, with the addition of character corrections to consider certain acoustic features that could potentially increase the significance of impact. If no acoustic features are present then the rating level is equal to the specific sound level.
Receptor	A component of the natural or man-made environment such as water or a building that is affected by an impact.
Reconductoring	The replacement of old conductors (wires), insulators, earthwires, etc on an existing overhead line.

Term	Definition
Registered Battlefield	Register of nationally significant military engagements maintained and designated by Historic England.
Registered Park and Garden	Register of historic parks, gardens, grounds, and planned open spaces maintained and designated by Historic England.
Riparian	Relating to or situated on the banks of a watercourse.
Road links	A linear spatial object that describes the geometry and connectivity of a road network between two points in the network.
Rochdale Envelope	The ‘Rochdale Envelope’ or ‘Design Envelope’ approach is employed where the nature of a proposed development means that some details of a project have not been confirmed (for instance, the precise dimensions of structures) when an application is submitted, and flexibility within clearly defined parameters is therefore sought to address uncertainty.
Rock placement vessel	A rock placement vessel or fallpipe vessel (FPV) is a self-propelled vessel that is equipped with a flexible fallpipe. The vessel's design allows the fallpipe to be lowered into the water beneath the vessel. Uniquely, the fallpipe vessel can position rock with extreme accuracy down to a depth of 1,500 meters.
Romano-British	43 to 410 CE
Root Protection Area (RPA)	A notional area of tree root spread (as calculated per BS5837) considered as the minimum volume necessary to ensure tree health and function.
S41 of NERC Act	Section 41 of the NERC Act 2006 lists species of principal importance in England for the purpose of conserving biodiversity
Sandbank	A raised area of sand within the sea or river which may also be visible a low tide.
Sandwave	A seabed structure formed by currents
Sandwave dredging	The process of clearing sandwaves by dredging prior to cable installation.
Schedule 1 Species	Bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), for which it is an offence to intentionally or recklessly disturb birds and their young at, on or near an ‘active’ nest.
Scheduled Monument	Nationally important archaeological sites. Designated by the Department for Digital, Culture, Media and Sport. These can be above or below-ground and do not need to be ancient.
Scoping Opinion	A Scoping Opinion is requested from the Planning Inspectorate on behalf of the SoS, to inform the requirements of EIA process and ultimately the ES which will be submitted as part of the application for development consent. Through the scoping process the views of the

Term	Definition
	statutory consultees and other relevant organisations on the proposed scope of the EIA are sought.
Scoping Boundary	A Scoping Red Line Boundary has been defined to represent the likely maximum extent of development.
Security and Quality of Supply Standard (SQSS)	The SQSS sets out a coordinated set of criteria and methodologies that the Transmission Licences shall use in the planning and operation of the national electricity transmission system.
Seabed plough	Subsea cable ploughs are used for the process of pre-trenching cable routes and backfilling the seabed and are designed to work in a seabed consisting mostly of sands and clays, where the seabed is well known and understood.
Sensitivity	A term applied to specific receptors, combing judgements of the susceptibility of the receptors to the specific type of change or development proposed and the value related to that receptor
Setting	The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate an asset, or may be neutral.
Severance	The separation of people from places and other people and places or impede pedestrian access to essential facilities.
Side-Scan Sonar surveys	Side-scan sonar produces a detailed picture of the seafloor or riverbed, regardless of water clarity. The system, which may be towed from a surface vessel or mounted on a ship's hull, emits fan shaped pulses down towards the seafloor across a wide angle, perpendicular to the path of the sensor through the water
Significance	A measure of the importance or gravity of the environmental effect, defined by significance criteria specific to the environmental topic.
Significant Observed Adverse Effect Level (SOAEL)	This is the level above which significant adverse effects on health and quality of life occur.
Site of Special Scientific Interest (SSSI)	An area of land designated by Natural England as of special interest by reason of its flora, fauna or geological or physiographical features.
Siting Area	An area of land within which a new CSEC or substation could be sited.
Soil association	Represent a group of soil series (soil types) which are typically found occurring together in the landscape.
Soil compaction	Degradation of soil structure, which can be caused by heavy loading, resulting in a reduction in the voids within the soil.

Term	Definition
Soil stockpiles	Mounds of soil created through the storage of soil materials which have been stripped from an area of construction.
Source (of contamination)	A substance that is in, on or under the land and that has the potential to cause harm or to cause pollution of Controlled Waters.
Source Protection Zone	A defined area around a drinking water source that carries statutory protection from damaging activities.
Special Areas of Conservation (SACs)	Protected areas in the UK designated under: the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales.
Special Protection Areas (SPA)	Protected areas for birds in the UK classified under the Wildlife & Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales.
Species of Principal Importance (SPI)	Covered under Section 41 of the NERC Act 2006. The term is interchangeable with ‘UK Priority BAP Species’, ‘Section 41 species’ and ‘NERCs41 species’.
Specific sound level	The equivalent continuous A-weighted sound pressure level produced by a specific sound source (i.e. the sound source under assessment in accordance with BS 4142:2014) at the assessment location over a given reference time interval, Tr.
Statutory designated site	A site which receives protection by means of legislation in recognition of its biodiversity value.
Strategic Proposal	The outcome of the strategic options appraisal; the Strategic Proposal is then taken forward to the Options Identification and Selection stage.
Strategic Road Network (SRN)	The SRN is made up of motorways and trunk roads (the most significant 'A' roads).
Substation	Electrical equipment in an electric power system through which electrical energy is passed for transmission, transformation, distribution or switching.
Subsoil	The layer of soil under the topsoil on the surface of the ground, lacking in the levels of organic matter found in topsoil.
Super Grid Transformer	Used at substations along the electricity transmission system to increase or reduce voltage.
Superficial geology	Uncemented sediments, such as alluvium, immediately beneath the soil and above the bedrock.
Suspended Particulate Matter	Suspended particulate matter (SPM) are finely divided solids or liquids that may be dispersed through the air from combustion processes, industrial activities or natural sources.

Term	Definition
Suspended sediment concentration	Is defined as the total value of both mineral and organic material carried in suspension by a river.
Temporary effects	These are effects that are related to environmental changes associated with a particular activity and that will cease when that activity finishes.
Tensioning site	A site where the new conductor is fed out from during construction. This also includes a tensioning winch to keep the conductor off the ground.
Topsoil	The uppermost layer of soil, usually with the highest concentration of nutrients, organic matter and microorganisms.
Traffic separation scheme	A maritime traffic management route system ruled by the International Maritime Organisation.
Tranquillity	A state of calm and quietude associated with peace, considered to be a significant asset of landscape.
Transboundary effects	Transboundary effects are those effects that would affect the environment in another state within the European Economic Area (EEA).
Transition joint bay	Underground structures at the landfall that house the joints between the offshore export cables and the onshore cables.
Tree Preservation Order (TPO)	A statutory designation protecting trees, administered by the relevant local planning authority
Trenched	Installation of the cable using an open trench to lay the cable within before backfilling
Trenchless	Installation of a cable below a constraint or other infrastructure without using a trench
Underground Cable	An insulated conductor carrying electric current designed for underground installation.
Vessel Monitoring System	Vessel Monitoring System data tracks vessels in a similar way to an Automatic Identification System but this data has historically been restricted to government regulators or other fisheries authorities.
Vessel-side discharge methods	A method used for placing material after a subsea cable has been laid. Less precise than using a fall-pipe vessel.
Vibration	Vibration is an oscillatory motion. The magnitude of vibration can be defined in terms of displacement, i.e. how far from the equilibrium something moves, velocity (how fast something moves), or acceleration (the rate of change of velocity).
Visual effect	The change in the appearance of the townscape as a result of the development. This can be positive or negative.

Term	Definition
Visualisation	A computer simulation, photomontage or other technique illustrating the predicted appearance of a project to aid engagement with consultees.
Visual receptor	Individuals and/or defined groups of people who have the potential to be affected by a project impacting on their views.
Water jetting	High Pressure Water Jetting (also known as hydroblasting and water cutting) is an industrial tool capable of removing material and cleaning a wide variety of materials using extremely high-pressure jets of water, or a mixture of water and chemicals.
Working area	The working area refers to the area of land that is likely to form part of the construction site. This is not the same as the Scoping Boundary, as there may be parts of the Scoping Boundary that lie outside the working area.
Working width	The temporary working area required to install a cable which normally includes stock proof fencing, temporary drainage, access road, topsoil and sub soil storage and the cable trench.
World Heritage Site	A natural or man-made site, area, or structure recognised as being of outstanding international importance and therefore as deserving special protection. Sites are nominated to and designated by the World Heritage Convention.
XC/XCP 275kV overhead line	Existing 275kV overhead line running between Monk Fryston and Poppleton.
XD/XC 275kV overhead line	Existing 275kV overhead line running between Poppleton and Knaresborough.
Zone of Influence (ZoI)	An identified geographical area around the Project where there is a potential for impacts to occur.
Zone of Theoretical Visibility (ZTV)	The likely (or theoretical) extent of visibility of a development, usually shown on a map.

List of Initialisations and Abbreviations

AAAC	All Aluminium Alloy Conductor	MAREA	Marine Aggregate Regional Environmental Assessment
AADT	Annual Average Daily Traffic	MARPOL	International Convention for the Prevention of Pollution from Ships
AC	Alternating Current	MBES	Multi- Beam Echo Sounder
AD	Anno Domini	MCA	Maritime and Coastguard Authority

ADMS	Atmospheric Dispersion Modelling Software	MCAA	Marine and Coastal Access Act
AEP	Annual Exceedance Probability	MCZ	Marine Conservation Zone
AEZ	Archaeological Exclusion Zone	MFE	Mass Flow Excavator
AGI	Above Ground Infrastructure	MHCLG	Ministry of Housing, Communities and Local Government
AIS	Automatic Identification System	MHWN	Mean High Water Neaps
ALARP	As Low as Responsibly Practicable	MHWS	Mean High Water Springs
ALC	Agricultural Land Classification	MLWN	Mean Low Water Neaps
ALDFG	Abandoned, Lost or Discarded Fishing Gear	MLWS	Mean Low Water Springs
AM	Morning	mm	Millimetres
AN17	Advice Note 17	MMO	Marine Management Organisation
AONB	Area of Outstanding Natural Beauty	MPCP	Marine Pollution Contingency Plan
AQAL	Air Quality Assessment Level	MPS	Marine Policy Statement
AQMA	Air Quality Management Area	MRA	Mineral Resource Assement
AQS	Air Quality Strategy	MSA	Mineral Safeguarding Areas
ARPA	Automatic RADAR Plotting Aid	MSL	Mean Sea Levels
As	Arsenic	MS-LOT	Marine Scotland Licensing Operations Team
ASCOBANS	Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas	MTBM	Micro Tunnel Boring Machine
ASSI	Area of Special Scientific Interest	MTS	Marine Traffic Survey
ATC	Automatic Traffic Count	MU	Marine Mammal Management Units
AtoN	Aids of Navigation	MW	Megawatt
Ba	Barium	MWLP	Minerals and Waste Local Plan
BAP	Biodiversity Action Plan	MWp	Megawatt peak
BC	Before Christ	NAVAREA	Navigational Areas

BCT	Bat Conservation Trust	NAVTEX	Navigational Telex
BGS	British Geological Survey	NCA	National Character Area
BMV	Best and Most Versatile	NCERM	National Coastal Erosion Risk Mapping
BNG	Biodiversity Net Gain	NCN	National Cycle Network
BNL	Basic Noise Level	NCR	National Cycle Route
BOA	Biodiversity Opportunity Areas	NE	Natural England
BS	British Standard	NERC	Natural Environment and Rural Communities Act
BTO	British Trust for Ornithology	NETS SQSS	National Electricity Transmission System Security and Quality of Supply Standard
CBC	Common Bird Census	NF_3	Nitrogen trifluoride
CBRA	Cable Burial Risk Assessment	NFI	National Forest Inventory
CBS	Cement Bound Sand	NGV	National Grid Ventures
CCA	Coastal Character Area	NHLE	National Heritage List for England
CCME	Canadian Council of Ministers of the Environment	NHS	National Health Service
CCR	Climate Change Resilience	Ni	Nickel
Cd	Cadium	NIA	Noise Impact Area
CEA	Cumulative Effects Assessment	NIPZ	Nitrate Issues Priority Zone
CBS	Cement Bound Sand	NLS	National Library of Scotland
CCA	Coastal Character Area	NM	Nautical Mile
CCME	Canadian Council of Ministers of the Environment	NMHR	National Marine Heritage Record
CCR	Climate Change Resilience	NNR	National Nature Reserve
Cd	Cadium	NO_2	Nitrogen dioxide
CEA	Cumulative Effects Assessment	N_2O	Nitrous oxide
CEFAS	Centre for Fisheries, Aquaculture Science	NOEL	No Observed Effect Level
CEMP	Construction Environmental Management Plan	NOAA	National Oceanographic and Atmospheric Organisation
CFE	Controlled Flow Excavator	NO_x	Nitrous Oxide
CFP	Common Fisheries Policy	NPF2	National Planning Framework 2

CH_4	Methane	NPPF	National Planning Policy Framework
CIEEM	Chartered Institute of Ecology and Environmental Management	NPPG	National Planning Policy Guidance
CIfA	Chartered Institute for Archaeologists	NPS	National Policy Statement
CIRIA	Construction Industry Research and Information Association	NPSE	Noise Policy Statement for England
CLB	Cable Lay Bay	NRA	Navigational Risk Assessment
CLV	Cable Lay Vessel	NRMM	Non-Road Mobile Machinery
CoCP	Code of Construction Practice	NRW	Natural Resources Wales
COLREGS	Convention on the International Regulations for Preventing Collisions at Sea	NSIP	Nationally Significant Infrastrcute Project
COMAH	Control of Major Accident Hazard	NSR	Noise Sensitive Receptors
CPA	Coast Protection Act	NSTA	North Sea Transition Authority
Cr	Chromium	NtM	Notices to Mariners
CRoW	Countryside and Rights of Way Act	O&G	Oil and Gas
CRTN	Calculation of Road Traffic Noise	OFTO	Offshore Transmission Owner
CSEC	Cable Sealing End Compound	ONS	Office for National Statistics
CTMP	Construction Traffic Management Plan	OOS	Out-Of-Service
Cu	Copper	OS	Ordnance Survey
dB	Decibels	OSPAR	Oslo Paris
DBA	Desk Based Assessment	OWEER	Offshore Wind Environmental Evidence Register
DC	Direct Current	OWF	Offshore Wind Farm
DCO	Development Consent Order	PAD	Protocol for Archeological Discoveries
DDLCA	Dover District Council Landscape Character Assessment	PADI	Professional Association of Diving Instructors
DECC	Department for Energy and Climate Change	Pb	Lead

DEFRA	Department for Environment, Food and Rural Affairs	PBDE	Polybrominated diphenyl ethers
DENI	Department of the Environment Northern Ireland	PEIR	Preliminary Environmental Information Report
DLHC	Department for Levelling Up, Housing and Communities	PEL	Probable Effect Levels
DMRB	Design Manual for Roads and Bridges	PEXA	Practice and Exercise Area
DOC	Depth of Cover	PFC	Perfluorocarbons
DOL	Depth of Lowering	PGG	Pollution Prevention Guideline
DP	Dynamic Position	PHE	Public Health England
DTM	Digital Terrain Model	PIA	Personal Injury Accident
DWSZ	Drinking Water Safeguard Zone	PIC	Personal Injury Collision
EA	Environment Agency	PINS	Planning Inspectorate
EC	European Commission	PLB	Post Lay Burial
EcIA	Ecological Impact Assessment	PLGR	Pre-Lay Grapnel Run
ECoW	Ecological Clerk of Works	PLONOR	Pose Little or No Risk to the Environment
EEZ	Exclusive Economic Zone	PM	Particulate Matter
EIA	Environmental Impact Assessment	PM10	Particulate Matter (10 micrometres diameter)
EMF	Electromagnetic Field	PM2.5	Particulate Matter (10 micrometres diameter)
EMODnet	European Marine Observation Data Network	PPE	Personal Protective Equipment
EPS	European Protected Species	PPG	Planning Practice Guidance
ES	Environmental Statement	PPGN	Planning Practice Guidance for Noise
ESCA	European Subsea Cable Association	PRoW	Public Right of Way
ETRS89	European Terrestrial Reference System 1989	PSC	Potential Sources of Contamination
EU	European Union	PV	Photovoltaic
EUNIS	European Union Nature Identification System	RAF	Royal Air Force
FAME	Future of the Atlantic Marine Environment	RBMP	River Basin Management Plan
FEPA	Food and Environmental Protection Act	RIGS	Regionally Important Geological Sites

FLO	Fisheries Liaison Officer	RNLI	Royal National Lifeboat Institution
FPROV	Fall Pipeline Remotely Operated Vehicle	RNR	Roadside Nature Reserves
FRA	Flood Risk Assessment	ROV	Remotely Operation Vehicle
FSA	Formal Safety Agrement	RPL	Route Position List
GCN	Great Crested Newt	RSPB	Royal Society for the Preservation of Birds
GCR	Geological Conservation Review	RYA	Royal Yachting Association
GEA	Gross External Area	SAC	Special Area of Conservation
GHG	Greenhouse Gas	SACO	Supplementary Advice on Conservation Objectives
GIF	Growth and Infrastructure Framework	SARH	Search and Rescue Helicopter
GIS	Geographic Information System	SBP	Sub Bottom Profiler
GLVIA	Guidelines for Landscape and Visual Impact Assessment	SCANS	Small Cetaceans in European Atlantic waters and the North Sea
GPLC	Guiding Principles for Managing and Reducing Land Contamination	SCASNE	Seascape Character Assessment of Suffolk, South Norfolk and North Essex
GREEN	Green Energy Enablement	SCC	Suffolk County Council
GVA	Gross Value Added	SCLCA	Suffolk Coastal Landscape Character Assessment
GWDTE	Groundwater Dependant Terrestrial Ecosystems	SCLP	Suffolk Coastal Local Plan
HAT	Highest Astronomical Tide	SCOS	Special Committee on Seals
HDD	Horizontal Directional Drilling	SCT	Seascape Character Type
HDV	Heavy Duty Vehicle	SELEP	South East Local Enterprise Partnership
HER	Historical Environmental Records	SF_6	Sulphur hexafluoride
HFC	Hydrofluorocarbons	SHOM	Service Hydrographique et Océanographique de la Marine
Hg	Mercury	SLB	Simultaneous Cable Lay and Burial
HGV	Heavy Goods Vehicle	SLR	Sea Level Rise

HIA	Health Impact Assessment	SMP	Shoreline Management Plan
HLC	Historic Landscape Characterisation	SMRU	Sea Mammal Research Unit
HMSO	His Majesty's Statutory Office	SNCI	Sites of Nature Conservation Importance
HoPI	Habitats of Principal Importance	SNH	Scottish Natural Heritage
HRA	Habitat Regulation Assessment	SOAEL	Significant Observed Adverse Effect Level
HSC	Historic Seascape Characterisation	SOLAS	Safety of Life at Sea
HUDU	Healthy Urban Development Unit	SOPEP	Shipboard Oil Pollution Emergency Plan
HVAC	High Voltage Alternating Current	SoS	Secretary of State
HVDC	High Voltage Direct Current	SPA	Special Protection Area
Hz	Hertz	SPM	Suspended Particulate Matter
IAMMWG	Inter-Agency Marine Mammal Working Group	SPR	Scottish Power Renewables
IAQM	Institute of Air Quality Management	SPZ	Special Protection Zone
ICCI	In-Combination Climate Change Impact	SSC	Suspended Sediment Concentration
ICE	Inventory of Carbon and Energy	SSS	Side- Scan Sonar
ICES	International Council for the Exploration of the Sea	SSSI	Site of Special Scientific Interest
ICNIRP	International Commission on Non-Ionizing Radiation Protection	STAR	Seabird Tracking and Research
ICPC	International Cable Protection Committee	SuDS	Sustainable Drainage System
IDB	Internal Drainage Board	TA	Transport Assessment
IEMA	Institute for Environmental Management and Assessment	TBM	Tunnel Boring Machine
IFCA	Inshore Fisheries and Conservation Authority	tCO_2e	Tonnes of Carbon Dioxide Equivalent
IHBC	Institute of Historic Building Conservation	TDLCA	Thanet District Council Landscape Character Assessment

IMO	International Maritime Organisation	TEMPro	Trip End Model Presentation Program
INNS	Invasive Non-Native Species	TEZ	Temporary Exclusion Zone
IPC	Infrastructure Planning commission	TIN	Technical Information Note
ISO	International Organization for Standardization	TJB	Transition Joint Bay
ISQG	Interim Marine Sediment Quality Guidelines	TOC	Total Organic Carbon
IUCN	International Union for the Conservation of Nature	TPO	Tree Preservation Order
JFS	Joint Fisheries Statement	TSS	Traffic Separation Scheme
JNCC	Joint Nature Conservation Committee	TTLCA	Touching the Tide Landscape Character Assessment
KCC	Kent County Council	UK	United Kingdom
KIS-ORCA	Kingfisher Information Service – Offshore Renewable Cable	UK BAP	United Kingdom Biodiversity Action Plan
kW	Kilowatt	UKCP	United Kingdom Climate Projection
LAQM.TG	Local Air Quality Management Technical Guidance	UKHO	United Kingdom Hydrographic Office
LAT	Lowest Astronomical Tide	UKSIA	United Kingdom Single Issuing Authority
LCA	Landscape Character Assessment	UNCLOS	United Nations Convention on the Law of the Sea
LCRM	Land Contamination: Risk Management	UNESCO	United Nations Educational, Scientific and Cultural Organization
LCT	Landscape Character Type	UNFCCC	United Nations Framework Convention on Climate Change
LEMP	Landscape Ecological Management Plan	UTC	Universal Transverse Mercator
LEP	Local Enterprise Partnership	UXO	Unexploded Ordnance
LGS	Local Geological Site	VMS	Vessel Monitoring System
LGV	Light Goods Vehicle	WeBS	Wetland Bird Survey
LiDAR	Light Detection and Ranging	WFD	Water Framework Directive
LLFA	Lead Local Flood Authority	WHO	World Health Organisation

LNR	Local Nature Reserve	WSI	Written Scheme of Investigations
LOAEL	Lowest Observed Adverse Effect Level	WWTW	Waste Water Treatment Works
LoGS	Local Geological Sites	XLPE	Cross Linked Polyethylene
LPA	Local Planning Authority	Zn	Zinc
LTP	Local Transport Plan	ZOI	Zone of Influence
LVIA	Landscape and Visual Impact Assessment	ZTV	Zone of Theoretical Visibility
LWS	Local Wildlife Sites		
m	Metres		
MAFF	Ministry of Agriculture, Fisheries and Food		
MAIB	Marine Accident Investigation Branch		
maOD	metres above Ordnance Datum		

1.1 Introduction

1.1.1. Overview of the Project

1.1.1.1. The Sea Link Project (hereafter referred to as the 'Project') is a proposal by National Grid Electricity Transmission plc (hereafter referred to as National Grid) to reinforce the transmission network in the South East of England and East Anglia. The Project is required to accommodate additional power flows generated from renewable and low carbon energy generation, as well as additional new interconnection with mainland Europe.

1.1.1.2. National Grid owns, builds and maintains the electricity transmission network in England and Wales. Under the Electricity Act 1989, National Grid holds a transmission licence under which it is required to develop and maintain an efficient, coordinated, and economic electricity transmission system.

1.1.1.3. National Grid is also required, under Section 38 of the Electricity Act 1989, to comply with the provisions of Schedule 9 of the Act. Schedule 9 requires licence holders, in the formulation of proposals to transmit electricity, to:

Schedule 9(1)(a) '…have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest;' and

Schedule 9(1)(b) '…do what [it] reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects'.

1.1.1.4. The Project is proposed to reinforce the transmission system in the South East of England and East Anglia. This would be achieved by reinforcing the network with a High Voltage Direct Current (HVDC) Link between the proposed Friston substation in the Sizewell area of Suffolk and the existing Richborough to Canterbury 400kV overhead line close to Richborough in Kent.

1.1.1.5. The Project would comprise of the following elements:

- Underground HVAC cable between the proposed Friston substation and a new converter station in Suffolk.
- New converter station in Suffolk.
- Underground HVDC cable between a new converter station in Suffolk and a landfall on the Suffolk coast, either between Aldeburgh and Thorpeness or at Sizewell Gap.
- Marine HVDC cable between a landfall on the Suffolk coast and a landfall in Pegwell Bay in Kent.
- Underground HVDC cable between a landfall in Pegwell Bay and a new converter station in Kent.
- New converter station in Kent.

- A HVAC connection (either by overhead line or underground cables) between a new converter station in Kent and the existing Canterbury to Richborough overhead line.

1.1.1.6. None of the components of the Project fall within the definition of a 'Nationally Significant Infrastructure Project' (NSIP) defined under Part 3 of the Planning Act 2008 (PA2008). In consultation with the relevant Local Planning Authorities (LPA) in Suffolk and Kent, the Project sought direction on 4th March 2022 under Section 35 of the PA2008 from the Secretary of State (SoS) for the Project to be treated as a development for which development consent under the PA2008 is required.

1.1.1.7. On 31st March 2022 Section 35 direction was granted[1] by the SoS on the grounds that:

The proposed Project is of national significance, taking into account that it is a large-scale linear electricity transmission reinforcement project of approximately 130km in length and that it has a two Gigawatt capacity to transmit electricity.

The proposed Project will play an important role in enabling an energy system that meets the UK's commitment to reduce carbon emissions and the Government's objectives to create a secure, reliable and affordable energy supply for consumers.

By progressing the development through the Planning Act 2008 development consent process, it would provide the certainty of a single, unified consenting process and fixed timescales

1.1.1.8. Since the Section 35 Direction is now granted, National Grid intends to apply for the granting of an order for development consent under Section 37 of the PA2008 to the Planning Inspectorate (PINS). The application will provide details of the proposed development and will be accompanied by an Environmental Statement (ES).

1.1.1.9. This Scoping Report supports a request by National Grid, under Regulation 10 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as 'the EIA Regulations'), for a written Scoping Opinion from the SoS for Business, Energy and Industrial Strategy (BEIS), administered by the Planning Inspectorate on behalf of the SoS, to inform the Environmental Impact Assessment (EIA) for the Project.

1.1.2. The Need for the Project

1.1.2.1. The UK's target to achieve Net Zero carbon emissions by 2050 is resulting in fundamental changes to the way that electricity is going to be generated and supplied. The Government has established intermediary targets such as the development of up to 50GW of offshore wind by 2030, up from approximately 11GW today.

1.1.2.2. Offshore wind generation, Nuclear generation and Interconnectors to mainland Europe are strategically important investments to meet 2050 net-zero targets. Proximity to mainland Europe and suitability of the seabed off the coast of East Anglia region has resulted in large-scale offshore wind and interconnector connection applications in the East Anglia region. NGET as the transmission network owner in England and Wales has the responsibility to provide these

[1] Department for Business, Energy and Industrial Strategy (2022). National Grid Electricity Transmission - Sea Link electricity reinforcement project: Section 35 Direction, Planning Act 2008. [online] Available at: https://www.gov.uk/government/publications/national-grid-electricity-transmission-sea-link-electricity-interconnector-section-35-direction-planning-act-2008.

applications with a network that is compliant to the criteria contained within the National Electricity Transmission System Security and Quality of Supply Standard (NETS SQSS).

1.1.2.3. The future energy scenarios, established by the National Grid Electricity System Operator, highlight that additional generation between 7 and 25GW could be expected to connect in the East of England Region by 2035 and up to 14GW of interconnector and energy storage in the South of England.

1.1.2.4. Increasing levels of generation will drive substantial increases in the north - south power flows within and beyond these regions. Therefore, significant reinforcement of the transmission system is needed in the East Anglian and South East England regions, requiring the development of additional transmission circuits.

1.1.2.5. The increase in interconnector capacity between Britain and continental Europe is likely to substantially increase the duration and magnitude of power exported from Britain during periods of high wind generation and imported from continental Europe during periods of low wind generation requiring power to be supplied to and from the interconnectors located along the south and east coasts of England.

1.1.2.6. Given the substantial increase in generator-driven power flows out of East Anglia, and the region's proximity to the south coast and London, the optimum reinforcement solutions for the two regions are interactive. When generation levels are high in East Anglia, power will need to be transmitted to centres of demand in London and the South East of England. During these periods of high generation much of the 'surplus' power exported to the continent will also need to be transmitted to the south coast to supply the power requirements of the continental interconnectors, further increasing the East Anglia to South East of England power flows.

1.1.2.7. The Sea Link project therefore seeks to address these two different but interrelated transmission system constraints which trigger the need for significant reinforcement of the transmission system in both East Anglia and the South East of England. Sea Link is needed in addition to other network reinforcements identified in the region.

1.1.3. The Need for an Environmental Impact Assessment

1.1.3.1. None of the components which make up the Project are explicitly identified under Schedule 1 or 2 of the EIA Regulations. Schedule 3 of the EIA Regulations sets out the selection criteria for determining if Schedule 2 development is likely to have significant effects and is thereby 'EIA Development'. Having considered the criteria in Schedule 3, National Grid proposes to undertake an EIA having given regard to the whole of Schedule 3 but specifically:

Characteristics of development

1.- (1) The characteristics of development must be considered with particular regard to—

(a) the size and design of the whole development;

(b) cumulation with other existing development and/or approved development;

and

Location of development

2.- (1) The environmental sensitivity of geographical areas likely to affected by development, including:

(c) the absorption capacity of the natural environment, in particular:

(i) wetlands, riparian areas, river months;

(ii) coastal zone and the marine environment;

(iv) nature reserves and parks;

(v) European sites and other areas classified or protected under national legislation; and

(viii) landscapes and sites of historical, cultural or archaeological significance

1.1.3.2. This Scoping Report provides formal notification to the SoS, under Regulation 8(1)(b) of the EIA Regulations, that the Applicant (hereafter referred to as 'National Grid') proposes to provide an Environmental Statement (ES) in respect of the Project.

1.1.4. Geographical Context

1.1.4.1. The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary**. All onshore parts of the Project would be located within England and offshore parts of the Project would be located within the English Territorial Waters. For ease of presentation within this Scoping Report, the Project has been split into three geographical parts, hereafter referred to as: the Suffolk Onshore Scheme; Kent Onshore Scheme; and the Offshore Scheme.

Suffolk Onshore Scheme

1.1.4.2. The Suffolk Onshore Scheme is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary** and is located within the administrative boundary of Suffolk County Council (SCC) and the East Suffolk Council (ESC) local planning authority areas.

1.1.4.3. The Suffolk Onshore Scheme is in an area that is predominantly rural. The settlements of Aldeburgh, Friston, Saxmundham, Leiston, and Knodishall Common are located adjacent to the Project Scoping Boundary. The Sizewell Nuclear Site is located to the north of the Project Scoping Boundary and there are two existing 400kV overhead lines that cross the Project Scoping Boundary that connect the existing Sizewell substation to Bramford substation.

1.1.4.4. The Project Scoping Boundary includes part of the Suffolk Coasts and Heath Area of Outstanding Natural Beauty (AONB) and Sandlings Special Protection Area (SPA). Parts of the Leiston Aldeburgh and Sizewell Marshes Sites of Special Scientific Interest (SSSI) are located within the Project Scoping Boundary, as are part of North Warren RSPB reserve and two areas of Ancient Woodland.

1.1.4.5. The Hundred River is crossed by the Scoping Boundary to the south of Aldringham and the Alde or Ore River is located approximately 1km to the south of the Scoping Boundary.

Kent Onshore Scheme

1.1.4.6. The Kent Onshore Scheme is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and is located within the administrative boundary of Kent County Council (KCC) and the Thanet District Council (TDC) and Dover District Council (DDC) local planning authority areas.

1.1.4.7. The Kent Onshore Scheme is in an area which is semi-rural although land use in the areas closest to the coast include golf courses and areas of nature conservation. The settlement of Cliffs End is located adjacent to the north of the Project Scoping Boundary and the settlement of Minster approximately 350m from the Project Scoping Boundary also to the north. Richborough Energy Park and a wastewater treatment works are located adjacent to the south of the Project Scoping Boundary. The existing Richborough to Canterbury 400kV overhead line crosses through the far western extent of the Project Scoping Boundary.

1.1.4.8. Parts of the Thanet Coast and Sandwich Bay Ramsar and SPA are located within the Project Scoping Boundary in addition to parts of the Sandwich Bay Special Area of Conservation (SAC), Sandwich Bay to Hacklinge Marshes SSSI and Sandwich and Pegwell Bay National Nature Reserve (NNR).

1.1.4.9. The River Stour flows through the south of the Project Scoping Boundary and several watercourses and field drains are present across the Project Scoping Boundary.

Offshore Scheme

1.1.4.10. The Offshore Scheme is illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary** It is located wholly within English Territorial Waters, and it lies within the East Inshore[2] and South East Inshore Marine Plan Areas[3]. The Project Scoping Boundary crosses the Suffolk Coastal Waters, East Anglian Shipping Waters, Eastern English Channel Approaches and the Goodwin Sands and North Dover Strait Marine Character Areas (MCA).

1.1.4.11. The Offshore Scheme is located to the west of London Array Offshore Wind Farm and to the east of Thanet, Greater Gabbard and Galloper Offshore Wind Farms.

1.1.4.12. Parts of the Outer Thames Estuary and Thanet Coast and Sandwich Bay Ramsar and SPAs are located within the Scoping Boundary as well as parts of the Southern North Sea and the Sandwich Bay SACs. Parts of the Leiston Aldeburgh and Sandwich Bay to Hacklinge Marshes SSSI as well as Goodwin Sands Marine Conservation Zone (MCZ) are located within the Project Scoping Boundary.

1.1.5. Purpose of this Report

1.1.5.1. Scoping forms a key stage of the EIA process; providing a framework for identifying potential significant effects arising from the Project and distinguishing the environmental topics to be addressed within the ES.

[2] Marine Management Organisation (2014). East Inshore and East Offshore Marine Plans. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312496/east-plan.pdf.

[3]Marine Management Organisation (2021). South East Inshore Marine Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004493/FINAL_South_East_Marine_Plan__1_.pdf.

1.1.5.2. This Scoping Report sets out the proposed content, methodologies to be adopted and the anticipated potential significant environmental effects that are proposed to be considered in the EIA. It supports a request from National Grid for a written Scoping Opinion from PINS, on behalf of the SoS to inform the ES which will accompany the application for development consent.

1.1.5.3. This Scoping Report has been prepared in accordance with the EIA Regulations, as well as having due regard to PINS Advice Note Seven[4].

1.1.5.4. The EIA Regulations set out the requirements for an applicant who proposes to request a scoping opinion from the SoS. Regulation 10(3) of the EIA Regulations states that a request for a scoping opinion must include:

(a) a plan sufficient to identify the land;

(b) a description of the proposed development, including its location and technical capacity;

(c) an explanation of the likely significant effects of the development on the environment, and

(d) such other information or representations as the person making the request may wish to provide or make.

1.1.5.5. Table 1.1.1 identifies where the information set out in Regulation 10(3) and PINS Advice Note Seven can be found within this Scoping Report.

Table 1.1.1: Compliance with regulation 10(3) and PINS Advice Note Seven

Suggested information to be included within the Scoping Report	Location within this Scoping Report
The Proposed Development	
Referenced plans presented at an appropriate scale to cover clearly all known features associated with the proposed development	The Project Scoping Boundary is shown on **Figure 1.1.1 Project Scoping Boundary**. The boundary of the Suffolk Onshore Scheme is shown on **Figure 1.1.2 Suffolk Onshore Scheme**. The boundary of the Kent Onshore Scheme is shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**. The boundary of the Offshore Scheme is shown on **Figure 1.1.4 Offshore Scheme Scoping Boundary**.
An explanation of the approach to addressing uncertainly which remains in relation to the elements of the proposed development	**Part 1, Chapter 4, Description of the Project** **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme** **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme** **Part 4, Chapter 1, Evolution of the Offshore Scheme**
EIA Approach and Topic Areas	

[4] Planning Inspectorate (2020). Advice Note Seven. EIA: Process, Preliminary Environmental Information, and Environmental Statements. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-and-environmental-statements/.

Suggested information to be included within the Scoping Report	Location within this Scoping Report
An outline of the reasonable alternatives considered and the reasons for selecting the preferred option	**Part 1, Chapter 3, Main Alternatives Considered** **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme** **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme** **Part 4, Chapter 1, Evolution of the Offshore Scheme**
A summary table describing each of the aspects and matters that are requested to be scoped out allowing for quick identification of issues	Each of the technical chapters in Parts 2-5 include a summary table identifying those sources, impact and receptors proposed to be scoped in and out of the ES.
A detailed description of the aspects and matters proposed to be scoped out of further assessment with justification provided	This is presented within each of the technical chapters in Parts 2- 5.
Results of desktop and baseline studies where available and where relevant to the decision to scope in or out aspects or matters	Information on the baseline characteristics are included in each of the technical chapters in Parts 2-5.
Aspects and matters to be scoped in, the report should include details or the methods to be used to assess the impacts and to the determine the significance of effect e.g., the criteria for determining sensitivity and magnitude	Sources, impacts and receptors proposed to be 'scoped in' for the purpose of the ES are identified within each of the technical chapters in Parts 2-5. The proposed EIA approach and methods are described in **Part 1, Chapter 5, EIA Approach and Methodology** and each of the technical chapters in Parts 2 - 5 describe how they will apply that methodology to their assessments or where it differs due to specific topic guidance set out their proposed methodologies.
Any avoidance or mitigation measures proposed, how they may be secured and the anticipated residual effects	These are set out within each of the technical chapters in Parts 2-5. An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**
Information Sources	
Reference to any practice and best guidance to be relied upon	This is set out within each of the technical chapters in Parts 2-5.
Evidence or agreements reached with consultation bodies	Feedback from stakeholders is described as appropriate through Parts 1-5.
Transboundary Effects	
The Applicant may also wish to provide a completed transboundary screening matrix dealing with the potential effects of	**Appendix 1.1.A Transboundary Screening Matrix** presents this matrix which follows the suggested format for the transboundary screening matrix which is provided

Suggested information to be included within the Scoping Report	Location within this Scoping Report
the proposed development on other European Economic Area (EEA) States	in the PINS Advice Note Twelve 'Transboundary Impact Consultation'[5]

1.1.6. Structure of this Scoping Report

1.1.6.1. The structure of this Scoping Report is outlined below in Table 1.1.2 below. For ease of presentation, Volume 1 (main text) this Scoping Report is split into Parts.

1.1.6.2. Part 1 Introduction sets out an overview of the Project, an overview of the regulatory and planning context; the main alternatives considered; provides a description of the Project; sets out the proposed EIA approach and method; and the proposed approach to the Environmental Statement.

1.1.6.3. Parts 2-4 describe the evolution of the Onshore Schemes in Suffolk and Kent and the Offshore Scheme respectively and provides the technical chapters for each area.

1.1.6.4. Part 5 of the Scoping Report presents potential effects which are project wide.

1.1.6.5. Appendices are provided in Volume 2 and the Figures are provided in Volume 3.

Table 1.1.2 Structure of this Scoping Report

Chapter	Content
Volume 1 Part 1 - Introduction	
Chapter 1 Introduction	An introduction to the Project and the purpose and structure of this Scoping Report.
Chapter 2 Regulatory and Planning Context	Sets out an overview of the legislation and policy relevant to the Project.
Chapter 3 Main Alternatives Considered	An outline of the reasonable alternatives considered and the reasons for selecting the preferred option.
Chapter 4 Project Description	A description of the Project including permanent features and associated temporary works. It describes the general characteristics of the Project and outlines areas of uncertainty in relation to design parameters.
Chapter 5 EIA Approach and Method	A description of the overall EIA methodology that is proposed for the Project including temporal durations and approach to mitigation.
Chapter 6 Approach to the Environmental Statement	A description of how the ES is proposed to be structured.

[5] Planning Inspectorate (2020). Advice Note Twelve. Transboundary Impacts and Process. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-twelve-transboundary-impacts-and-process/.

Chapter	Content
Volume 1 Parts 2 and 3 - Suffolk Onshore Scheme and Kent Onshore Scheme	
Chapter 1 Evolution of the Onshore Schemes in Suffolk and Kent	A description of how the Project has evolved in Suffolk and Kent.
Chapter 2 Landscape and Visual Chapter 3 Ecology and Biodiversity Chapter 4 Cultural Heritage Chapter 5 Water Environment Chapter 6 Geology ad Hydrogeology Chapter 7 Agriculture and Soils Chapter 8 Traffic and Transport Chapter 9 Air Quality Chapter 10 Noise and Vibration Chapter 11 Socio-economic Recreation and Tourism Chapter 12 Health and Wellbeing	Each chapter (2-12) provides a description of: • the regulatory and planning context specific to the topic area; • a description of the study area; • a description of the relevant baseline environment; • any embedded or good practice measures taken into consideration when proposing the scope; • potential for significant effects; • proposed assessment methodology; and • a brief conclusion summarising the proposed scope of the assessment to be included within the ES.
Chapter 13 Cumulative Effects	A description of those receptors likely to be screening into the intra-project cumulative impact assessment. A description of the other projects and developments which are proposed and known at the time of writing to be considered for the assessment of the inter-project cumulative effects.
Volume 1 Part 4 Offshore Scheme	
Chapter 1 Evolution of the Offshore Scheme	A description of how the Project has evolved in marine environment
Chapter 2 Physical Environment Chapter 3 Benthic Ecology Chapter 4 Fish and Shellfish Ecology Chapter 5 Marine Mammals Chapter 6 Ornithology Chapter 7 Marine Archaeology Chapter 8 Shipping and Navigation Chapter 9 Commercial Fisheries Chapter 10 Other Sea Users	Each chapter provides a description of: • the regulatory and planning context specific to the topic area; • a description of the study area; • a description of the relevant baseline environment; • any embedded or good practice measures taken into consideration when proposing the scope; • potential for significant effects; • proposed assessment methodology; and

Chapter	Content
	• a brief conclusion summarising the proposed scope of the assessment to be included within the ES.
Chapter 11 Cumulative Effects	A description of those receptors likely to be screening into the intra-project cumulative impact assessment. A description of the other projects and developments which are proposed and known at the time of writing to be considered for the assessment of the inter-project cumulative effects.
Volume 2 Part 5 Project Wide Effects	
Chapter 1 Climate Change Chapter 2 Major Accidents and Disasters	Each chapter provides a description of: • the regulatory and planning context specific to the topic area; • a description of the study area; • a description of the relevant baseline environment; • any embedded or good practice measures taken into consideration when proposing the scope; • potential for significant effects; • proposed assessment methodology; and • A brief conclusion summarising the proposed scope of the assessment to be included within the ES.
Chapter 4 Combined Effects of the Project	This chapter sets out how the combined effects assessment will consider the potentially significant effect on shared receptors.
Volume 2 Appendices	Provides the appendices which support Volume 1
Volume 3 Figures	Provides the Figures which support Volume 1

1.1.7. Other Assessments

1.1.7.1. In addition to the EIA, the preparation of the application for the Project requires other standalone assessments to be carried out to meet the requirements of other policy and legislation, such as The Conservation of Habitat and Species Regulations 2017. Whilst the outcomes of these assessments may be drawn upon when carrying out the EIA (and vice versa), the scope of these other assessments will be discussed and agreed with appropriate regulatory authorities in line with their own regulatory requirements and relevant policy and legislation, rather than within this Scoping Report.

1.1.7.2. Where appropriate, however, the individual topic chapters in this Scoping Report outline where the findings of one of the additional assessments are to be drawn upon when carrying out the EIA, and any proposed scope of the relevant additional assessment is set out to facilitate consultation with relevant consultees in relation to this Scoping Report.

1.1.8. Net Gain Commitments

1.1.8.1. National Grid has committed to 10% Net Gain in Environmental value including as a minimum 10% Biodiversity Net Gain (BNG) across all its construction projects.

1.1.8.2. This commitment is underpinned by the delivery of quantifiable enhancements for biodiversity measured from a baseline using the DEFRA Biodiversity Calculator[6] with actions formalised and secured by long term management arrangements with external organisations and partners.

1.1.8.3. Wider environmental benefits such as carbon capture and storage, air quality and recreation and associated financial values are also considered and quantified using valuation tools and emerging methodologies.

1.1.8.4. These commitments ensure that National Grid can deliver long term environmental improvements as part of our works. The commitments will align and make a positive contribution to regional and national strategies and facilitate collaboration and partnerships with our communities and stakeholders.

1.1.9. Competence

1.1.9.1. Regulation 14(4) of the EIA Regulations requires that an ES is prepared by 'competent experts' and that the ES is accompanied by a statement outlining the relevant expertise or qualifications of such experts.

1.1.9.2. This Scoping Report has been prepared and coordinated by environmental consultants who are competent members, the members of the Institute of Environmental Management and Assessment (IEMA) EIA Quality Mark Scheme[7]. The Scheme allows organisations that lead the coordination of EIAs in the UK to make a commitment to excellence in their EIA activities and have this commitment independently reviewed.

1.1.9.3. A Statement of Competence (SoC) will be included within the ES, outlining the relevant expertise or qualifications of the experts who have prepared the ES for the Project.

[6] Department for Food, Environment and Rural Affairs (2021). Biodiversity metric: calculate the biodiversity net gain of a project or development. [online] Available at: https://www.gov.uk/guidance/biodiversity-metric-calculate-the-biodiversity-net-gain-of-a-project-or-development.

[7] Institute of Environmental Management and Assessment (No Date). EIA Quality Mark Scheme. [online] Available at: https://www.iema.net/corporate-programmes/eia-quality-mark.

1.2 Regulatory and Planning Context

1.2.1. Introduction

1.2.1.1. This chapter sets out an overview of the regulatory and planning policy framework that applies to the Project, which has been taken into account across all topic chapters in the preparation of this EIA Scoping Report. Additional legislation and policy is applicable to some topics. Any such topic specific legislation is set out in the relevant topic chapters.

1.2.2. Key Legislation

The Planning Act 2008

1.2.2.1. The Planning Act 2008 ('PA 2008') provides the legislative basis for applications for a Development Consent Order (DCO). It also defines the application process under which a DCO is sought. The PA 2008 sets out that projects meeting certain defined criteria, are classified as Nationally Significant Infrastructure Projects (NSIPs). It requires that developers wishing to construct, operate and maintain NSIPs must obtain a DCO from the relevant Secretary of State (SoS) to authorise their project.

1.2.2.2. Section 14 of the PA 2008 defines types of projects which are classified as NSIPs, subject to the criteria and thresholds set out in Sections 15 to 30A for different types of infrastructure. Section 16 of the PA 2008 sets this out for projects comprising 'Electricity lines'.

1.2.2.3. The Project is does not meet any of the definitions of an NSIP that are set out in Sections 14 and 16 of the PA 2008. Only electricity lines that are above ground, 132kV or greater and 2km or more in length are defined as NSIPs in their own right under Section 16 of the PA 2008. The Project, as described in **Part 1, Chapter 4, Description of the Project** will not include any above ground electricity line of 132kV or more that is 2km or more in length. The Project is therefore not an NSIP under the definitions set out in the PA 2008. However, under Section 35(1) of the PA 2008, "the Secretary of State may give a direction for development to be treated as development for which development consent is required" if certain criteria (including the type and location of the development) are met.

1.2.2.4. On 4 March 2022, the Applicant submitted a request for a direction pursuant to Section 35 of the PA 2008 to the Secretary of State (hereafter the 'SoS') for Business, Energy and Industrial Strategy (BEIS) requesting for the Project to be treated as development for which development consent is required. On 31 March 2022, the SoS issued a Direction that confirmed that the Project should be treated as a development for which a DCO under the PA 2008 is required. In the Annex to the Direction, the SoS confirmed his opinion that:

"*The proposed Project is of national significance, taking into account that it is a large-scale linear electricity transmission reinforcement project of approximately 130km in length and that it has a two Gigawatt capacity to transmit electricity*."

1.2.2.5. This Scoping Report takes account of the national significance of the project and that the SoS has directed that it is to be treated as development for which development consent is required.

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

1.2.2.6. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) govern the EIA process relevant to NSIPs. Schedule 1 of the EIA Regulations lists those projects for which an EIA is required and Schedule 2 lists projects which may be considered an EIA development, based on the selection criteria provided in Schedule 3 on characteristics of the development, its location and the types and characteristics of the potential impacts.

1.2.2.7. None of the components which make up the Project are explicitly identified under Schedule 1 or Schedule 2 of the EIA Regulations. However, National Grid proposes to undertake an EIA, having considered the criteria in Schedule 3 regarding the characteristics of the development (size of the development and cumulation with other existing and/or approved development) and its location (environmental sensitivity of geographical areas likely to be affected by the development). As such National Grid will be submitting an Environmental Statement (hereafter 'ES') with the DCO application, which will render the Project as EIA development under Regulation 6 of the EIA Regulations.

1.2.2.8. Part 5 of the EIA Regulations sets out the EIA process. Regulation 5(2) states that the EIA:

"*must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development*".

1.2.2.9. It states that the EIA must undertake the above in relation to the following factors: population and human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage, and landscape.

1.2.2.10. In addition, Regulation 5(4) requires the EIA to include, where relevant:

"the expected significant effects arising from the vulnerability of the Project to major accidents or disasters that are relevant to that development".

1.2.2.11. Schedule 4 of the EIA Regulations sets out the information for inclusion in the ES.

1.2.2.12. Paragraph 32(1) pf the EIA Regulations requires applicants to consider transboundary effects, meaning, those effects that could affect receptors in other countries. A screening exercise has been undertaken as part of the scoping process and is documented in **Appendix 1.1.A Transboundary Screening Matrix**. No transboundary effects in relation to the Project are expected to have an impact on the other countries, as there are no pathways for effects to occur outside the UK.

Marine and Coastal Access Act 2009

1.2.2.13. A spatial planning system for the management of the marine environment was introduced by the Marine and Coastal Access Act 2009 (MCCA 2009). This introduced a requirement to obtain Marine Licences for works at sea.

1.2.2.14. The MMO is responsible, under Part 4 of the MCAA, for administering marine licensing of activities related to construction or removal of any substance or object in UK territorial waters and also for regulating activities where they are undertaken outside of the UK territorial waters e.g. within the UK Exclusive Economic Zone (EEZ). They do so by issuing a Marine Licence.

1.2.2.15. The PA 2008 enables an applicants for a DCO to apply for 'Deemed Marine Licence' as part of the DCO process by virtue of Section 149A of the PA 2008 which was inserted by the MCAA 2009.

1.2.2.16. In addition, Section 126 of the MCAA 2009 sets out that where a public authority has the function of determining an application that is capable of affecting (other than insignificantly) the protected features of a Marine Conservation Zone (MCZ), or the processes on which those features depend, then they have a duty to consider MCZs during their decision making.

Electricity Act 1989

1.2.2.17. Section 9(2) of the Electricity Act 1989 places general duties on National Grid a licence holder:

"*to develop and maintain an efficient, co-ordinated and economical system of electricity transmission…*".

In addition, Section 38 and Schedule 9 of the Electricity Act 1989 requires National Grid when formulating proposals for new lines and other works, to:

"*have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and shall do what it reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects*.

1.2.2.18. National Grid's Stakeholder, Community and Amenity Policy[8], published December 2016, sets out how the company will meet the Schedule 9 duty placed upon it by the aforementioned legislation.

1.2.3. Related Assessments

1.2.3.1. In addition to the EIA, the Project will be assessed in accordance with the other regulatory regimes, where they apply. Information on these is included in the environmental topic chapters of this scoping report where applicable. These include the Conservation of Habitats and Species Regulations 2017, as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (hereafter 'the Habitats Regulations') and the Conservation of Offshore Marine Habitats and Species Regulations 2017.

[8] National Grid (2016). National Grid's commitments when undertaking works in the UK: Our stakeholder, community and amenity policy. [online] Available at: https://www.nationalgrid.com/sites/default/files/documents/National%20Grid_s%20commitments%20when%20undertaking%20works%20in%20the%20UK.pdf.

Habitats Regulations

1.2.3.2. The Secretary of State is required by the Habitats Regulations to consider whether a plan or project has the potential to have an adverse effect on the integrity and features of a site which is part of the National Site Network or a European Site. 'European Sites' include Special Protection Areas (SPA) and Special Areas of Conservation (SAC). The Habitats Regulations require an Appropriate Assessment if a project is likely to have a significant effect on a National Site Network site or a European Site.

1.2.4. National Planning Policy

1.2.4.1. This section sets out the current national planning policy documents that are expected to be important and relevant to the SoS' consideration of the DCO application for the Project, and contain information that may be relevant to scoping the EIA. These documents have been taken into account in preparing this Scoping Report.

National Policy Statements for Energy

1.2.4.2. The following NPSs are expected to be important and relevant to the SoS' determination of the DCO application for the Project.

- Overarching National Policy Statement for Energy (EN-1) (NPS EN-1); and,
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (NPS EN-5).

1.2.4.3. NPS EN-1 and NPS EN-5 are discussed below.

Overarching National Policy Statement for Energy (EN-1)

1.2.4.4. NPS EN-1 sets out the Government's overarching policy with regard to the development of NSIPs in the energy sector. It emphasises the need and urgency for new energy generation, transmission and distribution projects to contribute to a secure, diverse and affordable energy supply. This is to support the Government's policies on sustainable development, in particular by mitigating and adapting to climate change.

1.2.4.5. Section 3.7 in NPS EN-1 states that current scenarios show significant potential increases in generation and changes in direction of net electricity flows from Eastern England to centres of demand in the Midlands and South East England and that these kinds of flows of power cannot be accommodated by the existing network and new lines will have to be built. It also acknowledges in Paragraph 3.7.10 that:

"*in most cases, there will be more than one technological approach by which it is possible to make such a connection or reinforce the network (for example, by overhead line or underground cable) and the costs and benefits of these alternatives should be properly considered as set out in EN-5 before any overhead line proposal is consented*".

1.2.4.6. Part 5 of NPS EN-1 sets out generic impacts in respect of matters such as air quality and emissions, biodiversity, dust and odour, flood risk, historic environment, landscape, land use, noise and vibration, socio-economic, traffic and transport and

waste management. These generic impacts have been considered in the preparation of the Scoping Report.

National Policy Statement for Electricity Networks Infrastructure (EN-5)

1.2.4.7. NPS EN-5 relates to electricity networks and Part 2 includes specific policies relating to matters including consideration of good design, biodiversity and geological conservation, landscape and visual and noise and vibration. These policies have also been considered in the preparation of this Scoping Report.

1.2.4.8. Paragraph 2.2.6 of EN-5 reiterates the duties under Section 9 of the Electricity Act 1989, both in relation to developing and maintaining an economical and efficient network and, in formulating proposals for new electricity network infrastructure, to *"have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and … do what [they] reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects".*

Draft Energy National Policy Statements

1.2.4.9. The Government is currently reviewing and updating the Energy NPSs. It is doing this to reflect its policies and strategic approach for the energy system that is set out in the Energy White Paper (December 2020), and to ensure that the planning policy framework enables the delivery of the infrastructure required for the country's transition to net zero carbon emissions. As part of the Energy NPS review process, the Government published a suite of Draft Energy NPSs for consultation on 6 September 2021.

1.2.4.10. The following Draft Energy NPSs have also been considered in the scoping of this EIA:

- Draft Overarching National Policy Statement for Energy (EN-1) (Draft NPS EN-1)
- Draft National Policy Statement for Electricity Networks Infrastructure (EN-5) (Draft NPS EN-5).

1.2.4.11. Draft NPS EN-1 sets out general principles and impacts to be considered for all types of energy NSIP covered by the draft Energy NPSs. Once designated it will form the primary basis for determining if development consent should be granted and is underpinned by the principle that there will be a need for significant amounts of new large-scale energy infrastructure to meet the Government's energy objectives. It states at paragraphs 2.1.1 and 2.3.5 that the energy system needs to be transformed by "…*tackling emissions while continuing to ensure secure and reliable supply, and affordable bills for households and businesses*".

1.2.4.12. Paragraph 3.2.9 of Draft EN-1 states that in circumstances where the SoS has given a Section 35 direction: "…any application for development consent would need to be considered in accordance with [Draft EN-1]". The second bullet point sets out that this includes: "…where the application is for electricity network infrastructure not covered by sections 15-21 of the Planning Act, including underground or offshore infrastructure…".

1.2.4.13. Like its predecessor, Draft NPS EN-5 covers electricity networks and focuses on policies and considerations that are specific to this type of energy infrastructure.

National Planning Policy Framework

1.2.4.14. The revised National Planning Policy Framework (NPPF) was most recently revised in July 2021. Paragraph 5 of the NPPF sets out that it does not contain specific policies for NSIPs and states that "*These are determined in accordance with the decision-making framework in the Planning Act 2008 (as amended) and relevant national policy statements for major infrastructure, as well as any other matters that are relevant (which may include the National Planning Policy Framework*)".

1.2.4.15. Since the NPPF has the potential to be considered important and relevant to the SoS' consideration of the Project, each topic chapter has considered whether there is guidance in the NPPF that differs from NPS and draft NPS policies. At this stage it is not possible to determine if such guidance will be considered relevant to, or be given weight by, the SoS, and it is therefore included for completeness to allow the SoS to make such determination.

1.2.5. Local Planning Policies

1.2.5.1. Regional and local planning policies have also been considered in the development of the Scoping Report. The main local planning policy that could be relevant to the Project comprises of the following:

- East Suffolk Council – Suffolk Coastal Local Plan (adopted 23 September 2020)[9]
- Thanet District Council – Thanet Local Plan (adopted 9 July 2020)[10]
- Dover District Council – Core Strategy (adopted 24 February 2010)[11]
- Dover District Council – Land Allocations Local Plan (adopted 28 January 2015)[12]
- Dover District Council – Saved Policies of the Dover District Local Plan 2002 (adopted 2002)[13]
- Suffolk County Council – Suffolk Minerals and Waste Local Plan (adopted 9 July 2020)[14]

[9] East Suffolk Council (2020). Suffolk Coastal Local Plan. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Planning-Policy-and-Local-Plans/Suffolk-Coastal-Local-Plan/Adopted-Suffolk-Coastal-Local-Plan/East-Suffolk-Council-Suffolk-Coastal-Local-Plan.pdf.

[10] Thanet District Council (2020). Thanet Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf.

[11] Dover District Council (2010). Local Development Framework: Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf.

[12] Dover District Council (2015). Land Allocations Local Plan. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Land-Allocations-Local-Plan.pdf.

[13] Dover District Council (2002). Saved Policies of the Dover District Local Plan 2002. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/Adopted-Development-Plans/Saved-Policies.aspx.

[14] Suffolk County Council (2020). Suffolk Minerals and Waste Local Plan. [online] Available at: https://www.suffolk.gov.uk/planning-waste-and-environment/minerals-and-waste-policy/suffolk-minerals-and-waste-development-scheme/.

- Kent County Council - Kent Minerals and Waste Local Plan 2013-2030 (adopted September 2020)[15]
- Kent County Council – Mineral Sites Plan (adopted September 2020)[16]

1.2.5.2. A summary of national and local planning policy relevant to each technical assessment is provided for each environmental topic chapter.

1.2.6. Marine Policy Statement

1.2.6.1. The Marine Policy Statement was adopted 2011. This provides the policy framework for the preparation of marine plans and establishes how decisions affecting the marine area should be made. The Marine Policy Statement has been considered in the development of this Scoping Report in particular within the chapters relating to Part 4, the Offshore Scheme.

1.2.7. Marine Plans

1.2.7.1. The following Marine Plans have been considered in the development of this scoping report:

- East Inshore and East Offshore Marine Plan, April 2014[17]
- South East Inshore Marine Plan, June 2021[18]

1.2.7.2. A summary of marine policy that is relevant to each technical assessment is provided for each environmental topic chapter.

[15] Kent County Council (2020). Kent Minerals and Waste Local Plan 2013-2030. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0004/112585/Kent-Minerals-and-Waste-Local-Plan-2013-2030.pdf.

[16] Kent County Council (2020). Mineral Sites Plan. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0003/112584/Kent-Mineral-Sites-Plan.pdf.

[17] Marine Management Organisation (2014). East Inshore and East Offshore Marine Plans. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312496/east-plan.pdf.

[18] Marine Management Organisation (2021). South East Inshore Marine Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004493/FINAL_South_East_Marine_Plan__1_.pdf.

1.3 Main Alternatives Considered

1.3.1. Introduction

1.3.1.1. The current stage of Project design is the result of an iterative process that commenced at Project inception when the initial need to reinforce the network in the South East of England was identified in 2019. Environmental, engineering and economic considerations have influenced the optioneering and design evolution process. There have also been extensive discussions with the relevant stakeholders during the Project development early stages. The iterative design process will continue up to the application for development consent in parallel with, and informed by, the EIA process.

1.3.1.2. **Part 1 Chapter 2, Regulatory and Planning Context** sets out the overarching policy relevant to the Project, comprising NPS EN-1 and NPS EN-5, which have been considered during the options appraisal process for the Project. With reference to the consideration of alternatives, paragraph 4.4.2 of EN-1 states that:

"*Applicants are obliged to include in their ES, as a matter of fact, information about the main alternatives they have studied. This should include an indication of the main reasons for the applicant's choice, taking into account the environmental, social and economic effects including, where relevant, technical and commercial feasibility*."

1.3.1.3. Whilst there is no statutory requirement to include an assessment of alternatives in support of a request for a Scoping Opinion, the PINS Advice Note Seven recommends that a Scoping Report includes:

"*An outline of the reasonable alternatives considered and the reasons for selecting the preferred option*".

1.3.2. National Grid Approach to Options Appraisal

1.3.2.1. National Grid undertakes options appraisal on each new project. There are often a number of different ways that a project could be developed which could involve different locations, technologies or designs. Each project requires judgements and decisions to be made about the best way forward to achieve the required outcome. The options appraisal process provides information to help inform those judgements.

1.3.2.2. Options appraisal is a robust and transparent process that is used to compare options and to assess the positive and negative effects, those options may have across a wide range of criteria including environmental, socio-economic, technical and cost factors, as set out in National Grid's approach to options appraisal[19]. The aim is to find a balanced outcome, bearing in mind the range of National Grid's statutory duties. The assessment is documented to provide, in a transparent manner, information upon which decisions are based.

[19] National Grid (2012). Our Approach to Options Appraisal. [online] Available at: https://www.nationalgrid.com/electricity-transmission/document/96531/download.

1.3.2.3. At each stage of the options appraisal process, a clearly defined methodology has been used to inform the decision-making process. This has included technical inputs from engineers and environmental consultants to inform the decisions and design. The assessment has drawn on data and evidence collected from both, desktop studies and site visits. Decision making has also taken into account the feedback from prescribed bodies, as defined in the PA2008, and will continue to take account the feedback from the prescribed bodies alongside feedback from the local community through an extensive programme of engagement and consultation. In addition, the Project has been subject to periodic internal challenge and review process to ensure the robustness of the decision made in the light of a changing environmental baseline related to technical, physical and economic matters.

1.3.2.4. Image 1.3.1 shows where the options appraisal sits within National Grid's approach to project development and delivery, as set out in the National Grid publication 'Our Approach to Consenting'[20].

Image 1.3.1: National Grid's approach to project development and delivery



1.3.2.5. Project decisions have taken into account National Grid's statutory obligations set out in Sections 9 and 38 of the Electricity Act 1989, its licence requirements and all other relevant considerations including the relevant NPSs. The options appraisal has also considered other policy and guidance when making judgements and decisions on the Project including the Horlock Rules[21].

1.3.3. Overview

1.3.3.1. Alternatives have been considered at each stage of the Project's development, from strategic options through to routeing and siting. They will continue to be considered in the development of the proposed order limits for which an application for development consent will be made to the SoS.

1.3.3.2. The following sections provide a summary of the alternatives that have been considered at each stage.

[20] National Grid (2022). Our Approach to Consenting: National Grid, 2012, Out approach to options appraisal. [online] Available at: https://www.nationalgrid.com/electricity-transmission/document/96531/download.

[21] National Grid (2003). NGC Substations and the Environment: Guidelines on Siting and Design (updated 2006). [online] Available at: https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf.

Strategic Options

1.3.3.3. A range of strategic options that might address the network reinforcement needs were identified and appraised at a strategic level. These appraisals considered the likely environmental and socio-economic effects, technical issues, and costs that would be associated with each strategic option. The network performance of each strategic option was also modelled to determine the benefits. The appraisal and modelling results informed judgements regarding the relative merits of the options and ensured that the final Strategic Proposal would meet National Grid's statutory duties under the Electricity Act, including the requirement to bring forward proposals that are 'economic, efficient and coordinated' and that would comply with the relevant planning policies for which the consents would be granted.

Background to the Project

1.3.3.4. The strategic options considered for the Project were developed and appraised alongside the needs case to rationalise network reinforcement where possible whilst ensuring compliance with National Grid's statutory duties.

1.3.3.5. The need to reinforce the transmission system is reviewed on an annual basis in response to predicted changes, such as new renewable and low-carbon energy generation forecasted to connect to the network. This review, which sets out the parts of the network that require reinforcing, is within the Electricity Ten Year Statement[22]. Proposals that provide those reinforcements are then assessed through the Network Options Assessment (NOA)[23] which is published annually.

1.3.3.6. The need to reinforce the network in the South East of England is driven by interconnection with mainland Europe as well as new renewable generation connecting to the network. This reinforcement was assessed in the 2018/2019 NOA and National Grid explored several strategic options that could deliver the required reinforcement. One of the strategic options that was considered was a nominal subsea HVDC link between the South East of England and East Anglia. This was included in order to appraise the performance of this strategic option, which crossed multiple system boundaries against others which just addressed the need in the South East of England. The appraisal identified that this strategic option provided the reinforcement required to the network in the South East of England as well as providing reinforcement to the network in East Anglia. The network in East Anglia was also identified in the 2018/2019 NOA as likely to need reinforcing in the future due to the volume of possible upcoming generation connecting within this region.

1.3.3.7. Strategic options were then developed that explored alternative subsea HVDC links between the South East of England and East Anglia that could provide the reinforcement required. This work identified that a connection between East Anglia and Richborough in Kent provided this reinforcement, this was then reflected in the 2019/2020 NOA.

1.3.3.8. Additional network studies in East Anglia were then undertaken to confirm which connection point provided the best value to customers whilst minimising potential environmental and socio-economic impacts. These studies identified that the HVDC

[22] National Grid ESO (2021). Electricity Ten Year Statement (ETYS). [online] Available at: https://www.nationalgrideso.com/research-publications/etys.

[23] National Grid (2022). Network Options Assessment 2021/22 Refresh. [online] Available at: https://www.nationalgrideso.com/document/262981/download.

Link needed to connect into the Sizewell area in order to maximise the system benefit.

1.3.3.9. The 2020/2021 NOA[24] also identified the reinforcements that were required to the network in East Anglia and National Grid undertook a similar exercise to investigate solutions that could provide this wider reinforcement. The Sizewell to Richborough HVDC Link (by this point named the 'Sea Link Project') was included as part of this exercise to confirm it remained the preferred solution under all scenarios.

Strategic options considered for the Project

1.3.3.10. Following the identification of the need for the HVDC reinforcement to connect into the Sizewell area in East Anglia and into the South East of England three alternative strategic options were appraised these were:

- HVDC Link between the Sizewell area and Richborough substation;
- HVDC Link between the Sizewell area and Canterbury substation; and
- HVDC Link between the Sizewell area and Sellindge substation.

1.3.3.11. The appraisal concluded a preference for a Richborough connection in Kent. This option was identified as having a significantly shorter onshore route than either Canterbury or Sellindge, resulting in lower terrestrial environment and socio-economic effects from the Project. In addition, the Richborough area was considered to provide more opportunities to sensitively site a new converter station.

1.3.3.12. A connection into Sellindge would require an overall longer route length than the other two options, without offering any additional benefits (e.g., network, cost, or programme). Whilst Canterbury was comparable to Richborough in terms of an overall length, there are several significant challenges, both within the vicinity of Canterbury substation and with the associated routeing to/from Canterbury and marine cable routeing to the north Kent, which made it less preferable due to the likely significance of environmental effects both onshore and offshore.

1.3.3.13. The strategic option appraisal therefore identified a preferred strategic option of an HVDC Link between the Sizewell area in East Anglia and existing Richborough substation in Kent.

1.3.4. Routeing and Siting

1.3.4.1. Having identified the preferred Strategic Option, National Grid undertook a Corridor and Preliminary Routeing and Siting Study (CPRSS). This process is described below.

Approach to Routeing and Siting

1.3.4.2. A staged approach was adopted to identify corridors and preliminary routeing and siting options for the Project. This approach considered the potential effects on the environment, local communities, relevant spatial planning policy and planning applications, other existing and proposed developments, and technical and engineering design considerations.

[24] National Grid ESO (2022). Network Options Assessment 2021/22 Refresh. [online] Available at: https://www.nationalgrideso.com/document/262981/download.

1.3.4.3. The aim of the approach was to identify 'on-balance' preferences for landfalls, converter station sites and potential route corridors within which preliminary alignments could be developed.

1.3.4.4. Each of the options identified for the converter site option areas and cable route corridors were appraised in accordance with National Grid's approach to options appraisal[25]. This guidance has been developed by National Grid to provide a thorough and consistent approach to the appraisal of network reinforcement options. It represents the best practice approach to inform the decision-making process. The aim of the guidance is to ensure that decisions regarding the technology options and/or location of infrastructure are based on a full understanding of the implications of each option using a wide range of criteria.

1.3.4.5. In addition to above and in the absence of guidance for specific siting of converter stations, the Horlock Rules[26] have been applied. These were developed for the siting of substations, were used when identifying and appraising converter site option areas.

1.3.4.6. The overarching principle of National Grid's approach is to follow a staged process for routeing and siting to identify preferred options. The steps undertaken for the Project in this staged approach are summarised below.

1.3.4.7. **Step 1 Identification of the Routeing and Siting Study Area:** This step sought to identify the extent of the study area within which route corridors and converter station site option areas could be developed. This was based on the study area used at the strategic option stage but widened out in places to ensure route corridors could be developed that avoided environmental and socio-economic constraints as far as possible. The routeing and siting study area is illustrated on **Figure 1.3.1 Routeing and Siting Study Area**.

1.3.4.8. **Step 2 Data Gathering:** This step sought to build on the constraints data already obtained through the strategic options process to ensure relevant baseline information from available sources was taken into consideration in the options appraisal process.

1.3.4.9. **Step 3 Identification of Landfall Areas of Search:** This step involved the identification of areas of potential landfall within the study area as this is the interface between the onshore and offshore elements of the Project and therefore form the start and end points from which corridor options could be identified. The landfall areas of search are illustrated on **Figure 1.3.2 Suffolk Landfall Areas of Search** and **Figure 1.3.3 Kent Landfall Areas of Search** and were identified based on the following criteria:

- Access to the proposed onshore grid connection point;
- Suitability of ground conditions (e.g. areas of low elevation, avoidance of estuarine habitats);
- Potential for site access;
- Avoidance of existing infrastructure; and

[25] National Grid (2012). Our Approach to Options Appraisal. [online] Available at: https://www.nationalgrid.com/electricity-transmission/document/96531/download.

[26] National Grid (2003). NGC Substations and the Environment: Guidelines on Siting and Design (updated 2006). [online] Available at: https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf.

- High level consideration of potential key environmental and socio-economic constraints such as populated areas and ecological designations. Landfall areas of search were not necessarily ruled out on the basis of these potential constraints and were taken forward in order to be subjected to an initial routeing and siting environmental and socio-economic options appraisal.

1.3.4.10. **Step 4 Identification of Route Corridors and Site Option Areas:** This step involved the identification of marine route corridors and alignments between the landfall areas of search in parallel with the identification of terrestrial route corridors and converter station site option areas including the connection to the network.

1.3.4.11. **Step 5 Appraisal of Route Corridors and Site Option Areas:** This step involved an appraisal of the marine route corridors and alignments, terrestrial corridors, converter station siting areas and network connection options.

1.3.4.12. **Step 6 Identification of the Preferred end-to-end solution:** This step used the outcomes of the environmental and socio-economic and technical appraisal of the individual elements as well, as a consideration of cost, to identify an on-balance preferred end-to end solution for the Project.

Steps 3 – 4 Identification of Landfalls, Corridors and Site Option Areas

1.3.4.13. The sections below provide a summary of the options that were considered within steps 3-4 above.

Landfall areas of search

1.3.4.14. On the East Anglian coast in Suffolk five broad landfall areas of search were identified, these are illustrated on **Figure 1.3.2 Suffolk Landfalls Areas of Search** which were: an area to the south of Aldeburgh, north of the Alde and Ore River (S1); an area between Aldeburgh and Thorpeness (S2); an area between Thorpeness and Sizewell (S3); an area at Sizewell (S4); and an area to the north of Sizewell, south of Minsmere (S5).

1.3.4.15. On the Kent coast six landfall areas of search were identified, which were split geographically across the north Kent coast, Broadstairs and Pegwell Bay, these are illustrated on **Figure 1.3.3 Kent Landfall Areas of Search**. Four areas of search were identified along the north Kent coast between the settlements of Herne Bay and Birchington (K2-K5). One area was identified at Broadstairs at North Foreland between the settlements of Margate and Broadstairs (K1a). Within Pegwell Bay one area of search was identified that stretched across the area from the settlement of Ramsgate to the settlement of Deal (K1).

Converter station site option areas

1.3.4.16. The main search parameter for the converter station site option areas was that they should be within approximately 5km of the network connection point, as a distance greater than this would trigger the need for reactive compensation equipment on the network resulting in additional land take and cost. This search parameter was however used as a guide, so as not to discount potentially suitable sites at a slightly greater distance where the benefits might outweigh the additional land take and cost.

1.3.4.17. Within Suffolk, the needs case identified that the network connection point needed to be in the Sizewell area, so all three strategic options were based on this. Three potential points of connection were identified and appraised as part of the routeing and siting appraisal. These connection points are illustrated on **Figure 1.3.4 Suffolk Network Connection Points** and were the existing Sizewell B substation or the new Sizewell C substation (part of the proposed Sizewell C Nuclear Power Station Project); the proposed Friston substation (forms part of the proposed Scottish Power Renewables (SPR) East Anglia One North and East Anglia Two Offshore Wind Farm Projects); or a new connection point directly onto the existing 400kV overhead lines close to Sizewell.

1.3.4.18. Nine converter station site option areas were identified, these are illustrated on **Figure 1.3.5 Suffolk Converter Site Option Areas.** A number of which were in the search parameters for more than one connection point. Four site option areas within the 5km search parameter for a connection to the Sizewell substations (option areas A, B, C and D), seven within the 5km search parameter for the proposed Friston substation (option areas (B, C, D, E, G and H) and six within the 5km search parameter for a new connection onto the existing 400kV overhead lines (option areas B, D, E, F, H and I).

1.3.4.19. In Kent, the preferred strategic option included Richborough substation as the connection point and this was therefore used as the 5km radius search parameter. Two converter site option areas were identified, one adjacent to Richborough substation and wider Richborough Energy Park and a second between the settlements of Minster and Birchington adjacent to some larger scale agricultural uses. These are illustrated on **Figure 1.3.6 Kent Converter Site Option Areas**.

1.3.4.20. There were few brownfield sites that could accommodate the technical parameters required for the converter station. Therefore, the identification of converter station site option areas was based on avoidance of designated sites as far as possible, landform, opportunities for natural screening and opportunities to limit visual impacts on nearby settlements.

Terrestrial route corridors

1.3.4.21. Once the landfall areas of search and converter station site option areas had been identified, terrestrial route corridors between the two were developed. Corridors were developed that could connect each of the landfall areas of search to each of the converter station site option areas.

1.3.4.22. Within Suffolk this process resulted in 15 corridors being identified, some of which could be used for multiple landfall/site permutations:

- five corridors from each of the five landfall areas of search to the four converter station site option areas that could connect into the existing and proposed Sizewell substations (see **Figure 1.3.7 Suffolk Terrestrial Route Corridors – Sizewell Connection**);
- five corridors from each of the five landfall areas of search to the seven converter site option areas that could connect into the proposed Friston substation (see **Figure 1.3.8 Suffolk Terrestrial Route Corridors – Proposed Friston Connection**); and

- five corridors from each of the five landfall areas of search to the six converter station site options that could connect into the existing 400kV overhead lines (see **Figure 1.3.9 Suffolk Terrestrial Route Corridors – New Connection**).

1.3.4.23. Within Kent seven corridors were identified; three corridors connecting three of the four landfall areas of search along the north Kent coast to the two converter site option areas, one corridor from the landfall area of search at Broadstairs to the two converter station site option areas; and three corridors from the wide landfall area of search within Pegwell Bay to the two converter station site option areas. These are illustrated on **Figure 1.3.10 Kent Terrestrial Route Corridors**.

1.3.4.24. The terrestrial corridors were not developed to a specified width but were limited by larger constraints such as:

- Avoidance of designations where possible;
- avoidance of settlements; and
- consideration of traffic and access opportunities.

1.3.4.25. This was to allow for maximum flexibility also factoring in the potential technical constraints and avoiding prematurely discounting potentially favourable/feasible alignment options.

Marine route alignments

1.3.4.26. The very large geographical marine study area and large-scale nature of many of the constraint features meant that in order to undertake a meaningful routeing appraisal, it was necessary to identify indicative marine alignments within the broader corridors to appraise the feasibility of cable burial. Therefore, alignments are illustrated on **Figure 1.3.11 Marine Alignments**.

1.3.4.27. The marine alignments were split down into sections within three broad areas. These comprised sections that connected to each of the five Suffolk landfalls, sections that connected to each of the six Kent landfalls, and central sections. Due to the number of end-to-end marine alignments associated with multiple landfall connection points and central sections, the marine alignment sections were taken through the appraisal stage but whole marine end to end solutions were considered as part of the identification of the preferred end-to end solution.

1.3.4.28. The principal driver in defining the marine corridors and alignments between the landfall areas of search was to identify areas that would ensure the long-term integrity and security of the cable whilst also avoiding key constraints. The following design criteria were taken into consideration when developing the marine corridors and marine alignments:

- Shortest route possible to minimise the cable length, which in turn reduces the manufacturing and installation cost as well as the environmental and security footprint;
- Avoidance of environmentally sensitive areas where possible;
- Avoidance of areas that have restricted movement i.e., anchorages;
- Avoidance of known wrecks and areas of archaeological importance;
- Avoidance of offshore installations (renewable, oil/gas, wells/platforms, etc.);

- Limiting the need to cross in-service cables and pipelines and, where crossings would be necessary, corridors and alignments were routed to ensure the crossing angle would be optimal and water depth would be sufficient for navigational safety;
- Routed to consider shipping density, i.e., anchorage areas, high density shipping lanes;
- Avoidance of hazardous seabed terrain (e.g., bedrock outcrop and mobile sediments) where possible, ensuring the cable would be protected by achieving an acceptable depth of burial; and
- Limiting the impact on third-party considerations including seasonal fishing activities, local tourist trade, and military practice zones.

Step 5 Appraisal of Landfalls, Route Corridors and Site Option Areas

1.3.4.29. Each of the elements described above was assessed individually. A separate assessment was not undertaken for each of the landfall areas of search as the performance of each landfall is influenced by both the marine and terrestrial corridor approach. The landfalls were therefore assessed as part of the assessment of both the terrestrial route corridors and the marine route alignments.

1.3.4.30. The sections below provide an overarching summary of the appraisal of the individual elements.

Converter station site option areas

1.3.4.31. Within Suffolk the appraisal of the three connection points was undertaken alongside that of the converter site option areas.

1.3.4.32. Of the possible connection points in the Sizewell area, only the Sizewell B substation is currently in existence; all the other proposed connection points would require the installation of a new substation, either proposed through another project in the area or installed as part of this Project. Connecting to the existing Sizewell B substation would require taking over two of the super grid transformer (SGT) circuits feeding the existing Leiston 132kV substation, by connecting into the 400kV circuits feeding the SGTs. This would require the installation of two new 400/132kV SGTs in the converter station site with new 400kV cables connecting into the existing Sizewell B substation and new 132kV cables connecting the SGTs in the converter station with the Leiston 132kV substation. The 400kV cable route to the existing Sizewell B substation would require either using the corridor allocated to the existing 132kV connection or routeing through Sizewell Marshes SSSI.

1.3.4.33. A connection into the proposed Sizewell C substation would also require using the corridor allocated to the existing 132kV connection or require routeing through Sizewell Marshes SSSI. A connection into either, the existing or the proposed Sizewell substation would also need to take into account the works to construct the proposed Sizewell C Nuclear Power Station, as the works would overlap. This interaction with the proposed Sizewell C Nuclear Power Station could have programme implications on the delivery of this Project in line with the needs case due to construction sequencing.

1.3.4.34. At the time of the routeing and siting appraisal, the DCO that would deliver Friston substation was advanced in the consenting process and it has subsequently received development consent.

1.3.4.35. A connection into the existing 400kV overhead lines would require a new substation to be built. A new substation was assessed as being co-located within the converter site option areas (B, D, E, F, H and I) and would also require, either, the existing overhead lines to be diverted in and out of the new substation, or an underground cable (where economic and efficient) from a new substation to the existing overhead lines, with a cable sealing end compound located adjacent to the overhead lines.

1.3.4.36. A summary of the appraisal outcomes of each of the converter site option areas in Suffolk is presented in **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme**.

1.3.4.37. Within Kent only two converter site option areas were identified and appraised. The area closest to the connection point at Richborough substation was generally favoured as it minimised the connection back to the existing network and facilitated an opportunity to site a converter station close to similar existing infrastructure.

Terrestrial route corridors

1.3.4.38. Within Suffolk none of the corridors avoided designated sites. The Suffolk Coasts and Heaths AONB extends across the full extent of the routeing and siting study area and was therefore unavoidable for a11of the 15 corridors. Whilst the routeing and siting study area was drawn to provide opportunities to avoid designated sites and constraints, the AONB extends unbroken from Felixstowe and Harwich in the south to Kessingland in the north. It was not therefore possible to avoid this designation and meet the needs case without a significantly longer and indirect route that would not be in accordance with National Grid's statutory duties.

1.3.4.39. All three green corridors that connect with the southernmost of the five landfall areas of search (S1), south of Aldeburgh, would require an extensive crossing of the Alde-Ore Estuary, which is designated as a SAC and SPA. These corridors would also interact with the same designated sites around the settlements of Iken and Snape.

1.3.4.40. The three orange corridors connecting to the most northern landfall area of search (S5) to the north of Sizewell would need to cross several sites designated for their ecological conservation value (including Minsmere RSPB Reserve) and would entail significant interaction with the proposed Sizewell C Nuclear Power Station Project.

1.3.4.41. The three blue corridors that connect into the southern part of the landfall area of search (S3) between Thorpeness and Sizewell would need to cross a section of the Leiston Aldeburgh SSSI and would likely require interaction with the proposed cable routes for the Scottish Power Renewables (SPR) East Anglia One North and East Anglia Two Offshore Wind Farms.

1.3.4.42. The three purple corridors connecting into the northern part of landfall area of search S3, when considered in isolation, provided an opportunity to avoid sites designated for nature conservation but would have entailed interaction with the proposed Sizewell C Nuclear Power Station Project. Routeing was also constrained by the presence of other cables that make landfall at this location.

1.3.4.43. The three red corridors that connect to the landfall area of search between Aldeburgh and Thorpeness (S2) would also need to cross a section of the Leiston Aldeburgh SSSI as well as part of the North Warren RSPB Reserve.

1.3.4.44. Other areas considered included the three green corridors connecting into the southernmost landfall areas of search (S1), which would require the installation of cables in an extensive area of flood zones 2 and 3; these corridors would also have a longer length within the AONB compared with the other corridors

1.3.4.45. Four pinch-points were identified within the route corridors. The first pinch-point is located at a crossing of Leiston Road close to the South Warren Golf Course, which would be crossed by all three red corridors connecting to the landfall area of search between Aldeburgh and Thorpeness (S2).

1.3.4.46. The second pinch-point is located between the B1353 and Leiston Road and would require cable routes to cross the Sandlings SPA, the Leiston Aldeburgh SSSI, and a section of a golf course, as well as a narrow crossing of Leiston Road. This pinch-point would affect the three blue corridors connecting to the southern part of the Thorpeness to Sizewell landfall area of search (S3).

1.3.4.47. The third pinch-point is located to the south of Aldringham at the crossing of the Hundred River. This area is constrained by the Hundred River itself, the crossing of the B1353 and the B1122, and an area of woodland and nearby properties. In addition, the proposed cables for the SPR East Anglia One North and Two Offshore Windfarms are proposed to be routed through this same pinch-point. Depending on which converter station site option area is selected, this pinch-point would need to be routed through the three purple corridors connecting to the northern part of the Thorpeness to Sizewell landfall area of search (S3) and the three blue corridors connecting to the southern part of that same landfall.

1.3.4.48. The fourth pinch-point is located to the northwest of Leiston and is associated with the offsite works for the proposed Sizewell C Nuclear Power Station Project, including an area which has recently been established for ecological mitigation measures related to that project. Depending on which converter station site option area is selected, this this pinch-point would need to be routed through by the three purple corridors connecting to the northern part of the Thorpeness to Sizewell landfall area of search (S3) and the three blue corridors that connect to the southern part of that same landfall. Within Kent none of the landfall areas of search avoided sites designated for nature conservation, albeit the designated features vary across the landfalls. The three route corridors (green, blue and red) connecting to the landfall areas of search (K2-K4) along the north Kent coast would all require the cable to be routed through an area of Flood Zone 2 and 3. Access to the landfall areas of search was also limited by the presence of a railway line, as construction access would need to cross this feature.

1.3.4.49. The green corridor connecting to the landfall area of search (K1a) at Broadstairs would need to cross North Foreland Golf Course. There is also a pinch-point along this corridor between the settlements of Margate and Ramsgate where there is a linear belt of settlement where cables would need to be routed within the public highway. This green corridor is further constrained by a site allocated for development in the Local Plan, avoidance of which would require a longer length of cable within the public highway.

1.3.4.50. The three corridors (green, red and blue) connecting to the landfall area of search (K1) in Pegwell Bay would all cross the Thanet Coast and Sandwich Bay designated sites, albeit the extent of the designated area crossed would reduce towards the south of this area of search. Crossing of a golf course would be unavoidable across all three of these corridors. The blue southernmost of the corridor would require routeing through an extensive area of Flood Zone 2 and 3 and the southern two

corridors (blue and red) would require a crossing of the River Stour and several large waterbodies either to the north or south of Great Stonar. The northernmost of the three corridors (green) connecting to this landfall area of search would cross a greater extent of the designated site but would avoid crossing the River Stour and other waterbodies.

Marine corridors and alignments

1.3.4.51. All marine approaches to the landfall areas of search along the Suffolk Coast would need to be routed through the Outer Thames Estuary SPA and the Southern North Sea SAC. The marine alignment connecting to the landfall area of search to the north of Sizewell (S5) would result in more cable crossings than the other alignments and would have potential to interact with the proposed Sizewell C Nuclear Power Station Project's offshore works. The marine alignments connecting to the southern part of the landfall areas of search (S3), between Thorpeness and Sizewell, are significantly constrained by the presence of rocky reefs in the nearshore area, although marine alignments to the northern part of this same landfall area of search could avoid this feature. The marine alignments to the two southernmost landfall areas of search (S1 and S2), between Aldeburgh and Thorpeness and to the south of Aldeburgh, are not significantly constrained.

1.3.4.52. All marine approaches to the north Kent coast landfall areas of search (K2 – K5) would require routeing through the Margate and Long Sands SAC and would also interact with the Thanet Coast MCZ and Thanet Coast SAC. It is likely that any works required to protect the cable, where sufficient burial depth could not be achieved, could result in permanent habitat loss, affecting the interest features of Margate and Long Sands SAC. There is also an area of 'mobile sandbanks some of which may be exposed at low tide', off the north Kent coast. This area is unlikely to be avoidable for any option to a north Kent coast landfall area of search. This presents a considerable exposure and engineering risk. It is also likely that there would be some impact on key anchorage areas offshore off Margate.

1.3.4.53. The marine alignment to the landfall search area at Broadstairs (K1a) would interact with areas designated for nature conservation at the landfall but could avoid the Margate and Long Sands SAC and could also avoid routeing through the Goodwin Sands MCZ.

1.3.4.54. The marine alignments connecting to the Pegwell Bay landfall area of search (K1) could not avoid the nature conservation sites at the landfall; however, the length of the crossing would reduce for those marine alignments routed to the south of this landfall option area.

1.3.4.55. It is unlikely that marine alignments to this landfall could avoid the Goodwin Sands MCZ. This interaction is due to the routeing in this area being constrained, to the east, by the Goodwin Sandbank. Routeing over the Goodwin Sandbank would increase the risk of cable exposure during the lifetime of the cable and would subsequently likely to result in the need for additional rock protection to be put in place, potentially resulting in permanent habitat loss. Routes to the west are constrained by the Ramsgate dredged channel and an area of sandwave field. Additionally, when routeing east out from Pegwell Bay, the route must cross the Nemo Link cable and the Thanet Offshore Wind Farm export cables, requiring the placement of rock protection on the seabed at these locations and potentially resulting in permanent habitat loss, including within the Goodwin Sands MCZ. The water depths in this area are very shallow, slowly gaining depth moving to the east.

To avoid unacceptable reductions in water depths that could pose a hazard to marine vessels, the proposed cable crossings would need to be located in areas with a suitable water depth.

1.3.4.56. In the central section of the marine alignments there is a pinch-point location where the north-eastern extent of the Margate and Long Sands SAC abuts the Sunk Traffic Separation Scheme (TSS); there are also several aggregate extraction areas and deep-water shipping channels in this area. There are also three proposed projects in this area, including: the NeuConnect Interconnector, the Five Estuaries and the North Falls Offshore Wind Farms. The existing Greater Gabbard and Galloper Offshore Wind Farms also constrain marine alignments. Marine alignments through this area were considered to have suitable seabed conditions for cable installation and burial.

1.3.4.57. Due to the range of constraints in this area, engagement was undertaken with the relevant marine stakeholders. Concerns were raised by stakeholders about the need for rock placement for crossing of existing and proposed infrastructure within Margate and Long Sands SAC, both in terms of potential for permanent habitat loss and unacceptable reductions in water depth for shipping and navigation. Aggregate operators also expressed a preference for routeing to be located to the east in order to minimise impacts on their operations.

1.3.4.58. As a result an alternative route was therefore identified to the east of Margate and Long Sands SAC. This route is located close to the centre of the Sunk TSS approach channels where the shipping density is lower and the crossing would be in deeper water.

Step 6 Identification of a Preferred End-to-end Solution

1.3.4.59. Following the appraisal of the individual elements, an on-balance preferred end-to-end solution was identified, which took account of environmental, socio-economic and technical appraisals as well as cost in accordance with National Grid's statutory duties.

1.3.4.60. Within Suffolk, the significant constraints associated with a connection into either, the existing or proposed Sizewell substations meant that these options were not preferred. Connecting into a new connection point in the area, with an associated additional substation, was also not preferred. The proposed Friston substation was therefore identified as the preferred connection point for the Project.

1.3.4.61. Whilst the southernmost of the landfall areas of search (S1) was least constrained from a marine perspective, the terrestrial green corridors from this would have the greatest interaction with the AONB and require a significant crossing of the Alde and Ore Estuary, as well as interaction with the associated SAC and SPA designations. The northernmost landfall area of search (S5) was constrained both, on the marine approach from existing and proposed infrastructure, and terrestrially due to the Minsmere designated sites and potential interaction with the proposed Sizewell C Nuclear Power Station Project. The southern part of the landfall area of search (S3) between Thorpeness and Sizewell was significantly constrained on the marine approach due to the presence of an area of rocky reef. Terrestrial route corridors from this same landfall area of search could not avoid any of the pinch-points described in the sections above. The marine approach to the landfall area of search between Aldeburgh and Thorpeness (S2) has few constraints, however the Leiston Aldeburgh SSSI and North Warren RSPB reserve could not be avoided without the

use of trenchless construction techniques at the landfall. Terrestrial route corridors from this landfall area of search also include the pinch-point along Leiston Road. The northern part of the landfall area of search (S3) between Thorpeness and Sizewell could avoid the area of rocky reef however the presence of existing and proposed cables at this landfall area and in the nearshore environment constrain the marine alignments. Terrestrial route corridors connecting to this landfall could avoid the designated sites, however the terrestrial route corridors could not avoid at least one of the pinch-points described above and would result in a longer overall connection to the proposed Friston substation.

1.3.4.62. On balance, the preferred solution identified was the landfall area of search between Aldeburgh and Thorpeness (S2) connecting to a converter site option area E to the southeast of the proposed Friston substation via the red corridor. This converter site option area offered good existing screening and opportunities to develop mitigation in keeping with the existing landscape character. Whilst this option was constrained at the landfall due to presence of terrestrial nature conservation sites, it was identified that trenchless installation methods could be used to minimise or avoid potential impacts. However, as further survey work is required to confirm the feasibility of using trenchless techniques at this landfall it was considered prudent to also progress an alternative, which is to make landfall at the northern part of the landfall area of search (S3) between Thorpeness and Sizewell with the purple terrestrial route corridor connecting to the same converter site option area E.

1.3.4.63. Within Kent, the marine alignments to the landfall areas area of search along the north Kent coast (K2-K5) were highly constrained by the Margate and Long Sands SAC and an area of mobile sandbanks. Whilst the marine alignment to the landfall area of search at Broadstairs (K1a) had few constraints the terrestrial green corridor from this landfall was highly constrained by the development between the settlements of Margate and Ramsgate and several planning applications and allocations. Whilst the marine alignments to the Pegwell Bay landfall area of search (K1) could not avoid the Pegwell Bay and Sandwich designated sites, with some potential interaction with the Goodwin Sands MCZ, the appraisal identified that any potential impacts could be mitigated through careful selection and trenchless installation techniques. The preferred solution was identified as a landfall in the northernmost part of the landfall area of search K1 connecting to the converter site option area A adjacent to the existing Richborough Energy Park via the green corridor as it offered the shortest connection of the three corridors. It also avoided areas of Flood Zone 2 and 3 and crossings of the River Stour or other significant waterbodies. Whilst this option would require the longest crossing of the designated sites of the three corridors options from Pegwell Bay, trenchless installation techniques could be used to avoid the most sensitive saltmarsh habitat within this designated area.

1.3.4.64. Of the central marine alignments, the revised alignment to the centre of the Sunk TSS approach channels and outside of Margate and Long Sands SAC was identified as being preferred.

Stakeholder Engagement

1.3.4.65. Following the identification of the preferred end-to-end solution, a round of stakeholder engagement was undertaken and as a result several amendments were made which are described in the following sections.

Suffolk

1.3.4.66. During engagement with stakeholders Suffolk County Council and East Suffolk District Council emphasised the importance of looking at opportunities to co-ordinate with the interconnector projects being proposed by National Grid Ventures (NGV) in the area. These are the proposed Nautilus Interconnector which undertook non-statutory consultation in September 2021 and the proposed EuroLink Interconnector. Both projects are at the pre Environmental Impact Assessment (EIA) Scoping stage. Both interconnector projects would require its own converter station, underground HVDC cables between a landfall and the converter station and an HVAC connection between the converter station and the network connection point.

1.3.4.67. The Project has explored the concept of co-location of converter stations, shared cable corridors and consolidation of landfalls and to look at potential challenges and options for consenting a coordinated approach. The coordinating exercise has been undertaken in consultation with NGV and the Project will continue to engage with NGV to consider opportunities for coordination as the proposal for Sea Link, Nautilus and EuroLink progress.

1.3.4.68. A backcheck and review of all potential converter station sites/option areas identified independently through both the NGV Nautilus and the Project routeing and siting studies was undertaken to check the feasibility of whether those sites could accommodate up to three co-located converter stations and to identify any additional sites that should be investigated/appraised further for co-location opportunities, again up to three converter stations.

1.3.4.69. Seven sites were identified as potentially offering opportunities for coordination and an appraisal was undertaken of these sites in accordance with the National Grid options appraisal methodology described above. Two sites were identified as preferred for the development of the Project converter station, as well as offering the potential to co-locate with the other proposed projects. The conclusions on the landfall option areas and terrestrial route corridors remained unchanged and as described in the sections above; however, the northern part of the landfall option area between Thorpeness and Sizewell, and the corresponding terrestrial corridors, were identified as offering limited opportunities for coordination. Further information on the development of the Project in Suffolk, and the options that are being scoped on in this Scoping Report, is set out in **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme**.

Kent

1.3.4.70. Following engagement with other developers who have subsequently submitted planning applications for other energy developments within Richborough Energy Park, a backcheck and review was undertaken, as the proposed developments significantly constrained the Project being able to connect into the existing network at Richborough substation. As such an alternative connection directly onto the existing Richborough to Canterbury 400kV overhead line was identified. A backcheck and review was undertaken of the routeing and siting options in Kent based on this revised connection point and following this review the conclusions on the landfall area of search (K1), Pegwell bay green corridor and converter site option area A remained unchanged. Further information of the development of the Project in Kent is set out in **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

1.4 Description of the Project

1.4.1. Introduction

1.4.1.1. The Project involves the reinforcement of the electricity transmission network between the proposed Friston substation in Suffolk to the existing Richborough to Canterbury 400kV overhead line in Kent. This reinforcement would be between approximately 130km – 140km long, comprising of a HVDC link.

1.4.1.2. This chapter sets out the emerging description of the Project and has been split into the following sections, which describe:

- a description of the infrastructure proposed in Suffolk, Kent and in the marine environment;
- the construction methods that are proposed for installing the infrastructure associated with the Project;
- operation and maintenance requirements; and
- how the Project is proposed to be decommissioned if required.

1.4.2. Project Description

1.4.2.1. As described in Part 1, Chapter 1, for ease of presentation the Project has been split geographically into the Suffolk Onshore Scheme, Kent Onshore Scheme and the Offshore Scheme, the following sections describe the infrastructure proposed in each of these areas.

Suffolk Onshore Scheme

1.4.2.2. The Suffolk Onshore Scheme Scoping Boundary is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**. The Suffolk Onshore Scheme comprises of:

- an extension to the proposed Friston substation;
- underground HVAC connection from the proposed Friston substation to the proposed converter station site;
- a new converter station; and
- a HVDC underground cable from the new converter station to a landfall.

1.4.2.3. Within Suffolk there are two options being considered for the proposed converter station site, as well as an alternative landfall including the associated HVDC underground cable corridors. Whilst the infrastructure described above and below would be the same regardless of the option ultimately developed, the location of the infrastructure would vary depending on which option is selected. The Project Scoping Boundary (**Figure 1.1.1 Project Scoping Boundary**) and Suffolk Onshore Scheme Scoping Boundary (**Figure 1.1.2 Suffolk Onshore Scheme Scoping**

Boundary) encompass all the options being considered. The options are described in more detail in **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme**.

Proposed Friston substation

1.4.2.4. The works at the proposed Friston substation comprise of:

- extension to the boundary of the site and boundary fencing;
- installation of one new Air-insulated switchgear (AIS) bay; and
- additional switch gear and bus bars to be located within the substation.

1.4.2.5. Consent to construct the proposed Friston substation has been secured by SPR as part of their East Anglia One North and Two Offshore Windfarm projects. If the proposed Friston substation does not come forward under that consent , the Project needs to secure consent to build the proposed Friston substation. Under this scenario the proposed infrastructure applied for by the Project would include:

- construction of a New AIS Substation to connect to the existing 400kV overhead lines;
- replacement of three overhead line towers and installation of one additional tower;
- creation of three new Cable Sealing End Compounds (CSEC); and
- construction of a substation access road.
- the proposed scope of assessment takes account of both scenarios.

HVAC connection

1.4.2.6. The HVAC connection from the proposed converter station to the proposed Friston substation would be via HVAC underground cables.

1.4.2.7. Table 1.4.1 provides a summary of the typical characteristics of the HVAC connection.

Table 1.4.1: Typical characteristics of HVAC underground cables – Suffolk

Characteristic	Description
Working width	60m Up to 100m where coordination is included
Permanent easement	Typically 25m
No of cables	Up to 12 cables
No of trenches	Up to 4
Trench width	Typically 1.5m
Trench depth	Typically, 1.5m
Minimum depth of cover	Agricultural land – typically 0.9 m (900 mm)

Characteristic	Description
	Watercourses – typically 2.0 m (2000 mm) Roads – typically 0.75 m (750 mm) Railways – typically 5 m (5000 mm) Footpaths and non-agricultural verges – typically 0.6 m (600 mm)
Backfill material	Soil and cement bound sand (CBS) or other thermally suitable material
Cable section length	Typical cable section length: 800-1200m
Above ground infrastructure	At each cable joint there will be an above ground kiosk, which will be used to monitor and occasionally test the underground cables.

1.4.2.8. As set out in **Part 1, Chapter 3, Main Alternatives Considered** opportunities are being explored for the coordination of the Project with the proposed interconnectors in the area. Whilst each project would be consented individually, each project may seek to consent the ability to install cable ducts for the other projects to minimise disturbance along the HVAC underground cable corridors where cables can be co-located. Therefore, the proposed scope of assessment presented within this Scoping Report has included for the installation of up to 12 ducts.

Converter station

1.4.2.9. The proposed converter station would comprise of the following general components:

- AC switchyard;
- converter transformers;
- valve halls;
- DC switchyard ;
- control building;
- spare parts building;
- permanent access road; and
- landscaping / landscape planting

1.4.2.10. The proposed Project converter station would be up to 10ha in area and the valve halls could be up to 30m in height. Opportunities to coordinate the proposed Project's converter station site with the proposed interconnector projects are being explored which could result in the proposed Project converter station site being located within a larger site complex.

Underground HVDC cables

1.4.2.11. The underground HVDC cables would be made of a copper core with cross linked polyethylene (XLPE) insulation.

1.4.2.12. Table 1.4.2 provides a summary of the typical characteristics of the HVDC underground cables.

Table 1.4.2: Typical characteristics of HVDC underground cables – Suffolk

Characteristic	Description
Working width	Typically 40m Up to 80m where coordination is included
Permanent easement	Typically 15m
No of cables	Up to 4
No of trenches	Up to 2
Trench width	Typically 1.5m
Trench depth	Typically 1.5m
Minimum depth of cover	Agricultural land – typically 0.9m (900 mm) Watercourses – typically 2.0m (2000 mm) Roads – typically 0.75m (750 mm) Railways – typically 5m (5000 mm) Footpaths and non-agricultural verges – typically 0.6m (600 mm)
Backfill material	Soil and cement bound sand (CBS) or other thermally suitable material
Cable section length	Typical cable section length: 800-1200m
Above ground infrastructure	None

1.4.2.13. As set out in **Part 1, Chapter 3, Main Alternatives Considered** opportunities are being explored for the coordination of the Project with the proposed interconnectors in the area. Whilst each project would be consented individually, each project may seek to consent the ability to install cable ducts for the other projects to minimise disturbance along the HVDC underground cable corridors where cables can be co-located. Therefore, the proposed scope of assessment presented within this Scoping Report has included for the installation of up to 12 ducts.

Kent Onshore Scheme

1.4.2.14. The Kent Onshore Scheme Scoping Boundary is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**. The Kent Onshore Scheme comprises of:

- HVAC connection, either by overhead line or underground cable, from the existing Richborough to Canterbury 400kV overhead line to a converter station site;
- a new converter station; and
- a HVDC underground cable from the new converter station to a landfall in Pegwell Bay.

HVAC connection

1.4.2.15. The HVAC connection from the proposed converter station to the existing Richborough to Canterbury 400kV overheard line would either be made via HVAC underground cables or overhead line. Both options have been included in this Scoping Report. The type of infrastructure proposed will be refined through discussions with stakeholders and baseline surveys.

1.4.2.16. Table 1.4.3 provides a summary of the typical characteristics of the HVAC connection either by underground cables or overhead line.

Table 1.4.3: Typical characteristics of a HVAC connection – Kent

Type	Characteristic	Description
HVAC underground cable	Working width	Typically 60m
	Permanent easement	Typically 25m
	No of cables	Up to 12 cables
	No of trenches	Up to 4
	Trench width	Typically 1.5m
	Trench depth	Typically 1.5m
	Minimum depth of cover	Agricultural land – typically 0.9 m (900 mm) Watercourses – typically 2.0 m (2000 mm) Roads – typically 0.75 m (750 mm) Railways – typically 5 m (5000 mm) Footpaths and non-agricultural verges – typically 0.6 m (600 mm)
	Backfill material	Soil and cement bound sand (CBS) or other thermally suitable material
	Cable section length	Typical cable section length: 800-1200m
	Above ground infrastructure	At each cable joint there will be an above ground kiosk, which will be used to monitor and occasionally test the underground cables. A Cable Sealing End Compound (CSEC) 116m x 63m would be required at the interface with the existing Richborough to Canterbury overhead line.
Overhead line	Pylon type	Steel lattice – typical low height

Type	Characteristic	Description
	Pylon height	Typically, 46m (standard height) and 45m (low height)
	Pylon footprint	Typically 10m^2 (standard)
	Conductor type	2 x 700mm^2 Araucaria (AAAC)/ 2x 620mm^2 Matthew or Similar
	Turn in/Tee in	Double turn in - This would require the installation of approximately ten new low height towers and the removal of three existing low height towers. The existing overhead line route would be diverted, and four new towers would be installed between this point and the proposed substation site within the converter station option area. Four further towers will then connect the substation with the existing line. Double Tee - This would require the installation of approximately nine new low height towers and the removal of two existing low height towers. The works would also require the installation of a cable sealing end compound (approx.132m x 93m) adjacent to the existing overhead line. The cable sealing end compound would be constructed to the north of the existing overhead line and new towers installed either side to connect back to the existing route, this would require the removal of two towers and the installation of two new towers to the west of the proposed compound and one new tower to the east. A new Tee overhead line would then connect the compound to the proposed substation within the converter site option area via a new set of 6 towers.

Converter station

1.4.2.17. The proposed converter station would comprise of the following general components:

- AC switchyard;
- converter transformers;
- valve halls;
- DC switchyard;
- control building;
- spare parts building;
- permanent access road; and

- landscaping/landscape planting.

1.4.2.18. The proposed converter station in Kent would be up to 10ha in area and the valve halls could be up to 30m in height.

Underground HVDC cables

1.4.2.19. The underground HVDC cables would be made of a copper core with cross linked polyethylene (XLPE) insulation.

1.4.2.20. Table 1.4.4 provides a summary of the typical characteristics of the HVDC underground cables.

Table 1.4.4: Typical characteristics of HVDC underground cables – Kent

Characteristic	Description
Working width	Typically 40m
Permanent easement	Typically 15m
No of cables	Up to 4
No of trenches	Up to 2
Trench width	1.5m
Trench depth	1.5m
Minimum depth of cover	Agricultural land – typically 0.9m (900 mm) Watercourses – typically 2.0m (2000 mm) Roads – typically 0.75m (750 mm) Railways – typically 5m (5000 mm) Footpaths and non-agricultural verges – typically 0.6m (600 mm)
Backfill material	Soil and cement bound sand (CBS) or other thermally suitable material
Cable section length	Typical cable section length: 800-1200m
Above ground infrastructure	None

Offshore Scheme

1.4.2.21. The Offshore Scheme Scoping Boundary is illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary**.

1.4.2.22. The Offshore Scheme includes three distinct components, which are summarised below:

- Suffolk Landfall: This is the area where the cable route transitions between the marine and terrestrial environment in Suffolk. This is located between Aldeburgh

and Thorpeness with an alternative landfall currently also under consideration at Sizewell gap.

- Kent Landfall: this is the area where the cable route transitions between the marine and terrestrial environment in Kent, located in the Pegwell Bay area;
- Marine Cable Route: This is the cable route from landfalls in Suffolk up to Mean High Water Springs (MHWS) to the landfall in Kent up to MHWS, between approximately 120-128 km in length and located entirely within UK territorial waters.

1.4.2.23. The detailed configuration of the cable system is still under development at this stage and will be informed by further electrical design studies and through selection of the cable supplier and installation contractor. However, up to four cables could be installed within a maximum of two trenches, these will either be installed individually, if the final design is for two cables, or as bundled pairs.

1.4.3. Construction

1.4.3.1. This section describes how the infrastructure described above would typically be constructed and installed. An outline Code of Construction Practice (CoCP) has been produced and is included at **Appendix 1.4.A Outline Code of Construction Practice**. The technical chapters within Parts 2-4 have taken account of the control and management measures which are set out in the outline CoCP when proposing their scopes.

Construction Programme

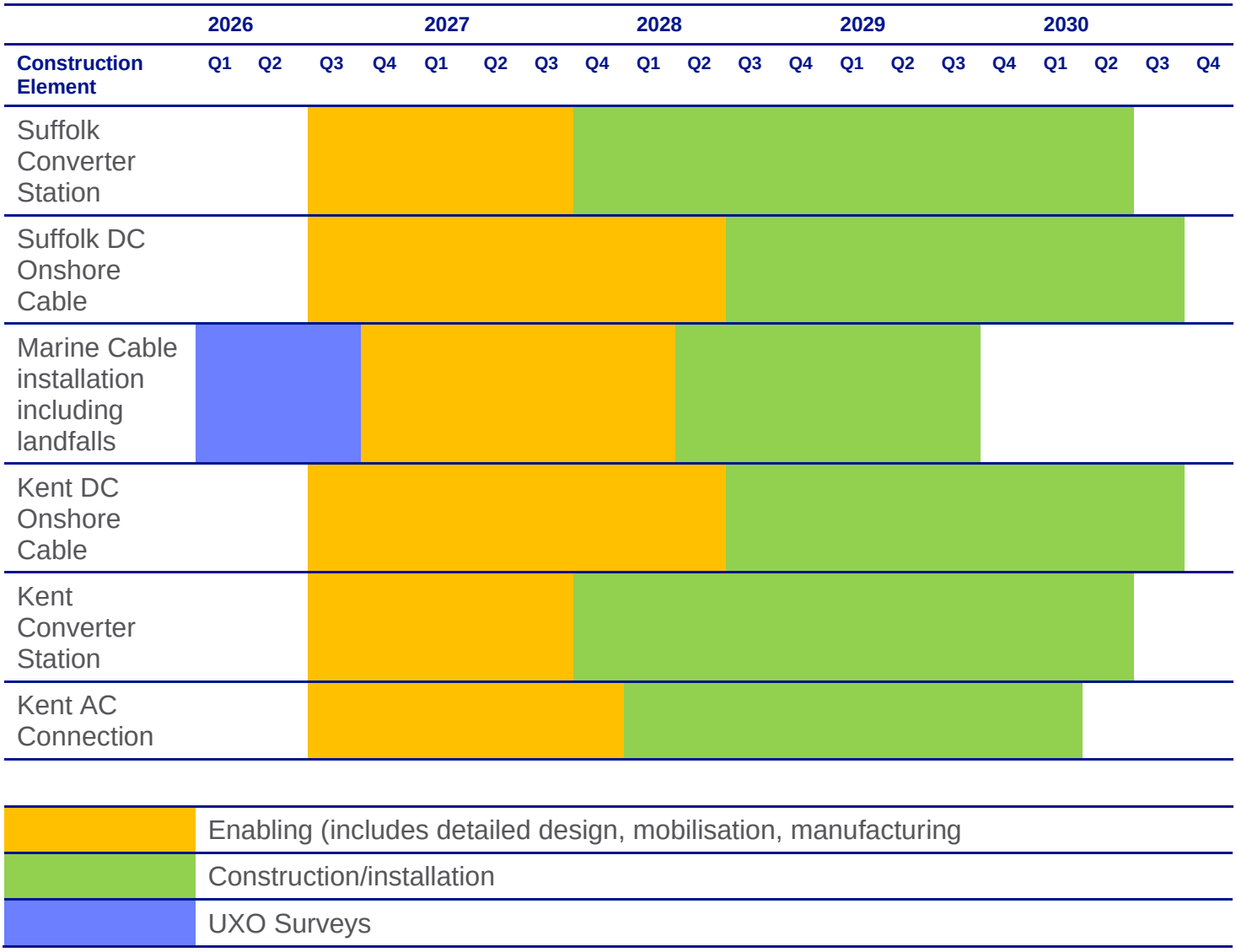
1.4.3.2. Subject to gaining development consent, construction works would be expected to start in 2026 and be completed by 2030. Certain advance works (such as archaeological trial trenching or protected species mitigation) may take place in advance of the main construction period.

1.4.3.3. The construction schedule will be developed as the Project progresses and will take account of seasonal constraints such as protected species breeding or hibernation seasons and reducing impacts associated with flood zones.

1.4.3.4. An indicative construction programme for the Project is presented in Table 1.4.5.

Table 1.4.5: Indicative construction programme

	2026				2027				2028				2029				2030			
Construction Element	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Friston substation bays																				
Suffolk AC Onshore Cable																				



Construction workforce

1.4.3.5. It is anticipated that the peak workforce would typically be within the range of 300 – 400 across the whole Project.

Enabling Works, Access and Site Preparation

1.4.3.5. In order for the elements of the Suffolk and Kent Onshore Schemes to be constructed, enabling works are required such as the establishment of temporary bellmouths and access tracks and drainage works. The enabling works are consistent across all elements of the Onshore Schemes and have therefore been described once below rather than for each individual element.

1.4.3.6. Bellmouths would be installed where new accesses or widening of existing accesses from the public highway are required. The installation of bellmouths may require realignment of existing underground services and the creation of visibility splays to create a line of sight for the safe use of the junction. Within the visibility splay vegetation would need to be cut to a specified height or visual obstacles removed depending on local conditions, the speed rating of the road and whether traffic

management was in place. Typically, a bellmouth would take approximately ten days to install.

1.4.3.7. Once a new or widened access point has been created the proposed access tracks and working areas would be fenced off using approximately 1.2m high stock proof fencing or equivalent. Gates or equivalent would be incorporated into the fencing to maintain access to farmland where possible and to maintain access to Public Rights of Way (PROWs) where possible. The topsoil would be stripped from the access tracks, cable working width and pylon working areas. The topsoil would be stored carefully to one side; typically, topsoil would be stored in bunds approximately 4m wide by 1.2m high. Temporary drainage would be installed as required, with silt fences installed where required. Topsoil stripping is typically undertaken at a rate of approximately 50m to 100m per day for access tracks, 20m-40m per day for the cable working width and three days per pylon construction area depending on the excavator chosen, soil type and location.

1.4.3.8. Temporary drainage would be required during construction, to deal with rainfall and water encountered during excavation where appropriate. Construction sustainable drainage systems (SuDS) would be used if necessary and where appropriate to do so.

1.4.3.9. The access tracks would typically be 4.5m wide, and up to 9m wide at passing places. They would either be stone laid on a geotextile, or formed of interlocking panels, depending on ground conditions and the duration and type of use. The installation of the access tracks would typically be undertaken at a rate of approximately 50m per day and a typical or low height pylon working area would take one week to install. The stone access tracks would be constructed using primary or secondary aggregates. On completion of construction the access tracks would be removed, and aggregates taken to an appropriate facility which could include recycling, or onward use, for example as secondary aggregate in the construction industry.

1.4.3.10. Culvert installations would be required for temporary access tracks to cross ditches and watercourses. The size of each culvert would vary depending on the dimensions of the crossing, and sensitivity and importance of the watercourse. To install a culvert, typically the banks are first strimmed at the proposed culvert location. Bunds would then be installed upstream and downstream to prevent water from entering the work site, water contained between the two bunds would be pumped downstream to clear the work area. To maintain the flow of the watercourse during installation of the culvert, a pump would be used to pump water from upstream to downstream, bypassing the work site. The bottom of the ditch or watercourse would be excavated to the size of the proposed foundation and, if required lined with a geotextile separation membrane overlain by bedding material. If required, a geotextile separation membrane would be placed on top of the ditch banks, prior to backfilling. The culvert would then be installed and backfilling commenced. The backfill would be laid to provide minimum cover over the culvert based on maximum loadings. A sandbag (or concrete bag) headwall and temporary fencing would subsequently be installed after which the bunds upstream and downstream would be removed and the over-pumping stopped to allow water to flow through the culvert. The installation of culverts would typically take approximately two days per culvert.

1.4.3.11. Should culverts not be suitable for a particular crossing, due to either the sensitivity of the watercourse or engineering requirements, a temporary bridge would be

installed. Temporary bridges would need to accommodate a 250t capacity mobile crane for overhead line construction and the temporary bridge support requirements would be assessed on a site-by-site basis. Most bridge crossings would be of a short span and flat deck construction; however, Bailey style bridges may also be used. All bridges would be a clear span and the foundations would be placed clear of the banks of the watercourse. Once the foundations were in place the temporary bridge would be fitted. Although the installation method is dependent on the type of bridge being installed, a typical bridge would be delivered in sections. Each bridge component would be assembled on site and lifted into position by crane. With the bridge in position, decking panels would be lifted and fixed into position. The installation of a typical short span, flat deck bridge would typically take approximately four to five days. If concrete, or piled bridge foundations were needed a further ten to 15 days per bridge would be required.

Proposed Friston Substation

1.4.3.12. A typical construction sequence for the construction of an extension would involve:

- survey and ground investigations;
- set up of site establishment and temporary facilities;
- temporary access to the substation(if required);
- earthworks;
- civil engineering works;
- building works;
- AIS extensions and bay installation(mechanical and electrical) ;
- outage works to connect to the existing substation;
- commissioning; and
- energisation

1.4.3.13. For the purposes of this Scoping Report, it has been assumed that the construction of the proposed substation extension would take between 9 and 12 months, which is typical for a substation extension.

1.4.3.14. Should the Project need to construct Friston substation, the construction sequence above would be the same up to the civil engineering works and would follow the following typical sequence thereafter:

- OHL reconfiguration works under outages including temporary towers/masts where required;
- building works;
- AIS busbars and bay installation (Mechanical and Electrical); ·
- outages to connect the new substation;
- commissioning; and
- energisation.

1.4.3.15. The construction of the proposed substation extension would take approximately 13 months or 18-24 months for the proposed substation if not already built, which is typical for a new build substation.

Converter Stations

1.4.3.16. A typical construction sequence for the construction of a converter station would include:

- survey and ground investigations;
- installation of bellmouths and creation of visibility splays (where required);
- access road construction;
- site establishment;
- earthworks;
- civil engineering works;
- building works;
- cable installation;
- provision/installation of permanent services;
- mechanical and electrical works;
- commissioning; and
- site reinstatement & landscape works.

1.4.3.17. The construction of the proposed converter stations would take between 27 months.

Overhead HVAC Connection (Kent Onshore Scheme only)

1.4.3.18. The construction of a section of overhead line would generally be sequenced as follows:

- survey and ground investigations;
- installation of bellmouths and creation of visibility splays;
- installation of stock proof fencing and gates or equivalent;
- topsoil stripping, temporary drainage installation where required;
- installation of access tracks (including culverts and bridges) and demarcated pylon working areas;
- installation of pylon foundations (pad and column, mini pile, tube pile or bespoke);
- layout of steelwork in preparation for erection;
- assembly (painting if required) and erection of steelwork;
- installation of protection prior to stringing of conductors, including scaffolding;
- installation of insulators

- establishment of machine sites for conductor stringing;
- conductor stringing;
- removal of construction equipment and reinstatement of ground and restoration of soils;
- removal of access tracks and bellmouths; and
- removal of construction compounds and reinstatement of ground.

1.4.3.19. The sections above provide a description of the enabling works and the following sections provide a description of the typical construction of an overhead line.

1.4.3.20. The foundations of the proposed pylons would either be pad and column, mini pile or tube pile (or bespoke if required). The selection of foundation type would depend upon the ground conditions encountered. The installation of pad foundations would take approximately three weeks for each pylon (four pads). Mini pile or tube pile foundations would typically take approximately four weeks for each pylon. For pylon locations where ground conditions do not easily permit the installation of pad and column, mini-pile or tube pile foundations, a bespoke foundation would be required. The design for each bespoke foundation would be subject to the ground conditions encountered.

1.4.3.21. The steel work would be brought to each pylon working area and laid out in pre-constructed sections or in numbered parts prior to assembly and erection of the pylon. Laying out of the steelwork would typically take approximately three days per pylon.

1.4.3.22. The numbered steelwork parts would be bolted together on the ground. The pylon would be assembled in sections beginning with each bottom leg section being fastened to the foundation steelwork. The pylon would be erected using a mobile crane which would lift the assembled steelwork into position. Linesmen would bolt together the pylon, climbing to each part to help guide the next section into place and fasten the bolts. The number of pylon sections required would vary according to the size of the pylon being built and the lifting capacity of the crane. To lift the topmost sections of the taller pylons a crane with a capacity of up to 250t may be required for the reach and weight of the sections to be positioned into place. A smaller capacity crane could be used to lift pylon sections up to the limit of reach of the crane considering load to be lifted. Though in this instance the larger capacity crane would still be required to complete the pylon.

1.4.3.23. Temporary scaffolding and nets would be installed during construction, where required, as a safety measure to protect assets such as roads, railways, a water treatment works and distribution network overhead lines (where not already moved underground) and could include hedgerows which would be crossed by the proposed overhead line. This is required to protect these features during conductor stringing from the accidental dropping of conductors and any of the associated equipment. The scaffolding would be transported to site using a lorry or tractor and trailer and assembled by hand at either side of the feature being protected. Typically, approximately 8m^2 of scaffolding would be installed per day.

1.4.3.24. The insulators would be fastened to the cross arms of the pylons, with running wheels hung from the end of the insulators to carry the pilot wires in preparation for installing the conductors. The installation of the insulators would typically take approximately two days per pylon.

1.4.3.25. The machine sites for conductor stringing (pulling positions) would be sited on interlocking panels laid directly onto the ground surface reducing disturbance to the underlying soils. The machine sites would be sited to avoid individual trees wherever possible. It would typically take approximately one day to establish the area to receive materials and equipment at each conductor stringing site.

1.4.3.26. The wires (conductors) of the overhead lines would be delivered to the machine sites for conductor stringing using lorries, or tractor and trailer. The conductors are wound onto large cable drums and, depending on the conductor type, each completed drum could weigh up to 8t, although larger and heavier drums are possible depending on the supplier and the length of conductor. A conductor pulling position would be established at each end of the section with a winching machine ('winch') and empty steel reels to accept pilot wires. At the other end of the section the full conductor drums would be arranged near the tensioning machine ('tensioner'). Light pilot wires would be laid at ground level (and over temporary scaffolding protecting assets such as roads and railway lines) along the length of the section between the pulling positions (note that it is not typically necessary to clear hedgerows specifically for this activity, though some vegetation management could be required). The pilot wires would be lifted and fed through running wheels on the cross arms of all the pylons in the section, and then fed around the winch at the pulling position. The light pilot wires are used to pull through heavier, stronger pilot wires which are in turn used to pull conductors through from their drums. The tensioning machine would keep the wires off the ground and prevent the conductors running freely when the winch pulls the pilot wire. When the conductor is fully 'run out', it would be fastened at its finished tension and height above ground by a linesman working from platforms on the pylons which are suspended beneath the conductors. Additional fittings such as spacers, if required, and vibration dampers, would be fitted to the conductors. To counter balance the out of balance loading at the tension pylons at the end of a conductor stringing section, it is normal to install temporary backstays or concrete blocks for safety of installation. The temporary backstays or concrete blocks are removed after conductor stringing is completed. Stringing the conductors would typically take approximately four weeks per conductor stringing section.

1.4.3.27. Once the overhead line is constructed, the access tracks and working areas at the pylon site would be removed and the ground reinstated by removing stone and trackways. Soils would be restored to their previous condition. Other surfaces would be reinstated and widened accesses would be restored to the condition they were in at the commencement of the works.

Underground HVAC and HVDC Cables

1.4.3.28. Whilst the number of cables and working width vary depending on whether the underground cable is HVAC or HVDC the sequence and method of construction and installation is the same and has therefore been described together below.

1.4.3.29. Installation of the proposed HVAC and HVDC cables will typically be undertaken within an 80m and 40m wide working width respectively. The exception to this is where environmental or engineering constraints mean additional land is required such as where the proposed cable routes cross obstacles such as roads or watercourses using a non-open cut technique. In these locations working width may be required to be larger to accommodate the larger construction equipment required to undertake installation works.

1.4.3.30. There are several cable installation methods which are summarised below:

- **Open cut methods**: These would typically be utilised in open agricultural land. This involves the excavation of a trench into which the cables could either be directly laid, or a duct could be laid through which cables will then be pulled through.
- **Trenchless methods**: These would typically be utilised where obstacles (watercourses, roads, railway lines, flood defences or other utilities) require to be crossed. This would involve the installation of ducts below the obstacle. The cables would then be pulled through the ducts.
- **Jointing methods**: These would be utilised where two adjacent sections of cable meet. This requires clean and dry conditions, so covers or cabins would be temporarily erected at joint bay locations. Due to the precise nature of engineering works undertaken, joint bays could remain open for several weeks to allow for trench and joint bay excavation, cable pulling, jointing and reinstatement.

1.4.3.31. Underground cable installation would typically be undertaken in the following sequence:

- survey and ground investigations;
- installation of bellmouths and creation of visibility splays;
- installation of stock proof fencing and gates or equivalent;
- topsoil stripping, temporary drainage installation where required;
- installation of access tracks (including culverts and bridges);
- trench dug utilising excavators (or by hand in areas of known buried utilities). Excavated sub-soil will be stockpiled separately from the top soil;
- installation of a base layer of cement bound sand (CBS) into the cable trench;
- cables laid in trench by ‘pulling’ from cable drum, with the aid of rollers placed within the trench.
- cables are bedded in with CBS;
- protective tiles are placed along the width of the trench;·
- trench is back filled with excavated sub-soil or thermally suitable material where required (to avoid the alteration of local environmental temperatures around the cables);
- warning tapes will be place 100mm above the protective tiles vertically in line with the cable poles; and
- topsoil will be reinstated to original soil profile and land re-seeded or released to the farmer for cultivation as it was found.

1.4.3.32. To install the proposed cable routes there would be a requirement to establish temporary construction facilities and areas for dewatering, temporary and permanent land drainage and temporary access roads which are described above under enabling works. The following section provides a typical description of the works required to construct and install underground cables.

1.4.3.33. Where ducting is proposed as an alternative to direct lay, the ducts would need bedding in with the CBS and the trench backfilled. Joint bays would be excavated along the route (800m – 1200m, dependant on detailed design) which would act as pulling locations for the cables and then the cables would be installed in the ducts by pulling from the cable drum between joint bays.

1.4.3.34. Cable installation does not need to be undertaken sequentially along the whole route; as a result, installation could occur in multiple sections of the length of the proposed cable route in parallel. This would limit the extent and duration of construction activity at any given location including the length of time that land remains disturbed for. The exact programme will depend on several factors including the underlying ground conditions and installation methods used.

General trenching

1.4.3.35. Soft, collapsible soils such as sand based soils would require either temporary trench boarding (direct buried) or trench boxing (ducted) to facilitate the containment construction. In firmer soils, 'battered' excavations become more acceptable for both configurations.

1.4.3.36. Lengths of 'open' trench would be around 2km for normal direct buried configuration whereas a ducted system can be backfilled on a rolling basis and therefore there is significantly less open trench at any one time (approximately 200-300m).

1.4.3.37. Construction of an open trench in good soils can progress at 100-200m+ per day, dropping to 30m per day or less in challenging areas or urban environments.

Cable installation

1.4.3.38. Cable laying durations between the main two configurations can vary significantly and use substantially different numbers of operatives to install. With an open trench, direct buried configuration, a significant amount of time is required to set up the system to install – these include flat rollers for straight runs, box rollers for corners and careful calculation of pull forces on the cable. A section can usually be installed (2 cables) in around 4 days including moving of rollers and resetting. This is achievable provided the infrastructure is in place (drum laydown and pulling points).

1.4.3.39. For a ducted system, which may not always be viable due to system constraints, provided that any moves away from the horizontal and vertical planes (bends) are within acceptable parameters, installation can be achieved much quicker – typically two days for a section (2 cables) is achievable provided the infrastructure is in place (drum laydown and pulling points).

1.4.3.40. Typically, the construction of a 1km length of cable would take approximately 4 to 9 months dependent on the complexity of the installation. This timeframe includes the pre-construction site set up as well as the reinstatement of the land following completion of installation. This assumes that the season after cable burial is completed is suitable for undertaking reinstatement. For the purposes of this Scoping Report it has been assumed that installation of the proposed cable routes would take between one and two years.

1.4.3.41. Where a constraint is required to be crossed using a trenchless method, there are a number of methods that can be employed depending on the ground conditions and detailed design. A typical description of each is provided below.

Pipe Jacking (Auger Bore)

1.4.3.42. A hydraulic ram or jack and associated boring equipment would be located in a launch pit. The size and depth of the launch pit is dependent upon the depth of the cable (deeper cable requires a deeper and larger pit). A tunnel is then created by progressively inserting clay pipes behind the drill head (driven by the hydraulic jack), with material returned to the launch site (typically via a screw-shaped shaft). One tunnel is required for each cable. The direction of the tunnel is determined by the set-up equipment in the launch pit and it is continuously surveyed. Drilling continues to the reception pit (also constructed prior to drilling, to a depth relative to the depth of cable). The launch and reception pits may require sheet piling and further works to ensure a dry and stable working environment. Following completion of the works, the launch and reception would be backfilled on completion of the crossing and the area reinstated. Topsoil will be reinstated to original soil profile and land re-seeded or released to the farmer for cultivation as it was found.

Horizontal directional drilling

1.4.3.43. A Horizontal Directional Drilling (HDD) rig and associated equipment would be set up at the launch site. This includes electricity supply (portable generator), drill mud filter, control unit and welfare facilities. Drilling utilises a drill bit, drill head and drilling fluid. Drilling fluid (typically bentonite slurry) assists the drilling process, as well as lubricating and cooling the drill head. A pilot hole is typically drilled first, followed by a series of increasing size bores until the final drill diameter that is required is achieved. Location and direction of drilling can be monitored using the HDD locating system to ensure drilling follows the pre-planned path. Ducting is then pulled back through the drilled hole towards the HDD rig. One cable duct is required for each cable. It is likely that spare ducts will be installed to allow for ease of replacement should any faults be identified in future. Ducts can be capped to ensure no attenuation of water or sediment or prevent use by animals if left prior to cable pulling. The launch site would be reinstated on completion. Topsoil will be reinstated to original soil profile and land re-seeded or released to the farmer for cultivation as it was found.

Micro boring (micro-tunnelling)

1.4.3.44. This method is similar to pipe jacking, however, it utilises a steerable tunnel boring machine (TBM) to tunnel between a launch pit and a reception pit. Lengths of pipe are inserted behind the TBM as it progresses, and a hydraulic jack is used to drive the pipe forward. Water or mud mix is utilised to fluidise excavated material which is pumped to the launch pit. Cable ducting is pulled through the pipe tunnel following tunnelling through to the reception pit. The launch pit and reception pit require concrete bases to ensure a clean working environment and prevent water entering the working area. The launch and reception pits also require a concrete back wall for the hydraulic jack to work against. The launch and reception pits would be backfilled on completion of the crossing and the area reinstated. Topsoil will be reinstated to original soil profile and land re-seeded or released to the farmer for cultivation as it was found.

Landfalls

1.4.3.45. The cable landfalls form the transition between the underground HVDC cable and the marine HVDC cable. The underground HVDC cable and marine HVDC cables

are jointed together at transition joint bays (TJB) located as close to the coast as possible whilst taking account of any environmental or technical constraints at a particular landfall.

1.4.3.46. At the time of writing, a decision between a trenched or trenchless technique at all landfalls has not yet been confirmed, as the feasibility of the trenchless techniques needs to be informed by further ground investigation surveys. Consequently, this Scoping Report considers basic design principles for both options at this stage.

1.4.3.47. There are several techniques which can be used to make a cable landfall, these are described below:

Trenched

1.4.3.48. This installation method comprises the excavation of trenches across the intertidal zone perpendicular to the water line using conventional land-based excavators, whilst the tide is low and potentially supported by barge mounted excavators below MLWS. This would seek to form a trench of approximately 3m wide and between 1m and 5m deep, subject to sediment conditions. Access to the installation site would generally be gained terrestrially but could be gained from the marine side depending on local conditions. Following the formation of the trench, the cables will either be pulled directly ashore using rollers, or else ducts and messenger wires would be installed to facilitate cable pull in at a later date, subject to detailed engineering.

1.4.3.49. Up to four open cut trenches would be excavated through the intertidal zone, once the cable or ducts are installed these trenches will be backfilled.

1.4.3.50. Any potential requirement for a temporary works structure to facilitate this landfall construction technique is still to be confirmed. This is typically a cofferdam or sheet-piled structure that can be used within the marine environment to create a safe, dry working area. If a temporary works structure is required, it is expected that vibratory piling would be adopted for installation of sheet walls, with percussive piling only used where required to achieve design depth. Additional mitigation would be confirmed, and secured where required, via the appropriate regulatory controls as part of the application for relevant consents.

Trenchless – horizontal directional drill (HDD)

1.4.3.51. An HDD compound, typically 75m x 100m, would be established at the HDD launch site and an HDD rig and associated equipment set up within the compound. This includes electricity supply (portable generator), drill mud filter, control unit and welfare facilities. Drilling utilises drill bit, drill head and drilling fluid. Drilling fluid (typically bentonite slurry) assists the drilling process, as well as lubricating and cooling the drill head. A pilot hole is typically drilled first, followed by a series of increasing size bores until the final drill diameter that is required is achieved. Location and direction of drilling can be monitored using the HDD locating system to ensure drilling follows the pre-planned path. Ducting is then pulled back through the drilled hole towards the HDD rig, this is supported by a jackup rig/barge and dive spread in the marine environment. One cable duct is required for each cable. It is likely that spare ducts will be installed to allow for ease of replacement should any faults be identified in the future. Ducts can be capped to ensure no attenuation of water or sediment or prevent use by animals if left prior to cable pulling. The launch site compound would be reinstated on completion. Topsoil will be reinstated to

original soil profile and land re-seeded or released to the farmer for cultivation as it was found.

Trenchless - micro tunnel

1.4.3.52. Micro tunnelling uses a large micro tunnel boring machine (MTBM) combined with pipe sections being jacked into position as the tunnel is lengthened. It requires that the MTBM is removed from the distal end of the pipeline after installation. The diameter of the micro tunnel can be large enough for more than one cable to be installed within the tunnel. The technique is often used in areas of poor geotechnical ground conditions for construction. This would be supported by a jackup rig and dive spread to enable the recovery of the MTBM.

Trenchless - direct pipe

1.4.3.53. A combination of micro tunnel and HDD techniques where a small tunnelling machine is used to create a larger diameter bore through which a pipe is installed directly behind the machine as it bores out the tunnel. It is a single-pass technique thus reducing the need for a series of increasing size bores to reach the final drill diameter. This may allow more than one cable to be installed in a single duct. This methodology may reduce the needs for drilling fluids and is typically used in soft sediments, although it is being developed for wider application in other ground conditions.

Marine Cable

1.4.3.54. Installation of marine HVDC cable installation typically includes the following activities:

- ground preparation and cable laying activities within the intertidal zone at the landfall sites;
- pre-lay seabed preparation activities along the route below MLWS (including route clearance, pre-lay grapnel run and any pre-sweeping);
- construction of cable crossings;
- installation and burial of the subsea cables, and
- placement of external cable protection (as required).

Marine pre-installation activities

Pre-lay surveys

1.4.3.55. Multiple seabed surveys will be carried out prior to installation to reconfirm existing geotechnical and geophysical information about seabed conditions, bathymetry and other seabed features. These may include Multi-Beam Echo Sounder (MBES); Side-Scan Sonar (SSS), Sub-Bottom Profiler (SBP), Magnetometer, cable trackers etc. In addition, visual inspections may also be undertaken using a Remotely Operated Vehicle (ROV) or other visual inspection system. Pre-lay surveys may also include additional specialist studies, including geotechnical, benthic and unexploded ordnance (UXO) investigations.

Cable route clearance

1.4.3.56. Route preparation is expected to involve clearance activities to ensure the installation corridor is clear of boulders, dropped object debris and other obstacles. Removal of Out-Of-Service (OOS) cables may be required, along with boulder/debris clearance using either ploughs or ROVs and grabs. A pre-lay grapnel run (PLGR) is also expected to be completed, involving towing a heavy grapnel with a series of specially designed hooks along the centre line of the route, to confirm the installation route is clear of obstacles. Cable route clearance using the methods described here will seek to avoid areas of known sensitive habitats and/or features and will not be used near live third party assets.

Pre-sweeping (if required)

1.4.3.57. Pre-sweeping may be required if areas of large sand waves are identified within the cable corridor, during the marine surveys, which cannot be avoided. Pre-sweeping may be performed using a variety of tools including dredgers, ploughs, mass flow excavators (MFE) or controlled flow excavators (CFEs).

Unexploded ordinance

1.4.3.58. A high-level desktop study risk assessment of UXO has been undertaken to inform the geophysical and geotechnical seabed survey undertaken in Autumn 2021. The UXO risk was assessed as High and Medium risk throughout the Scoping Corridor. As part of the seabed survey, single source magnetic data was collected to provide an overview of the distribution of magnetic anomalies and to cross-check with the desk-based risk assessment, where areas of known high UXO densities have been identified.

1.4.3.59. A detailed UXO survey; including use of multiple gradiometers, ROV inspections combined with high resolution MBES, is planned to be carried out to better detect and define pUXOs and to enable rerouting away from targets throughout the route. Micro-routeing around isolated targets will be undertaken, with a closest point of approach to the target, based on the eventual installation methodology.

1.4.3.60. Whilst avoidance will be the preferred approach, if UXO clearance is necessary, the activity will be undertaken in accordance with approved industry practices for removal and disposal / waste management of ordnance. This may include detonating UXO in place or lifting and relocating to a designated storage or demolition area, for safe disposal.

Cable installation

1.4.3.61. The detailed configuration of the cable system is still under development at this stage and will be informed by further electrical design studies and through selection of the cable supplier and installation contractor. However, up to four cables could be installed within a maximum of two trenches, these will either be installed individually if final design is for two cables or as bundled pairs.

1.4.3.62. In the case that the cables are laid separately, the separation between the cables is typically around 30m, although this can be up to 60m depending on water depth. If there are two bundled pairs then higher separation distances would be required, potentially up to 200m.

1.4.3.63. Cable installation operations will be performed on a 24-hour basis in order to minimise installation time and therefore the duration of any disruption to sensitive environmental receptors, as well as navigation and other sea users. 24-hour operations will also maximise available weather opportunities, as well as vessel and equipment availability.

1.4.3.64. Cable installation will require a Cable Lay Vessel (CLV) and various support vessels, including survey vessels, trenching support vessels, guard vessels and potentially anchor handling vessels. Dredging vessels and/or other specialist vessels may also be required for limited periods, in response to localised conditions along the cable corridor. A Cable Lay Barge (CLB) and Jack-Up platform may also be required for shallow water operations.

1.4.3.65. The preferred method of protection for marine cables is by burial. The burial conditions for the cables will be assessed within the Cable Burial Risk Assessment (CBRA) to optimise burial along the route between the landfalls, typically up to a depth of 1-2m or deeper in areas of greater risk. The route will be optimised to maximise the distance over which the required cable burial depth can be achieved, to limit the need for external protection. This is achieved by varying the depth of burial of the cables, selecting appropriate burial tools, and remedial trenching where unexpected soil conditions are encountered. It is not known at this stage what type of equipment will be required to install the cables as it will depend on the seabed conditions present within the cable corridor.

1.4.3.66. There are two main cable installation techniques, cable lay and post lay burial (PLB) or simultaneous cable lay and burial (SLB) these are described below followed by the different methods of burial:

Cable lay and post lay burial

1.4.3.67. In cable lay and PLB the cable is laid on the surface of the seabed before subsequently being buried. The subsequent burial is almost always carried out by a second vessel following on from the CLV. This enables a wide variety of burial techniques to be used.

1.4.3.68. The standard post lay burial methods are listed below, followed by an outline description. This is not an exhaustive list and more specialised techniques may be required, such as a barge mounted excavator in the nearshore areas.

- ploughs;
- jet trenching;
- mechanical trenching (rock wheel or chain cutters);
- Mass Flow Excavator (MFE); or
- Controlled Flow Excavator (CFE)

Ploughs

1.4.3.69. Ploughs are large machines towed behind a vessel that create a trench into which the cable is laid. This trench is then normally left to backfill naturally, but can sometimes be backfilled manually. Ploughs may be used for simultaneous lay and burial or for pre-lay trenching. Ploughs are best suited for relatively soft sediments.

Jet trenching

1.4.3.70. Jet trenchers use high pressure water jets to fluidise the seabed and bury the cable, they are most effective in soft sediments, non-cohesive and normally consolidated sediments.

Mechanical trenching (rock wheel or chain cutters)

1.4.3.71. Mechanical trenchers use force to cut a trench in the seabed which the cable is then laid in. This technique is generally used in harder sediments. The trench then backfills through natural processes or backfill can be directed into the trench by mechanical adaptors on the rear of the trencher body.

MFE and CFE

1.4.3.72. MFE and CFE use relatively low pressure but high volumes of seawater to excavate relatively large volumes of seabed (compared to jet trenching). Some models allow both burial and backfill of a cable nearly simultaneously. They are best suited for soft and loose sediments but have significantly less control on sediment spoil dispersion than the other PLB methods.

Simultaneous cable lay and burial

1.4.3.73. Simultaneous lay and burial (SLB) is where the cable is plough buried at the same time as it is laid.

External cable protection

1.4.3.74. Where burial cannot be achieved, external cable protection may be required where the soil or rock conditions are too hard to achieve effective burial, or third-party assets cross the route. Other locations may require additional protection to mitigate the effects of mobile sediments, such as at HDD exit points and to mitigate potential coastal erosion.

1.4.3.75. Options for external cable protection include:

- Rock Placement (planned berms) – installation of a pre-designed berm over the installed cables, Planned berms may comprise different grades of rock to provide a stable structure. Rock Placement (remedial berms) – installation of discontinuous single-grade rock berm in order to enhance the external protection due to insufficient achieved burial depth. Targeted placement will be undertaken using Fall Pipe ROV (FPROV) rock emplacement vessel, where water depths allow. Where water depths do not allow the use of an FPROV vessel, other methods may be used which are selected to minimise environmental disturbance, such as side dumping or open hopper dumping.
- Concrete Mattresses – frequently used to protect cables where external risks are lower, and as part of crossing constructions. The flexibility of the mattresses allows them to follow the contours of the seabed or any exposed subsea asset. Several types of mattress are available for deployment in different environments, and appropriate types will be used for the local conditions.
- Rock / gravel / sand / grout bags – a range of pre-filled bags of different sediment grades, or grout, which can be used to provide local protection, or structural support, in areas where access is restricted for conventional protection systems.

- Protection Sleeves / Cast-Iron Shells – additional, flexible, protection systems for the cable, which are installed around the cable during installation and/or post installation. Protective sleeves usually comprise of polyurethane with steel banding.

1.4.3.76. The requirement for external cable protection will be clarified following the CBRA works and as more survey data is received. In addition, the design development will further progress as an iterative process both pre- and post-consent, including during the detailed engineering, by the installation Contractor.

1.4.3.77. Where external protection is or may be required, details of the type, quantity and nature of each protection measure will be provided to inform the detailed environmental assessment, including estimated locations, volumes/numbers, tonnages and likely grades of rock or other materials to be used. This will include both planned and potential remedial requirements and will be provided to characterise the nature and extent of cable protection which may be installed within UK territorial waters.

Cable and pipeline crossings

1.4.3.78. The Offshore Scheme would enter into crossing agreements and/or proximity agreements with the third-party asset owners of any subsea infrastructure installed and/or planned along the corridor. Power, telecom and fibre optic cables will be crossed by the HVDC cables; these cables will be both In-Service (IS) and OOS. Crossings of IS cables will be undertaken using agreed crossing designs in accordance with the crossing agreements with the third-party owners and will ensure separation between the assets and protection over the installed HVDC cables. The separation and protection structures may comprise concrete mattresses, protective sleeves on the HVDC cables and/or pre- and post-lay rock placement.

1.4.3.79. OOS cables may be cleared prior to installation of the cables, thus removing the need for a crossing structure.

1.4.3.80. No pipelines currently cross the Offshore Scheme Scoping Boundary. However, the same principal would be applied to any future pipelines that may cross the HVDC cables, where the pipeline owner will be responsible for crossing installation.

Vessel activities

1.4.3.81. A range of different vessels are expected to be used during cable installation. These are expected to include:

- Cable Lay Vessel (CLV): The CLV will be a specialist ship designed to carry and handle long lengths of heavy power cables, the CLV will be equipped with Dynamic Position (DP) system. The shallowest depth in which the cable ship can operate will depend on the vessel used, however at this stage it has been assumed that larger vessels such as a CLV would not be expected inshore of the 10 m depth contour;
- Cable Burial Vessel: a dynamically positioned ship carrying post-lay burial equipment, this might include jet or mechanical trenchers or possibly MFE equipment. This is typically supported by an ROV to monitor the cable during the protection work.

- Guard vessel(s): Guard vessels may be required to accompany the CLV, particularly in areas of high-density other users/shipping and potentially other specialist vessels required to install required cable protection systems (other than rock placement);
- Support vessel(s): These may include survey vessels, for pre- during- and post-installation surveys, anchor handler/offshore support vessels, dredgers etc. as required;
- Rock placement vessel: A rock placement vessel features a large hopper to transport rock and a mechanism for deployment of the rock at the placement location where target burial depth cannot be achieved. For the purposes of this Scoping Report it has been assumed that a flexible fall pipe mechanism for rock placement will be used; and
- Cable Lay Barge (CLB): A CLB may be required at landfall, in the event that vessel operation is required in water depths less than 10 m. A CLB may be anticipated to require a four to six-point anchor mooring system covering an area of between 500 m and 1,000 m radius from the vessel to allow the barge to hold station whilst the installation work is undertaken.

Post installation survey and reporting

1.4.3.82. Following the various phases of route preparation and cable installation, there will be an as-built survey of the route. This will be combined with the installation contractors' records to produce an as built report. The report will include all data relating to the protection status of the installed cables, between the TJBs, at each landfall and the marine corridor: i.e. as-built drawings, engineering alignment sheets, imagery and video data, which together will provide a record of the safe installation of the cable. In effect this will be the baseline (reference) report for future OMR (Operations, Maintenance and Repair) activities, as well as input into the eventual decommissioning operations.

1.4.3.83. Central to the report will be the as-trenched and as-installed geophysical reports from the post-burial surveys, rock emplacement campaigns and as-built trenchless solution construction drawings at the landfalls. Together, the reports will provide the Depth of Lowering (depth the cable is found below the mean seabed level) and Depth of Cover (DOC) (depth of material above the buried cable – may be less than Depth of Lowering (DOL)) achieved immediately after installation, as well as the location of the cables.

1.4.3.84. Subsequent routine inspection surveys will be compared to the baseline report to assess any changes to the DOL and DOC of the cables and inform the engineering of any remediation or repair activities during the lifetime of the cables.

1.4.3.85. The 'as-built' Route Position List (RPL) data will be supplied to relevant stakeholders, third-party asset owners and the United Kingdom Hydrographic Office (UKHO), for inclusion in the relevant Charts. Other national hydrographic agencies may also be supplied with the data, as per best practice (such as NOOA in the US, or SHOM in France).

1.4.4. Operation

Proposed Friston Substation

1.4.4.1. Once the Project is operational the proposed Friston substation would be operated in the same way that National Grid operates all other substations on the network.

Converter Stations

1.4.4.2. Following a period of commissioning and testing the proposed converter stations would operate continuously throughout the year. Whether each end is (converting DC to AC) or (converting AC to DC) would depend on supply and demand on the transmission system.

1.4.4.3. The proposed converter station would be operated by a small team based on site. In general, a minimum of two operators would be present at all times. During normal operation there would be approximately six personnel on site, divided between three shifts over a 24-hour period.

Overhead HVAC Connection (Kent Onshore Scheme only)

1.4.4.4. During operation the overhead line would transmit electricity from the proposed Kent converter station onto the existing network in the South East of England.

Underground HVAC and HVDC Cables

1.4.4.5. During operation the HVDC link would transmit electricity from the proposed Friston substation to the existing network in Kent and vice versa depending on the supply and demand at the time.

Marine Cable

1.4.4.6. During operation the HVDC link would transmit electricity from the proposed Friston substation to the existing network in Kent and vice versa depending on the supply and demand at the time.

1.4.5. Maintenance

Proposed Friston Substation

1.4.5.1. Maintenance would be undertaken on an ongoing basis with individual equipment subject to a three-year maintenance cycle. Visual checks would be undertaken on a monthly inspection visit to the site.

1.4.5.2. If the substation required refurbishment or replacement works, vehicles would be used to carry workers in and out of site and suitable vehicles would be used to bring new materials and equipment to site and remove old equipment.

Converter Stations

1.4.5.3. During maintenance (planned and unplanned) the number of personnel present on site would increase with the number of staff proportionate to the nature of the maintenance works being undertaken.

1.4.5.4. If the converter stations required refurbishment or replacement works, vehicles would be used to carry workers in and out of site and suitable vehicles would be used to bring new materials and equipment to site and remove old equipment.

Overhead HVAC Connection (Kent Onshore Scheme only)

1.4.5.5. The overhead line would be subject to an annual inspection from the ground or by helicopter. The inspection would identify if there are any visible faults or signs of wear and would also indicate if changes in plant or tree growth or development had occurred that could risk infringing safety clearances. Inspections would provide input as to when refurbishment was required.

1.4.5.6. The overhead line could support telecommunication equipment such as small mobile telephone antennae and would contain optical fibres within the earthwire. If this were to be the case, independent companies would require access for maintenance purposes using pickup trucks and vans. Access for the optical fibres will usually be at the joint box positions located just above the anticlimbing devices on certain pylons. Position and frequency of joint boxes is subject to design by the successful contractor.

1.4.5.7. Access for vegetation management, telecommunications and fibre optic maintenance would be along routes agreed with the landowners and may require interlocking track mat panels.

1.4.5.8. The overhead line would be made up of a variety of materials, including concrete and steel for the foundations, steelwork for the pylon and aluminium for the conductors. All these materials have an expected lifespan, which would vary depending on how the overhead line was used and where it is located. Typically, pylon steelwork and foundations have a life expectancy of approximately 80 years, the conductors have a life expectancy of approximately 40 to 60 years and the insulators and fittings have a life expectancy of approximately 25 to 40 years. The lifespan of the overhead line may be longer than the anticipated 80 years, depending on its condition, the environment to which it is exposed, refurbishments and transmission network requirements.

1.4.5.9. Minor repairs or modifications may be required from time to time for local earthwire damage, addition of jumper weights, local conductor damage, broken insulator units, damaged or broken spacers, broken or damaged vibration dampers, damaged or broken anti climbing guards. Minor repairs would be programmed locally by a maintenance team using pickup trucks and vans to access site along routes agreed with landowners. Access may require interlocking track mat panels.

1.4.5.10. Refurbishment work would be undertaken typically on one side of the pylon at a time, so that the other side could be kept ‘live’ or in use.

1.4.5.11. Refurbishment work could involve:

- the replacement of conductors and earth wires;
- the replacement of insulators and steelwork that holds the
- conductors and insulators in place, insulator fittings and
- conductor fittings;
- painting or replacement of the pylon steelwork and

- replacement of telecommunication equipment (by separate companies).

1.4.5.12. During refurbishment there would be activity along the overhead line, especially at tension pylons when a new conductor is installed and an old conductor taken down.

1.4.5.13. Vans would be used to carry workers in and out of the site and trucks would be used to bring new materials and equipment to site and remove old equipment. Temporary works including access tracks and scaffolding to protect roads may be required as for construction.

Underground HVAC and HVDC Cables

1.4.5.14. Maintenance activity along the proposed cable routes would generally be limited to non-intrusive inspections and cable repairs. The latter would only be required in the unlikely event of a cable fault. Where a fault does occur the location of the fault would be identified and the faulty section of cable replaced. The activities involved in cable repair would be similar to those outlined above for installation albeit over a much smaller area and scale.

Marine Cable

1.4.5.15. Maintenance activity along the marine cable route would generally be limited to non-intrusive inspections and cable repairs.

1.4.5.16. Periodic surveys would be undertaken to assess the protection levels afforded the cable, particularly important in areas of mobile seabed. The survey results would be used to inform the necessity of any remedial works to maintain depth of cover to the cables. A schedule of surveys would be prepared to monitor the stability of the seabed after installation and identify any critical areas where the seabed does not stabilise, necessitating additional monitoring and a maintenance/mitigation plan.

1.4.5.17. Cable repair would only be required in the unlikely event of a cable fault. Where a fault does occur, the location of the fault would be identified and the faulty section of cable replaced. The activities involved in cable repair would be similar to those outlined above for installation albeit over a much smaller area and scale.

1.4.5.18. In areas of mobile seabed periodic surveys may identify areas where the cable has become exposed or is in free span, in these areas remedial burial may be needed using similar techniques to those described above for installation, particularly jetting and rock placement, albeit over a much smaller section.

1.4.6. Decommissioning

Proposed Friston Substation

1.4.6.1. The lifespan of substation equipment is approximately 40 years. If the elements of the proposed Friston substation, that form part the Project were no longer required, the equipment would be safely disconnected from the transmission system and carefully dismantled. Much of the material would be taken for recycling. Similar methods and equipment would be required for dismantling as for construction.

Converter Stations

1.4.6.2. The anticipated operational life of the proposed converter station is approximately 40 years. It is likely that during this period refurbishment and plant replacement would extend the life of the converter station rather than decommissioning. In the event that the Project ceases operation the proposed converter stations would be decommissioned. The main components would be dismantled and removed for recycling wherever possible. Where this is not possible disposal would be undertaken in accordance with the relevant waste disposal regulations at the time of decommissioning. It is anticipated that the permanent access road would be left in-situ.

Overhead HVAC Connection (Kent Onshore Scheme Only)

1.4.6.3. If the Project is required to be decommissioned the section of overhead line between the proposed converter station site and the existing Richborough to Canterbury 400kV overhead line would be removed. Fittings such as dampers and spacers would be removed from the conductors. The conductors would be cut into manageable lengths or would be winched onto drums in a reverse process to that described for construction. the fittings would be removed from the pylons and lowered to the ground.

1.4.6.4. Each pylon would most likely be dismantled by crane, with sections cut and lowered to the ground for further dismantling and removal from site. Depending on the access and space available, it may be possible to cut the pylon legs and then pull the pylon to the ground using a tractor. The pylon could be cut into sections on the ground. Unless there was a compelling need for removal of all the foundations, these would be removed to approximately 1.5m deep, sufficient for safe agricultural use of the land and subsoil and topsoil reinstated.

Underground HVAC and HVDC Cables

1.4.6.5. If the Project is required to be decommissioned, the proposed underground cables would be decommissioned. Dependent on specific requirements the redundant cables could either be left in-situ, or all or parts of the cable could be removed for recycling. Where this is not possible, removed cables would be disposed of in accordance with the relevant waste disposal regulations at the time of decommissioning.

Marine Cable

1.4.6.6. If the Project is required to be decommissioned, the proposed marine cables would be decommissioned. Dependent on the specific requirements, the redundant cables would either be left in-situ, or all or parts of the cables could be removed. An initial decommissioning plan would be written once the final route and installation methodology is chosen. This would be in accordance with all applicable legislation and best practice guidance at the time of compilation, however as decommissioning of the cable would be many decades into the future, regulatory requirements and industry best practice will change. The decommissioning plan would be updated throughout the life of the project in preparation for decommissioning occurring.

1.5 EIA Approach and Methodology

1.5.1. Introduction

1.5.1.1. EIA is the process of compiling, evaluating and presenting information about the likely significant environmental effects, both adverse and beneficial, of a proposed project. The assessment is designed to help produce an environmentally sympathetic project and to provide decision makers and statutory consultees with the environmental information they require during determination of an application for consent. The early detection of likely significant adverse environmental effects enables appropriate mitigation (i.e., measures to avoid, reduce or offset likely significant adverse effects) to be identified and incorporated into the design of a project, or commitments to be made, for example to environmentally sensitive construction methods and practices. The approach is iterative and involves close working between the undertaker, the EIA team and the designers.

1.5.1.2. Three main EIA documents are produced as part of the DCO pre-application process:

- **EIA Scoping Report**: The Scoping Report sets out the likely significant effects from a project (scope). It also presents the data collected and the proposed assessment methodology and approach that would be used during the EIA. The Scoping Report is issued by PINS to consultees for comment on the scope and methodology proposed informing the scoping opinion.
- **Preliminary Environmental Information Report (PEIR):** The PEI Report sets out the information that 'is reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development' (Planning Inspectorate, 2020). The PEIR is used by consultees to inform their consultation responses during the Statutory Consultation and it is issued at the same time the Statutory Consultation launches; and
- **Environmental Statement (ES):** The ES presents the results of the EIA undertaken for the project. It identifies the likely significant effects that would result if the project was implemented, and any mitigation proposed to reduce those significant effects. The ES is submitted as part of the application for development consent and is taken into account during the decision-making process.

1.5.2. General Approach

1.5.2.1. This chapter describes the methodology which will be used to assess the potential effects on the natural, human and built environment because of the project. In accordance with the EIA Regulations 2017, the assessments undertaken will evaluate and identify the likely significant environmental effects arising from the proposed construction and operational phases of the project. This information will be presented in an ES.

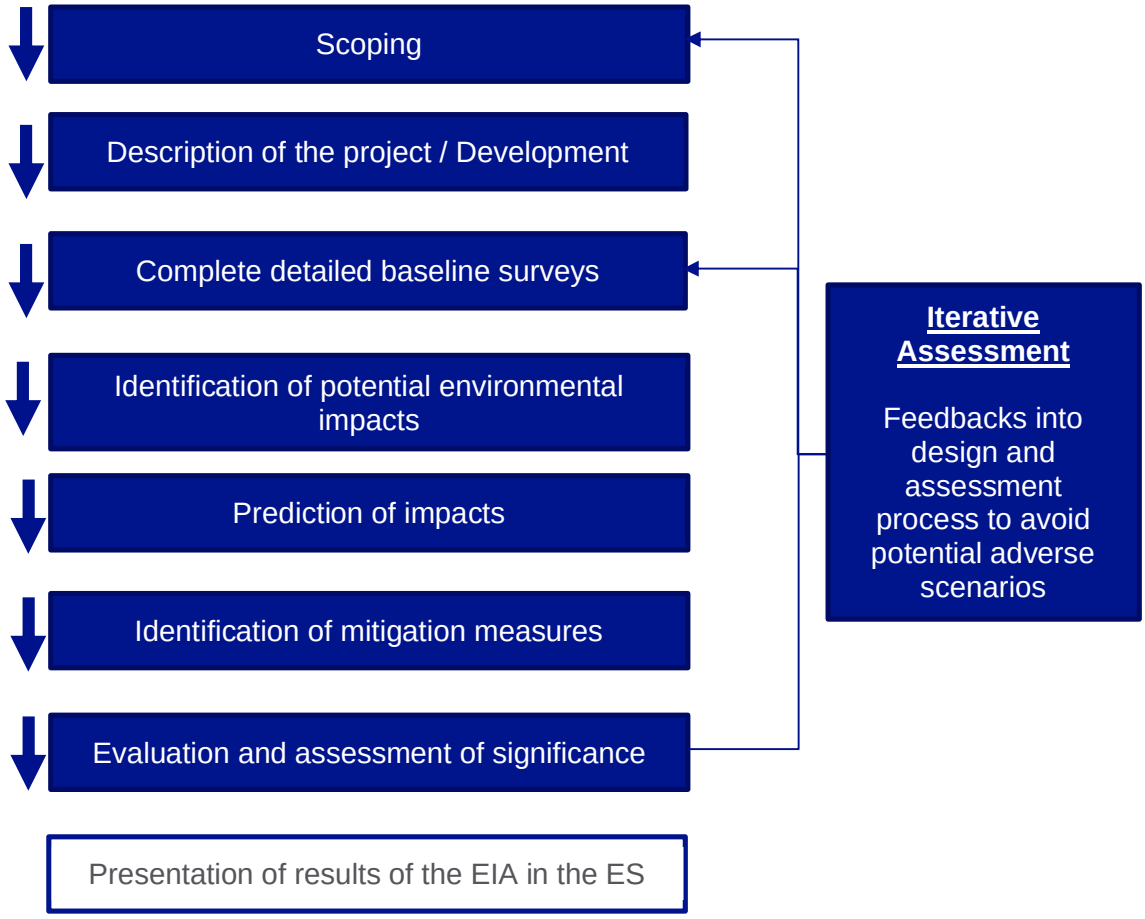
1.5.2.2. The Project would follow best practice by integrating the environmental considerations into the design process at all stages. This has already begun

through the strategic options and routeing and siting processes as described in Part 1, Chapter 3.

1.5.2.3. The EIA will identify environmental effects and, if any, propose project specific mitigation measures to avoid, reduce or offset adverse environmental effects or maximise environmental benefits.

1.5.2.4. The EIA Process involves the main steps illustrated on Image 1.5.1 below.

Image 1.5.1: EIA Process



The 'Rochdale Envelope' Approach

1.5.2.5. Major infrastructure projects such as linear infrastructure projects for underground cables, overhead lines and above ground installations, such as converter stations, typically need some flexibility to be maintained for detailed design and construction, if conditions are found that would otherwise prevent or delay construction. Examples can include previously unknown archaeological assets or poor ground conditions on cable routes and to allow for detailed design of the converter station by a specialist manufacturer post consent. To mitigate such issues a flexible approach to design parameters is used within the EIA process, and this is typically referred to as the 'Rochdale Envelope'; and it allows for a realistic worst-case assessment to be undertaken.

1.5.2.6. By developing a realistic worst-case scenario in response to critical technical and engineering parameters, as well as the emerging findings of the EIA and feedback from stakeholders, it is possible to strike a balance between the level of design

information needed for the purpose of EIA and the application for consent and while still retaining the level of design flexibility needed as the Project moves into detailed design and construction.

1.5.2.7. The EIA process will aid and inform the design process and support the identification of a design freeze that is flexible enough to accommodate change in future stages but not so flexible that it could over-state or unnecessarily amplify the potential environmental impacts of the Project.

1.5.3. Approach to Scoping

1.5.3.1. Scoping sets the proposed scope for the EIA process and, when done right, it makes the subsequent phases more straightforward. A robust scope, focussed on the potential for likely significant environmental effects is required in order to ensure the EIA is focused and proportionate. The process of scoping helps to ensure that the topics covered, the baseline information used, and the methods of assessment, are appropriate, and have considered the views of decision makers, and consultees where appropriate.

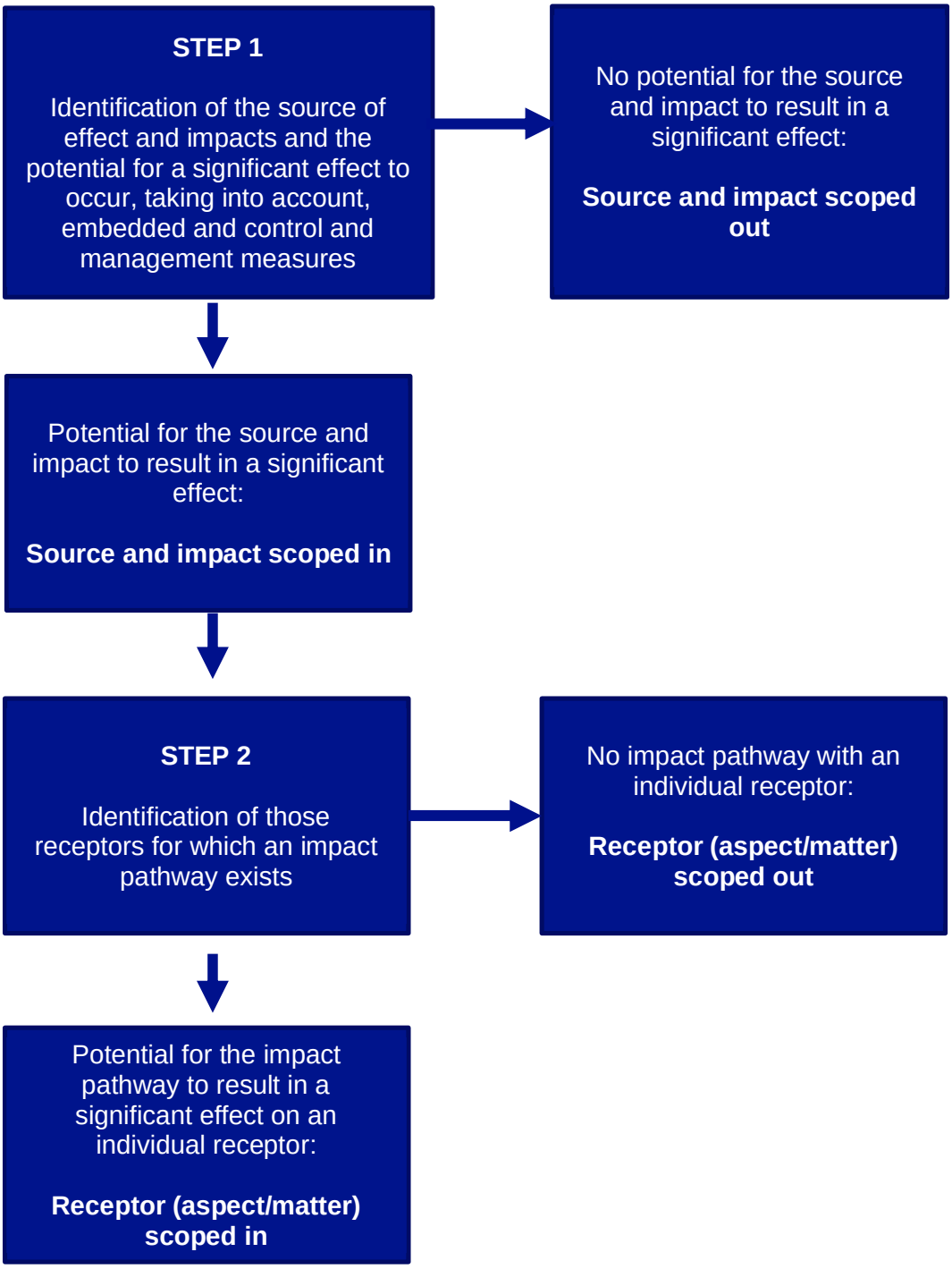
1.5.3.2. The approach taken in preparation of this Scoping Report has also been informed by the Planning Inspectorate's Advice Note Seven[27] and reflects that the EIA Regulations 2017 which require an ES to focus on aspects of the environment likely to be subject to significant effects. In line with guidance and legislation this Scoping Report seeks to, where appropriate, scope out aspects/matters from further assessment with suitable justification provided. This will streamline the assessment to focus on key likely significant effects and ensure the EIA for the Project is proportionate as promoted by the IEMA (2017) Delivering Proportionate EIA guidance document[28].

1.5.3.3. The approach taken to identifying the proposed scope of the EIA has used a staged approach that considers the likelihood of significant impacts using a source, pathway, receptor-based approach. This is to ensure transparency and provide a clear justification as to why particular receptors and aspect/matters are either proposed to be scoped in or scoped out of the EIA, with the aim of ensuring that the ES is proportionate. The approach taken to the identification of the proposed scope is presented in Image 1.5.2 below.

[27] Planning Inspectorate (2020). Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-and-environmental-statements/.

[28] Institute for Environmental Management and Assessment (2017). Delivering Proportionate EIA: A Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice. [online] Available at: https://www.iema.net/resources/reading-room/2017/07/18/delivering-proportionate-eia.

Image 1.5.2: Approach to the identification of the proposed scope of assessment



Technical Scope

1.5.3.4. The technical scope of assessment for each environmental aspect is detailed in the technical chapters of Parts 2-4 and this includes proposals for scoping matters in or out of the EIA. The technical scope also details the approach to baseline data collection and assessment methodologies.

Spatial Scope

1.5.3.5. The spatial scope for each environmental aspect is the area over which changes to the environment are predicted to occur because of the Project. This will depend on the nature of the potential effects and the location of receptors that could be affected. It takes account of:

- The physical area of the Project;
- The nature of the baseline environment; and
- The manner and extent to which environmental effects may occur.

1.5.3.6. Each of the technical chapters in Parts 2-4 describes the study area to be considered, providing a clear explanation as to why that particular study area has been adopted. The spatial scope of each assessment may be refined for both the PEIR and the ES in response to comments from consultees, refinement of the Project or further assessment work.

Temporal Scope

1.5.3.7. The temporal scope considers the time period over which changes to the environment and the resultant effects are predicted to occur, and are typically defined as either being temporary or permanent:

- Permanent - these are effects that will remain even when the Project is complete, although these effects may be caused by environmental changes that are permanent or temporary.
- Temporary – these are effects that are related to environmental changes associated with a particular activity and that will cease when that activity finishes.

1.5.3.8. The assessment will have regard to the project programme and will evaluate the environmental effects of the Project during construction, operation, maintenance and decommissioning. These effects will be compared to the situation prevailing before the Project is commenced (the current baseline), and to the situation that would prevail in the future without the Project (the projected future baseline).

1.5.3.9. The future baseline is the theoretical situation that would exist in the absence of the Project. This is based upon extrapolating the current baseline using technical knowledge of likely changes to predict this (e.g., predictable changes such as climate change, changes that can be predicted based on reasonable assumptions and modelling calculations, information about other relevant developments etc.).

1.5.3.10. Each technical chapter of the ES will define the baseline (current or future or both) against which the environmental effects of the Project will be assessed. The baseline conditions to be assessed for each environmental topic are outlined in the technical chapters of Parts 2-4 of this Scoping Report. Where relevant, aspect

chapters provide further information on the time elements within the project programme that will be considered for their assessment.

1.5.4. Assessment of Effects and Determination of Significance

1.5.4.1. The Institute of Environmental Management and Assessment (IEMA) guidelines (2004, p11/2)[29] state that:

"*The assessment stage of the EIA should follow a clear progression; from the characterisation of 'impact' to the assessment of the significance of the effects taking into account the evaluation of the sensitivity and value of the receptors.*"

1.5.4.2. The prediction of potential impacts will be undertaken to determine what could happen to each environmental receptor because of the Project and its associated activities. There is expected to be a diverse range of potential impacts to consider within the assessment process and it will likely be appropriate to use a range of prediction methods including quantitative, semi-qualitative and qualitative.

Identification of Potential Effects

1.5.4.3. The likely significant effects (beneficial and adverse) of the Project will be predicted and evaluated using appropriate evaluative techniques, many of which follow specific best practice guidelines for a particular topic. Potential effects will be identified first, usually in summary, as an indication of what effects could theoretically occur in the absence of mitigation (other than mitigation inherent in the design of the Project).

Approach to Mitigation

1.5.4.4. After the identification of the potential effects, consideration will be given to how those potential effects could be avoided, reduced or offset. This is referred to as mitigation. Each topic chapter of the ES will identify proposed mitigation measures that may be required to avoid or reduce the potential significant adverse effects of the project. Mitigation will be categorised as follows:

- Embedded Measures: are those that are intrinsic to and built into the design. They include the avoidance of designated sites through sensitive routeing, siting and design.
- Control and Management Measures: These are Good practice measures that are included within the Code of Construction Practice (CoCP) and other control and management plans such as the use of road sweepers and the implementation of measures to control silt-laden runoff during construction.
- Mitigation Measures: These are measures over and above design mitigation, for example anything that has been added to the design purely to mitigate an effect such as landscape planting.

[29] Institute of Environmental Management and Assessment (2004). Guidelines for Environmental Impact Assessment.

Assessing Effects and Determining Residual Significance

1.5.4.5. There is no statutory definition of what constitutes a 'significant' effect within the EIA Regulations and whilst the determination of the significance of effects is important to informing the decision-making process, defining what is significant is not a simple task. The process typically involves consideration of two aspects of a potential effect, namely the sensitivity and/or value of the receptor or resource, and the magnitude of the impact on the receptor/resource.

1.5.4.6. The significance of the residual effects will be determined by reference to criteria for each assessment topic. Specific significance criteria for each technical discipline, include giving due regard to the following:

- scale of the impact;
- impact duration, and whether effects are temporary, revisable, or permanent;
- effect nature (whether direct or indirect, reversible or irreversible, beneficial or adverse);
- where the effect occurs in isolation, is cumulative, or will interact with other effects;
- performance against any relevant environmental quality standards;
- sensitivity of the receptor; and
- compatibility with environmental policies.

1.5.4.7. Each technical chapter of this Scoping Report includes a description of the proposed approach to determining the significance of effects, including how professional judgement may be applied.

Magnitude of impact

1.5.4.8. General criteria for defining the magnitude of an impact, or change, are set out in Table 1.5.1. Key factors that influence this include:

- scale of change – the scale of change refers to the degree of change to or from the baseline environment caused by the impact being described;
- spatial extent - the extent of an impact is the full area over which the impact occurs; and
- duration and frequency – the duration is a measure of how long the impact is expected to last. Frequency refers to how often the impact would occur; it may be continuous or periodic.

Table 1.5.1: Impact magnitude criteria

Magnitude	General criteria
Large	Adverse: Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements

Magnitude	General criteria
	Beneficial: Large scale or major improvement of resource = quality; extensive restoration; major improvement of attribute quality
Medium	Adverse; Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements Beneficial: benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality
Small	Adverse: Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements Beneficial: Minor benefit to, or in addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk or negative impact occurring
Negligible	Adverse: Very minor loss of detrimental alteration to one or more characteristics, features or elements. Beneficial: Very minor benefit to or positive addition of one or more characteristics, features or elements

Sensitivity and value of the receptor

1.5.4.9. The sensitivity of a receptor or feature is characterised by its vulnerability to change and its ability to recover. The value of a receptor or feature reflects its overall importance and the value placed on it by society; this may be reflected by its level of statutory or policy protection or else a value may be attributed through consultation and the application of professional judgement. Criteria for defining the sensitivity and/or value of a receptor are set out in Table 1.5.2. Characterisation of the receptor is achieved by balancing out of these three considerations to determine the receptor's sensitivity.

- Vulnerability – the vulnerability of the receptor relates to its capacity to accommodate change i.e. the tolerance/intolerance of the receptor to change;
- Recoverability – the ability of the receptor to return to the baseline state; and
- Importance - the importance of the receptor or feature is a measure of the value assigned to that receptor based on biodiversity and ecosystem services, social value and economic value. Importance of the receptor is also defined within a geographical context, whether it is important internationally, nationally or locally.

Table 1.5.2: Sensitivity criteria

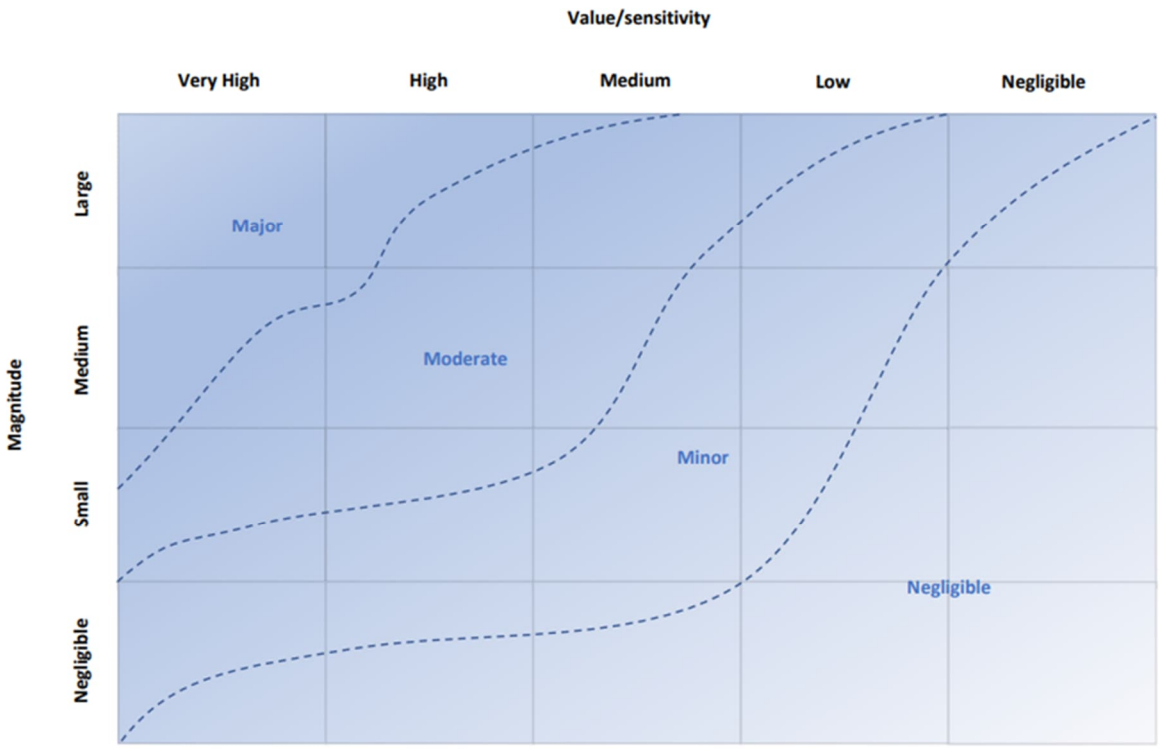
Value/Sensitivity	General Criteria
Very High	Very high importance and rarity, valued at an international level and limited potential for recovery or substitution

Value/Sensitivity	General Criteria
High	High importance and rarity, valued at a national level and limited potential for recovery or substitution
Medium	Medium importance and rarity, valued at a regional level, some potential for recovery or substitution
Low	Low or medium importance and rarity, valued at a local level, good potential for recovery or substitution
Negligible	Very low importance and rarity, valued at a local level, easy to replace.

Evaluating the significance of effects

1.5.4.10. Having established the magnitude of change and sensitivity of the receptor, the significance of an effect can be assessed. To aid transparency in the assessment process, the matrix shown in Image 1.5.3 will be used as the basis for assigning significance to an effect; however the identification of significance typically requires the application of professional judgement. As an illustration, a high sensitivity receptor subject to a large magnitude of change would experience a major significance effect, and a low sensitivity receptor subject to a small magnitude of change would experience a minor or negligible significance effect.

Image 1.5.3: Basis of assigning significance



1.5.4.11. Each of the specialist disciplines will apply magnitude and sensitivity criteria that best suit the topic area, and for some topics these may be defined in industry guidelines.

1.5.4.12. Following the classification of an effect using this methodology, a clear statement will then me made in the ES as to whether that effect is significant or not significant. Major and moderate effects are typically considered to be significant, whilst minor and negligible effects are considered to be not significant. However, professional judgement will also be applied in reaching conclusions as to the significance of effects. Typical definitions for the classification of effects are shown in Table 1.5.3.

Table 1.5.3: Generic significance description

Significance	General criteria	Significant effect
Major	A large and detrimental change to a valuable/sensitive receptor; likely exceeding an accepted (often legal) threshold. A large and beneficial change, resulting in improvements to the baseline result in previously poor conditions being replaced by new legal compliance or a major contribution being made to national targets.	**Yes**

Significance	General criteria	Significant effect
	These effects may represent key factors in the decision-making process. Potentially associated with sites and features of national importance or likely to be important considerations at a regional or district scale. Major effects may relate to resources or features that are unique and which, if lost, cannot be replaced or relocated.	
Moderate	A medium scale change that, although not beyond an accepted threshold, is still considered to be generally unacceptable, unless balanced out by other significant positive benefits of a project. Likely to be in breach of planning policy, rather than legal statute. These effects, if adverse, are likely to be important at a regional or local scale and on their own could have a material influence on decision making. A positive moderate effect is a medium scale change that is significant in that the baseline conditions are improved to the extent that guideline targets (e.g. UK BAP targets) are contributed to.	**Yes (typically)**
Minor	A small change that, whilst adverse, does not exceed legal or planning policy thresholds. A small positive change, but not one that is likely to be a key factor in the overall balance of issues. These effects may be raised as local issues and may be of relevance in the detailed design of a project, but are unlikely to be critical in the decision making process.	**No**
Negligible	A very small change that is so small and unimportant that it is considered acceptable to disregard. Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error, these effects are unlikely to influence decision making, irrespective of other effects.	**No**

1.5.5. Cumulative Effects

1.5.5.1. When undertaking an assessment of the environmental effects of a project, it is necessary to consider how various effects may interact, and also how the effects of the Project could accumulate with the effects of other developments proposed within the same zone of influence.

Intra-project effects

1.5.5.2. Intra-project cumulative effects (sometimes referred to as combined or interactive effects) occur where a single receptor is affected by more than one source of effect or aspect of the Project. An example of an intra-project effect would be where a local community is affected by dust, noise, and traffic disruption during the construction of the Project, with the result being a greater level of nuisance than each individual effect alone.

1.5.5.3. A useful summary of the principle of cumulative intra-project effects is provided by the Planning Inspectorate in Advice Note Nine[30].

"*The ES should not be a series of separate unrelated topic reports. The inter-relationship between aspects of the proposed development should be assessed and careful consideration should be given by the developer to explain how inter-relationships have been assessed in order to address the environmental impacts of the proposal as a whole. It need not necessarily follow that the maximum adverse impact in terms of any one topic impact would automatically result in the maximum potential impact when a number of topic impacts are considered collectively. In addition, individual impacts may not be significant but could become significant when their interrelationship is assessed. It will be for the developer to demonstrate that the likely significant impacts of the project have been properly assessed*."

1.5.5.4. Schedule 4 of the EIA Regulations states that an ES should include:

Paragraph 19:

"A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter relationship between the above factors."

Paragraph 20:

"A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from:

(a) The existence of the development;

(b) The use of natural resources;

(c) The emission of pollutants, the creation of nuisances and the elimination of waste, and the description by the applicant of the forecasting methods used to assess the effects on the environment."

1.5.5.5. In line with this requirement, a description of the likely significant intra-project cumulative effects will be provided within the ES.

1.5.5.6. The Overarching NPS EN-1 states the following in relation to requirements for the assessment of cumulative effects:

'*The Infrastructure Planning Commissions (IPC) [now the Planning Inspectorate (PINS)] should consider how the accumulation of, and interrelationship between,*

[30] Planning Inspectorate (2018). Advice Note Nine: Rochdale Envelope. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-nine-rochdale-envelope/.

effects might affect the environment, economy or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place.'

1.5.5.7. There is no established EIA methodology for assessing and quantifying the effects intra-project effects.

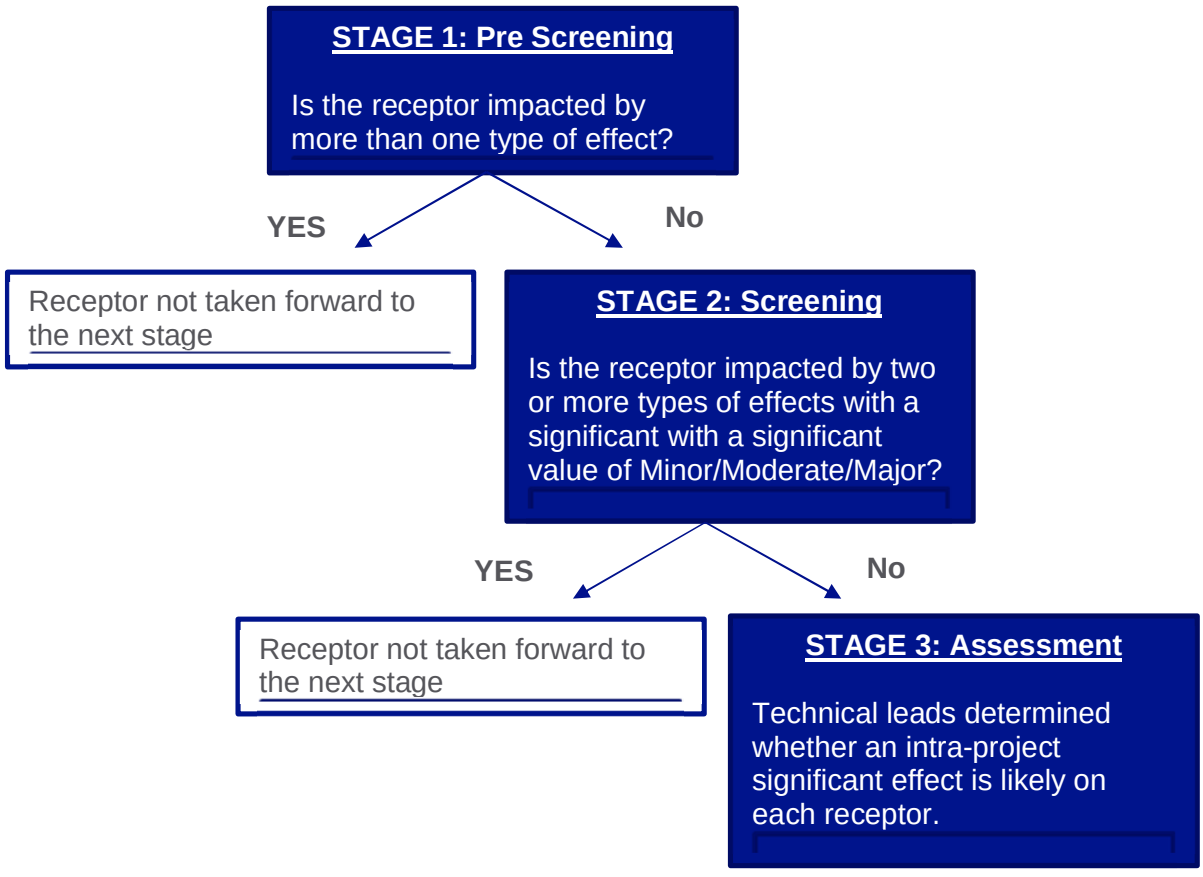
1.5.5.8. Some environmental topics consider receptors that are not considered by any other topics and so intra-project cumulative assessment is unlikely to be necessary. Examples include buried archaeology and protected species.

1.5.5.9. Other receptors may be considered by multiple topics, and as such intra-project cumulative effects are more likely to occur. Receptors considered in multiple chapters are likely to include local residents, communities, and businesses.

1.5.5.10. It is proposed to undertake the assessment of intra-project cumulative effects using as three-stage approach. The first stage consists of a pre-screening exercise to determine whether a receptor is exposed to more than one type of effect. Those receptors identified as experiencing more than one type of effect will be taken through to the second stage. The second stage will consist of a screening exercise to identify the significance each type of effect has on each receptor. Those receptors exposed to two or more types of effect, with a significance of effect greater than negligible, will be taken forward to the third stage. The third stage is the main intra-project assessment, which will consider if the combination of effects is likely to lead to overall effects of greater significance.

1.5.5.11. This three-stage approach is described in more detail in the following section and the approach is illustrated in Image 1.5.4 below.

Image 1.5.4: Methodological approach to identifying intra-project cumulative effects



Inter-project effects

1.5.5.12. Inter-project cumulative effects occur where a receptor is affected by two or more projects at the same time, potentially amplifying the overall effect. Individually the effects may not be significant, but when considered together could create a significant cumulative effect.

1.5.5.13. In addition to paragraph 20 for the EIA Regulations described above, NPS EN-1 states the following in relation to requirements for the assessment of cumulative effects:

'*When considering cumulative effects, the Environmental Statement (ES) should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other developments (including projects for which consent has been sought or granted, as well as those already in existence).*'

1.5.5.14. The Planning Inspectorate Advice Note 17 (AN17)[31] provides a methodology for assessing inter-project cumulative effects. It provides guidance about the type and scale of other developments that should be considered in the assessment of cumulative effects with other projects.

1.5.5.15. The approach outlined in AN17[29] is split into four stages, as outlined below:

- Stage 1 – the two main tasks in this stage are to establish what the 'zone of influence (ZOI)' is for each topic and to then identify a 'long list' of other developments, by reviewing planning applications, development plans.
- Stage 2 – criteria are set for the inclusion or exclusion of developments on the long list. These will be based on overlaps in construction programmes, shared receptors or shared effect pathways.
- Stage 3 – information is gathered about the shortlisted projects, including design, location, programme, operation and decommissioning information and reported environmental effects.
- Stage 4 – Cumulative Effects Assessment (CEA) is undertaken in relation to the shortlisted developments and the findings are reported in a matrix format. The focus is on Tier 1 and 2 projects, with Tier 3 included if possible. These three tiers are described below in Table 1.5.4.

Table 1.5.4 'Other Development' for inclusion in the Inter-project cumulative effects assessment

Tier	Development
Tier 1	Under Construction
	Permitted permission(s) not yet implemented
	Submitted application(s) not yet determined
Tier 2	Projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted

[31] Planning Inspectorate (2019). Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-17/.

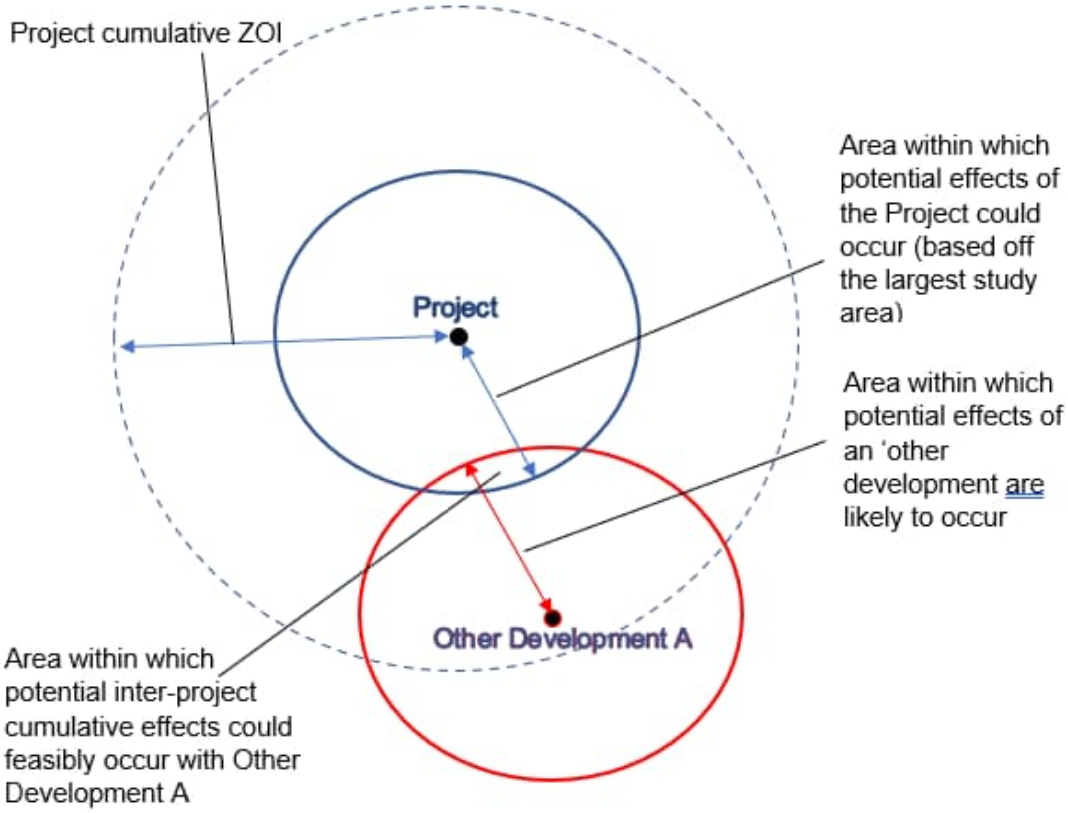
Tier	Development
Tier 3	Projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted
	Identified in the relevant Development Plan
	Identified in other plans and programmes (as appropriate) which set the framework for future development consents/ approvals, where such development is reasonably likely to come forward

Stage 1

1.5.5.16. The first step of Stage 1 is to identify a ZOI within which the long list of projects can be identified.

1.5.5.17. The ZOI has been based off the largest study area of the environmental topic chapters, as the maximum area within which potential effects of the Project could occur. This has then been doubled to take account of potential study areas of 'other developments'. It is considered that doubling the maximum study area is sufficient to identify the 'long list' of 'other developments' whose study areas may overlap with the area within which the Project could result in a potential effect, therefore the area within which inter-project cumulative effects could feasibly occur. This is illustrated on Image 1.5.5. Professional judgement was also applied so as to not use this as hard cut off when identifying the 'long list'.

Image 1.5.5: Defining the ZOI



1.5.5.18. The second step is to identify a long list of projects within the ZOI. This initial long list is provided in **Appendix 1.5.A Inter Project Effects Long List** and will be continually reviewed and updated as required.

1.5.5.19. Those projects which are proposed to be progressed through to Stage 2 are presented within each of the cumulative effects chapters in Parts 2-4 and the outputs of the inter-project cumulative effects assessment will be reported in the ES.

1.5.6. Monitoring

1.5.6.1. Schedule 4, Paragraph 7 of the EIA Regulations states that, where appropriate, the ES should include a description of any proposed monitoring arrangements where likely significant residual effects have been identified. The monitoring requirements will be detailed within the ES topic chapters to include clear and proportionate objectives for monitoring, the parameters to be monitored, the methodology for the monitoring, a timescale for implementation, identification of the party who will be responsible for the monitoring, and an outline of the remedial actions to be undertaken should results be adverse.

1.6 Approach to the Environmental Statement

1.6.1. Introduction

1.6.1.1. The PINS Advice Note Seven[32] requires that applicants provide an outline structure of what the ES will contain. The structure of the ES for the Project will broadly follow the same order of chapters that are presented in this Scoping Report, acknowledging that changes may need to be made within the ES to address the advice from the Scoping Opinion, both in terms of presentation of the Project to aid understanding and address the design requirements as they evolve.

1.6.1.2. An indicative outline structure of the ES is set out in Table 1.7.1.

Table 1.7.1: Indicative structure of the ES

ES volume	Likely content	
Volume 1 – Non-Technical Summary	A concise and standalone document which will provide a description of the Project, EIA process and its findings in a manner that is easily understood by the general public.	
Volume 2 – Main Document	Part 1 Introduction	Introduction – setting out an overview of the Project including the Project need. The purpose and structure of the ES and a brief summary of the other relevant assessments and documents.
		Regulatory and Planning Context – this section will set out the legislative, national and local planning context, other relevant guidance and policies and any applicable consents and permits.
		Main Alternatives Considered – this section will set out the main alternatives considered and the reasons for the selection of the preferred options.
		Description of the Proposed Development – this section will provide a description of the Proposed Development and how the Proposed Development would be constructed, operated maintained and decommissioned.

[32] Planning Inspectorate (2020). Advice Note Seven. EIA: Process, Preliminary Environmental Information, and Environmental Statements. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-and-environmental-statements/.

ES volume	Likely content	
		EIA Methodology and Basis of Assessment – this section will set out the overarching approach to the ES and the methodology used including the basis of assessment.
	Part 2 Suffolk Onshore Scheme	This will include a chapter describing the evolution of the Suffolk Onshore Scheme and the technical assessment chapters for the Suffolk Onshore Scheme. This part is proposed to comprise of the following: • Evolution of the Suffolk Onshore Scheme • Landscape and Visual • Ecology and Biodiversity • Cultural Heritage • Water Environment • Geology and Hydrogeology • Agriculture and Soils • Traffic and Transport • Air Quality • Noise and Vibration • Socio-economics recreation and tourism • Health and Wellbeing • Intra-project Cumulative Effects • Inter-project Cumulative Effects It is proposed that each of the technical chapters will be structured as follows: • Introduction • Legislation and Planning Context • Scope of Assessment and Consultation • Methodology • Basis of Assessment • Study Area

ES volume	Likely content	
		• Baseline Conditions • Potential Effects • Mitigation and Residual Effects • Cumulative Effects • Summary
	Part 3 Kent Onshore Scheme	This will include a chapter describing the evolution of the Kent Onshore Scheme and the technical assessment chapters for the Kent Onshore Scheme. This part is proposed to comprise of: • Evolution of the Suffolk Onshore Scheme • Landscape and Visual • Ecology and Biodiversity • Cultural Heritage • Water Environment • Geology and Hydrogeology • Agriculture and Soils • Traffic and Transport • Air Quality • Noise and Vibration • Socio-economics recreation and tourism • Health and Wellbeing • Intra-project Cumulative Effects • Inter-project Cumulative Effects It is proposed that each of the technical chapters will be structured as follows: • Introduction • Legislation and Planning Context • Scope of Assessment and Consultation • Methodology

ES volume	Likely content	
		• Basis of Assessment • Study Area • Baseline Conditions • Potential Effects • Mitigation and Residual Effects • Cumulative Effects • Summary
	Part 4 Offshore Scheme	This will include a chapter describing the evolution of the Offshore Scheme and the technical assessment chapters for the Offshore Scheme. This part is proposed to comprise of: • Evolution of the Offshore Scheme • Physical Environment • Benthic Ecology • Fish and Shellfish Ecology • Marine Mammals • Marine Ornithology • Marine Archaeology • Shipping and Navigation • Commercial Fisheries • Other Sea Users • Intra-project Cumulative Effects • Inter-project Cumulative Effects It is proposed that each of the technical chapters will be structured as follows: • Introduction • Legislation and Planning Context • Scope of Assessment and Consultation • Methodology • Basis of Assessment • Study Area

ES volume	Likely content	
		• Baseline Conditions • Potential Effects • Mitigation and Residual Effects • Cumulative Effects • Summary
	Part 5 Project Wide Effects	Climate Change – this section will provide an assessment of climate change and greenhouse gas emissions as a result of the Proposed Development
		Combined Effects of the Project – this will provide an assessment as required of any project wide effects over and above those assessed within the individual chapters where there is a pathway for a combined effects between the offshore and onshore schemes.
Volume 2 Appendices	This will set out the appendices for the chapters listed above where required	
Volume 3 Figures	This will provide the Figures for the chapters listed above where required.	

Sea Link

Environmental Impact Assessment Scoping Report
Volume 1 Main Text
Part 2 Suffolk Onshore Scheme

October 2022



nationalgrid

Contents

2.1 Evolution of the Suffolk Onshore Scheme 1

2.1.1 Introduction 1
2.1.2 Network Connection Points 1
2.1.3 Study Area 2
2.1.4 Landfall Areas of Search 2
2.1.5 Converter Station Option Areas 4
2.1.6 Route Corridors 7
2.1.7 Identification of the Initial Preferred Option 9
2.1.8 Stakeholder Feedback and Option Refinement 11
2.1.9 Suffolk Onshore Scheme Description 14

2.2 Landscape and Visual 16

2.2.1 Introduction 16
2.2.2 Regulatory and Planning Context 17
2.2.3 Study Area 20
2.2.4 Baseline Conditions 20
2.2.5 Embedded and Control & Management Measures 38
2.2.6 Potential for Significant Effects 40
2.2.7 Proposed Assessment Methodology 60
2.2.8 Conclusion 68

2.3 Ecology and Biodiversity 71

2.3.1 Introduction 71
2.3.2 Regulatory and Planning Context 71
2.3.3 Study Area 76
2.3.4 Baseline Conditions 76
2.3.5 Embedded and Control & Management Measures 92
2.3.6 Potential for Significant Effects 94
2.3.7 Proposed Assessment Methodology 124
2.3.8 Conclusion 129

2.4 Cultural Heritage 132

2.4.1 Introduction 132

2.4.2 Regulatory and Planning Context 132
2.4.3 Study Area 135
2.4.4 Baseline Conditions 135
2.4.5 Embedded and Control & Management Measures 137
2.4.6 Potential for Significant Effects 138
2.4.7 Proposed Assessment Methodology 145
2.4.8 Conclusion 150

2.5 Water Environment 151
2.5.1 Introduction 151
2.5.2 Regulatory and Planning Context 151
2.5.3 Study Area 153
2.5.4 Baseline Conditions 154
2.5.5 Embedded and Control & Management Measures 155
2.5.6 Potential for Significant Effects 157
2.5.7 Proposed Assessment Methodology 168
2.5.8 Conclusion 172

2.6 Geology and Hydrogeology 175
2.6.1 Introduction 175
2.6.2 Regulatory and Planning Context 176
2.6.3 Study Area 180
2.6.4 Baseline Conditions 180
2.6.5 Embedded and Control & Management Measures 191
2.6.6 Potential for Significant Effects 192
2.6.7 Proposed Assessment Methodology 202
2.6.8 Conclusion 211

2.7 Agriculture and Soils 214
2.7.1 Introduction 214
2.7.2 Regulatory and Planning Context 215
2.7.3 Study Area 216
2.7.4 Baseline Conditions 217
2.7.5 Embedded and Control & Management Measures 218
2.7.6 Potential for Significant Effects 220
2.7.7 Proposed Assessment Methodology 228
2.7.8 Conclusion 232

2.8 Traffic and Transport 234

2.8.1 Introduction 234
2.8.2 Regulatory and Planning Policy Context 234
2.8.3 Study Area 239
2.8.4 Baseline Conditions 241
2.8.5 Embedded and Control & Management Measures 254
2.8.6 Potential for Significant Effects 255
2.8.7 Proposed Assessment Methodology 272
2.8.8 Conclusion 281

2.9 Air Quality 287
2.9.1 Introduction 287
2.9.2 Regulatory and Planning Context 287
2.9.3 Study Area 289
2.9.4 Baseline Conditions 290
2.9.5 Embedded and Control & Management Measures 291
2.9.6 Potential for Significant Effects 293
2.9.7 Proposed Assessment Methodology 298
2.9.8 Conclusion 300

2.10 Noise and Vibration 302
2.10.1 Introduction 302
2.10.2 Regulatory and Planning Context 302
2.10.3 Study Area 307
2.10.4 Baseline Conditions 308
2.10.5 Embedded and Control & Management Measures 310
2.10.6 Potential for Significant Effects 312
2.10.7 Proposed Assessment Methodology 322
2.10.8 Conclusion 328

2.11 Socio-economics, Recreation and Tourism 329
2.11.1 Introduction 329
2.11.2 Regulatory and Planning Context 329
2.11.3 Study Area 332
2.11.4 Baseline Conditions 333
2.11.5 Embedded and Control & Management Measures 338
2.11.6 Potential for Significant Effects 339
2.11.7 Proposed Assessment Methodology 359
2.11.8 Conclusion 361

2.12 Health and Wellbeing 364

2.12.1 Introduction 364
2.12.2 Regulatory and Planning Context 365
2.12.3 Study Area 367
2.12.4 Baseline Conditions 368
2.12.5 Embedded and Control & Management Measures 370
2.12.6 Potential for Significant Effects 371
2.12.7 Proposed Assessment Methodology 386
2.12.8 Conclusion 390

2.13 Cumulative Effects 392

2.13.1 Introduction 392
2.13.2 Intra-Project 392
2.13.3 Inter-Project 395
2.13.4 Conclusion 402

Tables

Table 2.1.1: Connection points and converter site option areas 4
Table 2.2.1: Representative viewpoint locations for Site 1 Emerging Preference 26
Table 2.2.2: Representative viewpoint locations for Site 1 Alternative 27
Table 2.2.3: Representative viewpoint locations for Site 3 Emerging Preference 30
Table 2.2.4: Representative viewpoint locations for Site 3 Alternative (Option 1) 32
Table 2.2.5: Representative viewpoint locations for Site 3 Alternative (Option 2) 34
Table 2.2.6: Sources and impacts 42
Table 2.2.7: Impact pathways with receptors – Suffolk Site 1 Emerging Preference 46
Table 2.2.8: Impact pathways with receptors – Suffolk Site 1 Alternative 49
Table 2.2.9: Impact pathways with receptors – Suffolk Site 3 Emerging Preference 52
Table 2.2.10: Impact Pathways – Suffolk Site 3 Alternative (Option 1) 55
Table 2.2.11: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 2) 58
Table 2.2.12: Sensitivity of landscape receptors 63
Table 2.2.13: Sensitivity of visual receptors 64
Table 2.2.14: Magnitude of effect – landscape receptors 65
Table 2.2.15: Magnitude of effect – visual receptors 66
Table 2.2.16: Significance of effect 67
Table 2.2.17: Proposed scope of the assessment 68
Table 2.3.1: Statutorily Designated Sites within 10km (international) and 5km (national) of the Suffolk Onshore Scheme 79
Table 2.3.2: Non-statutory designated sites currently identified within 2km of the Suffolk Onshore Scheme 86
Table 2.3.3: Source and impacts 95
Table 2.3.4:Impact pathways with receptors – Suffolk Site 1 Emerging Preference 100
Table 2.3.5: Impact pathways with receptors – Suffolk Site 1 Alternative 104
Table 2.3.6: Impact pathways with receptors – Suffolk Site 3 Emerging Preference 109
Table 2.3.7: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 1) 114
Table 2.3.8: Impact pathways with receptors– Suffolk Site 3 Alternative (Option 2) 120
Table 2.3.9:Examples of criteria used to evaluate important ecological features in a defined geographical context 126
Table 2.3.10: Relating CIEEM assessment terms to those used in other EIA chapters 128
Table 2.3.11: Proposed scope of the assessment 130
Table 2.4.1: Sources and impacts 140

Table 2.4.2: Impact pathways with receptors – Suffolk Site 1 Emerging Preference 142
Table 2.4.3: Impact pathways with receptors – Suffolk Site 1 Alternative 142
Table 2.4.4: Impact pathways with receptors – Suffolk Site 3 Emerging Preference 143
Table 2.4.5: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 1) 144
Table 2.4.6: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 2) 145
Table 2.4.7: Criteria for assessing the value of heritage assets 147
Table 2.4.8: Factors influencing the assessment of magnitude of impacts. 148
Table 2.4.9: Assessment of effect 149
Table 2.4.10: Proposed scope of the assessment 150
Table 2.5.1: Sources and impacts 159
Table 2.5.2: Impact pathways with receptors – Suffolk Site 1 Emerging Preference 161
Table 2.5.3: Impact pathways with receptors – Suffolk Site 1 Alternative 162
Table 2.5.4:Impact pathways with receptors – Suffolk Site 3 Emerging Preference 164
Table 2.5.5: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 1) 165
Table 2.5.6: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 2) 167
Table 2.5.7: Criteria for assigned receptor value (sensitivity) 169
Table 2.5.8: Criteria for assigning impact magnitude 170
Table 2.5.9: Proposed scope of the assessment 172
Table 2.6.1: Potential sources of contamination 187
Table 2.6.2: Sources and impacts 193
Table 2.6.3: Impact pathways with receptors – Suffolk Site 1 Emerging Preference 196
Table 2.6.4: Impact pathways with receptors – Suffolk Site 1 Alternative 197
Table 2.6.5: Impact pathways with receptors – Suffolk Site 3 Emerging Preference 199
Table 2.6.6: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 1) 200
Table 2.6.7: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 2) 201
Table 2.6.8: Criteria for classifying potential for generating contamination 203
Table 2.6.9: Value/sensitivity criteria 205
Table 2.6.10: Magnitude criteria 208
Table 2.6.11: Significance matrix 211
Table 2.6.12: Proposed scope of the assessment 212
Table 2.7.1: Sources and impacts 223
Table 2.7.2: Impact pathways with receptors – all options 226
Table 2.7.3: Sensitivity of receptor criteria 229
Table 2.7.4: Magnitude criteria 231
Table 2.7.5: Proposed scope of the assessment 232
Table 2.8.1: Sources and impacts 258
Table 2.8.2: Impact pathways with receptors – Suffolk Site 1 Emerging Preference 261
Table 2.8.3: Impact pathways with receptors – Suffolk Site 1 Alternative 263
Table 2.8.4: Impact pathways with receptors – Suffolk Site 3 Emerging Preference 265
Table 2.8.5: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 1) 267
Table 2.8.6: Impact pathways with receptors– Suffolk Site 3 Alternative (Option 2) 269
Table 2.8.7: Categorising the overall sensitivity of receptors 276
Table 2.8.8: Categorising the overall magnitude of effect of a highway link or junction 279
Table 2.8.9: Categorising the overall magnitude of effect of a PRoW diversion and/or closure 280
Table 2.8.10: Significance matrix 281
Table 2.8.11: Proposed scope of the assessment for Site 1 Emerging Preference 281
Table 2.8.12: Proposed scope of the assessment for Site 1 Alternative 282
Table 2.8.13: Proposed scope of the assessment for Site 3 Emerging Preference 283
Table 2.8.14: Proposed scope of the assessment for Site 3 Alternative (Option 1) 284
Table 2.8.15: Proposed scope of the assessment for Site 3 Alternative (Option 2) 285
Table 2.9.1:Sources and impacts 295
Table 2.9.2: Impact pathways with receptors 297
Table 2.9.3: Dust emission magnitude criteria 298
Table 2.9.4: Receptor sensitivity criteria 299
Table 2.9.5: IAQM impact descriptors for individual receptors 300
Table 2.9.6: Proposed scope of the assessment 300
Table 2.10.1: PPGN noise exposure hierarchy 305
Table 2.10.2: Local planning policies applicable to Suffolk Onshore Scheme 306
Table 2.10.3:Sources and impacts 313
Table 2.10.4: Impact pathways with receptors – all options 319

Table 2.10.5: Criteria for determining value/sensitivity (Non-Residential NSRs) 323
Table 2.10.6: Construction noise effect levels at residential receptors 324
Table 2.10.7:Construction vibration effect magnitudes at residential receptors 324
Table 2.10.8: Magnitude of impact from construction traffic at residential receptors 325
Table 2.10.9: Magnitude of impact from operational converter station and substation noise 326
Table 2.10.10:Significance matrix at non-residential NSR 327
Table 2.10.11: Proposed scope of the assessment 328
Table 2.11.1: Community facilities within the study area 335
Table 2.11.2: Open spaces within the study area 336
Table 2.11.3: Sources and impacts 340
Table 2.11.4: Impact pathways with receptors – Suffolk Site 1 Emerging Preference 344
Table 2.11.5: Impact Pathways with receptors– Suffolk Site 1 Alternative 347
Table 2.11.6: Impact pathways with receptors – Suffolk Site 3 Emerging Preference 350
Table 2.11.7: Impact pathways with receptors – Suffolk Site 3 Alternative (Option1) 353
Table 2.11.8: Impact pathways with receptors– Suffolk Site 3 Alternative (Option 2) 356
Table 2.11.9: Proposed scope of the assessment 361
Table 2.12.1: Community health profile 368
Table 2.12.2: Sources and impacts 373
Table 2.12.3: Impact pathways with receptors – Suffolk Site 1 Emerging Preference 377
Table 2.12.4: Impact pathways with receptors – Suffolk Site 1 Alternative 379
Table 2.12.5: Impact pathways with receptors – Suffolk Site 3 Emerging Preference 381
Table 2.12.6: Impact pathways with receptors– Suffolk Site 3 Alternative (Option 1) 383
Table 2.12.7: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 2) 385
Table 2.12.8: Health assessment impact categories 389
Table 2.12.9: Proposed scope of the assessment 390
Table 2.13.1: Pre-screening stage 394
Table 2.13.2: Study areas for environmental topics 395
Table 2.13.3: Projects proposed to be taken forward for Stage 2 396

Images

Image 2.12.1 Determinants of health 387
Image 2.12.2 Determinants of health in neighbourhoods 388

2.1 Evolution of the Suffolk Onshore Scheme

2.1.1 Introduction

2.1.1.1 The current stage of Project design is the result of an iterative process that commenced at project inception when the initial need to reinforce the network in the South East of England was identified in 2019.

2.1.1.2 **Part 1, Chapter 3, Main Alternatives Considered** describes National Grid's approach to options appraisal and summarises both the strategic options that have been considered for the Project as well as the routeing and siting process. This chapter provides a more detailed summary of the routeing and siting appraisal relevant to the evolution of the Suffolk Onshore Scheme from the selection of the preferred strategic option to the Suffolk Onshore Scheme Scoping Boundary as illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**.

2.1.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 3, Main Alternatives Considered;**
- **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme;** and
- **Part 4, Chapter 1, Evolution of the Offshore Scheme.**

2.1.1.4 This chapter is supported by the following figure:

- **Figure 2.1.1 Evolution of the Suffolk Onshore Scheme**.

2.1.2 Network Connection Points

2.1.2.1 The preferred strategic option identified the Sizewell area as the area on the network the Project was required to connect, in order to meet the Needs Case as described in **Part 1, Chapter 1, Introduction** and as described in **Part 1, Chapter 3, Main Alternatives Considered**. Three potential points of connection were identified within the Sizewell area, and these were appraised as part of the routeing and siting appraisal. These connection points are illustrated on **Figure 1.3.4 Suffolk Network Connection Points** and were:

- the existing Sizewell B substation or the new Sizewell C substation (which forms part of the proposed Sizewell C Nuclear Power Station Project)
- the proposed Friston substation (which forms part of the Proposed Scottish Power Renewables East Anglia One North and East Anglia Two Offshore Wind Farm Projects), or
- a new connection point directly onto the existing 400kV overhead lines within proximity to the Sizewell area.

2.1.2.2 These were used as the basis for defining the routeing and siting study area in Suffolk.

2.1.3 Study Area

2.1.3.1 The routeing and siting study area in Suffolk extended from Hollesley in the south to Dunwich in the north along the Suffolk coast, and, inland to Wickham Market. The routeing and siting study area is illustrated on **Figure 1.3.1 Routeing and Siting Study Area**.

2.1.4 Landfall Areas of Search

Areas of Search

2.1.4.1 Five landfall areas of search were initially identified in Suffolk. These are illustrated on **Figure 1.3.2 Suffolk Landfall Areas of Search**. The southernmost area of search (S1) was identified to the south of Aldeburgh, north of the Alde and Ore River. A second area of search was identified between Aldeburgh and Thorpeness (S2). A third area of search was identified between Thorpeness and Sizewell (S3). This area was further split down into two sub areas, south (S3) and north (S3N). A fourth area (S4) at Sizewell and the northern most area of search was identified to the north of Sizewell, south of Minsmere (S5).

Summary of Appraisal Outcomes

Terrestrial constraints

2.1.4.2 All five landfall areas of search are within the Suffolk Coasts and Heaths AONB which was unavoidable within the study area.

2.1.4.3 Landfall area of search S1 is located to the south of Aldeburgh and the north of the Alde and Ore River. The Alde and Ore River is located adjacent to the south of this landfall area of search and is designated as the Alde-Ore Estuary Ramsar, SPA and SSSI and the Alde-Ore & Butley Estuaries SAC. These designations are avoidable within this landfall area of search however they would need to be crossed by any onward terrestrial routeing from this landfall. The whole of this landfall area of search is within Flood Zones 2 and 3 and construction within the flood zone could not be avoided. Access to this landfall area of search is also limited and would likely need to be taken through Aldeburgh.

2.1.4.4 Landfall area of search S2 is located to the north of Aldeburgh and south of Thorpeness. The whole of the landfall area of search is designated as Leiston – Aldeburgh SSSI and North Warren RSPB Reserve. These designations are unavoidable within this area of search, but the use of trenchless construction techniques (subject to confirmation through further studies and ground investigations) could be used to avoid potential significant effects. The majority of the landfall area of search is within Flood Zone 2 and 3, depending on the installation technique, construction works within these zones are potentially avoidable.

2.1.4.5 Landfall area of search S3 stretches from Thorpeness in the south to Sizewell in the north and was broadly split into two, S3 in the south from Thorpeness to Beach View

Holiday Park and S3N to the north of Beach View Holiday Park to Sizewell Gap Road. The whole of the intertidal area within S3 is designated as Leiston – Aldeburgh SSSI, however within this landfall area of search this designation is very narrow and likely to be avoidable with the use of trenchless construction techniques (subject to confirmation through further studies and ground investigations). A section of North Warren RSPB Reserve is located in the south of this landfall area of search but is likely to be avoidable. S3N is wholly outside of the Leiston – Aldeburgh SSSI. There are small areas of Flood Zone 2 and 3 across both S3 and S3N but these areas are localised and likely to be avoidable.

2.1.4.6 Landfall area of search S4 is located to the north of Sizewell Gap Road at Sizewell. There are no terrestrial designations for ecological conservation within the intertidal area however the landfall area of search is significantly constrained by the existing Sizewell B Nuclear Power Station.

2.1.4.7 Landfall area of search S5 is located to the north of existing Sizewell Nuclear Power Station and south of Minsmere New Cut drainage channel. The whole of the intertidal area and immediate terrestrial area is designated as Minsmere-Walberswick Ramsar and SPA, Minsmere to Walberswick Heaths & Marshes SAC and SSSI and Minsmere RSPB Reserve. These designated sites are unavoidable within this area of search but the use of trenchless construction techniques (subject to confirmation through further studies and ground investigations) could be used to avoid potential significant effects. A second crossing of the Minsmere to Walberswick Heaths & Marshes SSSI and Minsmere RSPB Reserve would also be required for any onward terrestrial routeing. The majority of this landfall area of search is within Flood Zones 2 and 3 and construction within the flood zone could not be avoided. Access to this landfall area of search is also very limited and likely to require a long temporary access road.

Summary of relevant marine alignments

2.1.4.8 Whilst the immediate offshore landfall area of search at S1 and S2 is outside of the Southern North Sea SAC all marine alignments to the landfall areas of search in Suffolk would need to cross both the Southern North Sea SAC and the Outer Thames Estuary SPA.

2.1.4.9 The marine approaches to both landfall area of search S1 and S2 were considered to be relatively unconstrainted.

2.1.4.10 The marine alignments to landfall area of search S3 was considered significantly constrained due to the presence of rocky reefs comprised of cemented limestone rich shells in the immediate offshore environment. This constraint is reduced at landfall S3N.

2.1.4.11 The marine alignments to landfall areas of search S4 and S5 were considered to be more constrained than the other options due to the additional number of offshore crossings that would be required and the potential for interaction with the proposed Sizewell C development.

Overall summary

2.1.4.12 Landfall area of search S1 was considered to be relatively unconstrainted from a marine approach perspective but terrestrially has access and flood risk constraints and constraints associated with the onward terrestrial routeing.

2.1.4.13 Landfall area of search S2 was considered to be relatively unconstrainted from a marine approach perspective but terrestrially crosses a wide area designated as SSSI and RSPB reserve.

2.1.4.14 Landfall area S3 was considered to be significantly constrained from a marine approach perspective due to the presence of rocky reefs and in the immediate offshore by the proposed export cable route from the East Anglia One North and Two developments. Onshore it was considered likely that the SSSI and RSPB reserve could be avoided through the use of trenchless installation techniques (subject to confirmation through further studies and ground investigations). Offshore the approach to landfall S3N was less constrained due to the presence of the rocky reef but other existing and proposed offshore infrastructure on the approach still pose a constraint. Terrestrially S3N is relatively unconstrained environmentally.

2.1.4.15 Landfall area of search S4 was considered to be significantly constrained both on the offshore approach and terrestrially by the presence of the existing Sizewell C Nuclear Power Station development.

2.1.4.16 Landfall area of search S5 was considered to be constrained on the marine approach by the number of offshore crossings and the potential interaction with the proposed Sizewell C Nuclear Power Station development and onshore by both European and national designated sites for nature conservation.

2.1.5 Converter Station Option Areas

Option Areas

2.1.5.1 Nine converter station option areas were identified within the routeing and siting study area. These were based on the siting parameter of approximately 5km from the network connection point as explained in **Part 1, Chapter 3, Main Alternatives Considered**.

2.1.5.2 Due to there being a number of potential network connection points in the Sizewell area, converter station option areas were identified for each connection point, but some option areas provided a connection into more than one of the connection points. Table 2.1.1 lists the option areas appraised for each connection point and a description of the option areas is provided below. The option areas are illustrated on **Figure 1.3.5 Suffolk Converter Site Option Areas**.

Table 2.1.1: Connection points and converter site option areas

Connection point	Converter site option areas
Existing and proposed Sizewell substations	A, B, C, D
Proposed Friston substation	B, C, D, E, F, G, H
New substation along the existing 4Z overhead lines	B, E, F, H, I

2.1.5.3 Option Area A is located to the north of Kenton and Goose Hill, to the southeast of Eastbridge. The option area is wholly within the Suffolk Coasts and Heaths AONB, but, was identified as a potential option area, as it is close to the existing Sizewell B Nuclear Power Station and adjacent to the proposed Sizewell C Nuclear Power Station, therefore, providing an opportunity to keep energy infrastructure close together. The option area is adjacent to the Minsmere-Walberswick Ramsar and SPA, Minsmere to Walberswick Heaths & Marshes SAC and SSSI and Minsmere RSPB Reserve.

2.1.5.4 Option Area B is located to the east of Leiston and west of the existing Sizewell B Nuclear Power Station. The option area is wholly within the Suffolk Coasts and Heaths AONB, but, was identified as a potential option area as it adjacent to the existing Sizewell B Nuclear Power Station and existing overhead lines, therefore, providing an opportunity to keep energy infrastructure close together. Sandlings SPA, Leiston – Aldeburgh SSSI and North Warren RSPB Reserve boarder this option area to the south.

2.1.5.5 Option Area C is located on the site of the former Leiston Airfield and is bordered to the south by Harrow Lane to the northwest by Theberton Woods. Moat Road runs west to east through the northern half of the option area.

2.1.5.6 Option Area D is located to the west of Leiston and is bordered to the northwest by the B1119 and Abbey Road and to the west by the Hundred River. There is a small parcel of Ancient Woodland (Buckles Wood) located within the north of this option area adjacent to Buckleswood Road. There is an area of Flood Zone 2 and 3 on the far western boundary of the option area associated with the Hundred River.

2.1.5.7 Option Area E is located to the south of Knodishall and is bounded to the east by the Suffolk Coasts and Heaths AONB, the south by the A1094 Aldeburgh Road and the B1069 (Snape Road) runs southwest to northeast through the centre of the option area. There is a small area of Ancient Woodland at Great Wood located on the eastern edge of the option area and Grove Wood Ancient Woodland is located adjacent to the northwest corner of the option area.

2.1.5.8 Option Area F is located to the southeast of Sternfield and west of Friston. An unnamed road linking Church Hill to the A1094 borders the west of the option area and the B1121 boarders the option area to the north and northeast. Red Lane and Kiln Lane run west to east through the northern half of this option area. The existing 400kV overhead lines run southwest to northeast through the centre of this option area. The Suffolk Coasts and Heaths AONB is located to the south of the option area, south of the A1094.

2.1.5.9 Option Area G is located the southwest of Saxmundham and is bordered to the east by the A12 and the west by Deadmans Lane.

2.1.5.10 Option Area H is located to the west of Gromford and is bounded to the south and east by a railway line the west by Langham Road, Racewalk Covert is located to the north of the site. Snape RSPB Reserve is located to the south of the option area, south of the railway line.

2.1.5.11 Option Area I is located to the east of Lower Hacheston and is bounded to the north by the A12. The existing 400kV overhead lines and railway line cross the far southeastern boundary of the option area. A small area of Flood Zone 2 and 3 is

located in the northeastern corner of option the option area, associated with the River Ore.

Summary of Appraisal Outcomes

2.1.5.12 Of the possible connection points in the Sizewell area, only the Sizewell B substation is currently in existence; all the other proposed connection points would require the installation of a new substation, either proposed through another project in the area or installed as part of this Project. Connecting into the Sizewell B substation would require taking over two of the super grid transformer (SGT) circuits feeding the existing Leiston 132kV substation by connecting into the 400kV circuits feeding the SGTs. This would require the installation of two new 400/132kV SGTs in the converter station site with new 400kV cables connecting into the existing Sizewell B substation and new 132kV cables connecting the SGTs in the converter station with the Leiston 132kV substation. The 400kV cable route to the substation would require either using the corridor allocated to the existing 132kV connection or routeing through Sizewell Marshes SSSI. A connection into either the existing or proposed Sizewell substation would also need to take into account the works to construct the proposed Sizewell C Nuclear Power Station as the works would overlap. This could have programme implications for the delivery of this Project in line with the needs case and to meet the required connection date.

2.1.5.13 At the time of the routeing and siting appraisal the Development Consent Order (DCO) that would deliver Friston substation (which is proposed forms part of the Proposed Scottish Power Renewables East Anglia One North and East Anglia Two Offshore Wind Farm Projects) was advanced in the consenting process and it has subsequently received Development Consent.

2.1.5.14 A connection into the existing 400kV overhead lines would require a new substation to be built. This was assessed on the basis that it would be co-located within the converter station site option areas and would also require either the existing overhead lines to be diverted into and out of the new substation or a cable route (where economic and efficient) from a new substation to the overhead lines with a cable sealing end compound located adjacent to the overhead lines.

2.1.5.15 Converter site option areas A and B are both within the Suffolk Coasts and Heaths AONB but offers opportunities to keep existing and proposed energy infrastructure together. Both areas are also within land which is being used as part of ecological mitigation areas for the proposed Sizewell C Nuclear Power Station. As set out above a connection from either of these sites into either the existing or proposed Sizewell substation was considered to be significantly constrained and a connection into either the proposed Friston substation or a new connection into the existing 400kV overhead lines would likely be required. Site option area A was not identified as a site suitable for either a connection into the proposed Friston substation or the existing 400kV overhead lines due to the distance from this option area to these connection points.

2.1.5.16 Converter site option area C was considered to be constrained by the existing access, however the development of the proposed Theberton bypass as part of the proposed Sizewell C development, would alleviate some of these constraints if developed in time.

2.1.5.17 Converter site option area D was considered constrained by planned future development plans to the north including the proposed Sizewell C rail head and poor site access along the existing road network that would require routeing of traffic through Leiston.

2.1.5.18 Converter site option areas E and F both have good access from the A1094 but were considered constrained by the proximity to the Suffolk Coasts and Heaths AONB in terms of the potential for setting impacts.

2.1.5.19 Converter site option areas G and H were considered highly constrained by future development plans on the eastern side of the A12 constraining the ability to connect into either the proposed Friston substation and, in the case of option area H, a new connection point on the existing 400kV overhead lines.

2.1.5.20 Converter site option area I was not identified for a Sizewell or a Friston connection due to the distance from this proposed connection point so the site would require a new connection point to be established. This option area is also constrained by the length of onshore cable that would be required to connect to any of the landfall areas of search increasing the spread of potential temporary disturbance during construction.

2.1.5.21 Due to the existing and proposed energy development within the study area coupled with the proximity of the Suffolk Coats and Heaths AONB in this locality the environmental and socio-economic appraisal concluded that an underground High Voltage Alternating Current (HVAC) connection would be preferred to an OHL HVAC connection between the converter site options areas an any of the connection points.

2.1.6 Route Corridors

Route Corridors

2.1.6.1 Corridors were developed that could connect each of the landfall areas of search to each of the converter station site option areas.

2.1.6.2 Within Suffolk this process resulted in 15 corridors being identified:

- five corridors from each of the five landfall areas of search to the four converter station site option areas that could connect into the existing and proposed Sizewell substations (**Figure 1.3.7 Suffolk Terrestrial Route Corridors Sizewell Connection**);
- five corridors from each of the five landfall areas of search to the seven converter station site option areas that could connect into the proposed Friston substation (**Figure 1.3.8 Suffolk Terrestrial Route Corridors Proposed Friston Connection**); and
- five corridors from each of the five landfall areas of search to the five converter station site options that could connect into the existing 400kV overhead lines (**Figure 1.3.9 Suffolk Terrestrial Route Corridors New Connection**).

Summary of Appraisal Outcomes

2.1.6.3 Within Suffolk none of the corridors avoided designated sites. The Suffolk Coasts and Heaths AONB extends across the full extent of the routeing and siting study area and

was therefore unavoidable for any of the 15 corridors that were identified and appraised. Whilst the routeing and siting study area was drawn to provide opportunities to avoid designated sites and constraints. The Suffolk Coasts and Heaths AONB extends unbroken from Felixstowe and Harwich in the south to Kessingland in the north. It was not therefore possible to avoid this designation and meet the need case without a significantly longer and indirect route that would not be in accordance with National Grid's statutory duties.

2.1.6.4 All three green corridors that connect with the southernmost of the five landfall areas of search S1, south of Aldeburgh, would require an extensive crossing of the Alde-Ore Estuary, which is designated as the Alde-Ore Estuary Ramsar, SPA and SSSI and the Alde-Ore & Butley Estuaries SAC. These corridors would also interact with the same designated sites around the settlements of Iken and Snape. A large proportion of the green corridors is also within Flood Zone 2 and 3 and would require the longest cable route within the Suffolk Coasts and Heaths AONB of all the corridors.

2.1.6.5 The three red corridors that connect to the landfall area of search S2, between Aldeburgh and Thorpeness would need to cross a section of the Leiston Aldeburgh SSSI as well as part of the North Warren RSPB Reserve. It is likely trenchless construction techniques (subject to confirmation through further studies and ground investigations) could be used to avoid significant effects.

2.1.6.6 The three blue corridors that connect into the southern part of the landfall area of search S3 between Thorpeness and Sizewell would need to cross a section of Sandlings SPA and the Leiston Aldeburgh SSSI and would likely require interaction with the proposed cables routes for the Scottish Power Renewables (SPR) East Anglia One North and East Anglia Two Offshore Wind Farms.

2.1.6.7 The three purple corridors connecting into the northern part of this landfall area of search S3N, when considered in isolation, provided an opportunity to avoid sites designated for nature conservation but would entail interaction with the proposed Sizewell C Nuclear Power Station project.

2.1.6.8 The three orange corridors connecting to the most northern landfall area of search S5, to the north of Sizewell would need to cross Minsmere-Walberswick Ramsar and SPA, Minsmere to Walberswick Heaths & Marshes SAC and SSSI and Minsmere RSPB Reserve and would entail significant interaction with the proposed Sizewell C Nuclear Power Station project.

2.1.6.9 Four pinch-points were identified within the route corridors:

- The first is at a crossing of Leiston Road close to South Warren Golf Course, which would be crossed by all three red corridors connecting to the landfall area of search S2.
- The second of these is located between the B1353 and Leiston Road and would require cable routes to cross the Sandlings SPA, the Leiston Aldeburgh SSSI, and a section of the golf course, as well as having a pinch-point at the crossing of Leiston Road. This pinch-point would affect the three corridors blue corridors connecting to landfall area of search S3.
- The third pinch-point is to the south of Aldringham at the crossing of the Hundred River. This area is constrained by the Hundred River itself, the crossing of the B1353 and the B1122, and an area of woodland and properties. In addition, the

proposed cables for the SPR East Anglia One North and Two Offshore Windfarms are proposed to be routed through this same pinch-point. This area would need to be routed through (depending on which converter station site option area) by the three purple corridors connecting to landfall area of search S3N or by all three blue corridors connecting to landfall area of search S3 to avoid the second pinch point.

- The fourth pinch-point is to the northwest of Leiston associated with the offsite works for the proposed Sizewell C Nuclear Power Station including an area which has recently been established for ecological mitigation measures related to the project. This area would need to be routed through (depending on which converter station site option area) by the three purple corridors connecting to landfall area of search S3N.

2.1.7 Identification of the Initial Preferred Option

2.1.7.1 The evolution of the Suffolk Onshore Scheme is illustrated on **Figure 2.1.1 Evolution of the Suffolk Onshore Scheme, Sheets 1 to 4**.

2.1.7.2 The connection points, landfall areas of search, converter site option areas, route corridors and nearshore marine alignments considered at the routeing and siting stage are shown on **Figure 2.1.1 Evolution of the Suffolk Onshore Scheme, Sheet 1 of 4**.

2.1.7.3 Significant constraints associated with a connection into either the existing or proposed Sizewell substations meant that these options were not preferred. Connecting to a new connection point in the area, with an associated additional substation, was also not preferred as there would be no environmental or socio-economic, technical, or economic benefit over connecting into an existing (where possible) or proposed substation. The proposed Friston substation was therefore identified as the preferred connection point. As a consequence, those converter option areas (area A and area I) which were not identified for a Friston connection were discounted alongside the associated terrestrial corridors. This is illustrated on **Figure 2.1.1 Evolution of the Suffolk Onshore Scheme, Sheet 2 of 4**.

2.1.7.4 Landfall area of search S4 was identified as being significantly constrained from a terrestrial perspective as no onward terrestrial route corridor was identified from this landfall area of search due to the existing and proposed Sizewell Nuclear Power Stations. The marine approach was also considered to be constrained therefore this option was not taken forward. This is illustrated on **Figure 2.1.1 Evolution of the Suffolk Onshore Scheme, Sheet 2 of 4**.

2.1.7.5 Whilst the marine alignment to landfall area S1 was relatively unconstrainted, the terrestrial green corridor was constrained technically by two large river crossings of the Alde and Ore River which would also require a crossing of the Alde-Ore and Butley SAC in two places and the Alde-Ore Estuary SPA and SSSI in three places. A large proportion of this corridor is within the Flood Zone and this corridor would require the longest route within the Suffolk Coasts and Heaths AONB. Access to this corridor was also considered to be very limited, in particular in the area between the two large river crossings due to the nature and scale of the existing road network. This is illustrated on **Figure 2.1.1 Evolution of the Suffolk Onshore Scheme, Sheet 3 of 4**.

2.1.7.6 The marine approach to landfall area S3 was considered to be significantly constrained by the presence of rocky reefs. Onward terrestrial routeing within the blue corridor would also likely require a crossing of Sandlings SPA and Leighton-Aldeborough SSSI although the potential for significant effects would likely be avoidable through the use of trenchless construction techniques (subject to confirmation through further studies and ground investigations). This is illustrated in **Figure 2.1.1 Evolution of the Suffolk Onshore Scheme, Sheet 3 of 4**.

2.1.7.7 The marine approach to landfall S5 was considered to be constrained by the number of crossings offshore. Terrestrially the onshore orange corridor is constrained at the landfall by the presence of both European and national designated sites for nature consideration, albeit it is likely that significant effects could be avoided through the use of trenchless construction techniques (subject to confirmation through further studies and ground investigations). The orange corridor also crosses a large area of the proposed Sizewell C Nuclear Power Station development area which could significantly constrain the ability to route through this area and also have programme implications associated with construction sequencing of the two developments. This is illustrated on **Figure 2.1.1 Evolution of the Suffolk Onshore Scheme, Sheet 3 of 4**.

2.1.7.8 The marine approach to the landfall area S2 has few constraints, however the Leiston Aldeburgh SSSI and North Warren RSPB reserve could not be avoided without the use of trenchless construction techniques (subject to confirmation through further studies and ground investigations) at this landfall. The red terrestrial route corridor from this landfall area of search also includes the pinch-point along Leiston Road. This is illustrated on **Figure 2.1.1 Evolution of the Suffolk Onshore Scheme, Sheet 4 of 4**.

2.1.7.9 The northern part of the landfall area of search S3 (S3N) could avoid the area of rocky reef which significantly constrains the marine approach to S3 but the presence of existing and proposed cables at this landfall area and in the nearshore environment constrain potential marine alignments. The purple terrestrial route corridor connecting to this landfall area of search could avoid the designated sites for ecological conservation but could not avoid either of the two following pinch points. The first being a pinch-point to the south of Aldringham at the crossing of the Hundred River. This area is constrained by the Hundred River itself, the crossing of the B1353 and the B1122, and an area of woodland and properties. In addition, the proposed cables for the SPR East Anglia One North and Two Offshore Windfarms are proposed to be routed through this same pinch-point. The second being a pinch-point to the northwest of Leiston associated with the offsite works for the proposed Sizewell C Nuclear Power Station including an area which has recently been established for ecological mitigation measures related to the project. This is illustrated on **Figure 2.1.1 Evolution of the Suffolk Onshore Scheme, Sheet 4 of 4**.

2.1.7.10 Converter site options area B was constrained as this site is within the Suffolk Coasts and Heaths AONB and overlaps with an area which has been established for the proposed Sizewell C Nuclear Power Station ecological mitigation. Option Area C was considered to be constrained by the existing access. This option area would also result in a significantly longer onshore cable route if landfall area of search S2 and the red corridor was selected. Option Area D was considered to be constrained due to access and the need to route construction traffic through settlements. Option areas G and H were considered to be significantly constrained by the connection from these sites back to the proposed Friston substation. Option areas E and F are both in close proximity to the Suffolk Coasts and Heaths AONB and therefore setting impacts is a

consideration for both. The landscape character of option area F is more open than option area E and option area E provides a greater opportunity to mitigate both through the use of existing and additional screening. Both option areas have good access to the strategic highway network. Option area E would result in a shorter onshore cable route from either landfall area of search S2 and the red corridor or landfall area of search S3N and the purple corridor. This is illustrated on **Figure 2.1.1 Evolution of the Suffolk Onshore Scheme, Sheet 4 of 4**.

2.1.7.11 On balance the preferred solution identified was landfall area of search S2 connecting to a converter station site option area E via the red corridor with a connection back to the network through the proposed Friston substation. This is illustrated on **Figure 2.1.2 Suffolk Onshore Scheme Initial Preference**.

2.1.7.12 Whilst this option was constrained at the landfall due to presence of terrestrial nature conservation sites it was identified that trenchless installation methods could be used to minimise or avoid potential impacts. However, as further survey work is required to confirm the feasibility of using trenchless techniques at this landfall it was considered prudent to also progress an alternative. This alternative is a landfall within the landfall area of search S3N connection to converter site option area E via the purple corridor with a connection back to the network through the proposed Friston substation. This is illustrated on **Figure 2.1.2 Suffolk Onshore Scheme Initial Preference**.

2.1.8 Stakeholder Feedback and Option Refinement

2.1.8.1 Through engagement, Suffolk County Council and East Suffolk District Council emphasised the importance of looking at opportunities to coordinate with the interconnector projects being proposed by National Grid Ventures (NGV) in the area, which would require similar infrastructure.

2.1.8.2 The Project has explored the concept of co-locating converter stations, sharing cable corridors and consolidating landfalls and to look at potential challenges and options for consenting a coordinated approach.

2.1.8.3 A backcheck and review was undertaken of all potential converter station sites/option areas that were identified independently through both NGV's non-statutory consultation for the Nautilus project and the routeing and siting option appraisal for the Project described above. This backcheck and review considered whether it was feasible for any of the converter option areas to accommodate up to three co-located converter stations and whether there were any additional sites that should be investigated/appraised further for co-location opportunities.

2.1.8.4 The landfall areas of search S2, between Aldeburgh and Thorpeness and S3 and S3N, between Thorpeness and Sizewell were revisited, along with the red, blue and purple cable corridors, to understand the feasibility of coordinated landfalls and corridors.

2.1.8.5 Seven sites were identified as potentially offering opportunities for coordination, these are illustrated on **Figure 2.1.3 Potential Coordinated Converter Station Sites** and an appraisal was undertaken of these sites in accordance with the National Grid options appraisal methodology described in **Part 1, Chapter 3, Main Alternatives Considered**.

Potential Coordinated Converter Station Sites

2.1.8.6 A summary of key considerations for each of the seven sites illustrated on **Figure 2.1.3 Potential Coordinated Converter Station Sites** is described in the following sections.

2.1.8.7 Site 1 is contiguous with part of converter option area E and offers good existing screening to the north of the site and good construction access to the strategic road network. It is close to the AONB so setting is a consideration for this site. However, the site offers good opportunities for mitigation in keeping with the existing landscape character. This site offers the shortest overall onshore cable route.

2.1.8.8 Site 2 is contiguous with part of converter option area F and whilst being located close to strategic road network in terms of access, in terms of landscape character it is a very open landscape and development of a coordinated solution on this site would likely involve substantial mitigation. Suffolk Coasts and Heaths AONB is adjacent to the southern boundary of this site. The settlement of Sternfield is located to the northwest of the site, Church Common to the southwest of the site and Friston to the east of the site.

2.1.8.9 Site 3 is located further from the AONB but in close proximity to the settlement of Saxmundham. There is good existing screening along the western and southern edges of the site, this along with the topography of the local area limits the intervisibility between the settlement and the site. Access to this site is constrained and would need to be routed through the settlement of Saxmundham if taken off the B1119. Opportunity does exist to take temporary construction access from the B1121. This would require construction of a temporary access route and a crossing of the River Fromus.

2.1.8.10 Site 4 is contiguous with part of converter option area C and is located further away from the AONB and offers good existing screening and additional screen plating could be developed in keeping with the existing landscape character. Access to this site is challenging however Site 4 has the benefit of the proposed new link road being developed by the proposed Sizewell C Nuclear Power Station albeit the cumulative impact with this development would be a consideration. The site contains the former RAF Leiston Airfield, therefore this non-designated asset would need to be considered further if taken forward for development.

2.1.8.11 Site 5 is located approximately 2.5km from the AONB at its closest point. There are smaller settlements which surround the site on the west, south and east although intervening vegetation particularly in the southern part of the site would provide a degree of existing screening. The existing overhead lines are routed to the south of the site, and this is the closest of the proposed sites to the proposed Friston substation development. There are a number of non-designated assets within the site which include potential extensive remains of a roman settlement and villa within the north of the site. Physical impacts to these assets could potentially be avoided if development was to take place in the southern part of the site. A small section of Flood Zones 2 and 3 are located along the eastern boundary of the site associated with the Hundred River although it is likely that these areas could be avoided. This site is located further from the strategic road network and routeing construction traffic through settlements is unlikely to be avoidable.

2.1.8.12 Site 6 is contiguous with converter option area D and located approximately 1.5km from the AONB at its closet point. The site is located to the west of the settlement of Leiston and north of the settlement of Knodishall. There are a number of woodland

blocks and shelterbelts which do offer some opportunity for existing screening and integration of mitigation planting. There are a number of historical designated assets within the settlements of Leiston and Knodishall but these are well screened by existing vegetation surrounding the assets. Similar to site 5 this site is located further from the strategic road network and routeing construction traffic through settlements is unlikely to be avoidable.

2.1.8.13 Site 7 is contiguous with part of converter option area D and located within the Suffolk Coasts and Heaths AONB adjacent to the existing nuclear power stations and the Galloper and Gabbard Offshore Windfarm substations as well as the proposed Sizewell C Nuclear Power Station. Whilst within the designated site, this site does offer the opportunity to keep energy development close together. The settlement of Leiston is located to the west of this site although it is the industrial edge of this settlement closest to this site. Existing planting along the southern boundary of the site also provides good existing screening. Sandlings SPA is adjacent to the southern boundary of this site and Sizewell Marshes SSSI to the northern and western boundaries. The site is currently being used as a reptile mitigation area for the proposed Sizewell C Nuclear Power Station, therefore should this site be developed, this would need to be considered. This is the furthest of the sites from the strategic road network and like Site 4 access is constrained based on the existing road network. The proposed bypass as part of the proposed Sizewell C Nuclear Power Station would reduce potential impacts if in place for the start of construction but the cumulative impacts with the Sizewell C development would need to be considered. A connection back into Friston from site 7 is also technically challenging and an alternative solution would likely be required in terms of connecting into the existing network on the site

Potential for Coordinated Landfalls

2.1.8.14 As set out above landfall area of S2 interacts with the Leiston to Aldeburgh SSSI and North Warren RSBP reserve but has minimal constraints on the marine approach and is not constrained by the presence of any other existing or proposed infrastructure.

2.1.8.15 As set out above the majority of landfall S3 is significantly constrained in the immediate offshore environment due to the presence of the Coralline Cragg which is an important feature when considering coastal processes. There do exist opportunities to minimise interaction with this feature to the northern and southern ends of the landfall area of search however the southern extent of the landfall is spatially constrained by the proposed Scottish Power renewables (SPR) East Anglia One North and East Anglia Two Offshore Windfarm developments.

2.1.8.16 Whilst minimising interaction with the Coralline Cragg compared to S3, the routeing and siting process identified that landfall S3N has constraints associated with existing and proposed onshore and offshore infrastructure. When appraised as a landfall for the Project and as described in the sections above this landfall was identified as alternative to take forward. When considered as coordinated landfall it was identified that whilst landfall maybe achieved with two sets of cables but with significant technical complexity it was considered unlikely/impossible that landfall could be made with three sets of cables due to the space available.

2.1.8.17 The appraisal identified that only landfall area of search S2 could potentially deliver a coordinated landfall solution.

Coordinated Terrestrial Route Corridors

2.1.8.18 The assessment of the coordinated terrestrial route corridors identified the same constraints as those identified for the red, blue and purple corridors appraised for Project.

2.1.8.19 With regards to the four pinch points that were identified and are unavoidable on either the red, blue or purple corridors the third pinch point was identified as not being able to accommodate a coordinated solution. This would affect routes within the blue or purple corridors from landfall S3N depending on the location of the converter station.

2.1.8.20 Landfall S2 and the associated red corridor was the only landfall area or search/terrestrial corridor combination that could provide coordinated solution for three projects. It was however identified that the pinch point crossing within this corridor at Leiston Road may require the separation of the circuits over a short length including routeing some of the cables through the Aldeburgh golf course.

Suffolk Onshore Scheme Preferred Option

2.1.8.21 Following a back check of the initial preferred option for the Project and taking account of the appraisal findings of a potential coordinated options, Converter Site 1 and Site 3 have been identified as emerging preferences for the Project and sites which could also accommodated coordination with other projects.

2.1.8.22 Landfall S2 and the red corridor remains the emerging preference and this option could also potentially provide for a coordinated landfall and cable route with other projects.

2.1.8.23 Landfall S3N and the purple corridor remains an alternative option until survey work to determine the installation technique has been completed. However, this option could not facilitate a coordinated landfall or terrestrial cable route to either Site 1 or Site 3.

2.1.9 Suffolk Onshore Scheme Description

2.1.9.1 The Suffolk Onshore Scheme comprises of:

- HVAC connection, by underground cable, from the proposed Friston Substation to a converter station site;
- A new converter station site; and
- A HVDC underground cable from a new converter station site to a landfall on the Suffolk coast.

2.1.9.2 As described above there are currently options for the location of the infrastructure which makes up the Suffolk Onshore Scheme. These locations will be consulted on as part of the Projects non-statutory consultation.

2.1.9.3 There are five options in total which are listed below:

- Suffolk Site 1 Emerging Preference – this is illustrated on **Figure 2.1.4 Suffolk Site 1 Emerging Preference;**
- Suffolk Site 3 Emerging Preference – this is illustrated on **Figure 2.1.5 Suffolk Site 3 Emerging Preference;**

- Suffolk Site 1 Alternative – this is illustrated on **Figure 2.1.6 Suffolk Site 1 Alternative;**
- Suffolk Site 3 Alternative (Option 1) – this is illustrated on **Figure 2.1.7 Suffolk Site 3 Alternative (Option 1)**; and
- Suffolk Site 3 Alternative (Option 2) – this is illustrated on **Figure 2.1.8 Suffolk Site 3 Alternative (Option 2).**

2.1.9.4 The graduated swathes shown on **Figures 2.1.4 to 2.1.8** illustrate the area within the preferred corridors, where, based on the current understanding of baseline conditions the HVAC connection, converter station site and underground HVDC cables are likely to be routed/sited. These will be refined further on the selected option through both technical and environmental surveys and stakeholder and public feedback.

2.1.9.5 For the purpose of this Scoping Report, **Figure 1.1.1 Project Scoping Boundary** and **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary** encompasses all elements shown on **Figures 2.1.4 to 2.1.8**. The technical chapters 2 to 13 have provided a proposed scope for each of the five options. The boundary of each of the five options relative to the Project Scoping Boundary (**Figure 1.1.1 Project Scoping Boundary**) and the Suffolk Onshore Scheme Scoping Boundary (**Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**) is shown the following figures:

- **Figure 2.1.9 Suffolk Site 1 Emerging Preference Option Area;**
- **Figure 2.1.10 Suffolk Site 3 Emerging Preference Option Area;**
- **Figure 2.1.11 Suffolk Site 1 Alternative Option Area;**
- **Figure 2.1.12 Suffolk Site 3 Alternative (Option 1) Option Area;** and
- **Figure 2.1.13 Suffolk Site 3 Alternative (Option 2) Option Area**.

2.1.9.6 Whilst both sites 1 and 3 have been identified as being able to potentially accommodate coordination with other developments, these other developments would be subject to their own consent and therefore the proposed scope of assessment presented in chapters 2-13 is for the proposed Project as described in **Part 1, Chapter 4, Description of the Project**.

2.2 Landscape and Visual

2.2.1 Introduction

2.2.1.1 This chapter presents how the Landscape and Visual Impact Assessment (LVIA) will consider the potentially significant effects on landscape and visual amenity that may arise from the construction and operation, maintenance and decommissioning of the Suffolk Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

2.2.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Suffolk Onshore Scheme Scoping Boundary hereafter referred to as the Suffolk Scoping Boundary is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**.

2.2.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Methodology;** and
- **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme**.

2.2.1.4 This chapter is supported by the following figures:

- **Figure 2.2.1 Topography**;
- **Figure 2.2.2 Landscape Context and Designations**;
- **Figure 2.2.3 Landscape Character - National & Regional**;
- **Figure 2.2.4 Landscape Character - County**;
- **Figure 2.2.5 Landscape Character – District**;
- **Figure 2.2.6 Seascape Character – National & Regional**;
- **Figure 2.2.7 Bare Earth Zone of Theoretical Visibility - Converter Station Site 1**;
- **Figure 2.2.8 Bare Earth Zone of Theoretical Visibility - Converter Station Site 3**;
- **Figure 2.2.9 Representative Viewpoint Locations and Screened Zone of Theoretical Visibility - Site 1**; and
- **Figure 2.2.10 Representative Viewpoint Locations and Screened Zone of Theoretical Visibility - Site 3.**

2.2.1.5 Landscape and visual effects are interrelated with other environmental effects but will be assessed separately. Landscape effects associated with the Suffolk Onshore Scheme relate to the changes to the fabric, character and quality of the landscape and how it is experienced. Visual effects relate closely to changes to the landscape, but also concern changes in people's views as a result of the introduction of the Suffolk Onshore Scheme.

2.2.2 Regulatory and Planning Context

2.2.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on landscape and visual associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

2.2.2.2 At an International and National level, the following legislation is relevant to landscape and visual matters and will be referred to within the LVIA in the Environmental Statement (ES):

- The European Landscape Convention[1].

Planning Policy

National planning policy

2.2.2.3 At National level, the following policy is relevant to landscape and visual matters and will be referred to within the LVIA in the ES.

- Overarching National Policy Statement for Energy – EN-1[2] ;
- National Policy Statement for Electricity Networks Infrastructure – EN-5[3] ;
- National Planning Policy Framework[4] ; and
- Planning Practice Guidance – Natural Environment[5] .

2.2.2.4 The relevant sections of the *Overarching National Policy Statement for Energy* to landscape and visual matters include:

- 4.5: Criteria for "*good design*" for energy infrastructure;

[1] Council of Europe (2004) Council of Europe Landscape Convention (ETS No. 176). [online] Available at: https://www.coe.int/en/web/conventions/full-list?module=treaty-detail&treatynum=176

[2] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[3] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[4] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

[5] Department for Levelling Up, House and Communities and Ministry of Housing, Communities and Local Government (2019). Planning Practice Guidance – Natural Environment. [online] Available at: https://www.gov.uk/guidance/natural-environment

- 5.3: Biodiversity and geological conservation;
- 5.7: Historic environment;
- 5.9: Landscape and visual; and
- 5.10: Land use including open space, green infrastructure & Green Belt.

2.2.2.5 The relevant sections of the *National Policy Statement for Electricity Networks Infrastructure* to landscape and visual matters include:

- 2.5: Consideration of good design;
- 2.7: Biodiversity and Geological Conservation; and
- 2.8: Landscape and Visual.

2.2.2.6 The draft Overarching National Policy Statement for Energy (EN-1) (September 2021) and draft National Policy Statement for Electricity Networks Infrastructure (EN-5) (September 2021) will be referred to if they become adopted during the lifespan of the Suffolk Onshore Scheme.

Local planning policy

2.2.2.7 The Suffolk Onshore Scheme lies within the jurisdiction of Suffolk County Council. County planning guidance which is relevant to a study of landscape and visual matters and will inform the LVIA in the ES are as follows:

- Suffolk Historic Landscape Characterisation[6];
- Historic Seascape Characterisation Newport to Clacton[7]; and
- Suffolk's Nature Strategy[8].

2.2.2.8 The Suffolk Onshore Scheme Scoping Boundary (refer to **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**) lies within the jurisdiction of East Suffolk Council. Local planning policy for East Suffolk Council consists of two parts; the Suffolk Coastal Local Plan and the Waveney Local Plan (which cover the former Suffolk Coastal and Waveney Districts).

2.2.2.9 The Suffolk Scoping Boundary lies within the boundary of the *Suffolk Coastal Local Plan* (adopted September 2020)[9]. Local Plan policies which are relevant to landscape and visual matters and will inform the LVIA in the ES include:

- SCLP 2.2: Strategic Infrastructure Priorities;
- SCLP 10.1: Biodiversity and Geodiversity;
- SCLP 10.3: Environmental Quality;

[6] Suffolk County Council (2012). Suffolk Historic Landscape Characterisation. [online] Available at: https://www.suffolk.gov.uk/assets/culture-heritage-and-leisure/suffolk-archaeological-service/2017-SUFFOLK-HISTORIC-LANDSCAPE-CHARACTERISATION-.pdf

[7] English Heritage (2011). Historic Seascape Characterisation Newport to Clacton. [online] Available at: https://archaeologydataservice.ac.uk/archives/view/hscnewport_eh_2011/

[8] Suffolk County Council (2015). Suffolk's Nature Strategy. [online] Available at: https://www.suffolk.gov.uk/planning-waste-and-environment/suffolks-countryside-and-wildlife/protecting-the-environment/suffolk-nature-strategy/

[9] East Suffolk Council (2020). Suffolk Coastal Local Plan. [online] Available at: https://eastsuffolk.inconsult.uk/consult.ti/suffolkcoastallocalplan2020/viewCompoundDoc?docid=11955764&partid=11958292

- SCLP 10.4: Landscape Character;
- SCLP 11.1: Design Quality;
- SCLP 11.2: Residential Amenity; and
- SCLP 11.8: Parks and Gardens of Historic or Landscape Interest.

2.2.2.10 Additional planning guidance documents relevant to landscape and visual matters are set out as follows:

- Sustainable Construction Supplementary Planning Document[10]; and
- Environmental Guidance Note[11].

2.2.2.11 The Settlement Sensitivity Assessment Volume 2: Suffolk Coastal[12] will not be referred to as it is based upon two development scenarios which are housing and commercial developments, of which the Suffolk Onshore Scheme is not relevant to.

2.2.2.12 Specifically relating to the Suffolk Coast & Heaths Area of Outstanding Natural Beauty (AONB), within which the Suffolk Scoping Boundary lies partially in, the following planning guidance documents are relevant to landscape and visual matters:

- Suffolk Coast & Heaths Area of Outstanding Natural Beauty Management Plan[13];
- Development in the setting of the Suffolk Coast & Heaths Area of Outstanding Natural Beauty (AONB) Position Statement[14];
- Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) Natural Beauty and Special Qualities Indicators[15];
- Suffolk Coast & Heaths Area of Outstanding Natural Beauty Guidance on the selection and use of colour in development[16]; and

[10] East Suffolk Council (2022). Sustainable Construction Supplementary Planning Document. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Planning-Policy-and-Local-Plans/Supplementary-documents/Sustainable-Construction-2022/FINAL-Sustainable-Construction-SPD.pdf

[11] East Suffolk Council (2020). Environmental Guidance Note. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Environment/Environment-Guidance/Environmental-Guidance-Note.pdf

[12] East Suffolk Council (2018). Settlement Sensitivity Assessment Volume 2: Suffolk Coastal. [online] Available at: https://www.bing.com/search?q=East+Suffolk+Council+(2018)%2C+Settlement+Sensitivity+Assessment+Volume+2%3A+Suffolk+Coastal&cvid=779ea95c1ef948fb9628f703e0561488&aqs=edge.0.69i59j69i11004.994j0j9&FORM=ANAB01&PC=U531

[13] Suffolk Coast & Heaths AONB Partnership (2018). Suffolk Coast & Heaths Area of Outstanding Natural Beauty Management Plan 2018-2023. [online] Available at: https://www.suffolkcoastandheaths.org/wp-content/uploads/2021/01/SCH-AONB-Management-Plan-2018-23.pdf

[14] Suffolk Coast & Heaths AONB Partnership (2015). Development in the setting of the Suffolk Coast & Heaths Area of Outstanding Natural Beauty (AONB) Partnership Position Statement. [online] Available at: https://www.suffolkcoastandheaths.org/wp-content/uploads/2021/01/ENDORSED-SCH-AONB-Position-Statement-on-Development-in-Setting-of-AONB-2015.pdf

[15] Suffolk Coast & Heaths AONB Partnership (2016). Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) Natural Beauty and Special Qualities Indicators. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Sizewell/Suffolk-Coast-and-Heaths-AONB-Natural-Beauty-and-Special-Qualities-Indicators.pdf

[16] Suffolk Coast & Heaths AONB Partnership (2019). Suffolk Coast & Heaths Area of Outstanding Natural Beauty Guidance on the selection and use of colour in development. [online] Available at: https://www.suffolkcoastandheaths.org/wp-content/uploads/2021/01/SCH-Use-of-Colour-Guidance-v7.pdf

- Suffolk Coast & Heaths Area of Outstanding Natural Beauty (AONB) State of the AONB Report[17].

2.2.2.13 Where relevant to landscape and visual matters, the following neighbourhood plans within the study area will inform the LVIA:

- Leiston Neighbourhood Plan 2015-2029[18]; and
- Draft Saxmundham Neighbourhood Plan (pre-submission version)[19].

2.2.3 Study Area

2.2.3.1 An initial study area of 3km from the Emerging Preference areas of the two converter sites (Site 1 and Site 3) as shown on **Figure 2.1.4 Suffolk Site 1 Emerging Preference** and **Figure 2.1.5 Suffolk Site 3 Emerging Preference** and 1km from the Suffolk Scoping Boundary has been identified for the landscape and visual assessment and will be referred to as the study area within this chapter from now on. It is judged that significant landscape or visual effects will be unlikely beyond this study area. The LVIA study area is shown on **Figures 2.2.1 – 2.2.9**.

2.2.3.2 The extent of the study area has been informed by a review of the maximum parameters of the Suffolk Onshore Scheme, desk-based research, the appraisal work undertaken to date to inform the routeing and siting phase of the Suffolk Onshore Scheme, knowledge of the area alongside a targeted site visit and professional judgement. The study area will be further refined at the detailed assessment stage following further decision regarding the various options to ensure a proportional approach which will be focused on potential significant effects.

2.2.4 Baseline Conditions

Data Sources

2.2.4.1 The landscape and visual baseline described in this section has been informed by the following data sources:

- Ordnance Survey (OS) mapping, and aerial photography;
- OS Digital Terrain Model (DTM);
- Natural England;
- Historic England;
- National, and local planning policy;
- Published landscape character assessments; and

[17] Suffolk Coast & Heaths AONB Partnership (2018). Suffolk Coast & Heaths Area of Outstanding Natural Beauty (AONB) State of the AONB Report. [online] Available at: https://www.suffolkcoastandheaths.org/wp-content/uploads/2021/05/SCH-State-of-the-AONB-Report-2018.pdf

[18] Leiston-cum-Sizewell Town Council (2017). Leiston Neighbourhood Plan 2015-2029. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Neighbourhood-Planning/Designated-Neighbourhood-Areas/Leiston/Leiston-NP-Made-Version-March-2017.pdf

[19] Saxmundham Town Council (2021). Saxmundham Neighbourhood Plan 2022-2037 Pre-submission DRAFT. [online] Available at: https://drive.google.com/file/d/1offOL1N8lEAct48PK3GmFWWeSk8xGdjo/view

- Published documents by the Suffolk Coast and Heaths AONB Partnership.

Baseline

2.2.4.2 An initial study of the baseline environment has been undertaken through desk-based research and a targeted site visit to establish the existing conditions of the landscape and visual resources of the study area as defined in Section 2.2.3, to inform the previous options appraisal process, and the ongoing design development of the Suffolk Onshore Scheme.

2.2.4.3 Desk-based research has involved a review of mapping and aerial photography, planning and policy documents, landscape character assessments, and other sources of information relevant to the baseline environment of the study area.

2.2.4.4 The description of the baseline environment within the LVIA in the ES will provide a description of the identified landscape and visual receptors, indicating their key characteristics and value, against which the potential change arising from the Suffolk Onshore Scheme will be assessed.

2.2.4.5 Consultation will be held with relevant LPAs and statutory consultees early in the LVIA process. This will help to inform detailed baseline survey and data collection; refinement of the location of representative viewpoints that will form the basis of the visual assessment; and, to agree the approach to mitigation measures and landscape reinstatement.

Relevant designations

2.2.4.6 The Suffolk Scoping Boundary lies partially within the following landscape specific designations:

- Suffolk Coast & Heaths AONB;
- Tree Preservation Orders (TPOs); and
- Ancient Woodland.

2.2.4.7 Additional to the above, the Suffolk Scoping Boundary falls within the following designations:

- Listed Buildings (refer to **Part 2, Chapter 4, Cultural Heritage**);
- Registered Common Land – Aldringham Green;
- Countryside and Rights of Way (CRoW) Act Access Land;
- RSPB Reserve – North Warren;
- Special Protection Area (SPA) – Sandlings;
- Sites of Special Scientific Interest (SSSI) – Leiston – Aldeburgh;
- Scheduled Monuments (refer to **Part 2, Chapter 4, Cultural Heritage**); and
- Local Nature Reserve (LNR) – The Haven, Aldeburgh.

2.2.4.8 Additional to the above, the study area, outside the Suffolk Scoping Boundary, also includes the following designations:

- Registered Common Land – Knodishall Common;
- SPA – Alde-Ore Estuary;
- Ramsar Site – Alde-Ore Estuary; and
- Special Areas of Conservation (SAC) – Alde-Ore & Butley Estuaries.

2.2.4.9 Whilst effects on these designated areas will not be assessed in the LVIA as they will be considered in other discipline specific chapters, they will inform judgements of landscape value and in the case of registered common land, is also an important recreational resource, views from which will be considered as part of the visual assessment.

2.2.4.10 Local designations include the Coastal Change Management Area (designated within *Suffolk Coastal Local Plan*[9]), which runs alongside the shoreline, and is partially within the Suffolk Scoping Boundary. They also include two Parks and Gardens of Historic or Landscape Interest (designated within *Suffolk Coastal Local Plan*[9]), Benhall Lodge Park and Carlton Park, Kelsale, which are located within the study area but not within the Suffolk Scoping Boundary.

2.2.4.11 As well as relevant designations, within the Suffolk Scoping Boundary, there is also a defined area of Heritage Coast – Suffolk.

Landscape character

2.2.4.12 The National, Regional, County and District landscape character context of the study area is shown on **Figure 2.2.3 Landscape Character - National & Regional** and **Figure 2.2.4 Landscape Character - District & County**. At the National level, the study area falls partly within the Suffolk Coast and Heaths National Character Area (NCA)[20] and partly within the South Norfolk and High Suffolk Claylands NCA[21], as identified by Natural England.

2.2.4.13 At a Regional level, landscape character is defined by the *East of England Landscape Character Typology*[22], published by Landscape East. The study area comprises the following Landscape Character Types (LCTs):

- Forested Estate Sandlands;
- Coastal Levels;
- Valley Settled Farmlands;
- Wooded Plateau Claylands;
- Urban;
- Valley Meadowlands; and
- Saltmarsh and Intertidal Flats.

[20] Natural England (2015). NCA Profile: 82 Suffolk Coast and Heaths (NE491). [online] Available at: http://publications.naturalengland.org.uk/publication/5626055104659456?category=8005

[21] Natural England (2014). NCA Profile: 83 South Norfolk and High Suffolk Claylands. [online] Available at: http://publications.naturalengland.org.uk/publication/6106120561098752?category=587130

[22] Landscape East (2010). East of England Landscape Typology. [online] Available at: http://www.landscape-east.org.uk/east-england-landscape-typology

2.2.4.14 At a County level, landscape character is defined by the *Suffolk Landscape Character Assessment*[23], published by Suffolk County Council. The study area comprises the following LCTs:

- Coastal Dunes and Shingle Ridges;
- Urban;
- Inland Navigable Waters;
- Saltmarsh & Inter-Tidal Flats;
- Coastal Levels;
- Estate Sandlands;
- Nearshore Waters;
- Valley Meadowlands;
- Rolling Estate Sandlands;
- Ancient Estate Claylands;
- Rolling Estate Claylands; and
- Valley Meadows and Fens.

2.2.4.15 At a District level, landscape character is defined by the *Suffolk Coastal Landscape Character Assessment*[24] (SCLCA), published by East Suffolk Council. The study area comprises the following LCTs and Landscape Character Areas (LCAs):

- LCT B: River Valleys - LCA B3: Yox Valley and LCA B4: Fromus Valley;
- LCT D: Coastal Broads and Marshes - LCA D3: Minsmere and Sizewell Coast and LCA D4: Thorpeness to Aldeburgh;
- LCT J: Estuaries – LCA J4: Alde Estuary;
- LCT K: Estate Sandlands – LCA K3: Aldringham and Freston Sandlands;
- LCT L: Ancient Estate Claylands – LCA L1: Heveningham and Knodihall Estate Claylands; and
- LCT O: Rolling Estate Sandlands – LCA O1: Benhall Estate Sandlands.

2.2.4.16 Also at a District level, landscape character is defined by the *Touching the Tide Landscape Character Assessment*[25] (TTLCA) published by the Touching the Tide Partnership. The TTLCA appears to use the LCTs identified in the Suffolk Landscape Character Assessment[23] and then identifies distinct Coastal Character Areas (CCAs). The study area comprises the following CCAs:

- Thorpeness to Aldeburgh Coast;

[23] Suffolk County Council (2008). Suffolk Landscape Character Assessment. [online] Available at: https://suffolklandscape.org.uk/

[24] East Suffolk Council (2018). Suffolk Coastal Landscape Character Assessment. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Suffolk-Coastal-Local-Plan/First-Draft-Local-Plan/SCDC-Landscape-Character-Assessment.pdf

[25] Touching the Tide Partnership (2012). Touching the Tide Landscape Character Assessment. [online] Available at: https://www.suffolkcoastandheaths.org/wp-content/uploads/2021/01/2012-Touching-the-Tide-Landscape-Character-Assessment.pdf

- Alde Estuary; and
- Dunwich to Sizewell Coast.

2.2.4.17 Suffolk Coasts & Heaths AONB Partnership published the *Landscape Character Guidelines for the Suffolk Coast & Heaths Area of Outstanding Natural Beauty*[26], which will be used to inform the landscape character baseline of the study area.

Seascape character

2.2.4.18 The National and Regional seascape character context of the study area is shown on **Figure 2.2.5 Seascape Character - National & Regional**. At a National level, seascape character is defined by the *Seascape Character Assessment of the East Inshore and East Offshore Marine Plan Areas*[27], published by the Marine Management Organisation. The study area comprises the following Seascape Character Areas (SCAs):

- 10: Suffolk Coastal Waters.

2.2.4.19 At a Regional level, seascape character is defined by the *Seascape Character Assessment of Suffolk, South Norfolk and North Essex*[28] (SCASNE) published by Suffolk County Council. The study area comprises the following Seascape Character Types (SCTs):

- 3: Nearshore Waters.

Visual receptors

2.2.4.20 Visual receptors that have potential to experience views of all or some of the Suffolk Onshore Scheme including the extension to the proposed Friston substation, landfall, underground HVAC cable corridor, converter station and underground HVDC cable corridor include:

- Settlement (east to west) including Sizewell, Thorpeness, Aldeburgh, Leiston, Coldfair Green, Theberton, Knodishall, Friston, Benhall Green, Kelsale Carlton and Saxmudham;
- Isolated and small clusters of dwellings and farmsteads dispersed across the landscape;
- Recreational facilities including various areas of Common Land and Carlton Park;
- Recreational routes and access land including Public Rights of Way (PRoW), several recreational routes such as the Suffolk Coast Path, and National Cycle Network (NCN) route including NCN 42;
- Employers working at Sizewell;

[26] Suffolk Coasts & Heaths AONB Partnership (2010). Landscape Character Guidelines for the Suffolk Coast & Heaths Area of Outstanding Natural Beauty. [online] Available at: https://www.suffolkcoastandheaths.org/wp-content/uploads/2020/04/SCH-Landscape-Character-Guidelines-2010.pdf

[27] Marine Management Organisation (2012). Seascape Character Area Assessment East Inshore and East Offshore Marine Plan Areas. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312481/east_seascape.pdf

[28] Suffolk County Council (2018). Seascape Character Assessment of Suffolk, South Norfolk and North Essex. [online] Available at: https://suffolklandscape.org.uk/wp-content/uploads/2020/08/Part1_5997_Assessment_V1_10_Issue_web.pdf

- Occupiers of vehicles travelling on A-roads including A1094, B-roads including B1119 and unclassified roads within the study area; and
- Passengers on the East Suffolk railway line.

Representative viewpoint locations

2.2.4.21 The visual assessment will be based on a series of representative viewpoints. These viewpoints have been chosen to provide a representative cross section of receptor types and locations within the study area, focused on those with the potential for significant effects. The representative viewpoint locations have been informed by desk-based work and field work undertaken in March 2022.

2.2.4.22 The chosen representative viewpoint locations for the converter station options (Site 1 and Site 3) have also been informed by a Bare Earth and Screened Zone of Theoretical Visibility (ZTV) plans, as shown on **Figures 2.2.6 – Figure 2.2.9**. The ZTVs have been run for the converter stations only, although as the design evolves it will be updated as the location and extent of permanent above ground infrastructure is finalised.

2.2.4.23 The ZTV has been generated using a 'bare ground' 5m OS digital terrain model (DTM) and is based on a maximum height of 30m, located in the centre of the graduated swathe within the emerging preference area for the converter stations. The graduated swathes are outlined in **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme.** The screening from woodland and buildings is based on the following factors:

- Existing buildings have been incorporated into the DTM from OS MasterMap with assigned individual heights and OS Open Map Local (where OS MasterMap data was not available) with an assumed height of 7.5m.
- Woodland from the National Forest Inventory (NFI) has also been incorporated into the DTM with an assumed height of 10m.

2.2.4.24 The ZTVs indicate areas from where it may be possible to view part of or the entire converter station sites. However, the use of the ZTV needs to be qualified by the following considerations:

- The ZTV is limited by the detail of the digital terrain model data used and does not take account of local topographic variations;
- Some areas of theoretical visibility may comprise woodland or other vegetation (not accounted for in the NFI) or agricultural land, where there is effectively no public access and the likelihood of views being experienced is consequently low; and
- The ZTV does not take account of the likely orientation of a viewer, such as the direction of travel and there is no allowance for reduction of visibility with distance, weather or light.

2.2.4.25 These limitations mean that the ZTVs tends to overestimate the extent of the visibility, both in terms of the area from which the Suffolk Onshore Scheme is visible and the extent of the converter station sites, which are visible. Consequently, the ZTV should be considered as a tool to identify areas of potential visibility for further targeted survey and assessment, and not a measure of the visual effect.

2.2.4.26 Table 2.2.1 details the locations proposed for the representative viewpoints for Site 1 Emerging Preference, as shown on **Figure 2.2.9 Representative Viewpoints and Screened Zone of Theoretical Visibility Site 1**, and their reason for inclusion in the LVIA.

Table 2.2.1: Representative viewpoint locations for Site 1 Emerging Preference

Viewpoint number	Location description	Reason for inclusion
1	Grove Road, north of Friston (approximate grid reference: TM416610)	Representative of users of the local road network, including Grove Road between the settlements of Friston and Knodishall. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
2	Public footpath (Knodishall 354, route 16), north-west of Friston (approximate grid reference: TM403612)	Representative of recreational users of the local PRoW network within the landscape to the north of Friston. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
4	Knodishall Common, west of Knodishall (approximate grid reference: TM430609)	Representative of recreational users within Knodishall Common and CRoW Access Land. Representative of the edge of the settlement of Knodishall. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
5	Sailors' Path recreational route, south of Thorpeness (approximate grid reference: TM469587)	Representative of recreational users of the Sailors' Path recreational route between the settlements of Thorpeness and Aldeburgh. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA D4: Thorpeness to Aldeburgh.
7	South Coast Path recreational route off Aldeburgh Road (approximate grid reference: TM437582)	Representative of recreational users of the South Coast Path recreational route between the settlements of Aldeburgh and Snape. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
8	Aldeburgh Road (A1094), near to Park Farm (approximate grid	Representative of users of the local road network between the settlements of Aldeburgh and Friston. Representative of receptors on the boundary of the Suffolk Coast and Heaths AONB.

Viewpoint number	Location description	Reason for inclusion
	reference: TM425591)	Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
9	Sandlings Walk recreational route, south of Knodishall (approximate grid reference: TM433598)	Representative of recreational users of the Sandlings Walk recreational route to the south of the settlement of Knodishall. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
17	Suffolk Coast Path recreational route, east of Snape (approximate grid reference: TM408582)	Representative of recreational users of the Suffolk Coast Path recreational route to the east of the settlement of Snape. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
18	Saxmundham Road (B1119) and public footpath (Leiston-cum-Sizewell, route 3), on the edge of Leiston (approximate grid reference: TM432627)	Representative of users of the local road network and PRoW network on the edge of the settlement of Leiston. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
19	Public footpath (Friston 260, route 22), east of Friston (approximate grid reference: TM417601)	Representative of recreational users of the local PRoW network to the east of the settlement of Friston. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.

2.2.4.27 Table 2.2.2 details the locations proposed for the representative viewpoints for Site 1 Alternative, as shown on **Figure 2.2.9 Representative Viewpoints and Screened Zone of Theoretical Visibility Site 1**, and their reason for inclusion in the LVIA.

Table 2.2.2: Representative viewpoint locations for Site 1 Alternative

Viewpoint number	Location description	Reason for inclusion
1	Grove Road, north of Friston (approximate grid reference: TM416610)	Representative of users of the local road network, including Grove Road between the settlements of Friston and Knodishall.

Viewpoint number	Location description	Reason for inclusion
		Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
2	Public footpath (Knodishall 354, route 16), north-west of Friston (approximate grid reference: TM403612)	Representative of recreational users of the local PRoW network within the landscape to the north of Friston. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
4	Knodishall Common, west of Knodishall (approximate grid reference: TM430609)	Representative of recreational users within Knodishall Common and CRoW Access Land. Representative of the edge of the settlement of Knodishall. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
6	Suffolk Coast Path recreational route, south of Sizewell nuclear power station (approximate grid reference: TM475624)	Representative of recreational users of the Suffolk Coast Path recreational route between Sizewell and Thorpeness. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands
7	South Coast Path recreational route off Aldeburgh Road (approximate grid reference: TM437582)	Representative of recreational users of the South Coast Path recreational route between the settlements of Aldeburgh and Snape. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
8	Aldeburgh Road (A1094), near to Park Farm (approximate grid reference: TM425591)	Representative of users of the local road network between the settlements of Aldeburgh and Friston. Representative of receptors on the boundary of the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
9	Sandlings Walk recreational route, south of Knodishall (approximate grid reference: TM433598)	Representative of recreational users of the Sandlings Walk recreational route to the south of the settlement of Knodishall. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
13	Aldringham Common and public footpath	Representative of recreational users of the local PRoW network, Aldringham Common and CRoW Act Access Land, to the east of the settlement of Aldringham.

Viewpoint number	Location description	Reason for inclusion
	(Aldringham-cum-Thorpe, route 3), east of Aldringham (approximate grid reference: TM456611)	Representative of receptors on the boundary of the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
15	Sandy Lane, public bridleway (Leiston-cum-Sizewell, route 19), north-west of Sizewell (approximate grid reference: TM459632)	Representative of users of the local road network and recreational users along the local PRoW network. Representative of users of Leiston Common and CRoW Access Land. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
17	Suffolk Coast Path recreational route, east of Snape (approximate grid reference: TM408582)	Representative of recreational users of the Suffolk Coast Path recreational route to the east of the settlement of Snape. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
18	Saxmundham Road (B1119) and public footpath (Leiston-cum-Sizewell, route 3), on the edge of Leiston (approximate grid reference: TM432627)	Representative of users of the local road network and PRoW network on the edge of the settlement of Leiston. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
19	Public footpath (Friston 260, route 22), east of Friston (approximate grid reference: TM417601)	Representative of recreational users of the local PRoW network to the east of the settlement of Friston. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.

2.2.4.28 Table 2.2.3 details the locations proposed for the representative viewpoints for Site 3 Emerging Preference, as shown on **Figure 2.2.10 Representative Viewpoints and Screened Zone of Theoretical Visibility Site 3**, and their reason for inclusion in the LVIA.

Table 2.2.3: Representative viewpoint locations for Site 3 Emerging Preference

Viewpoint number	Location description	Reason for inclusion
1	Grove Road, north of Friston (approximate grid reference: TM416610	Representative of users of the local road network, including Grove Road between the settlements of Friston and Knodishall. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
2	Public footpath (Knodishall 354, route 16), north-west of Friston (approximate grid reference: TM403612)	Representative of recreational users of the local PRoW network within the landscape to the north of Friston. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands
3	Public footpath (Saxmunham 460, route 37), north of Saxmundham (approximate grid reference: TM381642)	Representative of recreational users of the local PRoW network between the settlements of Carlton and Saxmundham. Representative of users of Carlton Park, Kelsale, locally designated as a Park and Garden of Historic or Landscape Interest. Located within SCLCA LCA B4: Fromus Valley.
4	Knodishall Common, west of Knodishall (approximate grid reference: TM430609)	Representative of recreational users within Knodishall Common and CRoW Access Land. Representative of the edge of the settlement of Knodishall. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
5	Sailors' Path recreational route, south of Thorpeness (approximate grid reference: TM469587)	Representative of recreational users of the Sailors' Path recreational route between the settlements of Thorpeness and Aldeburgh. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA D4: Thorpeness to Aldeburgh.
7	South Coast Path recreational route off Aldeburgh Road (approximate grid reference: TM437582)	Representative of recreational users of the South Coast Path recreational route between the settlements of Aldeburgh and Snape. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
8	Aldeburgh Road (A1094), near to Park Farm (approximate grid	Representative of users of the local road network between the settlements of Aldeburgh and Friston. Representative of receptors on the boundary of the Suffolk Coast and Heaths AONB.

Viewpoint number	Location description	Reason for inclusion
	reference: TM425591)	Located within SCLCA LCA K3: Aldringham and Freston Sandlands
9	Sandlings Walk recreational route, south of Knodishall (approximate grid reference: TM433598)	Representative of recreational users of the Sandlings Walk recreational route to the south of the settlement of Knodishall. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
10	Bigsbys Corner (B1121), south of Saxmundham (approximate grid reference: TM385624)	Representative of users of the local road network and local PRoW network between the settlements of Saxmundham and Benhall Green. Representative of users of the East Suffolk railway line between Saxmunham and Wickham Market. Located within SCLCA LCA B4: Fromus Valley
11	Public bridleway (Sternfield 491, route 29), east of Saxmundham (approximate grid reference: TM407628)	Representative of recreational users of the local PRoW network to the east of the settlement of Saxmunham. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
12	Clayhills Road and public footpath (Kelsale-cum-Carlton, route 33), east of Carlton (approximate grid reference: TM396641)	Representative of users of the local road network and recreational users of the local PRoW network to the east of the settlement of Carlton. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
16	Public footpath (Theberton 515, route 1), south-west of Theberton (approximate grid reference: TM424650)	Representative of recreational users of the local PRoW network to the south of Theberton Woods. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
17	Suffolk Coast Path recreational route, east of Snape (approximate grid reference: TM408582)	Representative of recreational users of the Suffolk Coast Path recreational route to the east of the settlement of Snape. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
18	Saxmundham Road (B1119) and public	Representative of users of the local road network and PRoW network on the edge of the settlement of Leiston.

Viewpoint number	Location description	Reason for inclusion
	footpath (Leiston-cum-Sizewell, route 3), on the edge of Leiston (approximate grid reference: TM432627)	Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
19	Public footpath (Friston 260, route 22), east of Friston (approximate grid reference: TM417601)	Representative of recreational users of the local PRoW network to the east of the settlement of Friston. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.

2.2.4.29 Table 2.2.4 details the locations proposed for the representative viewpoints for Site 3 Alternative (Option 1), as shown on **Figure 2.2.10 Representative Viewpoints and Screened Zone of Theoretical Visibility Site 3**, and their reason for inclusion in the LVIA.

Table 2.2.4: Representative viewpoint locations for Site 3 Alternative (Option 1)

Viewpoint number	Location description	Reason for inclusion
1	Grove Road, north of Friston (approximate grid reference: TM416610)	Representative of users of the local road network, including Grove Road between the settlements of Friston and Knodishall. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
2	Public footpath (Knodishall 354, route 16), north-west of Friston (approximate grid reference: TM403612)	Representative of recreational users of the local PRoW network within the landscape to the north of Friston. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands
3	Public footpath (Saxmunham 460, route 37), north of Saxmundham (approximate grid reference: TM381642)	Representative of recreational users of the local PRoW network between the settlements of Carlton and Saxmundham. Representative of users of Carlton Park, Kelsale, locally designated as a Park and Garden of Historic or Landscape Interest. Located within SCLCA LCA B4: Fromus Valley

Viewpoint number	Location description	Reason for inclusion
6	Suffolk Coast Path recreational route, south of Sizewell nuclear power station (approximate grid reference: TM475624)	Representative of recreational users of the Suffolk Coast Path recreational route between Sizewell and Thorpeness. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands
10	Bigsbys Corner (B1121), south of Saxmundham (approximate grid reference: TM385624)	Representative of users of the local road network and local PRoW network between the settlements of Saxmundham and Benhall Green. Representative of users of the East Suffolk railway line between Saxmunham and Wickham Market. Located within SCLCA LCA B4: Fromus Valley
11	Public bridleway (Sternfield 491, route 29), east of Saxmundham (approximate grid reference: TM407628)	Representative of recreational users of the local PRoW network to the east of the settlement of Saxmunham. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands
12	Clayhills Road and public footpath (Kelsale-cum-Carlton, route 33), east of Carlton (approximate grid reference: TM396641)	Representative of users of the local road network and recreational users of the local PRoW network to the east of the settlement of Carlton. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands
14	Leiston Abbey Scheduled Monument, north of Leiston (approximate grid reference: TM444640)	Representative of recreational receptors at Leiston Abbey Scheduled Monument, within CRoW Act Access Land to the north of the settlement of Leiston. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
15	Sandy Lane, public bridleway (Leiston-cum-Sizewell, route 19), north-west of Sizewell (approximate grid reference: TM459632)	Representative of users of the local road network and recreational users along the local PRoW network. Representative of users of Leiston Common and CRoW Access Land. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.

Viewpoint number	Location description	Reason for inclusion
16	Public footpath (Theberton 515, route 1), south-west of Theberton (approximate grid reference: TM424650)	Representative of recreational users of the local PRoW network to the south of Theberton Woods. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
17	Suffolk Coast Path recreational route, east of Snape (approximate grid reference: TM408582)	Representative of recreational users of the Suffolk Coast Path recreational route to the east of the settlement of Snape. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
18	Saxmundham Road (B1119) and public footpath (Leiston-cum-Sizewell, route 3), on the edge of Leiston (approximate grid reference: TM432627)	Representative of users of the local road network and PRoW network on the edge of the settlement of Leiston. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
19	Public footpath (Friston 260, route 22), east of Friston (approximate grid reference: TM417601)	Representative of recreational users of the local PRoW network to the east of the settlement of Friston. Located within SCLCA LCA K3: Aldringham and Freston Sandlands

2.2.4.30 Table 2.2.5 details the locations proposed for the representative viewpoints for Site 3 Alternative (Option 2), as shown on **Figure 2.2.10 Representative Viewpoints and Screened Zone of Theoretical Visibility Site 3**, and their reason for inclusion in the LVIA.

Table 2.2.5: Representative viewpoint locations for Site 3 Alternative (Option 2)

Viewpoint number	Location description	Reason for inclusion
1	Grove Road, north of Friston (approximate grid reference: TM416610)	Representative of users of the local road network, including Grove Road between the settlements of Friston and Knodishall. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.

Viewpoint number	Location description	Reason for inclusion
2	Public footpath (Knodishall 354, route 16), north-west of Friston (approximate grid reference: TM403612)	Representative of recreational users of the local PRoW network within the landscape to the north of Friston. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands
3	Public footpath (Saxmunham 460, route 37), north of Saxmundham (approximate grid reference: TM381642)	Representative of recreational users of the local PRoW network between the settlements of Carlton and Saxmundham. Representative of users of Carlton Park, Kelsale, locally designated as a Park and Garden of Historic or Landscape Interest. Located within SCLCA LCA B4: Fromus Valley
4	Knodishall Common, west of Knodishall (approximate grid reference: TM430609)	Representative of recreational users within Knodishall Common and CRoW Access Land. Representative of the edge of the settlement of Knodishall. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
6	Suffolk Coast Path recreational route, south of Sizewell nuclear power station (approximate grid reference: TM475624)	Representative of recreational users of the Suffolk Coast Path recreational route between Sizewell and Thorpeness. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands
7	South Coast Path recreational route off Aldeburgh Road (approximate grid reference: TM437582)	Representative of recreational users of the South Coast Path recreational route between the settlements of Aldeburgh and Snape. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands
8	Aldeburgh Road (A1094), near to Park Farm (approximate grid reference: TM425591)	Representative of users of the local road network between the settlements of Aldeburgh and Friston. Representative of receptors on the boundary of the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands
9	Sandlings Walk recreational route, south of Knodishall (approximate grid	Representative of recreational users of the Sandlings Walk recreational route to the south of the settlement of Knodishall.

Viewpoint number	Location description	Reason for inclusion
	reference: TM433598)	Located within SCLCA LCA K3: Aldringham and Freston Sandlands
10	Bigsbys Corner (B1121), south of Saxmundham (approximate grid reference: TM385624)	Representative of users of the local road network and local PRoW network between the settlements of Saxmundham and Benhall Green. Representative of users of the East Suffolk railway line between Saxmunham and Wickham Market. Located within SCLCA LCA B4: Fromus Valley
11	Public bridleway (Sternfield 491, route 29), east of Saxmundham (approximate grid reference: TM407628)	Representative of recreational users of the local PRoW network to the east of the settlement of Saxmunham. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands
12	Clayhills Road and public footpath (Kelsale-cum-Carlton, route 33), east of Carlton (approximate grid reference: TM396641)	Representative of users of the local road network and recreational users of the local PRoW network to the east of the settlement of Carlton. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands
13	Aldringham Common and public footpath (Aldringham-cum-Thorpe, route 3), east of Aldringham (approximate grid reference: TM456611)	Representative of recreational users of the local PRoW network, Aldringham Common and CRoW Act Access Land, to the east of the settlement of Aldringham. Representative of receptors on the boundary of the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands
15	Sandy Lane, public bridleway (Leiston-cum-Sizewell, route 19), north-west of Sizewell (approximate grid reference: TM459632)	Representative of users of the local road network and recreational users along the local PRoW network. Representative of users of Leiston Common and CRoW Access Land. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
16	Public footpath (Theberton 515, route 1), south-west of Theberton (approximate grid	Representative of recreational users of the local PRoW network to the south of Theberton Woods. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.

Viewpoint number	Location description	Reason for inclusion
	reference: TM424650)	
17	Suffolk Coast Path recreational route, east of Snape (approximate grid reference: TM408582)	Representative of recreational users of the Suffolk Coast Path recreational route to the east of the settlement of Snape. Representative of receptors within the Suffolk Coast and Heaths AONB. Located within SCLCA LCA K3: Aldringham and Freston Sandlands.
18	Saxmundham Road (B1119) and public footpath (Leiston-cum-Sizewell, route 3), on the edge of Leiston (approximate grid reference: TM432627)	Representative of users of the local road network and PRoW network on the edge of the settlement of Leiston. Located within SCLCA LCA L1: Heveningham and Knodishall Estate Claylands.
19	Public footpath (Friston 260, route 22), east of Friston (approximate grid reference: TM417601)	Representative of recreational users of the local PRoW network to the east of the settlement of Friston. Located within SCLCA LCA K3: Aldringham and Freston Sandlands

Visualisations

2.2.4.31 Visualisations will be produced, using the maximum development parameters, to illustrate the converter station from all the representative viewpoint locations where it is visible, to assist an understanding of the potential visual effects.

2.2.4.32 No visualisations are proposed for the landfall or underground HVAC or HVDC cable corridors because of the temporary nature of impacts predicted to arise during the construction phase of the Suffolk Onshore Scheme. There are also no visualisations proposed for the extension works to the proposed Friston substation as the works are considered to be minor.

2.2.4.33 The methodology for the preparation and presentation of the visualisations will follow the requirements set out in the Landscape Institute, 2019, *Technical Guidance Note 06-19: Visual Representation of Development Proposals*.

Planned Surveys

2.2.4.34 Field surveys of the converter station site, HVAC and HVDC corridors and the landfall will be undertaken by Chartered Landscape Architects.

2.2.4.35 An initial field survey has been undertaken in March 2022 to provide an understanding of the local area and potential landscape and visual receptors.

2.2.4.36 Subsequent field surveys will be completed after Scoping Opinions have been received and consultation has been conducted with relevant Local Planning Authorities (LPAs). These detailed surveys from publicly accessible areas will be used to undertake the landscape and visual assessments, and to capture photography from representative viewpoint locations used in the visual assessment and as supporting figures for the LVIA.

2.2.4.37 Field surveys will include site visits and photography during the winter season i.e., when vegetation cover is generally at its lowest (thus visibility is at its greatest), to enable an appreciation of the extent to which vegetation has a screening function within the landscape, particularly in relation to sensitive receptors, and to understand the likely mitigation requirements.

2.2.4.38 Surveys will be undertaken in line with UK Government guidelines relating to the Covid-19 pandemic and relevant Health and Safety procedures. At the time of writing there are no foreseeable limitations to the LVIA surveys because of Covid-19 restrictions.

Future Baseline

2.2.4.39 With regard to landscape baseline environment reporting, GLVIA3, states that: “The aim should be to describe the landscape as it is at the time but also to consider, if possible, what it may be like in the future, without the proposal.”

2.2.4.40 The LVIA within the ES will consider changes which may affect the future landscape in the absence of the development.

2.2.5 Embedded and Control & Management Measures

Embedded Measures

2.2.5.1 Embedded measures are steps taken during the design phase to help minimise potential effects, based on key sensitivities, constraints and opportunities identified through baseline study. Landscape and visual considerations have been important in informing the converter and landfall site selection process and in identifying potential cable route corridor options, and will continue to inform the form, location and routeing of the various elements throughout the design process.

2.2.5.2 Mitigation measures are those that seek to further reduce potential effects that could not be entirely designed out and are identified and informed by the detailed assessment stage. These include landscape reinstatement and landform and woodland screening and seek to help reduce the extent or significance of negative effects in the long term. In relation to the Suffolk Onshore Scheme, secondary mitigation measures are likely to include, reinstatement of hedgerows and other vegetation along the cable route and temporary access tracks, and landscape integration of the converter station through planting and landform design.

2.2.5.3 Landscape mitigation measures will be developed to support the landscape strategies and guidelines identified in published landscape character assessments. Details of landscape mitigation measures, such as planting types and species will be developed

in consultation with LPAs. Opportunities will also be sought to integrate ecological, drainage and other mitigation measures into an overall landscape and environmental mitigation strategy and masterplan for the Suffolk Onshore Scheme.

Control and Management Measures

2.2.5.4 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice.** Measures relevant to the control and management of impacts that could affect the Landscape and Visual assessment are:

- LV01: The contractor(s) will retain vegetation where practicable. Where vegetation is lost and trees cannot be replaced in situ due to the restrictions associated with land rights required for operational safety, native shrub planting approved by National Grid will be used as a replacement, in accordance with the outline vegetation reinstatement plans included within the Landscape Ecological Management Plan (LEMP);
- LV02: The contractor(s) will apply the relevant protective principles set out in British Standard (BS) 5837:2012: Trees in relation to design, demolition and construction. This will be applied to trees within the Order Limits which will be preserved through the construction phase, and to trees outside of the Order Limits where such measures do not hinder or prevent the use of the relevant working width for construction. All works to high grade trees, including trees under Tree Preservation Orders and veteran trees, will be undertaken or supervised by a suitably qualified arboriculturist; and
- LV03: A five-year aftercare period will be established for all reinstatement and mitigation planting.
- GG07: A full record of condition will be carried out (photographic and descriptive) of the working areas that may be affected by the construction activities. This record will be available for comparison following reinstatement after the works have been completed to ensure that the standard of reinstatement at least meets that recorded in the pre-condition survey.
- GG08: Land used temporarily will be reinstated where practicable to its pre-construction condition and use. Hedgerows, fences and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, with landowner agreement.
- GG09: Where sensitive features are to be retained within or immediately adjacent to the Order Limits, an appropriate protective area will be established using appropriate fencing and signage and will be inspected, repaired and replaced as necessary. The protective areas will be shown on the Retention and Reinstatement Plans contained within the LEMP.

2.2.5.5 Additional measures relating to landscape and visual would include the following:

- Limiting the working width of the cable construction corridor and consideration of HDD construction techniques to maintain sensitive landscape features such as mature trees.

- Separation and storage of subsoil and topsoil to ensure no degradation in quality and reinstatement undertaken as soon as possible after completion of construction of each section/area of works.
- Placement of topsoil to one side of the trench and subsoil to the other, with the additional height of the subsoil storage used on whichever side requires greater screening benefit.
- Reinstatement of hedgerows/field boundaries crossed by the route, with native (and species-rich where appropriate) species planted to reduce or mitigate effects on landscape character and the visual awareness of the cable route within and across the landscape in the short to medium term.

2.2.6 Potential for Significant Effects

2.2.6.1 The LVIA will consider the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

2.2.6.2 The proposed scope of the landscape and visual assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

2.2.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme.

2.2.6.4 The potential for the Suffolk Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- construction compounds;
- temporary office accommodation and welfare facilities;
- access tracks;
- construction plant and vehicle movement;
- topsoil stripping and earthworks; and
- Introduction of localised lighting.

Sources of operational impacts

- permanent overground infrastructure, including converter station;
- permanent underground infrastructure, including HVDC and HVAC underground cables; and
- operational lighting at the converter station.

Sources of maintenance impacts

- vehicle movement to carry workers in and out of the converter station site along with new materials and equipment to replace the old; and
- access tracks with temporary vehicle movement for cable repairs.

Sources of decommissioning impacts

- decommissioning compounds and temporary office accommodation and welfare facilities;
- construction plant and vehicle movement associated with the removal of permanent above ground infrastructure including the converter station;
- redundant cables could be left in-situ, however where this is not possible construction plant and vehicle movement associated with the removal of cables to be disposed of; and
- reinstatement of converter station site.

Potential impacts

2.2.6.5 The siting of the landfall and converter station sites and the routeing of the underground HVDC and HVAC cable corridors has reduced the potential for significant landscape and visual effects, through seeking to avoid the more sensitive landscape features such as protected trees (e.g., Tree Preservation Orders) and proximity to settlement. Where the removal of landscape features along the HVDC and HVAC cable corridors are unavoidable such as hedgerows and arable land, these will be fully reinstated to the pre-existing condition as far as reasonably practical (secured through a CoCP and DCO Requirements) once installation of the cables is complete.

2.2.6.6 As a result, the LVIA of the landfall and underground cable corridors will be focused on the construction phase as operational effects are not considered to be significant. This is underpinned by professional judgement and past experience of similar HVDC link projects. Effects on the landscape and visual resource as a result of the introduction of the converter station will be assessed both at construction and operation (at year 1 of operation (winter) and year 15 of operation (summer) once any mitigation planting has established). Decommissioning and maintenance effects are considered to be similar to and no worse than those assessed during the construction phase of works.

2.2.6.7 The following table lists all sources of potential impacts that could lead to potential significant effects on landscape character and visual amenity during each stage of the Suffolk Onshore Scheme and identifies those that have less potential to result in a significant effect with an explanation. The impacts relate to the LVIA methodology (detailed at section 7) and are split into landscape character and visual amenity for each source.

2.2.6.8 Table 2.2.6 identifies the potential impacts that could result from the sources identified above.

Table 2.2.6: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, Maintenance and Decommissioning	Construction activity including construction compounds, temporary accommodation and access tracks, construction plant and vehicle movement, topsoil stripping and earthworks and introduction of localised lighting.	Temporary alteration to landscape character	Yes - Due to the short-term duration and temporary nature of activity, potential effects whilst have less potential to be significant will be considered within the LVIA.	**Scoped in**
		Temporary alteration to visual amenity	Yes - Due to the short-term duration and temporary nature of activity, potential effects whilst have less potential to be significant will be considered within the LVIA.	**Scoped in**
Operation	Operational converter station	Alteration to landscape character	Yes - Potential to result in a significant effect.	**Scoped in**
		Alteration to visual amenity	Yes - Potential to result in a significant effect.	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Operation	Introduction of operational lighting at the converter station	Alteration to landscape character and visual amenity as a result of operational lighting	No - There is less potential that significant effects will result on landscape character or visual amenity as any additional lighting will be limited to maintaining site security and safety and would be within the context existing settlement. Should the approach to lighting change, this aspect will be scoped into the landscape and visual assessments.	Scoped out
Operation	Operational extension to the proposed Friston substation (including extension to boundary of site and boundary fencing, installation of one new AIS bay and additional switch	Alteration to landscape character and visual amenity as a result of operational lighting	No - There is less potential that significant effects will result on landscape character or visual amenity as the extension to the proposed Friston	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	gear and bus bars to be located within the substation)		substation will be minimal and within the context of existing energy infrastructure. Should the design of the proposals at the proposed Friston substation become more substantial this aspect will be scoped into the landscape and visual assessments.	
Operation	Operational HVDC and HVAC underground cables	Alteration to landscape character	No - Less potential to have significant effects on landscape character at operation. The landscape will be returned to previous land use and landscape components lost at construction will be reinstated as soon as reasonably	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			practical after construction.	
		Alteration to visual amenity	No - Less potential to have significant effects on visual amenity at operation. The landscape will be returned to previous land use and landscape components lost at construction will be reinstated as soon as reasonably practical after construction.	Scoped out

Impact Pathways with Receptors (Step 2)

2.2.6.9 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the study area.

Suffolk Converter Station Site 1 Emerging Preference

2.2.6.10 Table 2.2.7 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Emerging Preference as shown on as shown on **Figure 2.1.4 Suffolk Site 1 Emerging Preference** and **Figure 2.1.9 Suffolk Site 1 Emerging Preference Option Area.**

Table 2.2.7: Impact pathways with receptors – Suffolk Site 1 Emerging Preference

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary alteration to landscape character from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil stripping and earthworks, storge of materials and lighting	SCLCA LCAs B3, B4, D3, D4, J4, K3, L1 and O1. TTLCA CCAs Thorpeness to Aldeburgh Coast, Alde Estuary and Dunwich to Sizewell Coast. SCASNE SCT 3.	Yes - The Suffolk Scoping Boundary lies within and near to multiple published LCAs, CCAs and SCT, of which there is the potential for temporary and short-term effects. Whilst less potential to result in significant effects at construction, they will be considered as part of the construction phase assessment.	**Scoped in for construction, maintenance and decommissioning**
	Suffolk Coast and Heaths AONB.	Yes - The Suffolk Scoping Boundary lies within the Suffolk Coast and Heaths AONB, of which there is the potential for temporary and short-term effects. Whilst less potential to result in significant effects at construction, they will be considered as part of the construction phase assessment.	**Scoped in for construction, maintenance and decommissioning**
Temporary alteration to visual amenity from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Yes - The Suffolk Scoping Boundary is potentially visible from a range of visual receptors, of which there is the potential for significant effects at construction from close range receptors. However, due to the short duration and temporary nature of	**Scoped in for construction, maintenance and decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
stripping and earthworks, storge of materials and lighting		the works there is potential that the majority of visual effects at construction will not be significant.	
	Recreational users within the Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary is potentially visible from recreational receptors within the Suffolk Coast and Heaths AONB, of which there is the potential for significant effects at construction from close range receptors. However, due to the short duration and temporary nature of the works there is potential that the majority of visual effects at construction will not be significant.	**Scoped in for construction, maintenance and decommissioning**
Permanent alteration to landscape character as a result of the operational converter station	SCLCA LCAs B3, B4, D3, D4, J4, K3 and L1. TTLCA CCAs Thorpeness to Aldeburgh Coast, Alde Estuary and Dunwich to Sizewell Coast.	Yes -The Suffolk Scoping Boundary lies within and near to multiple published LCAs and CCAs, of which there is the potential for significant effects at operation.	**Scoped in for operation**
	Suffolk Coast and Heaths AONB.	There is the potential for indirect effects to result on the setting of the Suffolk Coast and Heaths AONB as a result of the proximity of the operational converter station. Whilst less potential to result in significant effects at	

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		operation, they will be considered as part of the operational phase assessment.	
	SCLCA LCA 01. SCASNE SCT 3.	No - The Suffolk Scoping Boundary does not lie within the LCA and SCT. Whilst there is the potential for indirect effects on the perceptual qualities of the LCA and SCT there is less potential that the effects would be significant.	Scoped out for operation
Permanent alteration to visual amenity as a result of the operational converter station	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Yes -The Suffolk Scoping Boundary will be potentially visible from a range of visual receptors, of which there is a potential significant effect at operation.	**Scoped in for operation**
	Recreational users within the Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary will be potentially visible from recreational receptors within the Suffolk Coast and Heaths AONB, of which there is a potential significant effect at operation.	**Scoped in for operation**

Suffolk Converter Station Site 1 Alternative

2.2.6.11 Table 2.2.8 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Alternative Preference as shown on as shown on **Figure 2.1.7 Suffolk Site 1 Alternative** and **Figure 2.1.11 Suffolk Site 1 Alternative Option Area.**

Table 2.2.8: Impact pathways with receptors – Suffolk Site 1 Alternative

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary alteration to landscape character from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil stripping and earthworks, storge of materials and lighting	SCLCA LCAs B3, B4, D3, D4, J4, K3, L1 and O1. TTLCA CCAs Thorpeness to Aldeburgh Coast, Alde Estuary and Dunwich to Sizewell Coast. SCASNE SCT 3.	Yes -The Suffolk Scoping Boundary lies within and near to multiple published LCAs, CCAs and SCT, of which there is the potential for temporary and short-term effects. Whilst less potential to result in significant effects at construction, they will be considered as part of the construction phase assessment.	**Scoped in for construction, maintenance and decommissioning**
	Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary lies within the Suffolk Coast and Heaths AONB, of which there is the potential for temporary and short-term effects. Whilst less potential to result in significant effects at construction, they will be considered as part of the construction phase assessment.	**Scoped in for construction, maintenance and decommissioning**
Temporary alteration to visual amenity from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Yes -The Suffolk Scoping Boundary is potentially visible from a range of visual receptors, of which there is the potential for significant effects at construction from close range receptors. However, due to the short duration and temporary nature of	**Scoped in for construction, maintenance and decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
stripping and earthworks, storge of materials and lighting		the works there is potential that the majority of visual effects at construction will not be significant.	
	Recreational users within the Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary is potentially visible from recreational receptors within the Suffolk Coast and Heaths AONB, of which there is the potential for significant effects at construction from close range receptors. However, due to the short duration and temporary nature of the works there is potential that the majority of visual effects at construction will not be significant.	**Scoped in for construction, maintenance and decommissioning**
Permanent alteration to landscape character as a result of the operational converter station	SCLCA LCAs B3, B4, D3, D4, J4, K3 and L1. TTLCA CCAs Thorpeness to Aldeburgh Coast, Alde Estuary and Dunwich to Sizewell Coast.	Yes -The Suffolk Scoping Boundary lies within and near to multiple published LCAs and CCAs, of which there is the potential for significant effects at operation.	**Scoped in for operation**
	Suffolk Coast and Heaths AONB.	No - There is the potential for indirect effects to result on the setting of the Suffolk Coast and Heaths AONB as a result of the proximity of the operational converter station. Whilst less potential to result in significant	

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		effects at operation, they will be considered as part of the operational phase assessment.	
	SCLCA LCA 01. SCASNE SCT 3.	No - The Suffolk Scoping Boundary does not lie within the LCA and SCT. Whilst there is the potential for indirect effects on the perceptual qualities of the LCA and SCT there is less potential that the effects would be significant.	Scoped out for operation
Permanent alteration to visual amenity as a result of the operational converter station	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Yes -The Suffolk Scoping Boundary will be potentially visible from a range of visual receptors, of which there is a potential significant effect at operation.	**Scoped in for operation**
	Recreational users within the Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary will be potentially visible from recreational receptors within the Suffolk Coast and Heaths AONB, of which there is a potential significant effect at operation.	**Scoped in for operation**

Suffolk Converter Station Site 3 Emerging Preference

2.2.6.12 Table 2.2.9 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Emerging

Preference as shown on as shown on **Figure 2.1.5 Suffolk Site 3 Emerging Preference** and **Figure 2.1.10 Suffolk Site 3 Emerging Preference Option Area.**

Table 2.2.9: Impact pathways with receptors – Suffolk Site 3 Emerging Preference

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary alteration to landscape character from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil stripping and earthworks, storge of materials and lighting	SCLCA LCAs B3, B4, D3, D4, J4, K3, L1 and O1. TTLCA CCAs Thorpeness to Aldeburgh Coast, Alde Estuary and Dunwich to Sizewell Coast. SCASNE SCT 3.	Yes -The Suffolk Scoping Boundary lies within and near to multiple published LCAs, CCAs and SCT, of which there is the potential for temporary and short-term effects. Whilst less potential to result in significant effects at construction, they will be considered as part of the construction phase assessment.	**Scoped in for construction, maintenance and decommissioning**
	Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary lies within the Suffolk Coast and Heaths AONB, of which there is the potential for temporary and short-term effects. Whilst less potential to result in significant effects at construction, they will be considered as part of the construction phase assessment.	**Scoped in for construction, maintenance and decommissioning**
Temporary alteration to visual amenity from the introduction of construction activity including compounds, temporary accommodation and	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and	Yes -The Suffolk Scoping Boundary is potentially visible from a range of visual receptors, of which there is the potential for significant effects at construction from close range	**Scoped in for construction, maintenance and decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
access tracks, construction plant and vehicle movements, topsoil stripping and earthworks, storge of materials and lighting	railway line passengers.	receptors. However, due to the short duration and temporary nature of the works there is potential that the majority of visual effects at construction will not be significant.	
	Recreational users within the Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary is potentially visible from recreational receptors within the Suffolk Coast and Heaths AONB, of which there is the potential for significant effects at construction from close range receptors. However, due to the short duration and temporary nature of the works there is potential that the majority of visual effects at construction will not be significant.	**Scoped in for construction, maintenance and decommissioning**
Permanent alteration to landscape character as a result of the operational converter station	SCLCA LCAs B3, B4, D3, D4, J4, K3 and L1. TTLCA CCAs Thorpeness to Aldeburgh Coast, Alde Estuary and Dunwich to Sizewell Coast.	Yes -The Suffolk Scoping Boundary lies within and near to multiple published LCAs and CCAs, of which there is the potential for significant effects at operation.	**Scoped in for operation**
	Suffolk Coast and Heaths AONB.	No - There is not considered to be the potential for effects to result on the setting of the Suffolk Coast and Heaths AONB as a result of the	Scoped out for operation

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		proximity of the operational converter station.	
	SCLCA LCA 01. SCASNE SCT 3.	No - The Suffolk Scoping Boundary does not lie within the LCA and SCT. Whilst there is the potential for indirect effects on the perceptual qualities of the LCA and SCT there is less potential that the effects would be significant.	Scoped out for operation
Permanent alteration to visual amenity as a result of the operational converter station	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Yes -The Suffolk Scoping Boundary will be potentially visible from a range of visual receptors, of which there is a potential significant effect at operation.	**Scoped in for operation**
	Recreational users within the Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary will be potentially visible from recreational receptors within the Suffolk Coast and Heaths AONB, of which there is a potential significant effect at operation.	**Scoped in for operation**

Suffolk Converter Station Site 3 Alternative (Option 1)

2.2.6.13 Table 2.2.10 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option 1) as shown on as shown on **Figure 2.1.7 Suffolk Site 3 Alternative (Option 1)** and **Figure 2.1.12 Suffolk Site 3 Alternative (option 1) Option Area**.

Table 2.2.10: Impact Pathways – Suffolk Site 3 Alternative (Option 1)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary alteration to landscape character from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil stripping and earthworks, storge of materials and lighting	SCLCA LCAs B3, B4, D3, D4, J4, K3, L1 and O1. TTLCA CCAs Thorpeness to Aldeburgh Coast, Alde Estuary and Dunwich to Sizewell Coast. SCASNE SCT 3.	Yes -The Suffolk Scoping Boundary lies within and near to multiple published LCAs, CCAs and SCT, of which there is the potential for temporary and short-term effects. Whilst less potential to result in significant effects at construction, they will be considered as part of the construction phase assessment.	**Scoped in for construction, maintenance and decommissioning**
	Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary lies within the Suffolk Coast and Heaths AONB, of which there is the potential for temporary and short-term effects. Whilst less potential to result in significant effects at construction, they will be considered as part of the construction phase assessment.	**Scoped in for construction, maintenance and decommissioning**
Temporary alteration to visual amenity from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Yes -The Suffolk Scoping Boundary is potentially visible from a range of visual receptors, of which there is the potential for significant effects at construction from close range receptors. However, due to the short duration and temporary nature of	**Scoped in for construction, maintenance and decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
stripping and earthworks, storge of materials and lighting		the works there is potential that the majority of visual effects at construction will not be significant.	
	Recreational users within the Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary is potentially visible from recreational receptors within the Suffolk Coast and Heaths AONB, of which there is the potential for significant effects at construction from close range receptors. However, due to the short duration and temporary nature of the works there is potential that the majority of visual effects at construction will not be significant.	**Scoped in for construction, maintenance and decommissioning**
Permanent alteration to landscape character as a result of the operational converter station	SCLCA LCAs B3, B4, D3, D4, J4, K3 and L1. TTLCA CCAs Thorpeness to Aldeburgh Coast, Alde Estuary and Dunwich to Sizewell Coast.	Yes -The Suffolk Scoping Boundary lies within and near to multiple published LCAs and CCAs, of which there is the potential for significant effects at operation.	**Scoped in for operation**
	Suffolk Coast and Heaths AONB.	No - There is not considered to be the potential for effects to result on the setting of the Suffolk Coast and Heaths AONB as a result of the proximity of the operational converter station.	Scoped out for operation

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	SCLCA LCA 01. SCASNE SCT 3.	No - The Suffolk Scoping Boundary does not lie within the LCA and SCT. Whilst there is the potential for indirect effects on the perceptual qualities of the LCA and SCT there is less potential that the effects would be significant.	Scoped out for operation
Permanent alteration to visual amenity as a result of the operational converter station	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Yes -The Suffolk Scoping Boundary will be potentially visible from a range of visual receptors, of which there is a potential significant effect at operation.	**Scoped in for operation**
	Recreational users within the Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary will be potentially visible from recreational receptors within the Suffolk Coast and Heaths AONB, of which there is a potential significant effect at operation.	**Scoped in for operation**

Suffolk Converter Station Site 3 Alternative (Option 2)

2.2.6.14 Table 2.2.11 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option 2) as shown on as shown on **Figure 2.1.8 Suffolk Site 3 Alternative (Option 2)** and **Figure 2.1.13 Suffolk Site 3 Alternative (option 2) Option Area.**

Table 2.2.11: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 2)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary alteration to landscape character from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil stripping and earthworks, storge of materials and lighting	SCLCA LCAs B3, B4, D3, D4, J4, K3, L1 and O1. TTLCA CCAs Thorpeness to Aldeburgh Coast, Alde Estuary and Dunwich to Sizewell Coast. SCASNE SCT 3.	Yes -The Suffolk Scoping Boundary lies within and near to multiple published LCAs, CCAs and SCT, of which there is the potential for temporary and short-term effects. Whilst less potential to result in significant effects at construction, they will be considered as part of the construction phase assessment.	**Scoped in for construction, maintenance and decommissioning**
	Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary lies within the Suffolk Coast and Heaths AONB, of which there is the potential for temporary and short-term effects. Whilst less potential to result in significant effects at construction, they will be considered as part of the construction phase assessment.	**Scoped in for construction, maintenance and decommissioning**
Temporary alteration to visual amenity from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Yes -The Suffolk Scoping Boundary is potentially visible from a range of visual receptors, of which there is the potential for significant effects at construction from close range receptors. However, due to the short duration and temporary nature of	**Scoped in for construction, maintenance and decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
stripping and earthworks, storge of materials and lighting		the works there is potential that the majority of visual effects at construction will not be significant.	
	Recreational users within the Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary is potentially visible from recreational receptors within the Suffolk Coast and Heaths AONB, of which there is the potential for significant effects at construction from close range receptors. However, due to the short duration and temporary nature of the works there is potential that the majority of visual effects at construction will not be significant.	**Scoped in for construction, maintenance and decommissioning**
Permanent alteration to landscape character as a result of the operational converter station	SCLCA LCAs B3, B4, D3, D4, J4, K3 and L1. TTLCA CCAs Thorpeness to Aldeburgh Coast, Alde Estuary and Dunwich to Sizewell Coast.	Yes -The Suffolk Scoping Boundary lies within and near to multiple published LCAs and CCAs, of which there is the potential for significant effects at operation.	**Scoped in for operation**
	Suffolk Coast and Heaths AONB.	No - There is not considered to be the potential for effects to result on the setting of the Suffolk Coast and Heaths AONB as a result of the proximity of the operational converter station.	Scoped out for operation

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	SCLCA LCA 01. SCASNE SCT 3.	No - The Suffolk Scoping Boundary does not lie within the LCA and SCT. Whilst there is the potential for indirect effects on the perceptual qualities of the LCA and SCT there is less potential that the effects would be significant.	Scoped out for operation
Permanent alteration to visual amenity as a result of the operational converter station	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Yes -The Suffolk Scoping Boundary will be potentially visible from a range of visual receptors, of which there is a potential significant effect at operation.	**Scoped in for operation**
	Recreational users within the Suffolk Coast and Heaths AONB.	Yes -The Suffolk Scoping Boundary will be potentially visible from recreational receptors within the Suffolk Coast and Heaths AONB, of which there is a potential significant effect at operation.	**Scoped in for operation**

2.2.7 Proposed Assessment Methodology

Proposed Data Sources

2.2.7.1 The following data sources are proposed to be used to inform the assessment:

- Ordnance Survey (OS) mapping, and aerial photography;
- OS Digital Terrain Model (DTM);
- Natural England ;

- Historic England ;
- National, and local planning policy;
- Published landscape character assessments; and
- Published documents by the Suffolk Coast and Heaths AONB Partnership.

Guidance

2.2.7.2 The landscape and visual assessment will be carried out in accordance with the following good practice guidance documents:

- Guidelines for Landscape and Visual Impact Assessment: Third edition (GLVIA3)[29];
- Assessing landscape value outside national designations - Technical Guidance Note 02/21[30] ;
- Design Principles for National Infrastructure[31] ;
- Infrastructure - Technical Guidance Note 04/20[32] ;
- Tranquillity – An overview – Technical Information Note 01/17[33]; and
- Visual Representation of Development Proposals – Technical Guidance Note 06/19[34].

2.2.7.3 *GLVIA3* places a strong emphasis on the importance of professional judgement in identifying and defining the significance of landscape and visual effects. The LVIA will be undertaken by Chartered Landscape Architects with experience in the assessment of similar types of HVDC link project. Professional judgement will be used in combination with structured methods and criteria to evaluate landscape and visual value and susceptibility, the resulting sensitivity, magnitude and significance of effect.

Proposed Assessment Methodology

2.2.7.4 The following section summarises the methodology for the LVIA which builds on the general assessment methodology presented in **Part 1, Chapter 5, EIA Approach and Methodology**. For clarity and in accordance with good practice, the assessment of

[29] Landscape Institute and Institute of Environmental Management and Assessment (2013). Guidelines for Landscape and Visual Impact Assessment, Third Edition. Abington Oxon: Rutledge

[30] Landscape Institute (2021). Assessing landscape value outside national designations - Technical Guidance Note 02/21. [online] Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2021/05/tgn-02-21-assessing-landscape-value-outside-national-designations.pdf

[31] National Infrastructure Commission Design Group (2020). Design Principles for National Infrastructure. [online] Available at: https://nic.org.uk/app/uploads/NIC-Design-Principles.pdf

[32] Landscape Institute (2020). Infrastructure - Technical Guidance Note 04/20. [online] Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2018/01/LI-Infrastructure-TGN-FINAL-200924.pdf

[33] Landscape Institute (2017). Tranquillity – An overview - Technical Information Note 01/17. [online] Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2017/02/Tranquillity-An-Overview-1-DH.pdf

[34] Landscape Institute (2019). Visual Representation of Development Proposals, Technical Guidance Note 06/19. [online] Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf

potential effects on landscape character and visual amenity, although closely related, are undertaken separately.

Sensitivity

Landscape receptors

2.2.7.5 Landscape receptors are described as components of the landscape that have the potential to be affected by the Suffolk Onshore Scheme. These can include overall character and key characteristics, individual elements or features and specific aesthetic or perceptual aspects. It is the interaction between the different components of the Project and these landscape receptors which has potential to result in landscape effects (both adverse and beneficial).

2.2.7.6 The sensitivity of the landscape receptor is a combination of the value of the landscape (undertaken as part of the baseline study) and the susceptibility to change of the receptor to the specific type of development being assessed.

2.2.7.7 Landscape value is frequently addressed by reference to international, national, regional and local designations, determined by statutory bodies and planning agencies. Absence of such a designation does not necessarily imply a lack of quality or value. Factors such as accessibility and local scarcity can render areas of nationally unremarkable quality, highly valuable as a local resource.

2.2.7.8 The evaluation of landscape value will be undertaken considering the following factors and classified as high, medium or low with evidence provided as to the basis of the evaluation. These are taken from the *Assessing landscape value outside national designations - Technical Guidance Note 02/21*.

- "Natural heritage – Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest which contribute positively to the landscape.
- Cultural heritage – Landscape with clear evidence of archaeological, historical or cultural interest which contribute positively to the landscape.
- Landscape condition – Landscape which is in a good physical state both with regard to individual elements and overall landscape structure.
- Associations – Landscape which is connected with notable people, events and the arts.
- Distinctiveness – Landscape that has a strong sense of identity.
- Recreational – Landscape offering recreational opportunities where experience of landscape is important.
- Perceptual (scenic) – Landscape that appeals to the senses, primarily the visual sense.
- Perceptual (wildness and tranquillity) – Landscape with a strong perceptual value notably wildness, tranquillity and/or dark skies.
- Functional - Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape."

2.2.7.9 Landscape susceptibility relates to the ability of a particular landscape to accommodate the Suffolk Onshore Scheme. It is appraised through consideration of the baseline characteristics of the landscape, and in particular, the scale or complexity of a given landscape. The evaluation of landscape susceptibility will be defined as high, medium or low and will be supported by a clear explanation based upon the analysis of the landscape receptor and the extent to which it is able to accommodate the type of change proposed, specific to the Suffolk Onshore Scheme.

2.2.7.10 The overall sensitivity assessment of the landscape receptor is made by employing professional judgement to combine and analyse the identified value and susceptibility with overall levels given from high, medium to low. Table 2.2.12 below outlines indicators that inform landscape value, susceptibility and sensitivity. The basis of the assessment will be made clear in the evaluation of each landscape receptor.

Table 2.2.12: Sensitivity of landscape receptors

	Higher sensitivity ⟷	**Lower sensitivity**
Value	A designated landscape (National Park, Area of Outstanding National Beauty, National Scenic Area, World Heritage Site) or a landscape in very good condition, exceptional scenic quality and high recreational opportunities or a high degree of rarity.	Landscapes containing few if any notable elements/features, of poor condition or containing several detracting features and limited aesthetic qualities. Landscapes which are not formally designated.
Susceptibility	Attributes that make up the character of the landscape which offer very limited opportunities to accommodate change of the type proposed without fundamentally altering key characteristics.	Attributes that make up the character of the landscape which are tolerant of a large degree of the type of change proposed without fundamentally altering the key characteristics.

Visual receptors

2.2.7.11 Sensitivity of visual receptors is defined through appraisal of the viewing expectation, or value placed on the view as identified in the baseline study, and its susceptibility to change.

2.2.7.12 Value of the view is an appraisal of the value attached to views and is often informed by the appearance on Ordnance Survey or tourist maps and in guidebooks, literature or art or identified in policy. Value can also be indicated by the provision of parking or services and signage and interpretation. The nature and composition of the view and its scenic quality is also an indicator. The value of the view is classified as high, medium or low and will be supported by evidenced, professional judgements.

2.2.7.13 The susceptibility of visual receptors is a function of the occupation or activity of people experiencing the view and the extent to which their attention or interest is focused on the view and the visual amenity they experience at a particular location. For example, residents in their home, walkers whose interest may tend to be focused on the landscape or a particular view, or visitors at an attraction where views are an important part of the experience, may indicate a higher level of susceptibility. Whereas, receptors occupied in outdoor sport where views are not important or at their place of work could be considered less susceptible to change.

2.2.7.14 As with landscape susceptibility, judgements about the susceptibility of visual receptors are described as high, medium or low using consistent and reasoned judgements.

2.2.7.15 The overall sensitivity assessment of the visual receptor is determined by employing professional judgement to combine and analyse the identified value and susceptibility ratings. Overall visual sensitivity will be rates as high, medium or low. Table 2.2.13 below outlines indicators that inform value for the view, susceptibility and sensitivity of visual receptors. The basis of the assessment is made clear in the evaluation of each visual receptor.

Table 2.2.13: Sensitivity of visual receptors

	Higher sensitivity ⟷ Lower sensitivity	
Value	Views protected by designation, or nationally recognised, or recorded on maps/guidebooks or with cultural associations. Views that have high scenic qualities relating to the content and composition of the view.	Views which are not documented or protected with minimal or no cultural associations. Views that exhibit low scenic qualities relating to the content and composition of the view.
Susceptibility	Viewers whose attention or interest is focused on their surroundings.	People whose attention or interest is not focused on their surroundings and where the view is incidental to their enjoyment.

Magnitude of effect

Landscape

2.2.7.16 Landscape magnitude of effect refers to the extent to which the Suffolk Onshore Scheme will alter the existing characteristics of the landscape. It is an expression of the size or scale of change to the landscape, the geographical extent of the area influenced and its duration and reversibility. The variables involved are described below:

- the extent of existing landscape elements that will be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape;
- the extent to which aesthetic or perceptual aspects of the landscape are altered either by removal of existing components of the landscape or by addition of new ones;
- whether the change alters the key characteristics of the landscape, which are integral to its distinctive character;
- the geographic area over which the change will be felt (within the application boundary itself, the immediate setting, at the scale of the landscape character area, on a larger scale influencing several landscape character areas); and
- the duration of the change short term, medium term or long term (which is defined in **Part 1, Chapter 5, EIA Approach and Methodology**), and its reversibility (whether it is permanent, temporary or partially reversible).

2.2.7.17 An overall assessment of the magnitude of landscape effect resulting from the Suffolk Onshore Scheme on the landscape receptor is made combining the above judgements using evidence and professional judgement. The levels of magnitude of change are described as being very large, large, medium, small, negligible and are defined below in Table 2.2.14.

Table 2.2.14: Magnitude of effect – landscape receptors

Magnitude	Criteria
Very Large	Substantial alteration to the landscape receptor or may impact an extensive area or unique characteristics at a local level. May be longer term, permanent or reversible.
Large	Large alteration to the landscape receptor or may impact an extensive area or unique characteristics at a local level. May be longer term, permanent or reversible.
Medium	Partial alteration to the landscape receptor or may impact a wide area or characteristics at a local level. May be medium term, permanent or reversible.
Small	Slight alteration to the landscape receptor or may impact a restricted area and few key characteristics. May be short to medium term, permanent or reversible.
Negligible	Very slight alteration to the landscape receptor or may impact a limited area or no key characteristics. May be short term, permanent or reversible.
None	No change to the landscape receptor.

Visual

2.2.7.18 Visual magnitude of effect relates to the extent to which the Suffolk Onshore Scheme will alter the existing view and is an expression of the size or scale of change in the

view, the geographical extent of the area influenced and its duration and reversibility. The variables involved are described below:

- The scale of the change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the Suffolk Onshore Scheme;
- The degree of contrast or integration of any new features or changes in the form, scale, composition and focal points of the view;
- The nature of the view of the Suffolk Onshore Scheme in relation to the amount of time over which it will be experienced and whether views will be full, partial or glimpsed;
- The angle of view in relation to the main activity of the receptor, distance of the viewpoint from the Suffolk Onshore Scheme and the extent of the area over which the changes will be visible; and
- The duration of the change short term, medium term or long term (which is defined in **Part 1, Chapter 5, EIA Approach and Methodology**) and its reversibility (whether it is permanent, temporary or partially reversible).

2.2.7.19 An overall assessment of the magnitude of visual effect resulting from the Suffolk Onshore Scheme on the visual receptor is made combining the above judgements using evidence and professional judgement. The levels of magnitude of change are described as being very large, large, medium, small, negligible and none are defined below.

Table 2.2.15: Magnitude of effect – visual receptors

Magnitude	Criteria
Very Large	A substantial change to the composition of the view or change that may be viewed in the foreground or directly. May be longer term, permanent or reversible.
Large	A pronounced change to the composition of the view or change that may be viewed in the foreground or directly. May be longer term, permanent or reversible.
Medium	A noticeable change to the composition of the view or change that may be viewed in the middle ground or indirectly. May be medium term, permanent or reversible.
Small	An unobtrusive change in the composition of the view or change that may be viewed in the background or obliquely. May be short to medium term, permanent or reversible.
Negligible	A barely perceptible change in the composition of the view or change that may be viewed in the background and/or very obliquely. May be short term, permanent or reversible.
None	No change to the view.

Significance of effects

2.2.7.20 Determination of the significance of landscape and visual effects will be undertaken by employing professional judgement and experience to combine and analyse the magnitude of change against the identified sensitivity of the receptor. The assessments will take account of direct and indirect change on existing landscape elements, features, key characteristics and evaluates the extent to which these will be lost or modified, in the context of their importance in determining the existing baseline character. The visual assessment will take into account potential changes to the visual composition, including the extent to which new features will distract or screen existing elements in the view or disrupt the scale, structure or focus of the existing view.

2.2.7.21 The levels of landscape and visual effects will be described with reference to the criteria outlined below in Table 2.2.16. For the purposes of this assessment, effects of moderate or above are generally considered to be significant.

Table 2.2.16: Significance of effect

Significance of effect	Landscape	Visual
Major Beneficial	Alterations that result in a considerable improvement of the existing landscape resource. Valued characteristic features would be restored or reintroduced.	Alterations that typically result in a pronounced improvement in the existing view.
Moderate Beneficial	Alterations that result in a partial improvement of the existing landscape resource. Valued characteristic features would be largely restored or reintroduced.	Alterations that typically result in a noticeable improvement in the existing view.
Minor Beneficial	Alterations that result in a slight improvement of the existing landscape resource. Characteristic features would be partially restored.	Alterations that typically result in a limited improvement in the existing view.
Negligible Beneficial	Alterations that result in a very slight improvement to the existing landscape resource, not uncharacteristic within the receiving landscape.	Alterations that typically result in a barely perceptible improvement in the existing view.
Neutral	No alteration to any of the components that contribute to the existing landscape resource.	No change to the existing view.
Negligible Adverse	Alterations that result in a very slight deterioration to the existing landscape resource, not uncharacteristic within the receiving landscape.	Alterations that typically result in a barely perceptible deterioration in the existing view.

Minor Adverse	Alterations that result in a slight deterioration of the existing landscape resource. Characteristic features would be partially lost.	Alterations that typically result in a limited deterioration in the existing view.
Moderate Adverse	Alterations that result in a partial deterioration of the existing landscape resource. Valued characteristic features would be largely lost.	Alterations that typically result in a noticeable deterioration in the existing view.
Major Adverse	Alterations that result in a considerable deterioration of the existing landscape resource. Valued characteristic features would be wholly lost.	Alterations that typically result in a pronounced deterioration in the existing view.

2.2.8 Conclusion

2.2.8.1 The LVIA will be undertaken in accordance with *GLVIA3* and current good practice guidance. The landscape assessment will consider potential effects on recognised National, Regional, County and District landscape character areas and relevant designations. The visual assessment will be based on a series of representative viewpoint locations which will be informed by detailed baseline study and defined in consultation with statutory consultees.

2.2.8.2 The LVIA will also consider the potential for cumulative effects resulting from the addition of the Suffolk Onshore Scheme in relation to other similar developments. Mitigation measures will also be developed and informed by the detailed baseline and assessment stages and will seek to minimise potential adverse effects. This will focus on the reinstatement of the cable corridors and integrating and partially screening views of the converter station.

2.2.8.3 As there is the potential for long-term landscape and visual effects associated with the converter station the LVIA will be included within the main ES. However, given the temporary and reversible effects associated with the HVAC and HVDC cable corridors, it is proposed that operational phase effects associated with the HVAC and HVDC cable corridors will be scoped out of the LVIA.

Proposed Scope of the Assessment

2.2.8.4 A summary of the proposed scope of the assessment is provided in Table 2.2.17.

Table 2.2.17: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out and for which option

SCLCA LCAs B3, B4, D3, D4, J4, K3, L1 and O1. TTLCA CCAs Thorpeness to Aldeburgh Coast, Alde Estuary and Dunwich to Sizewell Coast. SCASNE SCT 3	Temporary alteration to landscape character from construction activity and operations	Construction, Maintenance and Decommissioning	**Scoped in** **(All options)**
SCLCA LCAs B3, B4, D3, D4, J4, K3 and L1. TTLCA CCAs Thorpeness to Aldeburgh Coast, Alde Estuary and Dunwich to Sizewell Coast.	Alteration to landscape character from the operational converter station.	Operation	**Scoped in** **(All options)**
Suffolk Coast and Heaths AONB.	Temporary alteration to landscape character and visual amenity of recreational users from construction activity and operations.	Construction, Maintenance and Decommissioning	**Scoped in** **(All options)**
	Alteration to setting of AONB and to the landscape character of recreational users from the operational converter station	Operation	**Scoped in** **(Site 1 Emerging Preference and Site 1 Alternative)** Scoped out (Site 3 Emerging Preference, Site 3 Alternative (Option 1), Site 3 Alternative (Option 2))
	Alteration to setting of AONB and to visual amenity of recreational users from the operational converter station.	Operation	**Scoped in** **(All options)**
Settlement, isolated dwellings, recreational facilities,	Alteration to visual amenity from the introduction of construction activity and operations.	Construction, Maintenance and Decommissioning	**Scoped in** **(All options)**

recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Alteration to visual amenity from the operational converter station.	Operation	**Scoped in (All options)**
SCASNE SCT 3. SCLCA LCA 01.	Alteration to landscape character and perceptual qualities as a result of the operational converter station.	Operation	Scoped out (All options)

2.3 Ecology and Biodiversity

2.3.1 Introduction

2.3.1.1 This chapter presents how the Ecology and Biodiversity assessment will consider the potentially significant effects on heritage assets that may arise from the construction, and operation, maintenance and decommissioning of the Suffolk Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

2.3.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Suffolk Onshore Scheme Scoping Boundary hereafter referred to as the Suffolk Scoping Boundary is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**.

2.3.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**
- **Part 1, Chapter 5, EIA Approach and Methodology;** and
- **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme**.

2.3.1.4 This chapter is supported by the following figure:

- **Figure 2.3.1 Statutory Designated Ecological Features, Sheets 1-5**.

2.3.2 Regulatory and Planning Context

2.3.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on protected nature conservation sites, significant habitats, protected and/or, notable species as well as invasive non-native species associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

2.3.2.2 The below legislation will be considered when identifying potential constraints to the Suffolk Onshore Scheme, design options and mitigation. Compliance with the below legislation may require obtaining relevant protected species licences prior to implementation of the Project.

- The Conservation of Habitats and Species Regulations 2017[35] (as amended);
- The Natural Environment and Rural Communities (NERC) Act 2006[36];
- The Countryside and Rights of Way (CRoW) Act 2000[37];
- Wildlife and Countryside Act 1981 (as amended)[38]
- Environment Act 2021[39];
- Animal Welfare Act 2006[40];
- Protection of Badgers Act 1992[41];
- The Wild Mammals (Protection) Act 1996[42];
- The Hedgerow Regulations 1997[43]; and
- Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended)[44].

Planning Policy

National planning policy

2.3.2.3 The assessment will take account of the relevant National Policy Statements (NPSs) for energy: the Overarching National Policy Statement for Energy (EN-1) and the National Policy Statement for Electricity Networks (EN-5)[45]. These NPSs are, in the process of being updated and therefore relevant sections of the draft NPSs are also included below, where relevant.

2.3.2.4 Paragraph 4.3.1 of the Overarching National Policy Statement for Energy (EN-1) (2011)[46], states what the Secretary of State must, under the Conservation of Habitats and Species Regulations 2017, consider when granting a development consent order with regard to effects on internationally important wildlife sites and the need for Habitats Regulations Assessment. It also clarifies that information to inform the assessment

[35] Conservation of Habitats & Species Regulations 2017 [online]. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents/made [Accessed 13/07/2022].

[36] Natural Environment and Rural Communities Act 2006 [online]. Available at: https://www.legislation.gov.uk/ukpga/2006/16/contents [Accessed 13/07/2022].

[37] Countryside and Rights of Way Act 2000 [online]. Available at: https://www.legislation.gov.uk/ukpga/2000/37/contents [Accessed 13/07/2022].

[38] Wildlife and Countryside Act 1981 (as amended) [online]. Available at: https://www.legislation.gov.uk/ukpga/1981/69/contents [Accessed 13/07/2022].

[39] Environment Act 2021 [online]. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted [Accessed 13/07/2022].

[40] Animal Welfare Act 2006 [online]. Available at: https://www.legislation.gov.uk/ukpga/2006/45/contents [Accessed 13/07/2022].

[41] Protection of Badgers Act 1992 [online]. Available at: https://www.legislation.gov.uk/ukpga/1992/51/contents [Accessed 13/07/2022].

[42] Wild Mammals (Protection) Act 1996 [online]. Available at: https://www.legislation.gov.uk/ukpga/1996/3/contents [Accessed 13/07/2022].

[43] The Hedgerow Regulations 1997 [online]. Available at: https://www.legislation.gov.uk/uksi/1997/1160/contents/made [Accessed 13/07/2022].

[44] The Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended) [online]. Available at: https://www.legislation.gov.uk/uksi/2019/527/2021-05-04 [Accessed 13/07/2022]

[45] Department of Energy & Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure. [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed 13/07/2022]

[46] Department of Energy & Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: Overarching National Policy Statement for Energy (publishing.service.gov.uk) [Accessed 13/07/2022].

must be provided by the applicant. Part 5 section 5.3 of EN-1 sets out guidance on generic impacts relating to biodiversity for the applicant's assessment and decision-making on the application. The Draft Overarching National Policy Statement for Energy (EN-1) (2021)[47] includes guidance for biodiversity net gains in paragraphs 4.5.1 to 4.5.3 and generic impacts on biodiversity in Part 5.4. This guidance has also been considered within this chapter. Section 2.7 of EN-5 provides general information on biodiversity considerations for electricity networks, including that the applicant will need to consider whether the proposed line will cause such problems at any point along its length and take this into consideration in the preparation of the Environmental Impact Assessment (EIA) and ES. Particular consideration should be given to feeding and hunting grounds, migration corridors and breeding grounds.

Biodiversity Net Gain (BNG)

2.3.2.5 It is Government policy that planning decisions should minimise impacts on and provide net gain for biodiversity (National Planning Policy Framework 2021)[48]. In addition, the Environment Act 2021 includes provisions to make BNG a mandatory requirement within the planning system in England requiring all relevant developments to achieve a minimum 10% net gain in biodiversity units relative to the Site baseline biodiversity value, it is anticipated the secondary legislation mandating the need for 10% net gain will be in place by November 2023.

2.3.2.6 National Grid has committed to 10% Net Gain in Environmental value including as a minimum 10% BNG across all its construction projects. This is described in **Part 1, Chapter 1, Introduction**.

National planning policy framework

2.3.2.7 The National Planning Policy Framework[49] (NPPF) details the Government's planning policies for England and how these are expected to be applied. It states the commitment of the UK Government to minimising impacts on and providing net gains in biodiversity, contributing to the Government's commitment to halt the overall decline in biodiversity.

2.3.2.8 The NPPF specifies the obligations that Local Authorities and the UK Government have regarding statutory designated sites and protected species under UK and international legislation and how these are to be delivered in the planning system. Protected or notable habitats and species can be a material consideration in planning decisions and may therefore make some sites unsuitable for particular types of development, or if development is permitted, mitigation measures may be required to avoid or minimise impacts on certain habitats and species. Where impact is unavoidable, NPPF outlines that compensation may be required.

[47] Department for Business, Energy & Industrial Strategy (2021). Draft Overarching National Policy Statement for Energy (EN-1). [online] Available at: Draft Overarching National Policy Statement for Energy (publishing.service.gov.uk) [Accessed 13/07/2022].

[48] Ministry of Housing, Communities & Local Government (2021). [online] Available at: National Planning Policy Framework - GOV.UK (www.gov.uk) [Accessed 30/09/2022].

[49] Department for Levelling Up, Housing & Communities (2021). National Planning Policy Framework. London. [online] Available at: National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk) [Accessed 13/07/2022].

Biodiversity 2020: A strategy for England's wildlife and ecosystem services

2.3.2.9 Biodiversity 2020[50] was published by DEFRA in 2011. The strategy builds on the Natural Environment White Paper: "The Natural Choice: securing the value of nature" (2011)[51], with an overall mission to "halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people".

2.3.2.10 The strategy includes consideration of planning and development including commitments to (i) retain protection and improvement of the natural environment as core objectives for local planning and development management, (ii) support biodiversity offsetting pilots through a two-year test phase, until spring 2014, and the government's expectation that the planning system contributes to achieving no net loss of biodiversity.

Regional planning policy

2.3.2.11 The planning policies that relate to the study area are shown below. The policies listed below are taken from the following document.

- Suffolk Nature Strategy (2015)[52]
  - Recommendation 1: In line with Government's Biodiversity 2020 strategy vision, Outcome 1, by 2020 at least 50% of Suffolk's SSSIs will be in favourable condition, whilst maintaining at least 95% in favourable or recovering condition.
  - Recommendation 3: In line with Biodiversity 2020, Outcomes 1 & 3, we wish to see an overall improvement in the status of our wildlife and for further degradation to have been halted. Public bodies and statutory undertakers should ensure that, in exercising their functions, they have access and pay due regard to appropriate ecological evidence and advice so as to ensure that their duties under the relevant legislation are met.
  - Recommendation 15: New energy infrastructure should be sensitive to place. Relevant policies as well as national and local guidance, appropriate biological data and Suffolk's Landscape Character Assessment should be used to assess suitability of new energy infrastructures, and other developments, to particular places. A Strategic Renewable Energy Strategy, produced by 2018, will help ensure that all new energy infrastructures are appropriately sited.
  - Recommendation 22: Biodiversity offsetting must follow Government guidelines and the mitigation hierarchy, set out in the National Planning Policy Framework. Offsetting should only occur when all steps to avoid and mitigate impacts have been exhausted and should not be seen as a licence to damage sites where less damaging alternatives exist. Offsetting should not apply to internationally or nationally designated sites.

[50] Department for Environment, Food & Rural Affairs (2011). Biodiversity 2020: A strategy for England's wildlife and ecosystem services. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf [Accessed 13/07/2022].

[51] Department for Environment, Food & Rural Affairs (2011). The Natural Choice: securing the value of nature. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/228842/8082.pdf [Accessed 13/07/2022].

[52] Suffolk County Council (2015). Suffolk's Nature Strategy. [online] Available at: https://www.suffolk.gov.uk/assets/planning-waste-and-environment/suffolks-countryside-and-wildlife/Suffolks-Nature-Strategy-2015.pdf [Accessed 13/07/2022].

Local planning policy

2.3.2.12 The study area runs through the former Suffolk Coastal District Area in East Suffolk Therefore policies regarding biodiversity and the protection of natural resources from this region apply to the Suffolk Onshore Scheme.

2.3.2.13 The planning policies that relate to the Suffolk Onshore Shore Scheme are shown below. From the following documents:

- East Suffolk Coastal Local Plan (Adopted September 2020)[53]

  - Policy SCLP10.1: Biodiversity and Geodiversity

    "Development will be supported where it can be demonstrated that it maintains, restores or enhances the existing green infrastructure network and positively contributes towards biodiversity and/or geodiversity through the creation of new habitats and green infrastructure and improvement to linkages between habitats, such as wildlife corridors and habitat 'stepping stones'. All development should follow a hierarchy of seeking firstly to avoid impacts, mitigate for impacts so as to make them insignificant for biodiversity, or as a last resort compensate for losses that cannot be avoided or mitigated for. Adherence to the hierarchy should be demonstrated.

    Any proposal that adversely affects a European site, or causes significant harm to a Site of Special Scientific Interest, will not normally be granted permission.

    Any development with the potential to impact on a Special Protection Area, Special Area for Conservation or Ramsar site within or outside of the plan area will need to be supported by information to inform a Habitat Regulations Assessment, in accordance with the Conservation of Habitats and Species Regulations 2017, as amended (or subsequent revisions)."

  - Policy SCLP10.3: Environmental Quality

    "Development proposals will be expected to protect the quality of the environment and to minimise and, where possible, reduce all forms of pollution and contamination. Development proposals will be considered in relation to impacts on;

    a) Air quality, and the impact on receptors in Air Quality Management Areas;

    b) Soils and the loss of agricultural land;

    c) Land contamination and its effects on sensitive land uses;

    d) Water quality and the achievement of Water Framework Directive objectives;

    e) Light pollution; and

    f) Noise pollution. Proposals should seek to secure improvements in relation to the above where possible.

    The cumulative effect of development, in this regard, will be considered."

[53] East Suffolk Council (2020). Suffolk Coastal Local Plan. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Planning-Policy-and-Local-Plans/Suffolk-Coastal-Local-Plan/Adopted-Suffolk-Coastal-Local-Plan/East-Suffolk-Council-Suffolk-Coastal-Local-Plan.pdf [Accessed 13/07/2022].

2.3.3 Study Area

2.3.3.1 The study area for ecological surveys includes the land within the Suffolk Onshore Scheme Scoping Boundary and appropriate Zones of Influence (ZoI), are described in the following sections.

2.3.3.2 The boundaries and zone for the ecology and biodiversity study area reflect standard industry good practice and the distances used in this scoping exercise that statutory consultees would typically expect to be considered for identification of features external to the Suffolk Onshore Scheme that could be affected. This is informed by published guidance and professional judgement.

2.3.3.3 The desk study included a search for:

- International statutory nature conservation sites (e.g. Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites) within 10km of the Suffolk Onshore Scheme Scoping Boundary and 30km for SACs designated for bats. Note that there are no SACs designated for bats within 30km of the Suffolk Onshore Scheme, the nearest being Paston Great Barn SAC over 70km from the Suffolk Onshore Scheme;
- National statutory nature conservation designations (e.g. Sites of Special Scientific Interest (SSSI), excluding geological SSSIs), National Nature Reserve (NNRs) and Local Nature Reserves (LNRs)) within 5km, also referencing Natural England Impact Risk Zones for SSSIs on MAGIC; and,
- Non-statutory nature conservation designations (e.g. Local Wildlife Sites (LWS) and Roadside Nature Reserves (RNR)) within 2km.
- Records of protected and notable species and notable habitats (e.g. Habitats of Principal Importance Section 41 (41) of the Natural Environment and Rural Communities (NERC) Act) have also been identified up to 1km (for most species) and 500m (for habitats and great crested newts) from the Suffolk Onshore Scheme Scoping Boundary. For the purposes of **Figure 2.3.1 Statutory Designated Ecological Features** within 2km of the Suffolk Onshore Scheme**.**

2.3.3.4 Only statutory designated sites up to 2km from the Suffolk Onshore Scheme Scoping Boundary have been shown but this will be updated and expanded for the Preliminary Environmental Information Report (PEIR).

2.3.4 Baseline Conditions

Data Sources

2.3.4.1 The known or predicted current and future ecological baseline conditions described in this section has been informed by the following data sources:

- Multi-Agency Geographic Information for the Countryside (MAGIC)[54] website;
- Aerial photography of the Site (2021 image capture);

[54] Department for Environment, Food and Rural Affairs. Multi-Agency Geographic Information for the Countryside (MAGIC) (2022). [online] Available at: https://magic.defra.gov.uk/

- Suffolk Biodiversity Information Service[55]; and,
- Local wildlife group and landowner data sets (e.g. Suffolk Wildlife Trust, Suffolk Bat Group, Suffolk Bird Group and RSPB).

Baseline

2.3.4.2 Previous survey reports from the local area and adjacent applications (e.g. East Anglia ONE North Limited[56], East Anglia TWO Limited[57], and The Sizewell C Project[58]will also be consulted.

Expected survey requirements

2.3.4.3 Completion of initial Phase 1 Habitat Survey (following the established JNCC methodology[59]) and Protected Species Scoping Surveys, will confirm the requirements for further surveys to support the ecology, biodiversity and nature conservation impact assessment, but these are likely to include the following:

- Botanical surveys including National Vegetation Classification Surveys following established Rodwell (2006)[60] methodology, including invasive non-native plant species, hedgerows and river habitats and corridors;
- Terrestrial invertebrate surveys;
- Aquatic invertebrate surveys if required (potential to be scoped out by use of HDD to avoid direct watercourse impacts);
- Reptile presence / absence surveys;
- Habitat Suitability Index (HSI) assessment[61] and Great Crested Newt eDNA surveys at waterbodies identified on and within 250m of the Suffolk Onshore Scheme (if District Level Licensing approach not or only partially pursued with Natural England);
- Great crested newt population size surveys (where applicable);
- Intertidal bird surveys

[55] Suffolk Biodiversity Information Service. [online] Accessed via: http://www.suffolkbis.org.uk/

[56] National Infrastructure Planning (2022). East Anglia ONE North Limited. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/projects/eastern/east-anglia-one-north-offshore-windfarm/?ipcsection=docs&stage=app [Accessed 19/07/2022].

[57] National Infrastructure Planning (2022). East Anglia TWO Limited. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/projects/eastern/east-anglia-two-offshore-windfarm/?ipcsection=docs&stage=app [Accessed 19/07/2002].

[58] National Infrastructure Planning (2022). The Sizewell C Project. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/projects/eastern/the-sizewell-c-project/?ipcsection=docs&stage=app [Accessed 19/07/2022].

[59] Joint Nature Conservation Committee (2016). Handbook for Phase 1 habitat survey. A technique for environmental audit. [online] Available at: https://data.jncc.gov.uk/data/9578d07b-e018-4c66-9c1b-47110f14df2a/Handbook-Phase1-HabitatSurvey-Revised-2016.pdf [Accessed 13/07/2022].

[60] Rodwell, J.S. on behalf of the Joint Nature Conservation Committee (2006). National Vegetation Classification: Users' Handbook. [online] Available at: https://data.jncc.gov.uk/data/a407ebfc-2859-49cf-9710-1bde9c8e28c7/JNCC-NVC-UsersHandbook-2006.pdf [Accessed 13/07/2022].

[61] Amphibian & Reptile Groups of the United Kingdom (2010). ARG UK Advice Note 5: Great Crested New Habitat Suitability Index. [online] Available at: https://www.arguk.org/info-advice/advice-notes/9-great-crested-newt-habitat-suitability-index-arg-advice-note-5/file [Accessed 13/07/2022].

- Breeding bird surveys (including targeted surveys for barn owl);
- Wintering bird surveys;
- Preliminary bat roost feature assessment of buildings and structures and tree climbing surveys for bats (where applicable);
- Bat activity surveys;
- Dusk emergence and dawn return surveys of buildings, structures and trees (if applicable). All bat surveys will follow BCT Good Practice Guidelines 3rd Edition[62] and Interim Guidance Note[63] (and any updated editions: 4th Edition expected late 2022);
- Badger surveys; and
- Riparian mammal surveys (otter (*Lutra lutra*) and water vole (*Arvicola amphibius*)), where watercourses are adjacent to the scheme and 100-200m upstream and downstream.

2.3.4.4 A Habitats Regulations Assessment (HRA), commencing with a Stage 1: Test of Likely Significant Effects and including a Stage 2: Appropriate Assessment Information Report if required) will also be produced in line with Planning Inspectorate Advice Note 10[64].

Summary of ecological receptors

2.3.4.5 The known or predicted ecological baseline conditions are summarised in the following sections by each receptor in turn.

Statutory designated sites

2.3.4.6 21 statutory sites designated for nature conservation have been identified within the stated desk study areas (10km for international 5km for national sites).

2.3.4.7 These sites are summaries in Table 2.3.1 and are shown on **Figure 2.3.1 Statutory Designated Ecological Features** within 2km of the Suffolk Onshore Scheme.

[62] Collins, J. on behalf of The Bat Conservation Trust (2016). Bat Surveys for Professional Ecologists. Good Practice Guidelines. 3rd Edition. [online] Available at: https://cdn.bats.org.uk/uploads/pdf/Resources/Bat_Survey_Guidelines_2016_NON_PRINTABLE.pdf?v=1542281971 [Accessed 13/07/2022].

[63] Bat Conservation Trust (2022). Interim Guidance Note: Use of night vision aids for bat emergence surveys and further comment on dawn surveys. [online] Available at: https://cdn.bats.org.uk/uploads/pdf/Interim-guidance-note-on-NVAs-May-2022-FINAL.pdf?v=1653399882 [Accessed 13/07/2022].

[64] National Infrastructure Planning (2018). The Planning Inspectorate: Advice Note 10: Habitats Regulations Assessment relevant to nationally significant infrastructure projects. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-ten/ [Accessed 13/07/2022].

Table 2.3.1: Statutorily Designated Sites within 10km (international) and 5km (national) of the Suffolk Onshore Scheme

Site name	Designation	Description	Distance (km) and direction from closest point of the Site
Sandlings (3,406 ha)	SPA	The site is notified for its internationally important populations of woodlark and nightjar. The SPA is made up of lowland heathland, acid grassland and forestry plantations on sandy soils which once supported extensive heathland; the main conservation interest of which lies in the open areas such as young plantation and rotational clearfell which provide suitable breeding habitat.	Within Suffolk Scoping Boundary. Within the scoping boundary of: Site 3 Alternative Option 1, Site 3 Alternative Option 2 and Site 1 Alternative to the North near Sizewell Within the scoping boundary of: Site 3 Emerging Preference and Site 1 Emerging Preference to the south near Aldeburgh.
Outer Thames Estuary (393,612 ha)	SPA	The Outer Thames Estuary SPA was designated to protect the red-throated diver *Gavia stellata* population and its supporting habitats (subtidal sands) in favourable condition. The main part of the site is the outer part of the estuary (east of a line north from Sheerness, Kent to Shoebury Ness, Essex); a separate area extending south along the coast of east Norfolk (from Caister-on-Sea) to Woodbridge, Suffolk and lying mainly within the 12 nautical mile(nm) zone, except for two small areas which extend slightly into the 12nm zone offshore from about Lowestoft; and a third area lying slightly further north and partly within 12 nm, but also with a larger area extending well beyond the 12 nm zone).	Adjacent to the Suffolk Scoping Boundary Adjacent to the scoping boundary of: Site 3 Alternative Option 1, Site 3 Alternative Option 2 and Site 1 Alternative to the North near Sizewell Adjacent to the scoping boundary of: Site 3 Emerging Preference and Site 1 Emerging Preference to the south near Aldeburgh.
Minsmere-Walberswick (2,019 ha)	SPA	Minsmere – Walberswick SPA is located on the Suffolk coast south of Southwold in eastern England. It comprises two large marshes, the tidal Blyth estuary and associated habitats.	2km north of the Suffolk Scoping Boundary 2km north of Site 3 Alternative Option 1

		There are nationally important numbers of breeding and wintering birds. In particular, the reedbeds are of major importance for breeding Bittern *Botaurus stellaris* and Marsh Harrier *Circus aeruginosus*. A range of breeding waders (e.g. Avocets *Recurvirostra avosetta*) and heathland birds occur in other areas of the SPA. The shingle beaches support important numbers of breeding Little Tern *Sterna albifrons*, which feed substantially outside the SPA in adjacent marine waters. The site is also important for wintering Bitterns and raptors.	3.4 km north of Site 3 Alternative Option 2 and Site 1 Alternative 5.3 km north of Site 3 Emerging Preference and Site 1 Emerging Preference
Alde-Ore Estuary (2,404 ha)	SPA	The Alde-Ore Estuary SPA's scientific interests are outstanding and diverse. The sites contain a number of coastal formations and estuarine features including mud-flats, saltmarsh, vegetated shingle and coastal lagoons which are of special botanical and ornithological value.	100m south of Suffolk Scoping Boundary 2.4km south of Site 3 Alternative Option 1 1.2km south of Site 3 Alternative Option 2 100m south of Site 3 Emerging Preference and site 1 Emerging Preference 1.4km south of Site 1 Alternative
Southern North Sea (3,695,100 ha)	SAC	The Southern North Sea SAC is an area of importance for harbour porpoise. This site includes key winter and summer habitat for this species and covers an area over three times the size of Yorkshire, making it the largest SAC in UK and European waters at the point of designation in 2019. Alde, Ore and Butley Estuaries SAC's scientific interests are outstanding and diverse. The sites contain a number of coastal formations and estuarine features including mud-flats, saltmarsh, vegetated shingle and coastal lagoons which are of special botanical and ornithological value	Adjacent to the Suffolk Scoping Boundary Adjacent to the Site 3 Alternative Option 1, Site 3 Alternative Option 2 and Site 1 Alternative 670m east of Site 3 Emerging Preference and Site 1 Emerging Preference 100m south of Suffolk Scoping Boundary 2.4km south of Site 3 Alternative Option 1 1.2km south of Site 3 Alternative Option 2 100m south of Site 3 Emerging Preference

			and Site 1 Emerging Preference 1.4km south of Site 1 Alternative
Alde-Ore & Butley Estuaries (1633 ha)	SAC	Alde, Ore and Butley Estuaries SAC's scientific interests are outstanding and diverse. The sites contain a number of coastal formations and estuarine features including mud-flats, saltmarsh, vegetated shingle and coastal lagoons which are of special botanical and ornithological value	100m south of Suffolk Scoping Boundary 2.4km south of Site 3 Alternative Option 1 1.2km south of Site 3 Alternative Option 2 100m south of Site 3 Emerging Preference and Site 1 Emerging Preference 1.4km south of Site 1 Alternative
Orfordness-Shingle Street (888 ha)	SAC	Orfordness-Shingle Street's scientific interests are outstanding and diverse. The sites contain a number of coastal formations and estuarine features including mud-flats, saltmarsh, vegetated shingle and coastal lagoons which are of special botanical and ornithological value	2.8km south of the Suffolk Scoping Boundary 2.8km south of Site 3 Emerging Preference and Site 1 Emerging Preference 7.5km south-east of Site 3 Alternative Option 1 5km south-east of Site 3 Alternative Option 2 and Site 1 Alternative
Minsmere to Walberswick Heaths & Marshes (1257 ha)	SAC	Minsmere – Walberswick Heaths & Marshes SAC is located on the Suffolk coast south of Southwold in eastern England. It comprises two large marshes, the tidal Blyth estuary and associated habitats. This composite coastal site contains a complex mosaic of habitats, notably areas of marsh with dykes, extensive reedbeds, mud-flats, lagoons, shingle, woodland and areas of lowland heath. It supports the largest continuous stand of Common Reed *Phragmites australis* in England and Wales and demonstrates the nationally rare transition in grazing marsh ditch plants from brackish to fresh water.	2km north of Suffolk Scoping Boundary 2km north of Site 3 Alternative Option 1 3.3km north of Site 3 Alternative Option 2 and Site 1 Alternative 5.3km north of Site 3 Emerging Preference and Site 1 Emerging Preference

		SAC features are heathland, vegetated annual and perennial shingle habitats.	
Staverton Park & The Thicks, Wantisden (84 ha)	SAC	Staverton Park is an ancient park with a well-documented medieval history. It is composed of three main areas of woodland on sandy soil. The Park is an open canopy wood pasture, predominantly of over-mature pollard Oak *Quercus robur* but Holly *Ilex aquifolium*, Birch *Betula pubescens* and *B. pendula* and Rowan *Sorbus aucuparia* also occur. Some of these trees achieve great age.	9.8km south-west of Suffolk Scoping Boundary 9.8km south-west of Site 3 Emerging Preference and Site 1 Emerging Preference Over 10km south-west of Site 3 Alternative Option 1, Site 3 Alternative Option 2, and Site 1 Alternative.
Dew's Ponds	SAC	Rural site in East Suffolk, comprises 12 ponds in arable/grassland. The site is designated for great crested newts which are present in all 12 ponds.	7.3km north of Suffolk Scoping Boundary 7.3km north of Site 3 Alternative Option 1 8.6km north Site 3 Emerging Preference and Site 3 Alternative Option 2 Over 10km north of Site 1 Emerging Preference, and Site 1 Alternative
Alde-Ore Estuary (2547 ha)	Ramsar	Alde-Ore Estuary Ramsar is an estuary complex of three rivers comprising various habitats including intertidal mudflats, saltmarsh, a vegetated shingle spit, saline lagoons, and semi-intensified grazing marsh. The site supports nationally scarce plants and invertebrates and notable assemblages of breeding and wintering wetland birds.	100m south of Suffolk Scoping Boundary 2.4km south of Site 3 Alternative Option 1 1.2km south of Site 3 Alternative Option 2 100m south of Site 3 Emerging Preference and Site 1 Emerging Preference 1.4km south of Site 1 Alternative
Minsmere-Walberswick (2119 ha)	Ramsar	Minsmere-Walberswick Ramsar is a mosaic of coastal habitats consisting of shingle beaches, dunes, estuarine mudflats, grazing marshes, lagoons, reedbeds, and heathland. The marshes support the largest continuous stand of reedbed in England and Wales. The site	2km north of Suffolk Scoping Boundary 2km north of Site 3 Alternative Option 1 3.3km north of Site 3 Alternative Option 2 and Site 1 Alternative

		supports an outstanding diversity of breeding birds, including a number of nationally rare species which winter at the site, as well as rare species of marshland flora and insect fauna.	5.3km north of Site 3 Emerging Preference and Site 1 Emerging Preference
Leiston-Aldeburgh (535 ha)	SSSI	Leiston-Aldeburgh contains a rich mosaic of habitats including acid grassland, heath, scrub, woodland, fen, open water and vegetated shingle. This mix of habitats in close juxtaposition and the associated transition communities between habitats is unusual in the Suffolk Coast and Heaths. The variety of habitats support a diverse and abundant community of breeding and overwintering birds, a high number of dragonfly species and many scarce plants.	Within Suffolk Scoping Boundary Within all Emerging Preference and Alternative boundaries.
Alde-Ore Estuary (2534 ha)	SSSI	Sizewell Marshes are important for their large area of lowland, unimproved wet meadows which support outstanding assemblages of invertebrates and breeding birds. Several nationally scarce plants are also present. The site occupies a low-laying basin of deep fen peat. The water table is permanently high, with the area being prone to flooding, and there is an extensive network of ditches across the site.	100m south of Suffolk Scoping Boundary 2.4km south of Site 3 Alternative Option 1 1.2km south of Site 3 Alternative Option 2 100m south of Site 3 Emerging Preference and Site 1 Emerging Preference 1.4km south of Site 1 Alternative
Sizewell Marshes (105 ha)	SSSI	Sizewell Marshes are important for their large area of lowland, unimproved wet meadows which support outstanding assemblages of invertebrates and breeding birds. Several nationally scarce plants are also present. The site occupies a low-laying basin of deep fen peat. The water table is permanently high, with the area being prone to flooding, and there is an extensive network of ditches across the site.	Within Suffolk Scoping Boundary Within Site 3 Alternative Option 2 3.3km south of the Site 1 Emerging Preference and Site 3 Emerging Preference 250m north of Site 1 Alternative and Site 3 Alternative Option 2
Minsmere-Walberwick Heaths and Marshes (2306 ha)	SSSI	This composite site is situated on the coast of Suffolk between Southwold in the north and Sizewell in the south. It contains a complex series of habitats, notably mudflats, shingle beach, reedbeds, heathland and grazing marsh, which	1.4km north of Suffolk Scoping Boundary 5.3km north of Site 1 Emerging Preference and Site 3 Emerging Preference

		combine to create an area of exceptional scientific interest.	1.8km north of Site 1 Alternative and Site 3 Alternative Option 2 1.4km north of Site 3 Alternative Option 1
Iken Wood (5.3 ha)	SSSI	Iken Wood lies close to the banks of the River Alde and may well be the only ancient coppice wood on blown sand in Britain. It is the most interesting example of lowland coppice oakwood in Suffolk and has a distinctive flora typical of woods on light soils. The wood is almost entirely of the lowland hazel-pedunculate oak stand-type with a small area of invasive elmwood, which is unusual for such an acidic soil. Huge Oak *Quercus robur* standards are dominant with scattered Silver Birch *Betula pendula*, Holly *Ilex aquifolium* and Rowan *Sorbus aucuparia*.	3.5km south-west of the Suffolk Scoping Boundary 3.5km south-west of Site 1 Emerging Preference and Site 3 Emerging Preference 3.7km south-west of Site 1 Alternative 3.8km south-west of Site 3 Alternative Option 2 4.4km south-west of Site 3 Alternative Option 1
Sandlings Forest (2474 ha)	SSSI	The Sandlings Forest SSSI lies between Snape and Woodbridge and is comprised of the areas known as Tunstall Forest and Rendlesham Forest. The site is dominated by commercial forestry plantations on sandy soils which once supported extensive heathland. The plantations were first established between the 1920s and the 1940s. The initial plantations were largely of Scot's pine Pinus sylvestris but on second rotation have been replaced by Corsican pine *P. maritima ssp laricio*. Ten to twelve percent of trees are broadleaves. Small areas have been taken out of timber production and reversion to open, heathy habitat is being undertaken. Unplanted areas of heathland lie adjacent to the forest within separate SSSIs	3.6km south-west of the Suffolk Scoping Boundary 3.6km south-west of Site 1 Emerging Preference and Site 3 Emerging Preference 3.8km south-west of Site 1 Alternative 3.9km south-west of Site 3 Alternative Option 2 4.5km south-west of Site 3 Alternative Option 1
Blaxhall Heath (46 ha)	SSSI	Blaxhall Heath is one of the few fragments of the once extensive 'Sandlings' heath of coastal Suffolk and is a good example of this type of dry lowland heath. Substantial losses of lowland heath have occurred in the Sandling area and elsewhere in lowland England this century.	4.6km south-west of the Suffolk Scoping Boundary 4.6km south-west of the Site 1 Emerging Preference and Site 3 Emerging Preference.

			4.8 km south-west of Site 3 Alternative Option 2 and Site 1 Alternative Over 5km south-west of Site 3 Alternative Option 1
Gromford Meadow (1.7 ha)	SSSI	Gromford Meadow is a good example of an unimproved base-rich marsh on an alluvial soil with a high organic content. It borders the River Alde and is fed by springs. It is species-rich and contains a variety of characteristic fen meadow and marshland plants	2.6km south-west of Suffolk Scoping Boundary 2.6km south-west of all Sites.
Westleton Heath (9 ha)	NNR	Westleton Heath NNR is part of the best remaining tract of heathland in Suffolk.	4.6km north of Suffolk Scoping Boundary 4.6km north Site 3 Alternative Option 1 Over 5km north of Site 1 Emerging Preference, Site 3 Emerging Preference, Site 1 Alternative, and Site 3 Alternative Option 2
Orfordness-Havergate	NNR	The sites contain a number of coastal formations and estuarine features including mud-flats, saltmarsh, vegetated shingle and coastal lagoons which are of special botanical and ornithological value	2.9km from the Suffolk Scoping Boundary 2.9km south of Site 1 and Site 3 Emerging Preference 7.5km southwest of Site 3 Alternative Option 1 5km southwest of Site 3 Alternative Option 2 4.8km southwest of Site 1 Alternative
The Haven, Aldeburgh (20 ha)	NNR	The site covers the beach north of Aldeburgh and an area of lagoons and reedbeds which are protected as nature reserves	Within the Suffolk Scoping Boundary Within Site 1 and Site 3 Emerging Preference 3km west of Site 1 Alternative

	4km South of Site 3 Alternative Option 1 and Option 2

Non-statutorily designated sites

2.3.4.8 A desk-study is currently ongoing with Suffolk Biodiversity Information Centre and non-statutory wildlife sites may be identified through that process.

Table 2.3.2: Non-statutory designated sites currently identified within 2km of the Suffolk Onshore Scheme

Site name	Designation	Description	Distance (km) and direction from closest point of the site
North Warren	RSPB Reserve	The North Warren reserve lies on the Suffolk coast on the north edge of the town of Aldeburgh and to the south of Thorpeness. Ducks, swans and geese use the marshes in winter, while spring hosts breeding bitterns, marsh harriers, woodlarks and nightingales.	Suffolk Scoping Boundary overlaps with the Non-statutory Designated Site
Minsmere	RSPB Reserve	The Minsmere reserves reedbeds, wet grasslands and heathlands hose an assemblage of wading birds, nightjar, woodlark, marsh harrier, otters, water voles, otter and a range of invertebrates.	The Non-statutory Designated Site is 1.8km north of the Suffolk Scoping Boundary
Grove Wood/Old World Wood[65]	Ancient Woodland	No description available	With Suffolk Scoping Boundary
Great Wood[66]	Ancient Woodland	No description available	With Suffolk Scoping Boundary

Notable habitats

2.3.4.9 An extended Phase 1 Habitat Survey will be undertaken in order to establish the ecological value of the land within the Suffolk Onshore Scheme Scoping Boundary, and its potential to support notable and/or legally protected species.

[65] Suffolk Heritage Explorer (2002). Monument Record KND 010- Grove Wood / Old World Wood. [online] Available at: https://heritage.suffolk.gov.uk/Monument/MSF19483 [Accessed 19/07/2022].

[66] Suffolk Heritage Explorer (2002). Monument Record FRS 008- Great Wood. [online] Available at: https://heritage.suffolk.gov.uk/Monument/MSF19482 [Accessed 19/07/2022].

2.3.4.10 The survey will be carried out in line with the Phase 1 Habitat Survey method as set out by the Joint Nature Conservation Committee (JNCC) (2016)[67]. This survey would record the types and distribution of habitats throughout the graduate swathe. Information gained from the extended Phase 1 Habitat Survey would be important in assessing the ecological value of the land within the Suffolk Scoping Boundary and identifying the need for any further survey work.

2.3.4.11 A biodiversity net gain (BNG) assessment will be undertaken using Biodiversity Metric 3.1 – Technical Supplement[68] in accordance with the accompanying guidance and best practice principles. The calculation will be based on baseline habitat distinctiveness scores determined by the Phase 1 habitat surveys. Habitat condition will be assigned retrospectively using the information in the Phase 1 habitat survey based on the condition assessment criteria outlined in the Biodiversity Metric 3.1 – Technical Supplement and applying professional judgement.

2.3.4.12 While extended Phase 1 Habitat Surveys have only recently commenced (May 2022) review of online data sources, notably MAGIC[69], indicated that the following Habitats of Principal Importance (HoPI) are located either within or adjacent to (i.e. up to 500m from) the Suffolk Scoping Boundary as follows:

- Coastal vegetated shingle – present within the Suffolk Scoping Boundary along the beach between Aldeburgh and Thorpeness along 'The Haven' and outside of the Suffolk Scoping Boundary east of Sizewell Power Station.
- Coastal and floodplain grazing marsh – behind 'The Haven' situated within and outside of the boundary for the Site 1 and Site 3 Emerging Preference. Also, within the Scoping boundary north of Leiston around Leiston Common and Sizewell Belts. Additionally, outside of the site south of Hazlewood Common and part of Cliff Plantation.
- Reedbeds – outside of the site but within 500m, east of North Warren and south of The Meare.
- Coastal saltmarsh – present along Long Reach approximately 420m south of the Suffolk Scoping Boundary.
- Lowland dry acid grasslands – situated in North Warren adjacent to the Suffolk Scoping Boundary and South Warren within the Suffolk Scoping Boundary
- Lowland heathland – situated within the Suffolk Scoping Boundary within South Warren north-west of Aldeburgh. Also, within the Suffolk Scoping Boundary south-west of Sizewell around Halfway Cottages and within and adjacent to the Suffolk Scoping Boundary within Leiston Common.
- Lowland Fen – less than 100m south of the Suffolk Scoping Boundary east of Decoy Wood.

[67] Joint Nature Conservation Committee (2016). Handbook for Phase 1 habitat survey. A technique for environmental audit. [online] Available at: https://data.jncc.gov.uk/data/9578d07b-e018-4c66-9c1b-47110f14df2a/Handbook-Phase1-HabitatSurvey-Revised-2016.pdf [Accessed 13/07/2022].

[68] Natural England (2022). The Biodiversity Metric 3.1- Technical Supplement. [online] Available at: http://nepubprod.appspot.com/publication/6049804846366720 [Accessed 13/07/2022].

[69] Department for Environment, Food and Rural Affairs. Multi-Agency Geographic Information for the Countryside (MAGIC) (2022). [online] Available at: https://magic.defra.gov.uk/

2.3.4.13 There are two parcels of ancient woodland within the Suffolk Scoping Boundary both within the Site 1 and Site 3 Emerging Preference, namely Great Wood and Grove Wood.

2.3.4.14 Note that while some of these habitats are located directly within designated sites (being a reason for designation), a number are distributed outside. The distribution of HoPI is to be confirmed by detailed survey (Habitat Condition Assessment and (where required) National Vegetation Classification and Hedgerow Surveys) which will confirm extent and condition and also inform future Biodiversity Net Gain assessment. It will also confirm the presence of any uncommon arable plants.

Other habitats

2.3.4.15 Review of MAGIC indicates that the Suffolk Onshore Scheme is located within a patchwork of arable, woodland, pasture and residential land uses. Away from the designated sites and notable habitats described above, the Suffolk Scoping Boundary is likely to include a mix of these habitat types.

Invertebrates

2.3.4.16 The designated sites and notable habitats present within the Suffolk Onshore Scheme Scoping Boundary have potential to support a significant assemblage of notable invertebrates. In particular, Leiston-Aldeburgh SSSI which is within the Suffolk Scoping Boundary; the variety of water bodies and terrestrial habitats within the site provides suitable breeding and hunting areas for many species of dragonfly and damselfly, including the nationally scarce hairy dragonfly *Brachytron pratense*.

2.3.4.17 As part of the Extended Phase 1 Habitat Survey, the distribution of habitats with potential to support a significant assemblage of notable invertebrates will be recorded and assessed to determine the need for specific invertebrate survey.

Invasive non-native species

2.3.4.18 Suitable habitat is present across the Suffolk Onshore Scheme Scoping Boundary for a range of non-native invasive plant species. Rivers and wetlands are likely to be traversed during construction. The focus of invasive plant surveys to update the baseline will be on terrestrial and riparian species.

Great crested newt

2.3.4.19 A review of District Level Licencing and survey returns has highlighted 11 ponds within 500m of the Suffolk Scoping Boundary with an additional one pond on the border of the Scoping Boundary south-west of Theberton Woods (where the majority of GCN ponds are located) and one within site, west of Leiston Abbey where GCN are recorded as present.

2.3.4.20 Suitable aquatic habitat (e.g ponds and ditches) and terrestrial habitat (scrub, rough grassland, arable field margins etc) are present throughout the Suffolk Scoping Boundary.

2.3.4.21 A desk based search of waterbodies will be undertaken to identify ponds within 250m of the Suffolk Scoping Boundary once ponds are identified two different survey methods are used to determine the likely presence of great crested news e.g. HSI and

eDNA. However District Level Licensing approach (to be agreed with Natural England) may reduce or remove the need for detailed survey.

Reptiles

2.3.4.22 Habitats present within Suffolk Scoping Boundary are suitable for the four widespread species of reptile: slow worm (*Anguis fragilis*), common lizard (*Zootoca vivipara*), grass snake (*Natrix helvetica*) and adder (*Viper berus*).

2.3.4.23 The Site 1 and Site 3 Emerging Preference traverse the highest value habitats for reptiles including priority habitat lowland heathland at South Warren. The remaining key habitats likely to support reptiles and which are present within the Suffolk Scoping Boundary include arable field margins, scrub and coastal grazing marsh. No records of sand lizard or smooth snake were returned within the desk study.

2.3.4.24 Reptile surveys will be undertaken in suitable habitat as identified by the extended Phase 1 Habitat Survey.

Birds

2.3.4.25 There are a number of sites within and in close proximity to the Suffolk Scoping Boundary designated for an extensive assemblage of notable wintering, breeding and passage bird species.

2.3.4.26 Sandlings SPA is within the Suffolk Scoping Boundary in both the north-east and south-east close to the coast. This SPA is designated for breeding European nightjar *Caprimulgus europaeus* and breeding woodlark *Lullula arborea.* Adjacent to the Suffolk Scoping Boundary to the east is the Outer Thames Estuary SPA which is designated for wintering red-throated diver *Gavia stellata*. Also within 200m of the Suffolk Scoping Boundary to the south is Alde-Ore Estuary SPA and is designated for the following species or species assemblages:

- Marsh harrier *circus aeruginosus* (breeding)
- Pied avocet *Recurvirostra avosetta* (wintering and breeding)
- Ruff Philomachus pugnax (wintering)
- Sandwich tern *Sterna sandvicensis* (breeding)
- Little tern *Sternula albifrons* (breeding)
- Bittern *Botaurus stellaris* (wintering)
- Bewick's swan *Cygnus columbianus* (wintering)
- Hen harrier *circus cyaneus* (wintering)
- Golden plover *Pluvialis apricaria* (wintering)
- Short-eared owl *Asio flammeus* (wintering)
- Mediterranean gull *Larus melanocephalus* (breeding)
- Common tern *Sterna hirundo* (breeding)
- Arctic tern *Sterna paradisaea* (breeding)

- Lesser black-backed gull *Larus fuscus* (breeding)
- Redshank *Tringa totanus* (wintering)
- Shelduck *Tadorna tadorna* (wintering)
- Wigeon *Anas penelope* (wintering)
- Teal *Anas crecca* (wintering)
- Black-tailed godwit *Limosa limosa* (wintering)
- Gadwall *Anas strepera* (breeding)
- Shoveler *Anas clypeata* (breeding)
- Herring gull *Larus argentatus* (breeding)
- Oystercatcher *Haematopus ostralegus* (breeding)
- Ringed plover *Charadrius hiaticula* (breeding)
- Lapwing *Vanellus vanellus* (breeding and wintering)
- Black-headed gull *Chroicocephalus ridibundus* (breeding)
- Barn owl *Tyto alba* (breeding)
- Cormorant *Phalacrocorax carbo* (wintering)
- European white-fronted goose *Anser albifrons albifrons* (wintering)
- Brent goose *Branta bernicla* (wintering)
- Pintail *Ansa acuta* (wintering)
- Grey plover *Pluvialis squatarola* (wintering)
- Dunlin *Calidris alpina* (wintering)
- Curlew *Numenius arquata* (wintering)

2.3.4.27 While some of these species are likely to be primarily associated with the intertidal and saltmarsh habitats, it should be noted that some (especially golden plover, white-fronted goose and brent goose) may utilise inland habitats such as arable fields for winter foraging.

2.3.4.28 The habitats within the Suffolk Scoping Boundary contain a wide variety of habitats to support an assemblage of other notable bird species, in particular those associated with coastal floodplain and grazing marsh, scrub, woodland and arable habitats.

2.3.4.29 Along with a review of available bird record and reports relating to the area within 1km of the Suffolk Scoping Boundary (e.g. Wetland Bird Survey data, previous project reports, Suffolk bird reports, biological records and Suffolk Wildlife Trust data), an updated programme of bird surveys will be conducted to provide an updated baseline.

2.3.4.30 The baseline for birds will be sub-divided into the following assemblages (or an equivalents) for ease of reference, noting the baseline will overlap with that for designated sites;

- Non-breeding birds (intertidal);

- Non-breeding birds (terrestrial); and
- Breeding birds.

2.3.4.31 Wintering and breeding bird surveys have commenced in the coastal areas but two full seasons of non-breeding and breeding bird surveys will be undertaken prior to DCO submission. Surveys will include specific investigations for hobby, nightjar, woodlark and barn owl.

Bats

2.3.4.32 A review of MAGIC EPS mitigation licences and survey returns has returned 16 licence records of roosting bats both breeding and non-breeding within 6km of the Suffolk Scoping Boundary with an additional non-breeding roost within the Suffolk Scoping Boundary. The licence within the Suffolk Scoping Boundary consisted of a non-breeding roost for common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus,* Natterer's bat *myotis nattereri,* and noctule *Nyctalus noctula.*

2.3.4.33 EPS mitigation licences within 6km of the Suffolk Scoping Boundary cover breeding and non-breeding roosts for the following species, common pipistrelle, soprano pipistrelle, Natterer's bat, noctule, brown long-eared bat *Plecotus auritus*, Daubenton's bat *Myotis daubentonii*, whiskered bat *Myotis mystacinus*, Brant's bat *Myotis brandti*, serotine *Eptesicus serotinus* and barbastelle *Barbastella barbastellus*.

2.3.4.34 Potential roost features will be identified as part of the extended Phase 1 Habitat survey. Any trees or buildings with suitable features will require either aerial inspection surveys or if not safe to climb emergence/re-entry surveys. Bat activity transects will also be undertaken on all habitats on site where permeant infrastructure will be built along the route.

Hazel dormouse

2.3.4.35 A review of MAGIC EPS mitigation licences and survey returns has not returned any records of hazel dormouse (*Muscardinus avellanarius*) presence. Additionally, no records of hazel dormouse were returned within the desk study.

2.3.4.36 Suitable habitat for hazel dormouse in the form of woodlands and a network of connected hedgerows is present within Suffolk Onshore Scheme Scoping Boundary and will be assessed as part of the extended Phase 1 Habitat Surveys.

Riparian mammals (otter, water vole)

2.3.4.37 Water vole *Arvicola amphibius* prefer habitat running alongside water, primarily rivers, brooks, drainage and irrigation ditches. Such as those through Site 1 Emerging Preference and Site 3 Emerging Preference where it co-insides with Leiston-Aldeburgh SSSI west of The Haven and south of the Suffolk Scoping Boundary north of Long Reach. Additionally, The Hundred River flows through the Suffolk Scoping Boundary. No water vole records were returned within the desk study; however, suitable habitat will be assessed within the extended Phase 1 Habitat Survey.

2.3.4.38 There is also suitable habitat for otter *Lutra lutra* within the Suffolk Scoping Boundary as well as both north and south. Forty nine records of otter were returned within the desk study including in areas of North Warren, The Hundred River, Aldeburgh, Leiston and Thorpeness within and between the two potential cable routes as well as north of

the Suffolk Scoping Boundary in Sizewell Marshes and south of Suffolk Scoping Boundary in Hazelwood Marshes. A review of MAGIC EPS mitigation licences returned a single licence for otter west of the Alde-Ore Estuary SSSI approximately 3km south-west of the Suffolk Scoping Boundary. Suitable habitat for otter will also be assessed within the Phase 1 Habitat Survey.

Badger

2.3.4.39 Extensive suitable habitat for badger is present throughout the Suffolk Scoping Boundary, comprising woodland, arable fields and margins and scrub amongst others. Habitat is both suitable for foraging and for the excavation of setts, with sufficient habitat present to support a number of social groups.

2.3.4.40 The extended Phase 1 Habitat Surveys will provide initial information of the likely distribution of badger within the Suffolk Scoping Boundary to be followed by detailed badger surveys to inform routeing.

Future Baseline

2.3.4.41 Relative to the current baseline, the value of ecological features present are not expected to change significantly by the end of the construction period in 2030. Management of the habitats is unlikely to change over this period, and consequently no significant degradation or improvement of habitat condition is expected. Due to development pressure year on year within the wider landscape, protected and notable species and habitats are likely to remain priorities for conservation within future baseline scenarios.

2.3.5 Embedded and Control & Management Measures

Embedded Measures

2.3.5.1 Where feasible, trenchless techniques would be used at the landfalls to minimise disturbance to coastal habitats, acknowledging that the installation of cables using trenchless techniques has technological limitations that limit the lengths that can be achieved, limitations will in part be linked to the specific topography and geology of the individual sites, this was considered initially to ensure it was viable mitigation at all landfall search locations, but this will need to be further validated through detailed geotechnical surveys.

2.3.5.2 In some instances, the use of trenchless techniques can be used to avoid impacts on key constraints, for example where sites designated for their nature conservation value cannot be avoided. Other examples include crossing rivers or major infrastructure such as railway lines or motorways. These were considered in the routeing and siting process.

2.3.5.3 Further refinement of the Suffolk Onshore Scheme will be informed by the results of ecology and biodiversity surveys to avoid or minimise impacts on ecological receptors.

Control and Management Measures

2.3.5.4 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the ecology and biodiversity assessment are:

- GG04 - The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans.
- GG21 - Construction lighting will be of the lowest luminosity necessary to safely perform each task. It will be designed, positioned and directed to reduce the intrusion into adjacent properties, protected species and habitats.
- GG17 - Wash down of vehicles and equipment will take place in designated areas within construction compounds. Wash water will be prevented from passing untreated into watercourses and groundwater. Appropriate measures will include use of sediment traps.
- GG18 - Wheel washing will be provided at each main compound access point on to the highway. An adequate supply of water will be made available at these locations at all times. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits.
- B02 - The assumption will be that vegetation with the potential to support breeding birds will not be removed during the breeding bird season (March to August inclusive). If any works become necessary during the breeding bird season, works will be supervised by an Environmental Clerk of Works. Appropriate protection measures will be put in place should active nests be found. These will include exclusion zones around active nests until chicks fledge or nests become inactive as determined by monitoring by the Environmental Clerk of Works.
- B03 - Where there will be a risk of animal entrapment, a means of escape will be installed into all excavations left open overnight.
- B04 - To control the spread of invasive weeds in accordance with the Wildlife and Countryside Act 1981, any plant or machinery that has been used in areas infested with invasive species (both terrestrial and aquatic), such as Japanese knotweed and Himalayan balsam, will be thoroughly cleaned. Water used to clean vehicles will be controlled to prevent the spread of the plant (through seeds, rhizomes, fragments, etc.). The area will be cordoned off to prevent any inadvertent spreading.
- B05 - All habitats suitable for common reptiles will be subject to two-stage habitat manipulation that will take place between mid-March and mid-October. Firstly, vegetation will be cut to approximately 150mm (with the arisings removed) under the supervision of an Environmental Clerk of Works and the site left for a minimum of two days to allow reptiles to naturally disperse from the area. Secondly, vegetation will be cleared down to ground level under the supervision of an Environmental Clerk of Works. Vegetation will be cleared using appropriate equipment based on the type of vegetation to be removed, the area affected, and the risk of mortality or injuring reptiles. Construction works could commence immediately after completion of the second stage. Reptile hibernacula will be retained and protected during construction where practicable. If unavoidable, the

removal of vegetation and groundworks at hibernacula will be timed to avoid the hibernation season (late October to early March). Replacement hibernacula and refugia will be provided.

- B06 - Alternative roost structures (bat boxes) will be provided (with landowner consent) on retained trees within the Order Limits or areas outside of the Order Limits agreed with landowners. Three boxes will be provided for each tree with moderate bat roost potential to be felled. Five boxes will be provided for each tree with high bat roost potential to be felled.
- B07 - Where the works require the crossing or removal of hedgerows, the gap will be reduced to a width required for safe working. Where hedge removals are necessary, 'dead hedging' should be used, where practicable, in the interim periods to retain connectivity during construction. Dead hedging can comprise vegetation arisings or artificial provision, such as willow screening panels or Heras fencing covered in camouflage netting. New hedgerow planting will contain native, woody species of local provenance.

Habitat Re-instatement, restoration and compensation

2.3.5.5 Where temporary habitat removal is required, this will be re-instated as soon as practically possible through use of techniques such as re-instatement of temporarily stored turfs and topsoil. Where habitat re-instatement is not possible, restoration or compensatory habitat will be explored.

2.3.5.6 Long term habitat re-instatement, restoration and compensation will be detailed within a Landscape and Ecology Management Plan or equivalent, which will accompany the BNG assessment.

2.3.6 Potential for Significant Effects

2.3.6.1 The ecology and biodiversity assessment will consider the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

2.3.6.2 The proposed scope of the ecology and biodiversity assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

2.3.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme.

2.3.6.4 The potential for the Suffolk Onshore Scheme to result in likely significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- construction of converter station and underground cables;

- construction of any temporary works areas;
- construction traffic movements; and
- presence of pollution from construction crews.

Sources of maintenance impacts

- presence of pollution from maintenance crews;
- temporary works areas; and
- traffic movements during maintenance works.

Sources of decommissioning impacts

- removal of converter station and underground cables;
- temporary works areas; and
- decommissioning traffic movements.

Potential impacts

2.3.6.5 Table 2.3.3 identifies the potential impacts that could result from the sources identified above.

Table 2.3.3: Source and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction and Maintenance	Construction of converter station and underground cables Construction of any temporary works areas Potential pollution from maintenance crews	Permanent habitat loss (terrestrial)	Yes -The converter station and associated infrastructure will result in an unavoidable permanent loss of habitat. Maintenance of the converter station, underground cables and overhead line may result in permanent or temporary loss of habitat but at a much smaller scale than construction.	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction and Maintenance	Construction of converter station and underground cables Construction of any temporary works areas Potential pollution from maintenance crews	Permanent habitat loss (intertidal)	Yes -No permanent infrastructure is to be installed above ground level within the intertidal zone. No day to day maintenance of underground cables would be required in the intertidal zone.	**Scoped in**
Construction and Maintenance	Construction of converter station and underground cables Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works	Temporary habitat loss/disturbance (terrestrial)	Yes -Cable installation within the Suffolk Scoping Boundary will result in a degree of temporary habitat loss/disturbance to terrestrial habitat. Maintenance of the converter station, underground cables and overhead line may result in temporary loss of habitat or disturbance but at a much smaller scale than construction.	**Scoped in**
Construction and Maintenance	Construction of converter station and underground cables Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements	Temporary habitat fragmentation / degradation (terrestrial)	Yes -Implementation of a construction working corridor may result in temporary fragmentation of habitat connectivity. Maintenance of the converter station, underground cables and overhead line may result in temporary fragmentation of habitat connectivity	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	during maintenance works		but at a much smaller scale than construction.	
Construction and Maintenance	Construction of converter station and underground cables Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works	Temporary habitat loss/ disturbance (intertidal)	Yes -Cable installation within the Suffolk Scoping Boundary will result in a degree of temporary habitat loss / disturbance to intertidal habitat Maintenance of underground cables could be required in the intertidal zone.	**Scoped in**
Construction and Maintenance	Construction of converter station and underground cables Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works	Incidental mortality of protected or notable species	Yes -In the absence of mitigation, there is potential for construction and maintenance works to result in the accidental killing or injuring of protected or notable species, although maintenance would be at a much smaller scale than construction.	**Scoped in**
Construction and Maintenance	Construction of converter station and underground cables	Disturbance to protected or notable species (noise/ vibration, visual, lighting	Yes -In the absence of mitigation, there is potential for construction and maintenance works	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works		to result in the accidental disturbance of protected or notable species, although maintenance would be at a much smaller scale than construction.	
Construction and Maintenance	Construction of converter station and underground cables Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works	Pollution impacts (dust deposition, air quality, water)	Yes -In the absence of mitigation, there is potential for construction works and maintenance to result in pollution impact pathways upon habitats and species, although maintenance would be at a much smaller scale than construction.	**Scoped in**
Decommissioning	Decommissioning of converter station and underground cables Any temporary works areas Decommissioning traffic movements	Temporary habitat loss/ disturbance (intertidal)	Yes - Cable removal within the Suffolk Scoping Boundary will result in a degree of temporary habitat loss / disturbance to intertidal habitat	**Scoped in**
Decommissioning	Decommissioning of converter station and	Incidental mortality of	Yes - In the absence of mitigation, there is potential for	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	underground cables Any temporary works areas Decommissioning traffic movements	protected or notable species	decommissioning works to result in the accidental killing or injuring of protected or notable species.	
Decommissioning	Decommissioning of converter station and underground cables Any temporary works areas Decommissioning traffic movements	Disturbance to protected or notable species (noise/ vibration, visual, lighting	Yes - In the absence of mitigation, there is potential for decommissioning works to result in the accidental disturbance of protected or notable species.	**Scoped in**
Decommissioning	Decommissioning of converter station and underground cables Any temporary works areas Decommissioning traffic movements	Pollution impacts (dust deposition, air quality, water)	Yes - In the absence of mitigation, there is potential for decommissioning works to result in pollution impact pathways upon habitats and species	**Scoped in**

Impact Pathways with Receptors (Step 2)

2.3.6.6 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the Suffolk Scoping Boundary.

Suffolk Converter Station Site 1 Emerging Preference

2.3.6.7 Table 2.3.4 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Emerging Preference as shown on as shown on **Figure 2.1.4 Suffolk Site 1 Emerging Preference** and **Figure 2.1.9 Suffolk Site 1 Emerging Preference Option Area.**

Table 2.3.4:Impact pathways with receptors – Suffolk Site 1 Emerging Preference

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Permanent habitat loss (terrestrial)	Designated Sites Sandlings SPA Alde-Ore Estuary SPA Alde-Ore Estuary Ramsar Leiston-Aldeburgh SSSI North Warren RSPB Reserve	Yes -The cable installation route has the potential for direct habitat loss within designated sites. It is expected that any cable installation will result in only a temporary impact. However, until the proposed alignment and working methods are confirmed this impact pathway will be included as a possibility. No permanent habitat loss of a designated site will occur as a result of the converter station. It is however possible arable habitats utilised by birds associated with nearby designated sites (e.g. golden plover, white-fronted goose, brent goose) functionally linked to Alde-Ore Estuary SPA/Ramsar could be lost. Bird surveys will investigate use of these habitats by such species and inform any requirement for mitigation.	**Scoped in for Construction, Maintenance and Decommissioning**
	Notable Habitats Ancient Woodland – Grove/Old World Wood and Great Wood	Yes -Ancient woodland, coastal grazing marshes, hedgerows, arable field margins and other notable habitats could be impacted by cable installation. However, a combination of routeing, HDD (where possible) and habitat re-instatement and replacement will be employed as mitigation and reduce these impacts to temporary, where possible. Should ancient woodland be removed this would be assessed as permanent.	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		The converter station would be located within an arable field so will not result in permanent loss of notable habitats.	
Temporary habitat loss disturbance (terrestrial)	Designated Sites Notable Habitats Sandlings SPA Alde-Ore Estuary SPA Alde-Ore Estuary Ramsar Leiston-Aldeburgh SSSI North Warren RSPB	Yes - It is designated sites as well as notable habitats will be temporary once additional mitigation has been employed (e.g. HDD, re-instatement) to be confirmed by design.	**Scoped in for Construction, Maintenance and Decommissioning**
	Invertebrates Great Crest Newt Reptiles Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger Otter Water vole Hazel dormouse	Yes -Habitats with potential to support protected and notable species to be potentially impacted by cable installation or converter station construction will be subject to mitigation measures including route assessment, possible HDD, reinstatement and compensation	**Scoped in for Construction, Maintenance and Decommissioning**
Temporary habitat loss (connectivity)	Invertebrates Great Crest Newt Reptiles	Yes - Habitat connectivity may be impacted in the short term by cable installation but will be minimised through use of HDD where possible to avoid key habitats. Where	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger Otter Water vole Hazel dormouse	unavoidable fragmentation or habitat degradation is unavoidable this will be a temporary effect until habitat re-instatement is established The converter station will likely be situated within arable fields, therefore minimising fragmentation and degradation of key habitats.	
Temporary habitat loss/ disturbance (intertidal)	Designated Sites Notable Habitats	Yes - Cable installation within the intertidal zone of the Outer Thames Estuary, and coastal grazing marsh of Leiston-Aldeburgh SSSI and is unlikely to be achievable through HDD alone and while mitigation through habitat re-instatement will take place it is unlikely that an effect can be avoided entirely.	**Scoped in for Construction, Maintenance and Decommissioning**
	Non-breeding birds (Intertidal) Breeding Birds	Yes - While intertidal cable installation will be temporary and where possible timed to avoid the most sensitive breeding and wintering periods, an assemblage of notable bird species highly likely to be present within and adjacent to the intertidal works zone	**Scoped in for Construction, Maintenance and Decommissioning**
Incidental mortality of protected or notable species	Invertebrates	No - It is unlikely that notable population assemblages will be significantly affected by direct mortality once mitigation measures are in place, as such populations will be linked to habitat.	Scoped out for all phases
	Great crested newt	Yes - While potential exists for great crested newt mortalities during construction, the overall favourable population status is to be maintained through	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		either implementation of District Level or European Protected Species Mitigation licence.	
	Reptiles Breeding Birds Non-breeding Birds Bats Badger	Yes - Potential exists for unmitigated works to impact suitable protected and notable species habitat which may be relatively widespread along the cable corridor (i.e. arable field margins) and result in direct mortalities. If HDD or route selection cannot avoid suitable habitat, mitigation options include works Ecological Method Statement or Natural England mitigation licence to avoid direct mortalities. Potential also exists for the section of possible overhead powerline to affect breeding and non-breeding birds through collision risk.	**Scoped in for all during Construction, Maintenance and Decommissioning** **Additionally scoped in for breeding and non-breeding birds during Operation due to potential bird strike on new overhead line.**
	Dormouse	Yes - Hedgerows within the Suffolk Onshore Scheme Scoping Boundary may be suitable for dormouse and may be impacted by works if HDD not feasible and require mitigation (i.e. under Natural England mitigation licence). Until further assessment can confirm likely absence of dormouse, effect will be scoped in.	**Scoped in for Construction, Maintenance and Decommissioning**
	Riparian Mammals (otter and water vole)	Yes - It is expected that direct impacts on watercourses (and therefore water vole and otter) can be avoided through HDD techniques. Until routing and feasibility of HDD can be confirmed, there is a potential requirement for mitigation and	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		these receptors remain scoped in.	
Disturbance to protected or notable species (noise/ vibration, visual, lighting	Great crested newt Non-breeding Birds (Intertidal) Non-breeding Birds (Terrestrial) Breeding Birds Bats Dormouse Badger Otter	Yes - Trees, hedgerows and other habitats within the Suffolk Onshore Scheme Scoping Boundary may be suitable for protected or notable species. If route selection cannot avoid disturbance impacts then mitigation (i.e. works under Ecological Method Statement or Natural England mitigation licence) could be required	**Scoped in for Construction, Maintenance and Decommissioning**
Pollution impacts (dust deposition, air quality, water)	Designates Sites Notable Habitats	Yes - Potential for pollution or other indirect impacts during construction on adjacent habitats and species will be mitigated though implementation of a Construction and Ecology Management Plan.	**Scoped in for Construction, Maintenance and Decommissioning**

Suffolk Converter Station Site 1 Alternative

2.3.6.8 Table 2.3.5 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Alternative Preference as shown on as shown on **Figure 2.1.7 Suffolk Site 1 Alternative** and **Figure 2.1.11 Suffolk Site 1 Alternative Option Area.**

Table 2.3.5: Impact pathways with receptors – Suffolk Site 1 Alternative

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Permanent habitat loss (terrestrial)	Designated Sites Sandlings SPA Alde-Ore Estuary SPA	Yes -The cable installation route has the potential for direct habitat loss within designated sites. It is expected that any cable installation will result in only a temporary impact. However,	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Alde-Ore Estuary Ramsar Leiston-Aldeburgh SSSI North Warren RSPB	until route and working methods are confirmed this impact pathway will be included as a possibility. No permanent habitat loss of a designated site will occur as a result of the converter station. It is however possible arable habitats utilised by birds associated with nearby designated sites (e.g. golden plover, white-fronted goose, brent goose) functionally linked to Alde-Ore Estuary SPA/Ramsar could be lost. Bird surveys will investigate use of these habitats by such species and inform any requirement for mitigation.	
	Notable Habitats Ancient Woodland – Grove/Old World Wood and Great Wood	Yes - Ancient woodland (Great Wood and Grove Wood), coastal grazing marshes, hedgerows, arable field margins and other notable habitats could be impacted by cable installation. However, a combination of routeing, HDD where possible and habitat re-instatement and replacement will be employed as mitigation and reduce these impacts to temporary, where possible. Removal of ancient woodland would be assessed as permanent. The converter station would be located within an arable field so will not result in permanent loss of notable habitats.	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary habitat loss disturbance (terrestrial)	Designated Sites Notable Habitats Sandlings SPA Alde-Ore Estuary SPA and Ramsar Leiston-Aldeburgh SSSI The Haven LNR North Warren RSPB	Yes - It is expected that impacts upon designated sites as well as notable habitats will be temporary once additional mitigation has been employed (e.g. HDD, re-instatement) to be confirmed by design.	**Scoped in for Construction, Maintenance and Decommissioning**
	Invertebrates Great Crest Newt Reptiles Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger Otter Water vole Hazel dormouse	Yes - Habitats with potential to support protected and notable species to be potentially impacted by cable installation or converter station construction will be subject to mitigation measures including route assessment, possible HDD, reinstatement and compensation	**Scoped in for Construction, Maintenance and Decommissioning**
Temporary habitat loss (connectivity)	Invertebrates Great Crest Newt Reptiles Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger Otter	Yes - Habitat connectivity may be impacted in the short term by cable installation but will be minimised through use of HDD where possible to avoid key habitats. Where fragmentation or habitat degradation is unavoidable this will be a temporary effect until habitat re-instatement is established.	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Water vole Hazel dormouse	The converter station will likely be situated within arable fields, therefore minimising fragmentation and degradation of key habitats.	
Temporary habitat loss/ disturbance (intertidal)	Designated Sites Notable Habitats Sandlings SPA Leiston-Aldeburgh SSSI North Warren RSPB Reserve	Yes -Cable installation within the intertidal zone may or may not be achievable through HDD alone and while mitigation through habitat re-instatement will take place it is unlikely that an effect can be avoided entirely. Current routing alternative options may avoid the need to HDD through Sandlings SPA Leiston-Aldeburgh SSSI, North Warren RSPBand so an effect may be avoided.	**Scoped in for Construction, Maintenance and Decommissioning**
	Non-breeding birds (Intertidal) Breeding Birds	Yes -While intertidal cable installation will be temporary and where possible timed to avoid the most sensitive breeding and wintering periods, an assemblage of notable bird species highly likely to be present within and adjacent to the intertidal works zone	**Scoped in for Construction, Maintenance and Decommissioning**
Incidental mortality of protected or notable species	Invertebrates	No - It is unlikely that notable population assemblages will be significantly affected by direct mortality once mitigation measures are in place, as such populations will be linked to habitat.	Scoped out for all phases
	Great crested newt	Yes -While potential exists for great crested newt mortalities during construction, the overall favourable population status is to be maintained through either implementation of District Level or European Protected Species Mitigation licence.	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Reptiles Breeding Birds Non-breeding Birds Bats Badger	Yes - Potential exists for unmitigated works to impact suitable protected and notable species habitat which may be relatively widespread along the cable corridor (i.e. arable field margins) and result in direct mortalities. If HDD or route selection cannot avoid suitable habitat, mitigation options include works Ecological Method Statement or Natural England mitigation licence to avoid direct mortalities. Potential also exists for the section of possible overhead powerline to affect breeding and non-breeding birds through collision risk.	**Scoped in for all during Construction, Maintenance and Decommissioning** **Additionally scoped in for breeding and non-breeding birds during Operation due to potential bird strike on new overhead line.**
	Dormouse	Yes - Hedgerows within the Suffolk Onshore Scheme Scoping Boundary may be suitable for dormouse and may be impacted by works if HDD not feasible and require mitigation (i.e. under Natural England mitigation licence). Until further assessment can confirm likely absence of dormouse, effect will be scoped in.	**Scoped in for Construction, Maintenance and Decommissioning**
	Riparian Mammals (otter and water vole)	Yes - It is expected that direct impacts on watercourses (and therefore water vole and otter) can be avoided through HDD techniques. Until routing and feasibility of HDD can be confirmed, there is a potential requirement for mitigation and these receptors remain scoped in.	**Scoped in for Construction, Maintenance and Decommissioning**
Disturbance to protected or notable species	Great crested newt	Yes -Trees, hedgerows and other habitats within the Suffolk Onshore Scheme	**Scoped in for Construction,**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
(noise/ vibration, visual, lighting	Non-breeding Birds (Intertidal) Non-breeding Birds (Terrestrial) Breeding Birds Bats Dormouse Badger Otter	Scoping Boundary may be suitable for protected or notable species. If route selection cannot avoid disturbance impacts then mitigation (i.e. works under Ecological Method Statement or Natural England mitigation licence) could be required	**Maintenance and Decommissioning**
Pollution impacts (dust deposition, air quality, water)	Designates Sites Notable Habitats	Yes -Potential for pollution or other indirect impacts during construction on adjacent habitats and species will be mitigated though implementation of a Construction and Ecology Management Plan.	**Scoped in for Construction, Maintenance and Decommissioning**

Suffolk Converter Station Site 3 Emerging Preference

2.3.6.9 Table 2.3.6 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Emerging Preference as shown on as shown on **Figure 2.1.5 Suffolk Site 3 Emerging Preference** and **Figure 2.1.10 Suffolk Site 3 Emerging Preference Option Area**.

Table 2.3.6: Impact pathways with receptors – Suffolk Site 3 Emerging Preference

Impact pathway	Source	Potential for significant effects	Proposed to be scoped in/out
Permanent habitat loss (terrestrial)	Designated Sites Sandlings SPA Alde-Ore Estuary SPA and Ramsar Leiston-Aldeburgh SSSI	Yes -The cable installation route has the potential for direct habitat loss within designated sites. It is expected that any cable installation will result in only a temporary impact. However, until route and working methods are confirmed this impact pathway will be included as a possibility.	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Source	Potential for significant effects	Proposed to be scoped in/out
	The Haven LNR North Warren RSPB	No permanent habitat loss of a designated site will occur as a result of the converter station. It is however possible arable habitats utilised by birds associated with nearby designated sites (e.g. golden plover, white-fronted goose, brent goose) functionally linked to Alde-Ore Estuary SPA/Ramsar could be lost. Bird surveys will investigate use of these habitats by such species and inform any requirement for mitigation.	
	Notable Habitats	Yes - Ancient woodland (Great Wood and Grove Wood), coastal grazing marshes, hedgerows, arable field margins and other notable habitats could be impacted by cable installation. However, a combination of routeing, HDD where possible and habitat re-instatement and replacement will be employed as mitigation and reduce these impacts to temporary, where possible. Removal of ancient woodland will be assessed as permanent. The converter station would be located within an arable field so will not result in permanent loss of notable habitats.	**Scoped in for Construction, Maintenance and Decommissioning**
Temporary habitat loss disturbance (terrestrial)	Designated Sites Notable Habitats Sandlings SPA	Yes - It is expected that impacts upon designated sites as well as notable habitats will be temporary once additional mitigation has been employed (e.g. HDD, re-instatement) to be confirmed by design.	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Source	Potential for significant effects	Proposed to be scoped in/out
	Alde-Ore Estuary SPA and Ramsar Leiston-Aldeburgh SSSI The Haven LNR North Warren RSPB		
	Invertebrates Great Crest Newt Reptiles Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger Otter Water vole Hazel dormouse	Yes - Habitats with potential to support protected and notable species to be potentially impacted by cable installation or converter station construction will be subject to mitigation measures including route assessment, possible HDD, reinstatement and compensation.	**Scoped in for Construction, Maintenance and Decommissioning**
Temporary habitat loss (connectivity)	Invertebrates Great Crest Newt Reptiles Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger Otter Water vole Hazel dormouse	Yes - Habitat connectivity may be impacted in the short term by cable installation but will be minimised through use of HDD where possible to avoid key habitats. Where fragmentation or habitat degradation is unavoidable this will be a temporary effect until habitat re-instatement is established. The converter station will likely be situated within arable fields, therefore minimising fragmentation and degradation of key habitats.	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Source	Potential for significant effects	Proposed to be scoped in/out
Temporary habitat loss/ disturbance (intertidal)	Designated Sites Notable Habitats Leiston-Aldeburgh SSSI North Warren RSPB Reserve The Haven LNR	Yes - Cable installation within the intertidal zone of Leiston-Aldeburgh SSSI, North Warren RSPB Reserve and The Haven LNR may or may not be achievable through HDD alone and while mitigation through habitat re-instatement will take place it is unlikely that an effect can be avoided entirely.	**Scoped in for Construction, Maintenance and Decommissioning**
	Non-breeding birds (Intertidal) Breeding Birds	Yes - While intertidal cable installation will be temporary and where possible timed to avoid the most sensitive breeding and wintering periods, an assemblage of notable bird species highly likely to be present within and adjacent to the intertidal works zone.	**Scoped in for Construction, Maintenance and Decommissioning**
Incidental mortality of protected or notable species	Invertebrates	No - It is unlikely that notable population assemblages will be significantly affected by direct mortality once mitigation measures are in place, as such populations will be linked to habitat.	Scoped out for all phases
	Great crested newt	Yes - While potential exists for great crested newt mortalities during construction, the overall favourable population status is to be maintained through either implementation of District Level or European Protected Species Mitigation licence.	**Scoped in for Construction, Maintenance and Decommissioning**
	Reptiles Breeding Birds Non-breeding Birds	Yes -Potential exists for unmitigated works to impact suitable protected and notable species habitat which may be relatively widespread along	**Scoped in for all during Construction, Maintenance and Decommissioning**

Impact pathway	Source	Potential for significant effects	Proposed to be scoped in/out
	Bats Badger	the cable corridor (i.e. arable field margins) and result in direct mortalities. If HDD or route selection cannot avoid suitable habitat, mitigation options include works Ecological Method Statement or Natural England mitigation licence to avoid direct mortalities. Potential also exists for the section of possible overhead powerline to affect breeding and non-breeding birds through collision risk.	**Additionally scoped in for breeding and non-breeding birds during Operation due to potential bird strike on new overhead line.**
	Dormouse	Yes -Hedgerows within the Suffolk Onshore Scheme Scoping Boundary may be suitable for dormouse and may be impacted by works if HDD not feasible and require mitigation (i.e. under Natural England mitigation licence). Until further assessment can confirm likely absence of dormouse, effect will be scoped in.	**Scoped in for Construction, Maintenance and Decommissioning**
	Riparian Mammals (otter and water vole)	Yes - It is expected that direct impacts on watercourses (and therefore water vole and otter) can be avoided through HDD techniques. Until routing and feasibility of HDD can be confirmed, there is a potential requirement for mitigation and these receptors remain scoped in.	**Scoped in for Construction, Maintenance and Decommissioning**
Disturbance to protected or notable species (noise/ vibration, visual, lighting	Great crested newt Non-breeding Birds (Intertidal) Non-breeding Birds (Terrestrial)	Yes -Trees, hedgerows and other habitats within the Suffolk Onshore Scheme Scoping Boundary may be suitable for protected or notable species. If route selection cannot avoid disturbance impacts then mitigation (i.e. works under	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Source	Potential for significant effects	Proposed to be scoped in/out
	Breeding Birds Bats Dormouse Badger Otter	Ecological Method Statement or Natural England mitigation licence) could be required	
Pollution impacts (dust deposition, air quality, water)	Designates Sites Notable Habitats	Yes - Potential for pollution or other indirect impacts during construction on adjacent habitats and species will be mitigated though implementation of a Construction and Ecology Management Plan.	**Scoped in for Construction, Maintenance and Decommissioning**

Suffolk Converter Station Site 3 Alternative (Option 1)

2.3.6.10 Table 2.3.7 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option 1) as shown on as shown on **Figure 2.1.12 Suffolk Site 3 Alternative (Option 1) Option Area** and **Figure 2.1.7 Suffolk Site 3 Alternative (Option 1)**.

Table 2.3.7: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 1)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Permanent habitat loss (terrestrial)	Designated Sites Sandlings SPA, Leiston-Aldeburgh SSSI North Warren RSPB Reserve Sizewell Marshes SSSI Alde-Ore Estuary SPA and Ramsar	Yes -The cable installation route has the potential for direct habitat loss within designated sites. It is expected that any cable installation will result in only a temporary impact. However, until route and working methods are confirmed this impact pathway will be included as a possibility. No permanent habitat loss of a designated site will occur as a result of the converter station. It is however possible arable habitats utilised by	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		birds associated with nearby designated sites (e.g. golden plover, white-fronted goose, brent goose) functionally linked to Alde-Ore Estuary SPA/Ramsar could be lost. Bird surveys will investigate use of these habitats by such species and inform any requirement for mitigation.	
	Notable Habitats	Yes - Coastal grazing marshes, hedgerows, arable field margins and other notable habitats could be impacted by cable installation. However, a combination of routeing, HDD where possible and habitat re-instatement and replacement will be employed as mitigation and reduce these impacts to temporary, where possible. The converter station would be located within an arable field so will not result in permanent loss of notable habitats. No ancient woodland is present within the boundary of Site 3 Alternative Option 1, however there is an ancient woodland (Grove Wood/Old World Wood) adjacent to site.	**Scoped in for Construction, Maintenance and Decommissioning**
Temporary habitat loss disturbance (terrestrial)	Designated Sites Notable Habitats Sandlings SPA, Leiston-Aldeburgh SSSI	Yes - It is expected that impacts upon designated sites as well as notable habitats will be temporary once additional mitigation has been employed (e.g. HDD, re-instatement) to be confirmed by design.	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	North Warren RSPB Reserve Sizewell Marshes SSSI Alde-Ore Estuary SPA/Ramsar		
	Invertebrates Great Crest Newt Reptiles Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger Otter Water vole Hazel dormouse	Yes - Habitats with potential to support protected and notable species to be potentially impacted by cable installation or converter station construction will be subject to mitigation measures including route assessment, possible HDD, reinstatement and compensation.	**Scoped in for Construction, Maintenance and Decommissioning**
Temporary habitat loss (connectivity)	Invertebrates Great Crest Newt Reptiles Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger Otter Water vole Hazel dormouse	Yes - Habitat connectivity may be impacted in the short term by cable installation but will be minimised through use of HDD where possible to avoid key habitats. Where fragmentation or habitat degradation is unavoidable this will be a temporary effect until habitat re-instatement is established. The converter station will likely be situated within arable fields, therefore minimising fragmentation and degradation of key habitats.	**Scoped in for Construction, Maintenance and Decommissioning**
Temporary habitat loss/	Designated Sites	Yes -Cable installation within the intertidal zone may or may not be achievable through	**Scoped in for Construction,**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
disturbance (intertidal)	Notable Habitats	HDD alone and while mitigation through habitat re-instatement will take place it is unlikely that an effect can be avoided entirely. Current potential routing around Sandlings SPA/Leiston-Aldeburgh SSSI/North Warren RSPB Reserve and Sizewell Marshes SSSI will avoid an effect on designated habitats within this site.	**Maintenance and Decommissioning**
	Non-breeding birds (Intertidal) Breeding Birds	Yes - While intertidal cable installation will be temporary and where possible timed to avoid the most sensitive breeding and wintering periods, an assemblage of notable bird species highly likely to be present within and adjacent to the intertidal works zone.	**Scoped in for Construction, Maintenance and Decommissioning**
Incidental mortality of protected or notable species	Invertebrates	No - It is unlikely that notable population assemblages will be significantly affected by direct mortality once mitigation measures are in place, as such populations will be linked to habitat.	Scoped out for all phases
	Great crested newt	Yes - While potential exists for great crested newt mortalities during construction, the overall favourable population status is to be maintained through either implementation of District Level or European Protected Species Mitigation licence.	**Scoped in for Construction, Maintenance and Decommissioning**
	Reptiles Breeding Birds Non-breeding Birds	Yes - Potential exists for unmitigated works to impact suitable protected and notable species habitat which may be relatively widespread along	**Scoped in for all during Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Bats Badger	the cable corridor (i.e. arable field margins) and result in direct mortalities. If HDD or route selection cannot avoid suitable habitat, mitigation options include works Ecological Method Statement or Natural England mitigation licence to avoid direct mortalities. Potential also exists for the section of possible overhead powerline to affect breeding and non-breeding birds through collision risk.	**Additionally scoped in for breeding and non-breeding birds during Operation due to potential bird strike on new overhead line.**
	Dormouse	Yes - Hedgerows within the Suffolk Onshore Scheme Scoping Boundary may be suitable for dormouse and may be impacted by works if HDD not feasible and require mitigation (i.e. under Natural England mitigation licence). Until further assessment can confirm likely absence of dormouse, effect will be scoped in.	**Scoped in for Construction, Maintenance and Decommissioning**
	Riparian Mammals (otter and water vole)	Yes - It is expected that direct impacts on watercourses (and therefore water vole and otter) can be avoided through HDD techniques. Until routing and feasibility of HDD can be confirmed, there is a potential requirement for mitigation and these receptors remain scoped in.	**Scoped in for Construction, Maintenance and Decommissioning**
Disturbance to protected or notable species (noise/ vibration, visual, lighting	Great crested newt Non-breeding Birds (Intertidal)	Yes -Trees, hedgerows and other habitats within the Suffolk Onshore Scheme Scoping Boundary may be suitable for protected or notable species. If route selection cannot avoid disturbance impacts then	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Non-breeding Birds (Terrestrial) Breeding Birds Bats Dormouse Badger Otter	mitigation (i.e. works under Ecological Method Statement or Natural England mitigation licence) could be required	
Pollution impacts (dust deposition, air quality, water)	Designates Sites Notable Habitats Sandlings SPA, Leiston-Aldeburgh SSSI North Warren RSPB Reserve Sizewell Marshes SSSI Alde-Ore Estuary SPA/Ramsar	Yes - Potential for pollution or other indirect impacts during construction on adjacent habitats and species will be mitigated though implementation of a Construction and Ecology Management Plan.	**Scoped in for Construction, Maintenance and Decommissioning**

Suffolk Converter Station Site 3 Alternative (Option 2)

2.3.6.11 Table 2.3.8 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option 2) as shown on as shown on **Figure 2.1.13 Suffolk Site 3 Alternative (Option 2) Option Area and Figure 2.1.8 Suffolk Site 3 Alternative (Option 2).**

Table 2.3.8: Impact pathways with receptors– Suffolk Site 3 Alternative (Option 2)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Permanent habitat loss (terrestrial)	Designated Sites Sandlings SPA Alde-Ore Estuary SPA and Ramsar North Warren RSPB Reserve Leiston-Aldeburgh SSSI	Yes -The cable installation route has the potential for direct habitat loss within the designated sites. It is expected that any cable installation will result in only a temporary impact. However, until route and working methods are confirmed this impact pathway will be included as a possibility. No permanent habitat loss of a designated site will occur as a result of the converter station. It is however possible arable habitats utilised by birds associated with nearby designated sites (e.g. golden plover, white-fronted goose, brent goose) functionally linked to Alde-Ore Estuary SPA and Ramsar could be lost. Bird surveys will investigate use of these habitats by such species and inform any requirement for mitigation.	**Scoped in for Construction, Maintenance and Decommissioning**
	Notable Habitats	Yes - Ancient Woodland (Grove wood and Great Wood), Coastal grazing marshes, hedgerows, arable field margins and other notable habitats could be impacted by cable installation. However, a combination of routeing, HDD where possible and habitat re-instatement and replacement will be employed as mitigation and reduce these impacts to temporary, where possible.	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		Removal of ancient woodland will be assessed as permanent. The converter station would be located within an arable field so will not result in permanent loss of notable habitats.	
Temporary habitat loss disturbance (terrestrial)	Designated Sites Notable Habitats Sandlings SPA Alde-Ore Estuary SPA and Ramsar North Warren RSPB Reserve Leiston-Aldeburgh SSSI	Yes - It is expected that impacts upon designated sites as well as notable habitats will be temporary once additional mitigation has been employed (e.g. HDD, re-instatement) to be confirmed by design.	**Scoped in for Construction, Maintenance and Decommissioning**
	Invertebrates Great Crest Newt Reptiles Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger Otter Water vole Hazel dormouse	Yes - Habitats with potential to support protected and notable species to be potentially impacted by cable installation or converter station construction will be subject to mitigation measures including route assessment, possible HDD, reinstatement and compensation.	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary habitat loss (connectivity)	Invertebrates Great Crest Newt Reptiles Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger Otter Water vole Hazel dormouse	Yes - Habitat connectivity may be impacted in the short term by cable installation but will be minimised through use of HDD where possible to avoid key habitats. Where fragmentation or habitat degradation is unavoidable this will be a temporary effect until habitat re-instatement is established. The converter station will likely be situated within arable fields, therefore minimising fragmentation and degradation of key habitats.	**Scoped in for Construction, Maintenance and Decommissioning**
Temporary habitat loss/ disturbance (intertidal)	Notable Habitats	Yes - Cable installation within the intertidal zone may or may not be achievable through HDD alone and while mitigation through habitat re-instatement will take place it is unlikely that an effect can be avoided entirely.	**Scoped in for Construction, Maintenance and Decommissioning**
	Non-breeding birds (Intertidal) Breeding Birds	Yes - While intertidal cable installation will be temporary and where possible timed to avoid the most sensitive breeding and wintering periods, an assemblage of notable bird species highly likely to be present within and adjacent to the intertidal works zone.	**Scoped in for Construction, Maintenance and Decommissioning**
Incidental mortality of protected or notable species	Invertebrates	No - It is unlikely that notable population assemblages will be significantly affected by direct mortality once mitigation measures are in place, as such populations will be linked to habitat.	Scoped out for all phases
	Great crested newt	Yes - While potential exists for great crested newt mortalities during construction, the	**Scoped in for Construction,**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		overall favourable population status is to be maintained through either implementation of District Level or European Protected Species Mitigation licence.	**Maintenance and Decommissioning**
	Reptiles Breeding Birds Non-breeding Birds Bats Badger	Yes - Potential exists for unmitigated works to impact suitable protected and notable species habitat which may be relatively widespread along the cable corridor (i.e. arable field margins) and result in direct mortalities. If HDD or route selection cannot avoid suitable habitat, mitigation options include works Ecological Method Statement or Natural England mitigation licence to avoid direct mortalities. Potential also exists for the section of possible overhead powerline to affect breeding and non-breeding birds through collision risk.	**Scoped in for all during Construction, Maintenance and Decommissioning** **Additionally scoped in for breeding and non-breeding birds during Operation due to potential bird strike on new overhead line.**
	Dormouse	Yes - Hedgerows within the Suffolk Onshore Scheme Scoping Boundary may be suitable for dormouse and may be impacted by works if HDD not feasible and require mitigation (i.e. under Natural England mitigation licence). Until further assessment can confirm likely absence of dormouse, effect will be scoped in.	**Scoped in for Construction, Maintenance and Decommissioning**
	Riparian Mammals (otter and water vole)	Yes - It is expected that direct impacts on watercourses (and therefore water vole and otter) can be avoided through HDD techniques. Until routing and feasibility of HDD can be confirmed, there is a potential	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		requirement for mitigation and these receptors remain scoped in.	
Disturbance to protected or notable species (noise/ vibration, visual, lighting	Great crested newt Non-breeding Birds (Intertidal) Non-breeding Birds (Terrestrial) Breeding Birds Bats Dormouse Badger Otter	Yes -Trees, hedgerows and other habitats within the Suffolk Onshore Scheme Scoping Boundary may be suitable for protected or notable species. If route selection cannot avoid disturbance impacts then mitigation (i.e. works under Ecological Method Statement or Natural England mitigation licence) could be required.	**Scoped in for Construction, Maintenance and Decommissioning**
Pollution impacts (dust deposition, air quality, water)	Designates Sites Notable Habitats Sandlings SPA Alde-Ore Estuary SPA and Ramsar North Warren RSPB Reserve Leiston-Aldeburgh SSSI Outer Thames Estuary SPA	Yes - Potential for pollution or other indirect impacts during construction on adjacent habitats and species will be mitigated though implementation of a Construction and Ecology Management Plan.	**Scoped in for Construction, Maintenance and Decommissioning**

2.3.7 Proposed Assessment Methodology

Proposed Data Sources

2.3.7.1 The following sources of information will be utilised to form the basis of the assessment of the likely significant effects on Ecology:

- Baseline data collected by site surveys for the Suffolk Onshore Scheme;
- Baseline data collected and publicly published with regards to other schemes in the area; and
- Biodiversity record data searches undertaken to inform baseline data.

Proposed Assessment Methodology

2.3.7.2 The approach used for the ecological impact assessment (EcIA) will be undertaken in accordance with best practice guidance as published in the CIEEM Guidelines[70] and summarised below:

- Ecological features that are both present and might be affected by the Suffolk Onshore Scheme are identified (both those likely to be present at the time works begin and those predicted to be present under a future baseline) through a combination of targeted desk-based study and field survey work to determine the relevant baseline conditions.
- The importance of the identified ecological features evaluated, placing their relative biodiversity and nature conservation value into geographic context. This is then used to define the relevant ecological features that need to be considered further within the assessment process.
- The changes or perturbations predicted to result as a consequence of the Suffolk Onshore Scheme (i.e. the potential impacts), and which could potentially affect relevant ecological features are identified and their nature described. Established good-practice, legislative requirements or other incorporated design measures to minimise or avoid impacts are also described and are taken into account.
- The likely effects (beneficial or adverse) on relevant ecological features are then assessed, and where possible quantified.
- Measures to avoid or reduce any predicted significant effects, if possible, are then developed in conjunction with other elements of the design (including mitigation for other environmental disciplines). If necessary, measures to compensate for effects on features of nature conservation importance are also included.
- Any residual effects of the Suffolk Onshore Scheme are reported; and
- Scope for ecological enhancement is considered.

2.3.7.3 The valuation of sites used established value systems (e.g. SSSIs are all of national importance) and reflected the geographical context of the valuation. The categories shown in Table 2.3.9 were applied to give geographic context.

[70] Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1 (Updated 2019). [online] Available at: https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-Sept-2019.pdf [Accessed 13/07/2022].

Table 2.3.9:Examples of criteria used to evaluate important ecological features in a defined geographical context

Geographical level at which ecological feature is important	Example of criteria
International (Very high)	An internationally important site, e.g. Special Protection Area (SPA), Special Area of Conservation (SAC) or Ramsar; a regularly occurring population of an internationally important species (listed on Annex IV of the Habitats Directive)
National (High)	A nationally designated site, e.g. SSSI, or a site considered worthy of such designation; a large regularly occurring population of a nationally important species
Regional (Medium)	An ecological feature identified in the local BAP. A smaller area of local BAP habitat which are essential to maintain the viability of a larger whole; non-statutory designated sites; a regularly occurring, locally significant number of a nationally important species. An ecological feature identified as of priority within Section 41 of the NERC Act 2006.
District (Low)	An ecological feature that is scarce within the district or borough or which appreciably enriches the district or borough habitat resource.
Local (Very low)	A good example of a common or widespread ecological feature in the local area.
Negligible	No or very limited ecological value.

2.3.7.4 The ecological surveys will confirm or identify the distribution and valuation of species and habitats.

2.3.7.5 The ‘zone of influence’ for the Suffolk Onshore Scheme is the area over which ecological features may be affected by changes as a result of the Suffolk Onshore Scheme and associated activities. The zone of influence will be different for each ecological receptor identified, dependent on each receptor’s sensitivity to change and will be determined using the maximum extents for study areas of each identified receptor. Where necessary, these will be appropriately revised as the Project evolves.

2.3.7.6 The ES will include consideration of options to avoid, reduce, mitigate, or, if necessary, compensate for any identified potential significant adverse effects to the point where any residual effects are not considered to be significant. In addition, opportunities will

be sought for the enhancement of biodiversity at both on and off-site locations as associated with the Suffolk Onshore Scheme.

2.3.7.7 In line with Section 1.2. in the CIEEM guidelines, the terminology used within the EcIA will draw a clear distinction between the terms ‘impact’ and ‘effect’. For the purposes of this EcIA these terms are defined as follows:

- Impact – actions resulting in changes to an ecological feature. For example, construction activities of a development removing a hedgerow; and
- Effect – outcome resulting from impact acting upon the conservation status or structure and function of an ecological feature. For example, the effects on a population of bats as a result of the loss of a bat roost.

2.3.7.8 When describing potential impacts (and where relevant the resultant effects) consideration will be given to the following characteristics likely to influence this (Sections 5.11-5.18 in the CIEEM guidelines):

- Positive / Negative – i.e. is the change likely to be in accordance with nature conservation objectives and policy:
- Positive – a change that improves the quality of the environment, or halts or slows an existing decline in quality e.g. increasing the extent of a habitat of conservation value; or
- Negative – a change that reduces the quality of the environment, e.g. destruction of habitat.
- Extent – the spatial or geographical area or distance over which the impact/effect occurs;
- Magnitude – the ‘size’, ‘amount’ or ‘intensity’ and ‘volume’ of an impact - this is described on a quantitative basis where possible;
- Duration – the time over which an impact is expected to last prior to recovery or replacement of the resource or feature. Consideration has been given to how this duration relates to relevant ecological characteristics such as a species’ lifecycle. However, it is not always appropriate to report the duration of impacts in these terms. The duration of an effect may be longer than the duration of an activity or impact;
- Timing and frequency – i.e. consideration of the point at which the impact occurs in relation to critical life-stages or seasons; and
- Reversibility – i.e. is the impact temporary or permanent. A temporary impact is one from which recovery is possible or for which effective mitigation is both possible and enforceable. A permanent effect is one from which recovery is either not possible or cannot be achieved within a reasonable timescale (in the context of the feature being assessed).

2.3.7.9 Cumulative effects will be assessed and are those occurring from several sources (also known as inter-relationships) and/or the combined effects of other developments in the area.

2.3.7.10 For each ecological feature only those characteristics relevant to understanding the ecological effect and determining the significance will be described. The determination

of the significance of effects has been made based on the predicted effect on the structure and function, or conservation status, of relevant ecological features, as follows:

- Not significant - no effect on structure and function, or conservation status; and
- Significant - structure and function, or conservation status is affected.

2.3.7.11 Sections 5.24 to 5.28 in the CIEEM guidance states that effects should be determined as being significant when:

"an effect either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local. A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project".

2.3.7.12 In broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).

2.3.7.13 Using this information and judgment, it is determined whether the effects will be significant or not on the integrity (of site / ecosystems) or conservation status (of habitats / species) of each ecological feature and the impact significance is determined at the appropriate geographical scale.

2.3.7.14 There are a number of approaches for determining the significance of effects on ecological features. Whilst the CIEEM guidelines recommend the avoidance of the use of the matrix approach for categorisation (major, moderate and minor), in order to provide consistency of terminology, the CIEEM assessment will be translated into the classification of effects scale, as outlined in Table 2.3.10.

Proposed Significance Criteria

2.3.7.15 The potential effects that are proposed to be scoped into or out of the assessment are summarised in Table 2.3.10.

Table 2.3.10: Relating CIEEM assessment terms to those used in other EIA chapters

Effect classification terminology used in other EIA chapters	Equivalent CIEEM assessment
Major beneficial (positive)	1) Permanent addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.

Moderate beneficial (positive)	1) Temporary addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Minor beneficial (positive)	1) Permanent addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Negligible beneficial (positive)	1) Temporary addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Negligible adverse (negative)	1) Temporary/reversible damage to a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Minor adverse (negative)	1) Permanent/irreversible damage to a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Moderate adverse (negative)	1) Temporary/reversible damage to a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.
Major adverse (negative)	1) Permanent/irreversible damage to a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.

2.3.8 Conclusion

2.3.8.1 The receptors and impact pathways identified in this report will be taken into account in the ecological impact assessment to accompany the ES, which will be undertaken in line with the methodology in section 7.

Proposed Scope of the Assessment

2.3.8.2 A summary of the proposed scope of the assessment is provided in Table 2.3.11.

Table 2.3.11: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out and for which option
Designated Sites	Permanent Habitat Loss (terrestrial)	Construction, Maintenance, Decommissioning	**Scoped in** **All emerging preferences and alternative options**
Sandlings SPA, Outer Thames Estuary SPA, Alde-Ore Estuary SPA and Ramsar, Leiston-Aldeburgh SSSI, The Haven LNR North Warren RSPB Reserve	Temporary Habitat Loss/Disturbance (terrestrial)	Construction, Maintenance, Decommissioning	**Scoped in** **All emerging preferences and alternative options**
	Temporary Habitat Loss/Disturbance (intertidal)	Construction, Maintenance, Decommissioning	**Scoped in** **All emerging preferences and alternative options**
	Pollution Impacts (dust, deposition, air quality, water)	Construction, Maintenance, Decommissioning	**Scoped in** **All emerging preferences and alternative options**
Notable Habitats Including Ancient Woodland – Great Wood and Grove / Old World Wood	Permanent Habitat Loss (terrestrial)	Construction, Maintenance, Decommissioning	**Scoped in** **All emerging preferences and alternative options**
	Temporary Habitat Loss/Disturbance (terrestrial)	Construction, Maintenance, Decommissioning	**Scoped in** **All emerging preferences and alternative options**
	Temporary Habitat Loss/Disturbance (intertidal)	Construction, Maintenance, Decommissioning	**Scoped in** **All emerging preferences and alternative options**
	Pollution Impacts (dust, deposition, air quality, water)	Construction, Maintenance, Decommissioning	**Scoped in** **All emerging preferences and alternative options**
Invertebrates	Incidental Mortality of Protected or Notable Species	Construction, Maintenance, Decommissioning	Scoped out All emerging preferences and alternative options
Invertebrates	Temporary Habitat Loss/Disturbance (terrestrial)	Construction, Maintenance, Decommissioning	**Scoped in** **All emerging preferences and alternative options**

Great crested newts Reptiles Non-breeding birds (terrestrial) Breeding birds Bats Badger Otter Water vole Hazel dormouse	Temporary Habitat Loss (connectivity)	Construction, Maintenance, Decommissioning	**Scoped in** **All emerging preferences and alternative options**
	Incidental Mortality of Protected or Notable Species	Construction, Maintenance, Decommissioning	**Scoped in (except invertebrates see above)** **All emerging preferences and alternative options**
	Disturbance to Protected or Notable Species (noise, vibration, visual, lighting)	Construction, Maintenance, Decommissioning	**Scoped in** **All emerging preferences and alternative options**
Non-breeding birds (intertidal) Breeding Birds	Temporary Habitat Loss/Disturbance (intertidal)	Construction, Maintenance, Decommissioning	**Scoped in** **All emerging preferences and alternative options**

2.4 Cultural Heritage

2.4.1 Introduction

2.4.1.1 This chapter presents how the Cultural Heritage assessment will consider the potentially significant effects that may arise from the construction, operation maintenance and decommissioning of the Suffolk Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

2.4.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Suffolk Onshore Scheme Scoping Boundary hereafter referred to as the Suffolk Scoping Boundary is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**.

2.4.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**;
- **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme**; and
- **Part 2, Chapter 5, Geology and Hydrogeology**.

2.4.1.4 This chapter is supported by the following figures:

- **Figure 2.4.1 Designated Cultural Heritage Assets within the Scoping Boundary and wider 1km Study Area**; and
- **Figure 2.4.2 Non-designated assets within the Scoping Boundary.**

2.4.1.5 This chapter is supported by the following Appendix:

- **Appendix 2.4.A Non-designated assets recorded on the Suffolk HER within the Scoping Boundary**

2.4.1.6 Cultural Heritage comprises above and below-ground archaeological assets, buildings or structures of historic interest, historic landscape features, and any other elements that are of cultural heritage interest

2.4.2 Regulatory and Planning Context

2.4.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. The key legislation, policy, and guidance relevant to the assessment of the potential effects on the historic environment

associated with the construction, operation, maintenance and decommissioning phases of the Project are presented below.

Legislation

- Planning (Listed Buildings and Conservation Areas) Act 1990[71]; and
- Ancient Monuments and Archaeological Areas Act 1979[72] (amended by the National Heritage Act 1983[73] and 2002[74].

Planning Policy

National planning policy

- NPS EN-1[75] with particular reference to Section 5.8 in relation to the significance, impact and recording of the historic environment. The historic environment is also covered in the section 5.9 of the Draft NPS EN-1 which is currently under review.;
- NPS EN-5[76] with particular reference to Paragraph 2.8.9 in relation to the archaeological consequences of electricity line installation. Potential impacts are also mentioned in sections 2.2.5 and 2.11.14 of the Draft NPS EN-5 which is currently under review.; and
- NPPF[77] with particular reference to Section 16: Conserving and Enhancing the Historic Environment.

National guidance

2.4.2.2 The following guidance is of relevance for cultural heritage:

- Planning Practice Guidance, Section 16: Conserving and enhancing the historic environment[78];
- Historic Environment Good Practice Advice in Planning Note 2. Managing Significance in Decision Taking in the Historic Environment. Historic England[79];

[71] Planning (Listed Buildings and Conservation Areas) Act 1990 [online]. Available at: https://www.legislation.gov.uk/ukpga/1990/9/contents

[72] Ancient Monument and Archaeological Areas Act 1979 [online]. Available at: https://www.legislation.gov.uk/ukpga/1979/46/contents

[73] National Heritage Act 1983 [online]. Available at: https://www.legislation.gov.uk/ukpga/1983/47/contents

[74] National Heritage Act 2002 [online]. Available at: https://www.legislation.gov.uk/ukpga/2002/14/contents

[75] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf

[76] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf

[77] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

[78] Ministry of Housing, Communities & Local Government (2019). Planning Practice Guidance: Historic Environment. [online] Available at: https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment#overview-historic-environment

[79] Historic England (2015). Historic Environment Good Practice Advice in Planning: 2. Managing Significance in Decision – Taking in the Historic Environment. [online] available at: https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2/

- Historic Environment Good Practice Advice in Planning Note 3. The Setting of Heritage Assets. Historic England (2nd edition, 2017)[80];
- Historic Environment Statement of Heritage Significance: Analysing Significance in Heritage Assets. Historic England Advice Note 12. Historic England (2019)[81];
- Commercial Renewable Energy Development and the Historic Environment. Historic England Advice Note 15 (2021)[82];
- Chartered Institute for Archaeologists (CIfA) Standard and Guidance for Historic Environment Desk-Based Assessment[83];
- CIfA Code of Conduct[84]; and
- Institute of Environmental Management and Assessment (IEMA), the Institute of Historic Building Conservation (IHBC) and the Chartered Institute for Archaeologists (CIfA), Principles of Cultural Heritage Impact Assessment in the UK[85] .

Local planning policy

2.4.2.3 The Suffolk Onshore Scheme falls within the area covered by East Suffolk Council, with key policies linked to heritage covered by the East Suffolk Plan adopted in September 2020[86]. Policies include:

- Strategic Policy SP8 – Tourism, and how the Heritage Coastline, Cultural Heritage, and the Area of Outstanding Natural Beauty contributes to tourism and the economy;
- Strategic Policy SP15 – Landscape and Townscape. Relates to the protection and enhancement of the landscape of historic settlements and their surroundings.
- Development Management Policy DM21 – Aesthetic. Relates to the design of developments and how they can result in impacts on setting.

2.4.2.4 In addition to the East Suffolk policy set out above, East Suffolk Council also published a document entitled ‘Historic Environment: Supplementary Planning Document’ in

[80] Historic England (2017). Historic Environment Good Practice Advice in Planning Note 3 (second edition). The Setting of Heritage Assets. [online] Available at: https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/heag180-gpa3-setting-heritage-assets/

[81] Historic England (2019). Historic England Advice Note 12. Statements of Heritage Significance: Analysing Significance in Heritage Assets. [online] Available at: https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/heag279-statements-heritage-significance/

[82] Historic England (2021). Historic Environment Good Practice Advice in Planning Note 15. Commercial Renewable Energy Development and the Historic Environment. [online] Available at: https://historicengland.org.uk/images-books/publications/commercial-renewable-energy-development-historic-environment-advice-note-15/heag302-commercial-renewable-energy-development-historic-environment/

[83] Chartered Institute for Archaeologists (2020). Standard and guidance for historic environment desk-based assessment. [online] Available at: https://www.archaeologists.net/sites/default/files/CIfAS%26GDBA_4.pdf#:~:text=STANDARD%20AND%20GUIDANCE%20for%20historic%20environment%20desk-based%20assessment,expand%20and%20explain%20general%20definitions%20in%20the%20Code.

[84] Chartered Institute of Archaeology (2019). Code of Conduct: Professional Ethics in Archaeology. [online] Available at: https://www.archaeologists.net/sites/default/files/Code%20of%20conduct.pdf

[85] Institute of Environmental Management & Assessment, in partnership with the Chartered Institute for Archaeologists and the Institute of Historic Building Conservation (2021). Principles of Cultural Heritage Impact Assessment in the UK.

[86] East Suffolk Council (2020). Suffolk Coastal Local Plan. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Planning-Policy-and-Local-Plans/Suffolk-Coastal-Local-Plan/Adopted-Suffolk-Coastal-Local-Plan/East-Suffolk-Council-Suffolk-Coastal-Local-Plan.pdf

June 2021[87]. This provides further details on the Historic Environment in relation of development and includes both direct and non-direct impacts on both archaeology and built heritage.

2.4.3 Study Area

2.4.3.1 The study area is the area within which cultural heritage assets may experience effects as a result of the Suffolk Onshore Scheme during construction, maintenance, operation and decommissioning. Effects to heritage assets may arise as a result of physical impacts to their fabric or through changes to their setting.

2.4.3.2 For the purpose of this scoping report, the Suffolk Onshore Scheme Scoping Boundary which includes the proposed cable route has been used as the study area to capture information relating to archaeology and cultural heritage. The study area provides the necessary context for establishing the likely impacts arising from the Suffolk Onshore Scheme and the potential effects to cultural heritage assets. A second wider study area consisting of the Suffolk Scoping Boundary and a 1km buffer was used to identify designated assets within the surrounding landscape, in order to provide an initial assessment of potential impacts on designated assets.

2.4.4 Baseline Conditions

Data Sources

2.4.4.1 The cultural heritage baseline described in this section has been informed by the following data sources:

- Historic England National Designated Assets dataset[88];
- Suffolk HER;
- Data collected as part of other schemes in the area including geophysical survey data and evaluation reports produced as part of the SPR East Anglia 1 and East Anglia 2 projects[899091]; and
- Other readily available online sources.

[87] East Suffolk Council (2021). Historic Environment: Supplementary Planning Document. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Planning-Policy-and-Local-Plans/Supplementary-documents/Historic-Environment-SPD/Historic-Environment-SPD-reduced.pdf

[88] Historic England. National Heritage List. [Online] Available at: https://historicengland.org.uk/listing/the-list

[89] Scottish Power and Renewables (2019). East Anglia TWO Offshore Windfarm, Chapter 24: Archaeology and Cultural Heritage. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-001096-6.1.24%20EA2%20Environmental%20Statement%20Chapter%2024%20Archaeology%20and%20Cultural%20Heritage.pdf

[90] Scottish Power and Renewables (2019). East Anglia TWO Offshore Windfarm (Environmental Statement Volume 3), Appendix 24.4: Proposed Onshore Cable Corridor and Substation Sites – Geophysical Survey Report. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-001538-6.3.24.4%20EA2%20ES%20Appendix%2024.4%20Geophysical%20Survey%20Report%20Part%201%20of%202.pdf

[91] Scottish Power and Renewables (2020). East Anglia One North and East Anglia TWO Offshore Windfarm: Pre-Construction Trial Trenching Report. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-002659-ExAAS13D1V1EA1NEA2PreConstructionTrialTrenchingReport_378030_1.pdf

Baseline

2.4.4.2 A number of designed assets have been recorded within the Suffolk Scoping Boundary including two scheduled monuments and seven Grade II listed buildings. The scheduled monuments consist of two bowl barrows on Aldringham Green (1011378) and the second site of Leiston Abbey (1014520). The Grade II listed buildings recorded within the Suffolk Scoping Boundary include Aldringham Court (1393143), Billeaford Hall (1216081), and Gorsehill (1269753). The remaining Grade II listed buildings are farmsteads, or former farms, and consist of Little Moor Farm (1215743), Elm Tree Farm (1215788), High House Farm (1216049), and Hill Farmhouse (1231296).

2.4.4.3 A further two scheduled monuments have also been recorded in the wider 1 km study area. Both of these are prehistoric burial sites and consist of two bowl barrows in Square Plantation (1011376), and a bowl barrow on Aldringham Common some 300m east of Stone House (1011440).

2.4.4.4 Listed buildings outside of the Suffolk Scoping Boundary include one Grade I listed building, seven Grade II* listed buildings, and 85 Grade II listed buildings. The Grade I listed buildings is St Mary's Abbey Church which forms part of the Lieston Abbey complex (1215753). A number of the Grade II* listed buildings are also churches and include the Church of St Lawrence in Knodishall (1215745), the Church of St John Baptist in Saxmundham (1268184), the Church of St Mary Magdalen in Sternfield (1278252), and the Church of St Mary in Friston (1287864). The remaining Grade II* listed buildings include the Long Shop in Leiston (1287610), the Post Mill in Friston (1215741), and Buxlow Manon on the near Knodishall Green (1215749).

2.4.4.5 The majority of the Grade II listed buildings are located within the settlements which surrounds the Scoping Boundary, with concentrations in Leiston, Aldeburgh, Thorpness, Aldringham, Friston, Sternfield, and Saxmundham. Aldeburgh, Thorpeness, Leiston, and Saxmundaham are also Conservation Areas.

2.4.4.6 A limited number of Grade II Listed Buildings are also located in more rural settings outside of the main settlements. These are largely farmhouses, or former farmhouses/agricultural buildings.

2.4.4.7 A review of non-designated assets recorded on the Suffolk HER revealed a large number of heritage assets demonstrating evidence of human activity in the area from the early prehistoric period through to the modern period (see **Appendix 2.4.A Non-designated assets recorded on the Suffolk HER within the Scoping Boundary** for the full list of non-designated assets). Some of the earliest material identified includes microliths dating to the Mesolithic period recorded near the former Post Office in Aldringham (MSF24493), although lithic scatters have also been recorded in a number of other areas of the Suffolk Scoping Boundary (MSF21571 & MSF21595). While early prehistoric settlement activity is limited, Bronze Age activity has been recorded with a number of assets relating to burial practices recorded.

2.4.4.8 The Iron Age is better represented with a number of cropmarks recorded through aerial photography have suggesting extensive field systems and settlement activity dating from the Iron Age, and recent excavations undertaken as part of other infrastructure projects has also demonstrated extensive human activity throughout the Iron Age and Roman period. It is also possible that some of the undated cropmarks have earlier origins and date to the Bronze Age.

2.4.4.9 While early medieval sites are not well represented within the Suffolk Scoping Boundary, it is possible that many of the settlements that survive in the wider area have their origins in the early medieval period, and as a result remains dating to this period could lie buried beneath the more built-up areas. It is, however, also possible that some of the Iron Age/Roman sites could continue in use into the early medieval period, and recent works as part of the East Anglia projects[92][93][94] have noted a number of sites which might date to this period.

2.4.4.10 The majority of assets dating to the medieval period are find spots or scatters of pottery which may represent waste material being spread on the agricultural fields which surrounded the settlements. It is, however, also possible that some of the more focused scatters might represent settlement activity associated with abandoned or shrunken settlements.

2.4.4.11 Most activity dating to the post-medieval within the Suffolk Scoping Boundary is associated with the agricultural land through which the study area is focused, although other non-designated assets include banks/flood defences, rabbit warrens, and features linked to industries including brink making.

2.4.4.12 The modern period is very well represented with a large number of non-designated dating to the Second World recorded near the coast as well as inland. These remains include pill boxes, anti-glider trenches, and other structures and features on the coast to repel enemy attack and invasion.

Future Baseline

2.4.4.13 The cultural heritage chapter within the Environmental Statement (ES) will include an outline of the likely evolution of the baseline environment without the implementation of the development as far as natural changes from the baseline scenario can be assessed.

2.4.5 Embedded and Control & Management Measures

Embedded Measures

2.4.5.1 While a number of designated assets have been noted within the Suffolk Scoping Boundary, all will be avoided by the Suffolk Onshore Scheme. As the design develops further and is better refined, additional mitigation measures could include further design intervention to avoid physical impacts on known heritage assets.

[92] Scottish Power and Renewables (2019). East Anglia TWO Offshore Windfarm, Chapter 24: Archaeology and Cultural Heritage. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-001096-6.1.24%20EA2%20Environmental%20Statement%20Chapter%2024%20Archaeology%20and%20Cultural%20Heritage.pdf

[93] Scottish Power and Renewables (2019). East Anglia TWO Offshore Windfarm (Environmental Statement Volume 3), Appendix 24.4: Proposed Onshore Cable Corridor and Substation Sites – Geophysical Survey Report. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-001538-6.3.24.4%20EA2%20ES%20Appendix%2024.4%20Geophysical%20Survey%20Report%20Part%201%20of%202.pdf

[94] Scottish Power and Renewables (2020). East Anglia One North and East Anglia TWO Offshore Windfarm: Pre-Construction Trial Trenching Report. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-002659-ExAAS13D1V1EA1NEA2PreConstructionTrialTrenchingReport_378030_1.pdf

2.4.5.2 Impacts caused through change to the setting of heritage assets may be mitigated through detailed design and micro-siting of the converter station to avoid or minimise harm to heritage assets.

Control and Management Measures

2.4.5.3 If it is not possible to avoid heritage assets, mitigation will include (but not be limited to) detailed landscape/topographic survey, archaeological excavation of features being removed and archaeological monitoring/watching brief.

2.4.5.4 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the Cultural Heritage assessment are:

- GG03: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP) and a Construction Traffic Management Plan (CTMP) will be produced prior to construction;
- H01 Locations of known archaeological interest/value, or areas where archaeological work is planned, will be signposted/fenced off to avoid unintentional damage; and
- H02 Where a previously unknown heritage asset is discovered, or a known heritage asset proves to be more significant than foreseen at the time of application, the project will inform the local planning authority and will agree a solution that protects the significance of the new discovery, so far as is practicable, within the project parameters.

2.4.6 Potential for Significant Effects

2.4.6.1 The Cultural Heritage assessment will consider the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

2.4.6.2 The proposed scope of the cultural heritage assessment is bet out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

2.4.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme.

2.4.6.4 The potential for the Suffolk Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

2.4.6.5 Permanent sources of construction impacts resulting from the construction phase are likely to include:

- construction activities such as the excavation of trenches for cable installation, and the establishment of construction compounds; and
- impacts on the setting of heritage assets resulting from the converter station and sub-station

2.4.6.6 Temporary sources of construction impacts that will not last beyond the construction phase are likely to include:

- the presence and movement of construction plant that may alter the setting of heritage assets, including change arising from aural intrusion; and
- the presence of construction compounds introducing potential light and noise.

Sources of operational impacts

2.4.6.7 Permanent sources operational impacts are likely to include:

- the presence of new above ground infrastructure including the new converter station; and
- the presence of potential light and noise.

Sources of maintenance impacts

- Physical impacts resulting from intrusive maintenance works on the cable and converter station; and
- Temporary impacts on setting resulting from plant/machinery linked to maintenance works

Sources of decommissioning impacts

- the presence and movement of construction plant that may alter the setting of heritage assets, including change arising from aural intrusion; and
- the presence of construction compounds introducing potential light and noise.

Potential impacts

2.4.6.8 There is the potential for significant effects on a number of non-designated assets within the Suffolk Scoping Boundary. A full list of non-designated assets can be seen in **Appendix 2.4.A Non-designated assets recorded on the Suffolk HER within the Scoping Boundary** although it should be noted that significant effects are not expected on 'find spots' as 'find spots' represent features that have been recovered and therefore are no longer surviving *in situ*. It is also possible that at least some of the features have been excavated as part of earlier schemes so also no longer survive *in situ.*

2.4.6.9 There will be no physical impacts on the designated assets within the Suffolk Scoping Boundary as they will be avoided by the construction works. There is, however, the potential for temporary impacts on the setting of designated assets resulting from the construction of the cable.

2.4.6.10 Table 2.4.1 below identifies the potential impacts that could result from the sources identified above.

Table 2.4.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction	Construction works linked to Suffolk Onshore Scheme	Physical impacts on non-designated heritage assets.	Yes -The Suffolk Onshore Scheme has the potential to result in a physical impact on non-designated assets.	**Scoped in**
Construction	Construction works linked to Suffolk Onshore Scheme	Temporary impacts on the setting of designated assets.	Yes -The Suffolk Onshore Scheme has the potential to result in temporary impacts on the setting of designated assets.	**Scoped in**
Construction	Construction compounds introducing light and noise pollution	Temporary impacts on the setting of designated assets.	Yes -The Suffolk Onshore Scheme has the potential to result in temporary impacts on the setting of designated assets.	**Scoped in**
Operation	Converter Station and potential sub-station extension at Friston	Impacts on the setting of designated assets.	Yes -The Suffolk Onshore Scheme has the potential to result in temporary impacts on the setting of designated assets	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Maintenance	Physical impacts resulting from maintenance works	Physical impacts on non-designated assets	No - Limited potential as all remains will have been removed during construction	Scoped out
Maintenance	Temporary impacts on setting resulting from plant/machinery	Temporary impacts on the setting of heritage assets	No - Limited potential as the machinery/plant being used will be minor in size.	Scoped out
Decommissioning	Physical impacts resulting from decommissioning works	Physical impacts on non-designated assets	No - Limited as all remains will have been removed during construction	Scoped out
Decommissioning	Temporary impacts on setting resulting from plant/machinery	Temporary impacts on the setting of heritage assets	No - Limited potential for significant impacts as the machinery/plant being used will be minor in size.	Scoped out
Decommissioning	Construction compounds introducing light and noise pollution	Temporary impacts on the setting of heritage assets.	No - Limited potential for significant impacts, and impacts will be temporary.	Scoped out

Impact Pathways with Receptors (Step 2)

2.4.6.11 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the Suffolk Onshore Scheme study area or areas (delete as appropriate).

Suffolk Converter Station Site 1 Emerging Preference

2.4.6.12 Table 2.4.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Emerging Preference as shown on as shown on **Figure 2.1.4 Suffolk Site 1 Emerging Preference** and **Figure 2.1.9 Suffolk Site 1 Emerging Preference Option Area.**

Table 2.4.2: Impact pathways with receptors – Suffolk Site 1 Emerging Preference

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary impacts on the setting of designated assets during construction	Designated Heritage Assets (mainly listed buildings)	Yes -Low due to the limited number of listed buildings near the proposed Converter Station, and the category of the listed buildings	**Scoped in**
Physical impacts on non-designated heritage assets during construction	Non-Designated Heritage Assets	Yes - High due to the number and size of non-designated assets in the area, as well as the nature of the non-designated assets.	**Scoped in**
Impacts on the setting of heritage assets resulting from the converter station and above ground infrastructure during construction and operation	Designated and Non-Designated Heritage Assets	Yes -Moderate due to the number of designated and non-designated assets in the surrounding area	**Scoped in**

Suffolk Converter Station Site 1 Alternative

2.4.6.13 Table 2.4.3 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Alternative Preference as shown on as shown on **Figure 2.1.7 Suffolk Site 1 Alternative** and **Figure 2.1.11 Suffolk Site 1 Alternative Option Area.**

Table 2.4.3: Impact pathways with receptors – Suffolk Site 1 Alternative

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary impacts on the setting of designated assets during construction	Designated Heritage Assets (mainly listed buildings)	Yes -Low due to the limited number of listed buildings near the proposed Converter Station, and the category of the listed buildings	**Scoped in**

Physical impacts on non-designated heritage assets during construction	Non-Designated Heritage Assets	Yes -High due to the number and size of non-designated assets in the area, as well as the nature of the non-designated assets.	**Scoped in**
Impacts on the setting of heritage assets resulting from the converter station and above ground infrastructure during construction and operation	Designated and Non-Designated Heritage Assets	Yes - Moderate due to the number of designated and non-designated assets in the surrounding area	**Scoped in**

Suffolk Converter Station Site 3 Emerging Preference

2.4.6.14 Table 2.4.4 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Emerging Preference as shown on as shown on **Figure 2.1.5 Suffolk Site 3 Emerging Preference** and **Figure 2.1.10 Suffolk Site 3 Emerging Preference Option Area.**

Table 2.4.4: Impact pathways with receptors – Suffolk Site 3 Emerging Preference

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary impacts on the setting of designated assets during construction	Designated Heritage Assets (mainly listed buildings)	Yes - Low due to the limited number of listed buildings near the proposed Converter Station, and the category of the listed buildings	**Scoped in**
Physical impacts on non-designated heritage assets during construction	Non-Designated Heritage Assets	Yes - High due to the number and size of non-designated assets in the area, as well as the nature of the non-designated assets.	**Scoped in**
Impacts on the setting of heritage assets resulting from the converter station and above	Designated and Non-Designated Heritage Assets	Yes - Moderate due to the number of designated and non-designated assets in the surrounding area	**Scoped in**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
ground infrastructure during construction and operation			

Suffolk Converter Station Site 3 Alternative (Option 1)

2.4.6.15 Table 2.4.5 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option 1) as shown on as shown on **Figure 2.1.7 Suffolk Site 3 Alternative (Option 1)** and **Figure 2.1.12 Suffolk Site 3 Alternative (Option 1) Option Area**.

Table 2.4.5: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 1)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary impacts on the setting of designated assets during construction	Designated Heritage Assets (mainly listed buildings)	Yes - Low due to the limited number of listed buildings near the proposed Converter Station, and the category of the listed buildings	**Scoped in**
Physical impacts on non-designated heritage assets during construction	Non-Designated Heritage Assets	Yes - High due to the number and size of non-designated assets in the area, as well as the nature of the non-designated assets.	**Scoped in**
Impacts on the setting of heritage assets resulting from the converter station and above ground infrastructure construction and operation	Designated and Non-Designated Heritage Assets	Yes - Moderate due to the number of designated and non-designated assets in the surrounding area	**Scoped in**

Suffolk Converter Station Site 3 Alternative (Option 2)

2.4.6.16 Table 2.4.6 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option

2) as shown on as shown on **Figure 2.1.8 Suffolk Site 3 Alternative (Option 2)** and **Figure 2.1.13 Suffolk Site 3 Alternative (Option 2) Option Area.**

Table 2.4.6: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 2)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary impacts on the setting of designated assets during construction	Designated Heritage Assets (mainly listed buildings)	Yes - Low due to the limited number of listed buildings near the proposed Converter Station, and the category of the listed buildings	**Scoped in**
Physical impacts on non-designated heritage assets during construction	Non-Designated Heritage Assets	Yes - High due to the number and size of non-designated assets in the area, as well as the nature of the non-designated assets.	**Scoped in**
Impacts on the setting of heritage assets resulting from the converter station and above ground infrastructure during construction and operation	Designated and Non-Designated Heritage Assets	Yes - Moderate due to the number of designated and non-designated assets in the surrounding area	**Scoped in**

2.4.7 Proposed Assessment Methodology

2.4.7.1 An overview of the proposed assessment methodology is provided in **Part 1, Chapter 5, EIA Approach and Methodology.**

2.4.7.2 A cultural heritage Desk-Based Assessment (DBA) will be prepared in accordance with industry standards and best practice guidelines, namely the Chartered Institute for Archaeologists' Standard and Guidance for Historic Environment Desk-Based Assessment (2020), Historic England's Good Practice Advice in Planning Notes 2, 3 and 12 (2016; 2015; 2019 respectively), and any responses received as part of the scoping phase and consultation on the Project. The DBA will form an appendix to the Project Environmental Statement and will inform the Suffolk Cultural Heritage chapter. It will confirm whether any additional survey work is required to better determine the nature, extent and significance of buried archaeological remains within the construction footprint of the Suffolk Onshore Scheme.

2.4.7.3 While a 1km study area has been used for the scoping stage, as Order Limits had not been set, a refined study area of 0.5 km from the proposed Order Limits will be used to provide detailed baseline information for the assessment. A wider study area of 2 km will be used to identify assets which may have their setting affected. The study area for the assessment of setting will be limited to 2km in the area of Above Ground Infrastructure, such as the Converter Station and any extension to the proposed Friston Substation that might be required, due to the below ground nature of the majority of the development. The scope of the setting assessment will informed by the Zone of Theoretical Visibility (ZTV), although some assets beyond this distance and outside the ZTV may also be considered where elements of their setting extend closer to, or include, the Suffolk Onshore Scheme.

Proposed Data Sources

2.4.7.4 Desk-based research will be undertaken as part of the EIA. Additional information will be gathered from the following sources.

- Suffolk Historic Environment Records (HER);
- The National Heritage List for England (NHLE), held by Historic England, for designated assets;
- Local authority conservation area appraisal and management documents and their mapping;
- Historic landscape characterisation (HLC) mapping undertaken by local planning authorities;
- Aerial photographs held by Historic England, local authorities and other appropriate repositories and other readily available remote sensing results such as LiDAR data;
- Geological mapping and borehole information as held by the British Geological Survey; and
- Documentary, cartographic and other resources as deposited within local studies libraries, county libraries and archives, including historic Ordnance Survey maps, tithe, estate and other maps, and other relevant primary sources held at Suffolk Archives, together with local studies library information.

2.4.7.5 An archaeological walkover survey to assess known sites and to determine the potential for previously unrecorded heritage assets will also be undertaken. This will focus on the final alignment as well as any associated compounds, laydown areas, and Above Ground Infrastructure.

2.4.7.6 Information collected from these sources will be used to describe the known archaeology and built heritage of the 0.5km study area, and to assess the setting of heritage assets up to 2 km from above ground elements of the Project.

Assigning Value

2.4.7.7 The value of a heritage asset (its heritage significance) is guided by its designated status but is derived also from its heritage interest which may be archaeological,

architectural, artistic or historic (NPPF Annex 2, Glossary[95]). Each identified heritage asset can be assigned a value in accordance with the criteria set out in Table 2.4.7. Using professional judgement and the results of consultation, heritage assets are also assessed on an individual basis and regional variations and individual qualities are taken into account where applicable.

Table 2.4.7: Criteria for assessing the value of heritage assets

Value (significance)	Asset categories
High	World Heritage Sites Scheduled Monuments Grade I and II* listed buildings Registered battlefields Grade I and II* registered parks and gardens Conservation areas of demonstrable high value Non-designated heritage assets (archaeological sites, historic buildings, monuments, parks, gardens or landscapes) that can be shown to have demonstrable national or international importance Well preserved historic landscape character areas, exhibiting considerable coherence, time-depth or other critical factor(s)
Medium	Grade II listed buildings Conservation areas Grade II registered parks and gardens Conservation areas Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable regional importance Averagely preserved historic landscape character areas, exhibiting reasonable coherence, time-depth or other critical factor(s) Historic townscapes with historic integrity in that the assets that constitute their make-up are clearly legible
Low	Locally listed buildings Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable local importance Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade

[95] Ministry of Housing, Communities and Local Government (2012). National Planning Policy Framework (NPPF) Annex 2: Glossary. Available at https://www.gov.uk/guidance/national-planning-policy-framework/annex-2-glossary

Value (significance)	Asset categories
	Historic landscape character areas whose value is limited by poor preservation and/ or poor survival of contextual associations
Not significant	Assets identified on national or regional databases, but which have no archaeological, architectural, artistic or historic value Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade Landscape with no or little significant historical merit

Determining the Magnitude

2.4.7.8 Having identified the value of the heritage asset, the next stage in the assessment is to identify the level and degree of impact to an asset arising from the development. Impacts may arise during construction or operation and can be temporary or permanent. Impacts can occur to the physical fabric of the asset or affect its setting.

2.4.7.9 The level and degree of impact (impact rating) is assigned with reference to a four-point scale as set out in Table 2.4.8. In respect of cultural heritage an assessment of the level and degree of impact is made in consideration of any scheme design mitigation (embedded mitigation). If no impact on value is identified, no impact rating is given and no resulting effect reported.

Table 2.4.8: Factors influencing the assessment of magnitude of impacts.

Magnitude of Impact rating	Description of impact
Large	Changes such that the heritage value of the asset is totally altered or destroyed. Comprehensive change to elements of setting that would result in harm to the asset and our ability to understand and appreciate its heritage significance.
Medium	Change such that the heritage value of the asset is significantly altered or modified. Changes such that the setting of the asset is noticeably different, affecting significance and resulting in changes in our ability to understand and appreciate the heritage value of the asset.
Small	Changes such that the heritage value of the asset is slightly affected. Changes to the setting that have a slight impact on significance resulting in changes in our ability to understand and appreciate the heritage value of the asset.
Negligible	Changes to the asset that hardly affect heritage value. Changes to the setting of an asset that have little effect on

	significance and no real change in our ability to understand and appreciate the heritage value of the asset

Assessment of Effect

2.4.7.10 An assessment to classify the effect, having taken into consideration any embedded mitigation, is determined using the matrix at Table 2.4.9, which takes account of the value of the asset (Table 2.4.7) and the magnitude of impact (Table 2.4.8). Effects can be neutral, adverse or beneficial.

Table 2.4.9: Assessment of effect

Heritage Value (significance)		Very High	High	Medium	Low	Negligible
Impact Magnitude	**Large**	Major	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Moderate	Minor	Negligible
	Small	Moderate	Moderate	Minor	Negligible	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible

2.4.7.11 The ES reports on the significance of effect in accordance with EIA methodology. Major and moderate effects are considered to be significant. Within the NPPF, impacts affecting the value of heritage assets are considered in terms of harm and there is a requirement to determine whether the level of harm amounts to 'substantial harm' or 'less than substantial harm'. This is also supported by the Overarching National Policy Statement for Energy (EN-1) which also notes that there should always be a presumption in favour of conservation as once lost assets cannot be replaced[96]. There is no direct correlation between the significance of effect as reported in the final ES and the level of harm caused to heritage significance. A major (significant) effect on a heritage asset would, however, more often be the basis by which to determine that the level of harm to the significance of the asset would be substantial. A moderate (significant) effect is unlikely to meet the test of substantial harm and would therefore more often be the basis by which to determine that the level of harm to the significance of the asset would be less than substantial. A minor or negligible (not significant) effect would still amount to a less than substantial harm, which triggers the statutory presumptions against development within s.66 of the Listed Buildings Act 1990; however, a neutral effect is classified as no harm. In all cases determining the level of harm to the significance of the asset arising from development impact is one of professional judgement

[96] Department of Energy and Climate Change (2011). National Policy Statement for Energy (EN-1). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf

2.4.8 Conclusion

2.4.8.1 From the review of data undertaken as part of the scoping exercise, a number of designated and non-designated assets have been recorded within, and immediately adjacent, to the Suffolk Onshore Scheme and associated study area.

2.4.8.2 Previous developments in the area, including a number of infrastructure schemes in the immediate surroundings, have also revealed previously unrecorded assets, including significant Early Medieval and Medieval remains.

2.4.8.3 While designated assets will be avoided as part of the development of the Suffolk Onshore Scheme, there is the potential for physical impacts on non-designated assets during the construction phase. Furthermore, there is the potential for impacts on the setting of designated and non-designated assets from the converter station.

2.4.8.4 As a result, an archaeology and cultural heritage chapter will be completed as part of the EIA. This will focus on assessing impacts to designated and non-designated assets, either through physical impacts from the Suffolk Onshore Scheme, or through change to their settings, during the construction and operational phases.

Proposed Scope of the Assessment

2.4.8.5 A summary of the proposed scope of the assessment is provided in Table 2.4.10.

Table 2.4.10: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out and for which option
Designated assets	Potential for significant effect from impacts on setting resulting from the converter station and any above ground infrastructure such as the possible extension at the proposed Friston sub-station.	Construction and Operation	**Scoped in for all options**
Non-designated assets	Potential for significant impacts resulting from construction works	Construction	**Scoped in for all options**
	Potential for significant effect from impacts on setting resulting from the converter station and any other above ground infrastructure	Operation	**Scoped in for all options**

2.5 Water Environment

2.5.1 Introduction

2.5.1.1 This chapter presents how the Water Environment assessment will consider the potentially significant effects on water environment receptors that may arise from the construction, and operation, maintenance and decommissioning of the Suffolk Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

2.5.1.2 The Project Scoping Boundary is illustrated **on Figure 1.1.1 Project Scoping Boundary** and the Suffolk Onshore Scheme Scoping Boundary, hereafter referred to as the Suffolk Scoping Boundary, is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**.

2.5.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Methodology;**
- **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme;** and
- **Part 2, Chapter 5, Geology and Hydrogeology**.

2.5.1.4 This chapter is supported by the following figure:

- **Figure 2.5.1 Water Environment Study Area and Existing Features**.

2.5.1.5 The assessment of potentially significant effects on groundwater receptors is presented in **Part 2, Chapter 6, Geology and Hydrogeology**.

2.5.1.6 The Water Environment Assessment will be supported by a Flood Risk Assessment (FRA) and Water Framework Directive (WFD) Screening Assessment. The scopes of these are not discussed in detail herein, but will be agreed with the relevant stakeholders

2.5.2 Regulatory and Planning Context

2.5.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. The key legislation, policy, and guidance relevant to the assessment of the potential effects on the water environment associated with the construction, operation, maintenance and decommissioning phases of the Project are presented below.

Legislation

2.5.2.2 The Water Environment (Water Framework Directive [WFD]) (England and Wales) Regulations 2003 (Her Majesty's Stationery Office (HMSO), 2003) implemented the Water Framework Directive in England and Wales and were amended by the Floods and Water (Amendment etc.) (EU Exit) Regulations 2019[97]. The 2019 Regulations, specifically Regulation 20, stipulate that the substance of the WFD regime that applied pre-EU Exit will continue to apply with only relatively minor amendments.

2.5.2.3 Part 5 of the Environment Act 2021 (HMSO, 2021)[98], brings together measures to strengthen and update the existing regulatory and long-term planning framework for water, helping to reduce environmental risks, including to water quality and land drainage. It also strengthens the regulation of water and sewerage undertakers by the newly established Office for Environmental Protection.

2.5.2.4 The Land Drainage Act 1991 (HMSO, 1991)[99] together with the Water Resources Act 1991[100] provide for the Environment Agency to prevent the obstruction of any main river through the construction of flow control structures, culverts or any other structure in a main river. Where culverting or other works have a potential to affect the flow regime on ordinary watercourses, consent is required from the Lead Local Flood Authority (LLFA) under the Flood and Water Management Act 2010 (HMSO, 2010)[101], which provides a comprehensive flood risk management framework for people, homes and businesses.

Planning Policy

National planning policy

2.5.2.5 National Policy Statement for Energy (EN-1) states that energy projects have the potential to have adverse effects on the water environment, noting that where significant effects are likely an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and physical characteristics of the water environment should be undertaken. The potential for the Project to result in significant effects on all these aspects of the water environment has been considered herein.

2.5.2.6 Flood risk is also a consideration and paragraph 5.7.4 of EN-1 states 'applications for energy projects of 1 hectare or greater in Flood Zone 1 in England and all proposals for energy projects located in Flood Zones 2 and 3 should be accompanied by a flood risk assessment (FRA). This should identify and assess the risk of all forms of flooding to and from the project and demonstrate how these flood risks will be managed, taking climate change into account'. The Project will be subject to an FRA that meets these criteria. EN-1 also sets out generic policy with respect to water quality and resources in section 5.16 and section 4.10 sets out policy on the pollution control framework.

[97] The Floods and Water (Amendments etc.) (EU Exit) Regulations 2019 [online]. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176283/contents

[98] The Environment Act 2021 [online]. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted

[99] The Land Drainage Act 1991 [online]. Available at: https://www.legislation.gov.uk/ukpga/1991/59/contents

[100] The Water Resources Act 1991 [online]. Available at: https://www.legislation.gov.uk/ukpga/1991/57/contents

[101] The Flood and Water Management Act 2010 [online]. Available at: https://www.legislation.gov.uk/ukpga/2010/29/contents

2.5.2.7 National Policy Statement for Electricity Networks Infrastructure (EN-5) contains paragraph 2.4.2 relating to the water environment, which has been considered within this chapter. This states that 'The resilience of the project to climate change should be assessed in the Environmental Statement (ES) accompanying an application. For example, future increased risk of flooding would be covered in any flood risk assessment'.

Local planning policy

2.5.2.8 Relevant policies from the East Suffolk Council Suffolk Coastal Local Plan, adopted September 2020, are listed below:

- SCLP9.3 - Coastal Change Management Area.
- SCLP9.5 – Flood Risk.
- SCLP9.6 – Sustainable Drainage Systems.
- SCLP10.3 – Environmental Quality.

2.5.2.9 Several standards and non-statutory guidelines, which provide details of assessment methodologies and mitigation techniques, will also be referenced to inform the assessment, including:

- Planning Inspectorate Advice Note 18: Water Framework Directive[102],
- Construction Industry Research and Information Association (CIRIA) publications (various dates)[103]; and
- Guidance for Pollution Prevention series[104].

2.5.3 Study Area

2.5.3.1 The study area for the EIA is proposed to include all land within the Suffolk Onshore Scheme Scoping Boundary, together with an additional 500m buffer from this boundary. The study area for the EIA is illustrated in **Figure 2.5.1 Water Environment Study Area and Existing Features**.

2.5.3.2 The FRA that will be prepared to inform the EIA, may cover a larger study area where necessary, for example assessing the potential for changes to baseline flood risk at the local catchment scale or within a floodplain cell which may cover areas up to several km^2. The Water Framework Directive Screening Assessment will include a study area that is set at the water body scale and include all those WFD waterbodies with the potential to be affected.

2.5.3.3 The study areas for assessing effects on geology and the groundwater environment are described in **Part 2, Chapter 6, Geology and Hydrogeology.**

[102] The Planning Inspectorate (2017). Advice Note 18: Water Framework Directive. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-18/

[103] CIRIA (various dates) accessible online: https://www.ciria.org/CIRIA/Bookshop/Free_Publications/Books/Free_CIRIA_Publications.aspx?hkey=ca8794b8-b1b3-4742-880d-6c7a27719afb

[104] NetRegs (2022). Guidance for Pollution Prevention (GPPs) – Full List. [online] Available at: https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/guidance-for-pollution-prevention-gpps-full-list/

2.5.4 Baseline Conditions

Data Sources

2.5.4.1 The water environment baseline described in this section has been informed by the following data sources:

- The Flood Estimation Handbook webservice;
- Ordnance Survey maps and aerial imagery;
- Environment Agency flood maps for rivers and the sea, surface water and reservoirs;
- Environment Agency Catchment Data Explorer that records WFD data;
- Anglian River Basin Management Plan; and
- Environment Agency Water Quality Data Archive that provides water quality data for monitored main rivers.

Baseline

2.5.4.2 The Suffolk Onshore Scheme is situated in the hydrological catchments of the Hundred River and the neighbouring River Fromus, which is a tributary of the River Alde. Small areas are within the headwaters of the Minsmere Old River and the Leiston Beck. All of these watercourses are designated main rivers and are waterbodies that are monitored under the WFD. The Hundred River and the Fromus rise to the north of Saxmunden. The River Fromus flows south, discharging to the River Alde near Snape. The Hundred River also follows a southerly flow path to drain to the coast south of Thorpeness. Within the study area these rivers have relatively narrow floodplains, designated as Environment Agency Flood Zone 3. However, near their discharges to the coast and the River Alde, floodplains are more extensive, with the Hundred River floodplain shown to be benefitting from flood defences. The Hundred River has a current (2019) ecological status of Moderate and is failing with regard to chemical status[105]. The Fromus waterbody has a current ecological status of Poor and is also failing with regard to chemical status. The Minsmere Old River and Leiston Beck both share an ecological status of moderate and are failing with regard to chemical status.

2.5.4.3 In addition to these main rivers, within the study area there are networks of ordinary watercourses, several of which are managed by the East Suffolk Internal Drainage Board (IDB), The board manages water levels in these watercourses and maintains them. .

2.5.4.4 Sites designated for their nature conservation interest, where surface waters play a key role in sustaining the designated interest features, are also important receptors. Details of these sites are provided in **Part 2, Chapter 3, Ecology and Biodiversity**. Assessment of effects on such sites will be undertaken in collaboration with ecology and groundwater specialists.

[105] Environment Agency (2022). Catchment Data Explorer – Suffolk Body Water. [online] Available at: https://environment.data.gov.uk/catchment-planning/WaterBody/GB650503520002

2.5.4.5 Additional baseline data to characterise the water environment within the study area will be collected as part of a desk study, with reference to published data sources, supplemented by data sets collected in consultation with the Environment Agency, Suffolk County Council in their role as the LLFA and East Suffolk IDB.

2.5.4.6 Field notes and photographs of water features, collected during ecological walkovers and surveys, will also be referenced, in addition to the high-resolution aerial imagery.

2.5.4.7 Baseline data collection will be undertaken on a risk basis, focusing on collecting data for receptors where source-pathway linkages are identified. For example, watercourses that are intended to be crossed by the cable route using open cut techniques and locations accommodating any above ground infrastructure (AGI). For watercourse receptors (where applicable) WFD status data will be collected to characterise existing qualities and status objectives, as well as any measures identified to achieve these objectives, as recorded in the Anglian River Basin Management Plan. Existing surface water interests (abstractions and discharges) will be identified with reference to Environment Agency consent/permit registers. Areas of fluvial/coastal floodplain will be described using Environment Agency flood mapping and modelling data. Existing flood defence assets will be identified with reference to Environment Agency asset records and the Lowestoft Ness to Felixstowe Landguard Point Shoreline Management Plan. Other sources of flood risk, such as from surface water, groundwater and artificial sources, will be characterised in consultation with the LLFA and East Suffolk IDB and with reference to relevant Strategic Flood Risk Assessments and other published sources.

Future Baseline

2.5.4.8 With regard to flood risk and drainage, future baseline conditions will be forecasted, drawing on current best practice guidelines. These will take into account the likely impacts of climate change on, river flows, rainfall intensities, and tidal flood levels / storm surge. These future conditions would be accounted for in the design of the Suffolk converter station where required to ensure future resilience to flooding. The likely effects of implementation of future cycles of WFD management plans on the ecological and chemical quality of waterbodies would be considered when assigning value to water environment resources and receptors.

2.5.5 Embedded and Control & Management Measures

Embedded Measures

2.5.5.1 The assessment of effects will take account of mitigation, including measures embedded into the Project's design, and good practice measures. Key measures are described below.

2.5.5.2 The Suffolk converter station would be situated to avoid areas of Flood Zone 2 and 3. This would ensure that Project infrastructure is safe from flooding and would also avoid permanent losses of floodplain storage or disruption to floodplain flow paths, so avoiding permanent impacts on offsite flood risk.

2.5.5.3 Sustainable Drainage System (SuDS) techniques would be utilised at the converter station to manage rainfall runoff in terms of both quantities and quality, as well as along

the cable swathe during construction. Suitable techniques will be selected, influenced by ground conditions and with reference to the drainage hierarchy set out in the National Planning Practice Guidance[106]. The drainage hierarchy promotes the use of SuDS and encourages infiltration to ground as a preference, or where this is not practicable, discharges to surface water bodies.

2.5.5.4 The surface water management systems adopted will achieve both attenuation and treatment of surface water runoff, avoiding increases in surface water flood risk and pollution of the receiving water environment.

2.5.5.5 Where the cable route crosses watercourses, appropriate construction techniques would be selected according to factors such as watercourse channel dimensions, flow conditions and environmental sensitivities. Main rivers may be crossed by trenchless techniques to avoid physical changes and impacts on flow and sediment transport regimes and hydromorphology. This technique would also reduce disturbance within the riparian corridor and the risks of the construction phase being detrimental to water quality.

2.5.5.6 Where watercourses are crossed temporarily to provide for construction access, similarly suitable crossing designs would be selected with the aim of reducing impacts.

Control and Management Measures

2.5.5.7 Where effects cannot be avoided through design, commitments would be made, and secured through the Development Consent Order (DCO), to control and manage effects.

2.5.5.8 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice.** Measures relevant to the control and management of impacts that could affect flood risk and land drainage are:

- GG16: Commitments include controlling runoff for work site areas using a variety of methods including header drains, buffer zones around watercourses, on-site ditches, silt traps and bunding There would be no intentional discharge of site runoff to ditches, watercourses, drains or sewers without appropriate treatment and agreement of the appropriate authority. Fuels, oils, chemicals and any other potentially hazardous materials would be stored responsibly in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001, and all refuelling, oiling and greasing of construction plant and equipment would take place above drip trays and also away from watercourses and drains as far as is reasonably practicable.
- GG15: Appropriate spill kits would be easily accessible for these activities.
- GG18: Wheel washing will be provided at each main compound access point.
- GG17: Wash down of vehicles and equipment will take place in designated areas within construction compounds, with appropriate treatment provided e.g. sediment traps in order to prevent pollution of the water environment.

[106] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2021). Planning Practice Guidance. [online] Available at: https://www.gov.uk/government/collections/planning-practice-guidance

- GG23: An Emergency Action Plan will be developed for the construction phase which will outline procedures to be implemented in case of unplanned events, including but not limited to site flooding and pollution incidents.
- W03: At all watercourse crossings, widths of topsoil stripping would be reduced whilst still providing safe working widths and riparian vegetation and natural channel bed materials would be re-instated on completion of the works.
- W06: To manage potential flood risk impacts associated with works in the floodplain, temporary stores of spoil along the cable route corridor would be configured to avoid forming continuous barriers to floodplain flow conveyance.
- W01: Risks of sedimentation would be reduced using silt fencing or similar measures. Secondary consents under the Environmental Permitting Regulations and the Land Drainage Byelaws for qualifying works would also be secured by the appointed Contractor prior to the commencement of any works.

2.5.6 Potential for Significant Effects

2.5.6.1 The water environment assessment will consider the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

2.5.6.2 The proposed scope of the water environment assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

2.5.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme.

2.5.6.4 The potential for the Suffolk Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

2.5.6.5 Good practice measures within the CoCP would reduce the risk of pollution of the water environment during construction by removing pathways between sources and receptors for many construction activities.

2.5.6.6 However, potential for construction work to cause localised and temporary pollution effects would remain, for example caused by heavily silted runoff, or accidental spills of hydrocarbons and other construction materials.

2.5.6.7 At open cut watercourse crossings there would be temporary physical disturbance and temporary changes to watercourse flow regimes may also occur, for example, where over pumping is required during construction of the cable and access route watercourse crossings. Impacts would range in duration, but crossings may be in place in some locations for several months. Whilst crossing watercourses via trenchless techniques reduces physical disturbance and flow regime effects, the technique is not

entirely without pollution risk, which is associated with the potential for break out of drilling muds (bentonite). Trenchless techniques also have a water demand.

2.5.6.8 During construction there would be potential for impacts on land drainage regimes and associated surface water flood risk, due to changes in land surface permeabilities or local topography, e.g. where vegetation cover is stripped and earthworks are undertaken.

2.5.6.9 At work sites located in the floodplain there would be potential for localised impacts associated with storage of spoil reducing available floodplain storage or interrupting key floodplain flow paths.

2.5.6.10 These higher risk activities and associated receptors are proposed to be scoped into the Environmental Statement (ES), which will be informed by the findings of a supporting FRA. Effects on artesian water, springs and groundwater resources will be addressed in **Part 2, Chapter 6, Geology and Hydrogeology**.

2.5.6.11 The sources of construction impacts are:

- soil stripping earthworks and excavations;
- watercourse crossings for access and cable crossings (trenched);
- watercourse cable crossings (trenchless); and
- spoil storage in the floodplain.

Sources of operational impacts

2.5.6.12 During operation of the Project, there would be no sources of pollution with the potential to impact on surface waterbodies. This is because land within the cable construction working width would be reinstated following completion of the construction works.

2.5.6.13 There would be no untreated operational discharges to surface watercourses and rainfall runoff from the Suffolk Converter Station or any potential AGI associated with the HVAC connection would be sustainably attenuated and treated prior to discharge to the receiving water environment. Physico-chemical elements supporting WFD waterbody status would therefore be safeguarded. No likely significant effects are therefore anticipated, and it is proposed that water quality effects during operation are scoped out of the assessment.

2.5.6.14 Given the nature of the Project, there would be no permanent impacts on watercourse flow regimes or floodplains. There would be no new consumptive water uses, and the water quality of water receptors would not be degraded. Therefore, the potential for likely significant effects on existing water interests (surface water abstractions and discharges) and hydromorphology is negligible.

2.5.6.15 Regarding flood risk and land drainage, situating the Suffolk converter station outside of the floodplain and incorporating appropriate post construction surface water management and land drainage systems would result in negligible effects. All operational effects on water environment receptors are therefore proposed to be scoped out.

2.5.6.16 The sources of operational impacts are:

- operational runoff and discharges from above ground infrastructure (AGI); and

- loss of floodplain infrastructure from AGI.

Sources of maintenance impacts

2.5.6.17 Maintenance activities would fall under the Applicant's operational management procedures and, given the nature of the Project, maintenance activities are considered to pose a relatively low risk of causing likely significant effects on water environment receptors. Potential maintenance effects are considered to be as described for construction, albeit on a much more localised scale.

2.5.6.18 The sources of maintenance impacts are:

- soil stripping earthworks and excavations;
- watercourse crossings for access; and
- spoil storage in the floodplain.

Sources of decommissioning impacts

2.5.6.19 Whilst the detail of decommissioning would be subject to environmental management plans the impacts and sources are predicted to be the same as those identified for the construction of the Project.

2.5.6.20 The sources of decommissioning impacts are:

- soil stripping earthworks and excavations;
- watercourse crossings for access; and
- spoil storage in the floodplain.

Potential impacts

2.5.6.21 Table 2.5.1 identifies the potential impacts that could result from the sources identified above.

Table 2.5.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, and decommissioning	Soil stripping, earthworks and excavations	Pollution by silt, hydrocarbons and other construction materials	Yes	**Scoped in**
Construction	Watercourse crossings for access and	Physical disturbance, changes to flow regime	Yes	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	cable route – open cut			
Construction	Watercourse crossings for cable route – trenchless	Pollution risks (bentonite breakout) and water consumption	Yes	**Scoped in**
Construction, and decommissioning	Soil stripping, earthworks and excavations	Increased runoff rates and volumes, disruption to land drainage regimes	Yes	**Scoped in**
Construction, decommissioning	Spoil storage in floodplain	Increased flood risk	Yes	**Scoped in**
Operation	Operational discharges and runoff from AGI	Pollution of watercourses	No – no impact pathway given treatment through SuDS provision	Scoped out
Operation	Operational discharges and runoff from AGI and loss of floodplain storage	Increased flood risk	No– no impact pathway given attenuation of runoff through SuDS provision	Scoped out
Operation	Operational infrastructure – AGI and watercourse crossings	Physical disturbance, impact to flow regimes	No – no impact pathway, there would be no physical disturbance	Scoped out
Maintenance	Maintenance activities	Pollution of watercourses and physical disturbance	Yes	**Scoped in**

Impact Pathways with Receptors (Step 2)

2.5.6.22 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the water environment study areas for each of the five options.

Suffolk Converter Station Site 1 Emerging Preference

2.5.6.23 Table 2.5.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Emerging Preference as shown on as shown **on Figure 2.1.4 Suffolk Site 1 Emerging Preference** and **Figure 2.1.9 Suffolk Site 1 Emerging Preference Option Area**.

2.5.6.24 Water environment receptors in the Suffolk Site 1 Emerging Preference study area include a small reservoir, unnamed ordinary watercourses that are tributaries of the River Fromus and that drain to the coast, and land drainage ditches. There are also limited areas of floodplain at the coastal boundary of the study area.

Table 2.5.2: Impact pathways with receptors – Suffolk Site 1 Emerging Preference

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Pollution by silt, hydrocarbons and other construction materials and due to decommissioning activities	Hundred River, ordinary watercourses and ditches, reservoir	Yes	**Scoped in**
Temporary physical disturbance and change to flow regimes at watercourse crossings for access and cable route	Unnamed ordinary watercourses and ditches	Yes	**Scoped in**
Impact on land drainage regime during construction and operation due to soil stripping, earthworks and excavation	Unnamed ordinary watercourses and ditches, existing land uses	Yes	**Scoped in**
Temporary loss of floodplain storage / impediment of floodplain flows due to spoil storage during construction and decommissioning	Fluvial and coastal floodplain	Yes	**Scoped in**
Increased surface water runoff from converter station	Existing land uses and infrastructure	No– no impact pathway given attenuation of runoff	Scoped out

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
drainage during operation		through SuDS provision	
Increased flood risk due to permanent loss of floodplain storage / impediment of floodplain flows	Fluvial and coastal floodplain	No– no impact pathway, there would be no permanent works in the floodplain	Scoped out
Permanent physical disturbance and change to flow regimes	Unnamed ordinary watercourses	No– no impact pathway as cables would be buried	Scoped out
Pollution of watercourses and physical disturbance during maintenance	Unnamed ordinary watercourses, ditches, reservoir	No– no impact pathway for a significant effect given the likely nature and scale of maintenance activities	Scoped out

Suffolk Converter Station Site 1 Alternative

2.5.6.25 Table 2.5.3 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Alternative Preference as shown on as shown on **Figure 2.1.7 Suffolk Site 1 Alternative** and **Figure 2.1.11 Suffolk Site 1 Alternative Option Area.**

2.5.6.26 Water environment receptors in the Suffolk Site 1 Alternative study area include the Hundred River and its tributaries. Areas of floodplain are very localised, with only very narrow extents of Flood Zone 3 at the coastal landfall site and associated with the Hundred River.

Table 2.5.3: Impact pathways with receptors – Suffolk Site 1 Alternative

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Pollution by silt, hydrocarbons and other construction materials and due to decommissioning activities	Hundred River and ordinary watercourse tributaries and ditches	Yes	**Scoped in**
Temporary physical disturbance and	Hundred River, ordinary	Yes	**Scoped in**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
change to flow regimes at watercourse crossings for access and cable route	watercourse tributaries and land drainage ditches		
Impact on land drainage regime during construction due to soil stripping, earthworks and excavation	Hundred River, ordinary watercourse tributaries land drainage ditches, existing land uses	Yes	**Scoped in**
Temporary loss of floodplain storage/impediment of floodplain flows due to spoil storage during construction and decommissioning	Coastal and fluvial floodplain	No– no impact pathway as areas of floodplain are very localised and could be avoided	Scoped out
Increased surface water runoff from converter station drainage during operation	Existing land uses and infrastructure	No– no impact pathway given attenuation of runoff through SuDS provision	Scoped out
Increased flood risk due to permanent loss of floodplain storage/impediment of floodplain flows	Coastal and fluvial floodplain	No– no impact pathway, there would be no permanent works in the floodplain	Scoped out
Permanent physical disturbance and change to flow regimes	Hundred River and ordinary watercourse tributaries	No– no impact pathway as cables would be buried	Scoped out
Pollution of watercourses and physical disturbance during maintenance	Hundred River and ordinary watercourse tributaries	No– no impact pathway for a significant effect given the likely nature and scale of maintenance activities	Scoped out

Suffolk Converter Station Site 3 Emerging Preference

2.5.6.27 Table 2.5.4 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Emerging Preference as shown on as shown on **Figure 2.1.5 Suffolk Site 3 Emerging Preference** and **Figure 2.1.10 Suffolk Site 3 Emerging Preference Option Area**.

Table 2.5.4:Impact pathways with receptors – Suffolk Site 3 Emerging Preference

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Pollution by silt, hydrocarbons and other construction materials and due to decommissioning activities	Hundred River, ordinary watercourses, reservoir	Yes	**Scoped in**
Temporary physical disturbance and change to flow regimes at watercourse crossings for access and cable route	Ordinary watercourses	Yes	**Scoped in**
Impact on land drainage regime during construction and decommissioning due to soil stripping, earthworks and excavation	Ordinary watercourses, existing land uses	Yes	**Scoped in**
Temporary loss of floodplain storage /impediment of floodplain flows due to spoil storage during construction and decommissioning	Fluvial and coastal floodplain	Yes	**Scoped In**
Increased surface water runoff from converter station drainage during operation	Existing land uses and infrastructure	No– no impact pathway given attenuation of runoff through SuDS provision	Scoped out

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Increased flood risk due to permanent loss of floodplain storage/impediment of floodplain flows	Fluvial and coastal floodplain	No– no impact pathway, there would be no permanent works in the floodplain	Scoped out
Permanent physical disturbance and change to flow regimes	Ordinary watercourses	No- no impact pathway as cables would be buried	Scoped out
Pollution of watercourses and physical disturbance during maintenance	Unnamed ordinary watercourses	No– no impact pathway for a significant effect given the likely nature and scale of maintenance activities	Scoped out

Suffolk Converter Station Site 3 Alternative (Option 1)

2.5.6.28 Table 2.5.5 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option 1) as shown on as shown on **Figure 2.1.7 Suffolk Site 3 Alternative (Option 1)** and **Figure 2.1.12 Suffolk Site 3 Alternative (Option 1) Option Area**.

2.5.6.29 Water environment receptors in the Suffolk Site 3 Alternative (Option 1) study area include the headwaters of the Hundred River and several tributaries, as well as the Leiston Beck that drains to the coast through the Sizewell Belts marshland. Areas of fluvial floodplain are localised, with narrow extents of Flood Zone 3 associated with the Hundred River. There are also some areas of floodplain at the coastal landfall site and associated with the Leiston Beck that drains to the coast via the marshland of the Sizewell Belts.

Table 2.5.5: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 1)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Pollution by silt, hydrocarbons and other construction materials and due to decommissioning activities	Hundred River, tributary of Leiston Beck and ordinary watercourse tributaries	Yes	**Scoped in**
Temporary physical disturbance and	Hundred River, Leiston Beck and	Yes	**Scoped in**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
change to flow regimes at watercourse crossings for access and cable route	ordinary watercourse tributaries		
Impact on land drainage regime during construction and decommissioning due to soil stripping, earthworks and excavation	Hundred River, Leiston Beck and ordinary watercourse tributaries, existing land uses	Yes	**Scoped in**
Temporary loss of floodplain storage/impediment of floodplain flows due to spoil storage during construction and decommissioning	Coastal and fluvial floodplains	Yes	**Scoped in**
Increased surface water runoff from converter station drainage during operation	Existing land uses and infrastructure	No- no impact pathway given attenuation of runoff through SuDS provision	Scoped out
Increased flood risk due to permanent loss of floodplain storage/impediment of floodplain flows	Fluvial and coastal floodplains	No– no impact pathway, there would be no permanent works in the floodplain	Scoped out
Permanent physical disturbance and change to flow regimes	Hundred River, Leiston Beck and ordinary watercourse tributaries	No– no impact pathway as cables would be buried	Scoped out
Pollution of watercourses and physical disturbance during maintenance	Hundred River, Leiston Beck and ordinary watercourse tributaries	No– no impact pathway for a significant effect given the likely nature and scale of maintenance activities	Scoped out

Suffolk Converter Station Site 3 Alternative (Option 2)

2.5.6.30 Table 2.5.6 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option 2) as shown on as shown **on Figure 2.1.8 Suffolk Site 3 Alternative (option 2)** and **Figure 2.1.13 Suffolk Site 3 Alternative (option 2) Option Area**.

2.5.6.31 Water environment receptors in the Suffolk Site 3 Alternative (Option 2) study area include the Hundred River and several of its tributaries. Areas of floodplain are very localised, with only very narrow extents of Flood Zone 3 at the coastal landfall site and associated with the Hundred River.

Table 2.5.6: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 2)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Pollution by silt, hydrocarbons and other construction materials and due to decommissioning activities	Hundred River and ordinary watercourse tributaries and ditches	Yes	**Scoped in**
Temporary physical disturbance and change to flow regimes at watercourse crossings for access and cable route	Hundred River and ordinary watercourse tributaries and ditches	Yes	**Scoped in**
Impact on land drainage regime during construction and decommissioning due to soil stripping, earthworks and excavation	Existing land uses and infrastructure	Yes	**Scoped in**
Temporary loss of floodplain storage/impediment of floodplain flow due to spoil storage during construction and decommissioning	Coastal and fluvial floodplain	No– no impact pathway as areas of floodplain are very localised and could be avoided	Scoped out
Increased surface water runoff from	Existing land uses and infrastructure	No – no impact pathway given	Scoped out

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
converter station drainage during operation		attenuation of runoff through SuDS provision	
Increased flood risk due to permanent loss of floodplain storage/impediment to floodplain flow	Coastal and fluvial floodplain	No – no impact pathway, there would be no permanent works in the floodplain	Scoped out
Permanent physical disturbance and change to flow regimes	Hundred River and ordinary watercourse tributaries	No – no impact pathway as cables would be buried	Scoped out
Pollution of watercourses and physical disturbance during maintenance	Hundred River and ordinary watercourse tributaries	No – no impact pathway for a significant effect given the likely nature and scale of maintenance activities	Scoped out

2.5.7 Proposed Assessment Methodology

2.5.7.1 An overview of the proposed assessment methodology is provided in **Part 1, Chapter 5, EIA Approach and Methodology.**

Proposed Data Sources

2.5.7.2 The assessment will be informed by several published data sets and reports, which will be referenced to describe the baseline qualities of surface water receptors. Key data sources include:

- Catchment data explorer database of Cycle 2 and 3 Water Framework Directive information (Environment Agency, 2020)
- River Basin Management Plan (Environment Agency, 2018)
- Long term flood risk map for England, the Flood Map for Planning and the Historic Flood Map (Environment Agency, 2022)
- Data from Environment Agency flood models
- Drainage and flood data from Local Authority Surface Water Management Plans and Strategic Flood Risk Assessments
- Water quality data from the Environment Agency archive (Environment Agency, 2018) and

- Data defining surface water catchment areas and hydrological properties (e.g. rainfall, slopes, and soil permeability) from the Flood Estimation Handbook webservice (CEH, 2008)

Proposed Assessment Methodology

2.5.7.3 The assessment will be based on guidance set out in Part 10 of Volume 11 of the Design Manual for Roads and Bridges (DMRB), LA113[107]. Whilst primarily intended for use in assessing the impacts of highways projects on the water environment, the methodology is widely accepted as suitable for assessing the effects of other types of linear infrastructure. This promotes assessment that is proportionate to the scale and nature of the proposals and that considers the sensitivity of the local water environment to change.

2.5.7.4 The method provides guidance on assigning value (sensitivity) to receptors (for example, watercourses, floodplains) as well as criteria for assigning impact magnitude. The criteria consider the scale/extent of the predicted change and the nature and duration of the impact. Tables 2.5.7 and 2.5.8 below present the receptor value and impact magnitude criteria.

Table 2.5.7: Criteria for assigned receptor value (sensitivity)

Value of resource or receptor	Criteria	Typical examples
Very high	Nationally significant attribute of high importance	Site protected/designated under European Commission (EC) or UK legislation (Special Area of Conservation, Special Protection Area, Site of Special Scientific Interest, Ramsar site) Watercourse having a Water Framework Directive (WFD) classification shown in a River Basin Management Plan (RBMP) and a Q95[108] > 1.0m^3/s. Watercourse in natural equilibrium exhibiting a range of morphological features (e.g. pools, riffles) that is free from any modification or human influence Essential infrastructure or highly vulnerable development
High	Locally significant attribute of high importance	Watercourse having a WFD classification shown in a RBMP and a Q95 <1.0m^3/s Very limited signs of modification or other human influences on morphology More vulnerable development

[107] Highways England (2020). Design Manual for Roads and Bridges. LA 113 Road Drainage and the Water Environment. [online] Available at: https://www.standardsforhighways.co.uk/prod/attachments/d6388f5f-2694-4986-ac46-b17b62c21727?inline=true

[108] Q95 is the flow in a watercourse that is equalled or exceeded for 95% of the time in any given year

Value of resource or receptor	Criteria	Typical examples
Medium	Of moderate quality and rarity	Watercourses not having a WFD classification shown in a RBMP and Q95 > 0.001m^3/s Watercourse showing signs of modifications and having a limited range of morphological features Less vulnerable development
Low	Lower quality, common place	Watercourses not having a WFD classification in a RBMP and a Q95 flow <0.001m^3/s A highly modified watercourse, changed by human pressures. No morphological diversity Water compatible development

Table 2.5.8: Criteria for assigning impact magnitude

Magnitude of impact*	Criteria	Typical examples
Large adverse	Results in loss of attribute and/or quality and integrity of the attribute	Loss or extensive change to a fishery Loss or extensive change to a designated nature conservation site Reduction in waterbody WFD classification Pollution of a public water supply or loss of a major commercial/industrial/agricultural supply Extensive change to channel planform, replacement of large extent of natural bed/bans with artificial material Increase in peak flood level (1% annual exceedance probability) of > 100mm
Medium adverse	Results in effect on integrity of attribute, or loss of part of attribute	Partial loss in productivity if a fishery Pollution of a non-potential source of abstraction Contribution to reduction in waterbody WFD classification Degradation (quality or reliability) of a potable, commercial or agricultural water supply Replacement of natural bed material or banks with artificial material over more than 3% of the water body's total length Increase in peak flood level (1% annual exceedance probability) of > 50mm
Small adverse	Results in some measurable change in attribute	Minor effects on water supplies Slight change from baseline conditions of channel bed/banks

Magnitude of impact*	Criteria	Typical examples
	quality or vulnerability	Increase in peak flood level > 10mm
Negligible	Results in effect on attribute of insufficient magnitude to affect the use or integrity	Negligible change in peak flood level (< 10mm) No measurable impact on WFD waterbodies or river channel planform
Small beneficial	Results in some positive effect on an attribute or a reduced risk of negative effect occurring	Creation of flood storage and reduction in peak flood level (1% AEP) > 10mm
Medium beneficial	Results in moderate improvement of attribute quality	Contribution to improvement waterbody WFD classification Improvements to morphological diversity at the local scale Creation of flood storage and reduction in peak flood level (1% AEP) > 50mm
Large beneficial	Results in major improvement of attribute quality	Removal of existing polluting discharge or removing likelihood of polluting discharges to a watercourse Major improvement to morphological diversity at reach scale e.g. through culvert removal Improvement in waterbody WFD classification Creation of flood storage and reduction in peak flood level (1% AEP) > 100mm
No change	No change, either beneficial or detrimental, to attribute quality	

*terminology has been adapted from that used in LA113, DMRB (National Highways, 2020)

2.5.7.5 The significance of an effect is derived using the matrix set out **Part 1, Chapter 5, EIA Approach and Methodology.**

2.5.7.6 Given the size of the Project and the presence of areas of Flood Zone 3 within the study area, an FRA will be produced in accordance with the Energy National Policy Statement and local flood risk management guidelines published by the LLFA. The FRA will consider flood risk from all relevant sources during both construction and operation, incorporating allowance for climate change in accordance with published guidance, where applicable. It will also include details of the measures proposed to adhere to local drainage and flood risk planning policies.

2.5.7.7 A WFD Screening Assessment will also be produced for the Project, guided by Planning Advice Note 18: The Water Framework Directive. The effects of the Project on the Anglian River Basin Management Plan and the waterbodies therein will be described, and the assessment will set out how the Project design has been developed

to align with the requirements of the Directive. A qualitative approach is proposed, and the assessment will identify how the Project design will avoid waterbody deterioration, as well as any other mitigation necessary.

2.5.8 Conclusion

2.5.8.1 There are a range of water environment receptors/features within the proposed study area and several impact pathways have been identified that have the potential to result in significant effects on these receptors. However, other attributes of the water environment are considered unlikely to be significantly affected due to a lack of source-pathway receptor linkage.

Proposed Scope of the Assessment

2.5.8.2 A summary of the proposed scope of the assessment is provided in in Table 2.5.9.

Table 2.5.9: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out and for which option
Hundred River and ordinary watercourses/land drains in Hundred River catchment	Pollution risk from earthworks, soil stripping	Construction and decommissioning	**Scoped in – options Site 1 Emerging preference and Alternative, Site 3 Alternative and Site 3 Option 2**
	Physical disturbance and impacts on flow regime for access and cable crossings	Construction and decommissioning	**Scoped in – options above**
	Permanent effects on water quality, flow regime and physical form	Operation and maintenance	Scoped out – options above
Ordinary watercourses/land drains in River Fromus catchment	Pollution risk from earthworks, soil stripping	Construction and decommissioning	**Scoped in – Site 1 emerging preference, Site 3 emerging preference**
	Physical disturbance and impacts on flow regime for access and cable crossings	Construction and decommissioning	**Scoped in – options above**

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out and for which option
	Permanent effects on water quality, flow regime and physical form	Operation and maintenance	Scoped out – options above
Leiston Beck	Pollution risk from earthworks, soil stripping	Construction and decommissioning	**Scoped in – Site 3 Alternative 1**
	Physical disturbance and impacts on flow regime for access and cable crossings	Construction and decommissioning	**Scoped in – Site 3 Alternative 1**
	Permanent effects on water quality, flow regime and physical form	Operation and maintenance	Scoped out – Site 3 Alternative 1
Fluvial and coastal floodplains	Temporary loss of floodplain storage due to soil storage	Construction and decommissioning	**Scoped in – all options except Site 1 Alternative and Site 3 Option 2**
	Permanent loss floodplain storage due to AGI	Operation and maintenance	Scoped out – all options
Existing land use and infrastructure	Temporary increase in run off and impacts on land drainage infrastructure	Construction and decommissioning	**Scoped in – all options**
	Permanent increases in surface water runoff from new areas of impermeable land cover at AGIs	Operation and maintenance	Scoped out – all options
Existing water interests	Reduced water availability to support abstractions and assimilate discharges	All phases	Scoped out – all options

2.6 Geology and Hydrogeology

2.6.1 Introduction

2.6.1.1 This chapter presents how the geology and hydrogeology assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance, and decommissioning of the Suffolk Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

2.6.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Suffolk Onshore Scheme Scoping Boundary hereafter referred to as the Suffolk Scoping Boundary is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**.

2.6.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**;
- **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme**; and
- **Part 2, Chapter 5, Water Environment**

2.6.1.4 This chapter is supported by the following figures:

- **Figure 2.6.1 Superficial Geology;**
- **Figure 2.6.2 Bedrock Geology;**
- **Figure 2.6.3 Hydrogeology;** and
- **Figure 2.6.4 Potential Sources of Contamination**.

2.6.1.5 The Project has the potential for geology and hydrogeology effects through excavation/disturbance of potentially contaminated soil, creation of pathways for contamination during piling or foundation excavation, and changes to groundwater levels and flow (e.g. through dewatering).

2.6.1.6 For geology, the assessment will include potential effects relating to designated sites, mineral resources, and ground conditions (stability and contamination).

2.6.1.7 For hydrogeology the assessment will include potential effects relating to changes in groundwater levels or flow, or potential effects relating to contamination and changes in quality. It also includes potential effects on sufchalkrface water from changes in groundwater quality, levels or flow (i.e. where there is hydraulic continuity).

2.6.1.8 Effects on surface water, groundwater flooding and groundwater in terms of the Water Framework Directive are considered in **Part 2, Chapter 5, Water Environment**.

2.6.1.9 Ecological aspects including potential significant effects on Groundwater Dependant Terrestrial Ecosystems are considered in **Part 2, Chapter 3, Ecology and Biodiversity**. However, this chapter will identify where ground conditions and/or groundwater within the Scoping Boundary may impact the groundwater supporting these ecosystems in relation to groundwater quality, levels and flow.

2.6.1.10 Effects on agricultural soil resources and soil quality are considered within **Part 2, Chapter 7, Agriculture and Soils**.

2.6.2 Regulatory and Planning Context

2.6.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on geology and hydrogeology associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

Environmental Protection Act (1990)[109]

2.6.2.2 Part 2A of the Environmental Protection Act 1990[109] and associated Statutory Guidance is the primary legislation on contaminated land. It provides a framework for the assessment and, where necessary, the remediation of contaminated land. Part 2A focuses on the identification and remediation of land which in its current use poses an unacceptable risk to people or the environment.

2.6.2.3 The Statutory Guidance that accompanies the Environmental Protection Act 1990, include the Contaminated Land Statutory Guidance, 2012[110] which provide a definition of what constitutes “contaminated land” and sets out the responsibilities of the Local Authority and the Environment Agency in the identification and management of contaminated land. The regulations also include a definition of 'risk', where a risk is said to be a combination of "(*a) the likelihood that harm, or pollution of water, will occur as a result of contaminants in, on or under the land; and (b) the scale and seriousness of such harm or pollution if it did occur*".

Environmental Damage (Prevention and Remediation) Regulations (2015)[111]

2.6.2.4 The Environmental Damage (Prevention and Remediation) Regulations 2015[111] aim to prevent new land contamination that will damage water or health. The Regulations also include enforcement procedures, including criminal sanctions, for breaches of the Regulations.

[109] Environmental Protection Act 1990 [online]. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents [Accessed 16 June 2022]

[110] Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, 2012 [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/223705/pb13735cont-land-guidance.pdf

[111] The Environmental Damage (Prevention and Remediation) (England) Regulations 2015 [online]. Available at: https://www.legislation.gov.uk/uksi/2015/810/contents/made [Accessed 16 June 2022]

Environmental Permitting (England and Wales) Regulations (2016)[112]

2.6.2.5 The Environmental Permitting (England and Wales) Regulations (2016)[112] include transposition of the EU Landfill Directive[113] into UK law. These Regulations cover sites that are covered by environmental permits, such as landfills, and how these are regulated. The Project may cross sites where there are permits currently held.

2.6.2.6 These Regulations also cover the licensing of surface waters and groundwater abstractions and protect water resources through Source Protection Zones (SPZs). The Project may require abstractions or discharges during construction.

Landfill Directive[113]

2.6.2.7 The Landfill Directive[113] was adopted by the European Community in 1999. Every Member State of the European Union (EU) was required to implement it from 16 July 2001. The Directive's overall objective is to prevent or reduce as far as possible the negative effects of landfilling on the environment, as well as any resulting risk to human health. It seeks to achieve this through specifying uniform technical standards at Community level. It also sets out requirements for the location, management, engineering, closure and monitoring for landfills. The Directive includes requirements relating to the characteristics of the waste to be landfilled. The Landfill Directive is currently implemented through the Environmental Permitting (England and Wales) Regulations 2016[112].

Water Resources Act (1991)[114]

2.6.2.8 The Water Resources Act (1991)[114] aims to maintain and improve the quality of controlled waters. Part II of the Act covers the licencing of surface water and groundwater abstractions.

The Water Environment (Water Framework Directive) Regulations (2017)[115]

2.6.2.9 The Water Framework Directive (WFD) (2017)[115] establish a framework for the protection of surface waters and groundwater and to prevent the deterioration of WFD water bodies.

2.6.2.10 A WFD assessment will be undertaken, this is described within **Part 2, Chapter 5, Water Environment.**

Environment Agency Groundwater Protection Position Statements (2018)[116]

2.6.2.11 The Environment Agency regulates activities that may impact groundwater resources, to prevent and limit pollution. This document is concerned with infrastructure schemes

[112] The Environmental Permitting (England and Wales) Regulations 2016 [online]. Available at: https://www.legislation.gov.uk/uksi/2016/1154/contents/made [Accessed 16 June 2022].

[113] The Landfill Directive Council Directive 1999/31/EC 1991 [online]. Available at: https://www.legislation.gov.uk/eudr/1999/31 [Accessed 16 June 2022].

[114] Water Resources Act 1991 [online]. Available at: https://www.legislation.gov.uk/ukpga/1991/57/contents [Accessed 16 June 2022].

[115] The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 [online]. Available at: https://www.legislation.gov.uk/uksi/2017/407/contents/made [Accessed 16 June 2022].

[116] Groundwater Protection Position Statements 2018 [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692989/Envirnment-Agency-approach-to-groundwater-protection.pdf [Accessed 16 June 2022].

of national or regional significance, that pass through SPZs or are below the water table in Principal or Secondary aquifers.

2.6.2.12 Section A of the policy (general principles) includes the following

- A1: Wherever legislation allows, the Environment Agency will use a tiered, risk-based approach to regulate activities that may impact groundwater resources and to prevent and limit pollution;
- A2: Development must be appropriate to the sensitivity of the site. Where the potential consequences of a development or activity are serious or irreversible the Environment Agency will adopt the precautionary principle to manage and protect groundwater. The Environment Agency will also apply this principle in the absence of adequate information with which to conduct an assessment; and
- A3: The Environment Agency encourages everyone whose activities may impact upon groundwater to consider the groundwater protection hierarchy in their strategic plans when proposing new development or activities. The aim is to avoid potentially polluting activities being located in the most sensitive locations for groundwater.'

2.6.2.13 Section C Infrastructure states the following:

- 'If national need for the provision and location of major developments overrides Environment Agency objections, the Environment Agency will raise its concerns and make every use of environmental impact assessment in addition to other measures to achieve environmental protection. Where developments receive approval against Environment Agency advice, it will apply section A - general protection position statements.'

Planning Policy

National planning policy

National Policy Statements (NPS)

2.6.2.14 NPS EN-1[117], in paragraph 5.10.9 it states that "Applicants should safeguard any mineral resources on the proposed site as far as possible, taking into account the long-term potential of the land use after any future decommissioning has taken place". Paragraph 5.10.22 also states "Where a proposed development has an impact upon a Mineral Safeguarding Area, the IPC should ensure that appropriate mitigation measures have been put in place to safeguard mineral resources".

2.6.2.15 NPS EN-1[117], in paragraph 5.3.7 it states that "development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives, where significant harm cannot be avoided, then appropriate compensation measures should be sought".

[117] Department of Energy & Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: Overarching National Policy Statement for Energy (publishing.service.gov.uk) [Accessed 13/07/2022].

2.6.2.16 NPS EN-1[117], in paragraph 5.15.3, states that the Environmental Statement should in particular describe "*any impacts of the proposed project on… source protection zones (SPZs) around potable groundwater abstractions*"

2.6.2.17 NPS EN-1[117] is supported by National Policy Statement for Electricity Networks (EN-5)[118]. EN-5 contains paragraph 2.8.9 relating to geology and hydrogeology, which indicates that the IPC should consider for each specific project '*the environmental and archaeological consequences (undergrounding a 400kV line may mean disturbing a swathe of ground up to 40 metres across, which can disturb sensitive habitats, have an impact on soils and geology, and damage heritage assets, in many cases more than an overhead line would)*'.

The national planning policy framework

2.6.2.18 The National Planning Policy Framework119 (paragraphs 174, 183, 179, 210) relates to conserving and enhancing the natural and local environment and helping the sustainable use of minerals. The National Planning Policy is supported by the associated Planning Practice Guidance for the NPPF, including Land Affected by Contamination120, June 2014 (updated July 2019); Land Stability121, March 2014 (updated July 2019); Natural Environment122, January 2016 (updated July 2019).

Local planning policy

2.6.2.19 The local planning policy relevant to the scope of potential impacts relating to geology and hydrogeology is as follows:

Suffolk Minerals and Waste Local Plan[123]

- MP10 – Minerals Consultation and Safeguarding Areas

Suffolk Coastal Local Plan[124]

- SCLP10.1 – Biodiversity and Geodiversity
- SCLP10.3 – Environmental Quality

[118] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed 16 June 2022].

[119] Ministry of Housing Communities & Local Government (2021). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

[120] Ministry of Housing Communities & Local Government (2019). Planning Practice Guidance: Land Affected by Contamination. [online] Available at: https://www.gov.uk/guidance/land-affected-by-contamination

[121] Ministry of Housing Communities & Local Government (2019). Planning Practice Guidance: Land Stability. [online] Available at: https://www.gov.uk/guidance/land-stability

[122] Ministry of Housing Communities & Local Government (2019). Planning Practice Guidance: Natural Environment. [online] Available at: https://www.gov.uk/guidance/natural-environment

[123] Suffolk County Council (2020). Suffolk Minerals and Waste Local Plan. [online] Available at: https://www.suffolk.gov.uk/assets/planning-waste-and-environment/Minerals-and-Waste-Policy/Minerals-and-Waste-SMWLP-Adopted/Chapters-1-to-18-SMWLP-Adopted-July-2020.pdf#:~:text=1.1%20The%20Suffolk%20Minerals%20%26%20Waste%20Local%20Plan,the%20same%20from%20other%20forms%20of%20competing%20development. [Accessed 30 June 2022].

[124] East Suffolk Council (2020). Suffolk Coastal Local Plan. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Planning-Policy-and-Local-Plans/Suffolk-Coastal-Local-Plan/Adopted-Suffolk-Coastal-Local-Plan/East-Suffolk-Council-Suffolk-Coastal-Local-Plan.pdf [Accessed 30 June 2022].

Guidance and Advice Notes

2.6.2.20 The following core guidance documents provide the technical framework for applying a risk management process when dealing with land affected by contamination in a way that is consistent with government policies and legislation within the UK:

- Land Contamination: Risk Management (LCRM) [125];
- CIRIA 552: Contaminated Land Risk Assessment, A guide to good practice [126];
- BS 10175:2011+A2:2017 Investigation of potentially contaminated sites. Code of Practice[127]; and
- The Environment Agency's Guiding Principles for Managing and Reducing Land Contamination (GPLC2)[128].

2.6.3 Study Area

2.6.3.1 For the purpose of establishing the baseline conditions and defining the scope of the EIA, the study area has been defined as the Suffolk Scoping Boundary plus a 250m buffer for geology and up to a 500m buffer for hydrogeology. Given the scale and nature of the Project, this is considered a robust yet proportionate approach, and although not directly relevant for this development type, accords with the study area recommended in Guidance for the Safe Development of Housing on Land Affected by Contamination[129] .

2.6.3.2 The study area will be refined throughout the development of the Project, it is proposed that the study area for the EIA will be the proposed Order Limits plus the same buffer zones as described above.

2.6.4 Baseline Conditions

Data Sources

2.6.4.1 The Geology and Hydrogeology baseline described in this section has been informed by the following data sources:

- Britain from Above, historical aerial imagery archive[130],

[125] Environment Agency (2021). Land Contamination Risk Management. [online] Available at: https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm

[126] Rudland D., Lancefield R. and Mayell P. (2001). Contaminated land risk assessment, a guide to good practice (C552). CIRIA. p. 1-159.)

[127] British Standards Institution (2011). BS 10175:2011+A2;2017, Investigation of potentially contaminated sites – code of practice. BSI. P. 1-134..

[128] Environment Agency (2016). Managing and Reducing Land Contamination: Guiding Principles (GPLC). [online] Available at: https://www.gov.uk/government/publications/managing-and-reducing-land-contamination [Accessed 16 June 2022].

[129] The National House Building Council, The Environment Agency and The Chartered Institute of Environmental Health (2008). Guidance for the Safe Development of Housing on Land Affected by Contamination. [online] Available at: https://www.nhbc.co.uk/binaries/content/assets/nhbc/products-and-services/tech-advice-and-guidance/guidance-for-the-safe-development-of-housing-on-land-affected-by-contamination.pdf [Accessed 16 June 2022].

[130] Britain from Above (2022). [online] Available at: https://britainfromabove.org.uk/en [Accessed 30 June 2022]

- British Geological Survey (BGS) Sheet 191 Saxmundham[131], 1:50,000 scale solid and drift edition;
- BGS GeoIndex Viewer[132];
- BGS Hydrogeological Map of the Chalk and Lower Greensand of Kent, Sheet 3b[133];
- Coal Authority Interactive Map[134];
- Environment Agency (EA), Catchment Data Explorer[135];
- Environment Agency Report SC040016/R, New Groundwater Vulnerability Mapping Methodology in England and Wales[136;]
- GeoSuffolk, records of Regionally Important Geological Sites (RIGS), referred to in Suffolk as Local Geological Sites (LoGS) and Suffolk County Geodiversity Sites[137];
- Natural England, Designated Sites View[138];
- Multi-Agency Geographic Information for the Countryside (MAGIC) interactive map (DEFRA, 2022)[139]; and
- National Library of Scotland, georeferenced historical maps for the period 1885 - 1970, (NLS, 2022)[140].

Baseline

Geology

Superficial deposits

2.6.4.2 The superficial geology present beneath the Suffolk Scoping Boundary is variable, as shown on **Figure 2.6.1 Superficial Geology**.

[131] British Geological Survey (1996). Sheet 191, Saxmundham, 1:50,000 scale solid and drift, geological map, BGS, Keysworth.

[132] British Geological Survey (2022). Geoindex Onshore. [online] Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html [Accessed 30 June 2022].

[133] British Geological Survey (1970). Sheet 3b: Hydrogeological Map of the Chalk and Lower Greensand of Kent – Folkestone Beds and Hythe Beds (1:126,720). BGS, Keysworth.

[134] The Coal Authority, Interactive Viewer (2022). [online] Available at: https://mapapps2.bgs.ac.uk/coalauthority/home.html [Accessed 30 June 2022].

[135] Environment Agency (2022). Catchment Data Explorer. [online] Available at: https://environment.data.gov.uk/catchment-planning/WaterBody/GB520503613602 [Accessed 30 June 2022].

[136] Environment Agency (2017). Groundwater vulnerability mapping methodology. [online] Available at: https://www.gov.uk/government/publications/updated-groundwater-vulnerability-maps-improvements-to-methodology-and-data [Accessed 30 June 2022].

[137] Geosuffolk (2022). Suffolk County Geodiversity Sites. [online] Available at: https://geosuffolk.co.uk/images/GeologySites/Suffolk_County_Geodiversity_Sites_2021.pdf [Accessed 30 June 2022].

[138] Natural England (2022). Designated Sites View. 2022 [online] Available at: https://designatedsites.naturalengland.org.uk/SiteSearch.aspx [Accessed 30 June 2022].

[139] Department for the Environment, Food and Rural Affairs (2022). Multi-Agency Geographic Information for the Countryside. [online] Available at: https://magic.defra.gov.uk/MagicMap.aspx [Accessed 30 June 2022].

[140] National Library of Scotland (2022). Map Images. [online] Available at: https://maps.nls.uk/geo/explore/side-by-side/#zoom=5&lat=56.00000&lon=-4.00000&layers=1&right=ESRIWorld [Access 30 June 2022].

2.6.4.3 Superficial deposits are present across the majority of the Suffolk Scoping Boundary and comprise the various lithologies of the Lowestoft Formation, described by the BGS[141] as "*chalky till, together with outwash sands and gravels, silts and clays*".

2.6.4.4 Predominantly in the west of the Suffolk Scoping Boundary the Lowestoft Formation is indicated to comprise "diamicton" (commonly referred to as 'boulder clay'). In the eastern part of the Suffolk Scoping Boundary the Lowestoft Formation comprises granular deposits of "sand and gravel", with limited areas of "clay and silt".

2.6.4.5 Elsewhere within the Suffolk Scoping Boundary there are also limited areas shown to be underlain by the following superficial deposits:

- In the southeast, adjacent to the coast, Tidal Flat Deposits, comprising "*consolidated soft silty clay, with layers of sand, gravel and peat"*;
- Adjacent to the coastline a 'strip' of Marine Beach Deposits, comprising "*Shingle, sand, silt and clay*";
- Within the valley associated with the Hundred River deposits of Alluvium, comprising "normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel" is recorded;
- Within the valley floor of the Leiston Beck in the northeast of the Suffolk Scoping Boundary, deposits of Peat are recorded; and
- In the west of the Suffolk Scoping Boundary, within the valley formed by a tributary of the River Alde, a very limited area of Head, comprising "*gravel, sand and clay … locally with lenses of silt, clay or peat and organic material*" are recorded.

2.6.4.6 There are also some areas within the Suffolk Scoping Boundary where the BGS mapping indicates an absence of superficial deposits[132]. These areas are predominantly adjacent to the Hundred River in the vicinity of Knodishall and Aldringham, within the valley to the northeast of Leiston, and adjacent to 'Sizewell Gap' (south of Sizewell).

Bedrock geology

2.6.4.7 The bedrock geology present beneath the Suffolk Scoping Boundary is shown on **Figure 2.6.2 Bedrock Geology.**

2.6.4.8 The majority of the northern two-thirds of the Suffolk Scoping Boundary is shown to be underlain by bedrock of the Crag Formation, described by the BGS[141] as "*Sands, gravels, silts and clays. The sands are characteristically dark green [to] bright orange …The gravels in the lower part of the group are almost entirely composed of flint*". The BGS record that this Formation is up to 70m thick.

2.6.4.9 The majority of the southern third of the Suffolk Scoping Boundary is shown to be underlain by bedrock of the Chillesford Church Sand Member, described by the BGS[141] as "*well sorted, fine-to medium-grained, micaceous, buff to pale brown, quartz sand*". The BGS record that this Member is up to 13m thick.

[141] British Geological Survey (2022). The BGS Lexicon of Named Rock Units. [online] Available at: https://webapps.bgs.ac.uk/lexicon/ [Accessed 30 June 2022].

2.6.4.10 A smaller area adjacent to the coast in the south-east of the Suffolk Scoping Boundary is shown to be underlain by the Corraline Crag, described by the BGS as "*Carbonate-rich skeletal sands… Basal lag gravel rich in pebbles of phosphatic mudstone*". The BGS record that this stratum is up to 25m thick.

2.6.4.11 Very limited areas in the south-east and north of the Suffolk Scoping Boundary are underlain by the Chillesford Clay Member, described by the BGS as "*pale grey silty clay, with rare sand laminae*". The BGS record that this Member is up to 6m thick.

2.6.4.12 Underlying the Crag Formation, Corraline Crag and Chilesford Clay member in large parts of the Suffolk Scoping Boundary is the Thames Group, Lambeth Group, Ormesby Clay Formation and White Chalk Subgroup. There is the potential for some of these strata to be absent, with the White Chalk Subgroup and Crag Formation in direct contact.

Coal mining

2.6.4.13 The Coal Authority's interactive map viewer[134] indicates that the Suffolk Scoping Boundary is not located within a coal mining reporting area or a development high risk area. The interactive map shows that there are no recorded mine entries, fissures or breaklines, areas of historical recorded shallow mining, coal outcrops, coal mine abandonment plans or Development High Risk Areas within the Suffolk Scoping Boundary.

Geo-conservation

2.6.4.14 A review of the GeoSuffolk records[137] and DEFRA's MAGIC map[139] indicates that there are no Regionally Important Geological Sites (RIGS) (also referred to as Local Geological Sites [LoGS]), County Geo-Sites or geological Sites of Special Scientific Interest (SSSI) present within the Suffolk Scoping Boundary or wider study area.

2.6.4.15 The Leiston-Aldeburgh SSSI is located to the east of the Suffolk Scoping Boundary and Sizewell Marshes SSSIs are present in the northeast of the Suffolk Scoping Boundary, however neither of these SSSI are designated for geological reasons.

2.6.4.16 Alde-Ore Estuary SSSI and Ramsar is present immediately south of the Suffolk Scoping Boundary within the study area. This SSSI is designated[138] partly on the basis of its geological value, however both areas referred to in the designation (Orford Ness and cliffs at Gedgrave) are located approximately 9km to the south of the Suffolk Scoping Boundary.

Minerals

2.6.4.17 A review of the Suffolk County Council (SCC) Minerals and Waste Local Plan (MWLP)[123] indicates that approximately half of the Suffolk Scoping Boundary is located within a Mineral Consultation Area (MCA).

Radon

2.6.4.18 Based on the UK Radon maps[142] the study area is in an area where less than 1% of homes are above the action level and therefore it is considered there is a low risk to the Project from Radon in relation to geology and hydrogeology.

Hydrogeology

Aquifer Designation – Superficial

2.6.4.19 DEFRA's MAGIC map[139] indicates that the superficial deposits are classified as follows:

- Lowestoft Formation – Diamicton = Secondary Undifferentiated Aquifer
- Lowestoft Formation - Clay and Silt = Secondary B Aquifer
- Lowestoft Formation - Sand and Gravel = Secondary A Aquifer
- Marine Beach and Blown Sand Deposits = Secondary A Aquifer
- Alluvium = Secondary A Aquifer
- Tidal Flat Deposits and Head Deposits = Unproductive Strata
- Peat = Unproductive Strata

2.6.4.20 Secondary A Aquifers are described by the Environment Agency (EA) as "permeable layers that can support local water supplies, and may form an important source of base flow to rivers". Secondary B Aquifers are described by the EA as "mainly lower permeability layers that may store and yield limited amounts of groundwater through characteristics like thin cracks (called fissures) and openings or eroded layers". The Secondary Undifferentiated Aquifer classification is applied by the EA "where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. These have only a minor value"[143].

2.6.4.21 Unproductive Strata are described by the EA as "largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them"[143].

2.6.4.22 Groundwater flow within the shallow aquifer is likely to be generally to the east/southeast towards the Hundred River and the sea. Groundwater levels and movement may exhibit some tidal influence in the eastern part of the Suffolk Scoping Boundary in proximity to the sea.

Aquifer designation – bedrock

2.6.4.23 The bedrock of the Crag Group, Chillesford Church Sand Member and White Chalk Subgroup is classified by the EA as a Principal Aquifer, defined by the EA as rock

[142] UK Radon (2022). Radon Maps. [online] Available at: https://www.ukradon.org/radonmaps/ [Accessed on 30 June 2022]

[143] Environment Agency (2017). Protect groundwater and prevent groundwater pollution. [online] Available at: https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution [Accessed 30 June 2022].

layers that "*provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes and wetlands*"[143].

2.6.4.24 The bedrock deposits of the Chillesford Clay Member (limited extent only) and the Thames Ground are classified as Unproductive Strata and the Lambeth Group is classified as a Secondary A Aquifer.

2.6.4.25 The contours of "*Potentiometric surface of the Crag*" as shown on the relevant BGS' hydrogeological map[133], indicate that the piezometric surface within the Suffolk Scoping Boundary is likely to be between five and zero metres above Ordnance Datum (mAOD).

2.6.4.26 The groundwater in the different strata (superficial and bedrock) may therefore be in hydraulic continuity.

Groundwater vulnerability

2.6.4.27 DEFRA's MAGIC map[139] indicates that the groundwater in the north-western part of the Suffolk Scoping Boundary and the wider study area, i.e., approximately beneath areas where Lowestoft Formation Diamicton is present overlying the Crag Group, is of "Medium – High" vulnerability.

2.6.4.28 In the south-eastern part of the Suffolk Scoping Boundary and wider study area, i.e., where the Lowestoft Formation Clay and Silt, and Sand and Gravel overlie the Crag Group, the groundwater is shown to be of "Medium - Low" to "Medium – High" vulnerability.

2.6.4.29 The EA define High vulnerability as "*Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits*", and areas of Low vulnerability as "*Areas that provide the greatest protection to groundwater from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability*". Medium vulnerability is described as intermediate between Low and High vulnerability.

Groundwater source protection zones

2.6.4.30 Source Protection Zones in relation to the Suffolk Onshore Scheme are shown on **Figure 2.6.3 Hydrogeology**.

2.6.4.31 DEFRA's MAGIC map[139] indicates that the majority of the study area is located within a groundwater Source Protection Zone (SPZ) 3 that appears to be associated with groundwater abstractions in Leiston, Knodishall and Saxmundham which appears to be abstracting from the Crag Formation.

2.6.4.32 A small part of the study area, to the south of Knodishall, is located within an SPZ 2.

2.6.4.33 A SPZ1 is defined as the inner zone which is a 50-day travel time of a pollutant to the source. A SPZ2 Outer Zone is defined as a 400-day travel time of a pollutant to a source. A SPZ3 is defined as the total catchment, which is the area around a source within which all the groundwater ends at the abstraction point[144].

[144] Environment Agency (2019). Groundwater Source Protection Zones. [online] Available at: https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs [Accessed 15 July 2022].

2.6.4.34 The map[139] also shows that the study area is not located within a groundwater Drinking Water Safeguard Zone (DWSZ) or a groundwater Nitrate Issues Priority Zone (NIPZ). The nearest groundwater DWSZ and NIPZ are located approximately 22km to the southwest and 44km to the northwest of the Suffolk Scoping Boundary, respectively.

Groundwater body

2.6.4.35 The EA's Catchment Data Explorer[135] indicates that groundwater beneath the Scoping Boundary and within the wider study area is part of the Waveney and East Suffolk Chalk and Crag groundwater body (ref: GB40501G400600). This groundwater body received an overall Water Framework Directive (WFD) classification of "Poor" in 2019. This classification can be further broken down into classifications of "Poor" for both chemical quality and quantitative status. The Chalk and the Crag are likely to be in direct continuity in some parts of the catchment, in large parts of the Suffolk Scoping Boundary they are separated by the Thames Group, Lambeth Group and Ormesby Clay.

Hydrology

2.6.4.36 The potential effects relating to hydrology are assessed within **Part 2, Chapter 5, Water Environment**, however where there is potential for groundwater to interact with and impact surface waters, those sensitive receptors are identified within this chapter in order to determine the potential effects from any contamination.

2.6.4.37 The Suffolk Scoping Boundary is situated within the catchments of the Hundred River, and the Leiston Beck, both of which are designated main rivers. The Hundred River flows generally to the southeast through / adjacent to the Suffolk Scoping Boundary before discharging into the sea at Thorpeness. The Leiston Beck flows generally northeast through the northeast part of the Suffolk Scoping Boundary before out falling to the sea at Minsmere.

2.6.4.38 The Environment Agency Catchment Data Explorer[135] indicates that both the Hundred River and Leiston Beck catchments were given a 'Moderate' Ecological Status and 'Fail' Chemical Status in 2019 due to an excess in organoboronic and mercury Compounds.

2.6.4.39 DEFRA's MAGIC map[139] indicates that the Suffolk Scoping Boundary is not located within a Drinking Water Protected Area for Surface Water.

Environmentally sensitive sites

2.6.4.40 A review of DEFRA's MAGIC map[139] indicates the following environmentally sensitive sites present within the study area:

- Leiston-Aldeburgh SSSI, located in the southeast of the study area. The Sandlings Special Protection Area (SPA) occupies approximately the northern half of the SSSI.
- Sizewell Marshes SSSI is present in the northeast of the Suffolk Scoping Boundary (area of coastal marshland) and the study area, located to the west of Sizewell Nuclear Power Station.
- Alde-Ore Estuary SSSI is present within the study area, approximately 100m south of the Suffolk Scoping Boundary, comprising marshland and estuary adjacent to

the River Alde. The Alde-Ore & Butley Estuaries Special Area of Conservation (SAC) and the Alde-Ore Estuary SPA occupy the same area as this SSSI. The estuary is also a wetland of international importance as designated by the Ramsar Convention.

- The Haven Local Nature Reserve (LNR) occupies a limited area of beach and coastal marshland in the southeast of the Suffolk Scoping Boundary, extending approximately 150m south into the study area.
- Two areas of ancient woodland are present in the south and southwest of the Suffolk Scoping Boundary.

Potentially contaminative land uses

2.6.4.41 Much of the Suffolk Scoping Boundary and wider study area appears to have remained as undeveloped agricultural land since the earliest available historical mapping from the National Library Scotland, dated 1885[140]. In these areas it is considered that there is a very low risk of significant sources of potential contamination.

2.6.4.42 There are however areas within the Suffolk Scoping Boundary and wider study area that have a history of potentially contaminative land use or where the current land use is potentially contaminative. Where identified, readily available information relating to these Potential Sources of Contamination (PSC) has been gathered and is presented in the table below with a corresponding Risk Rating for their potential for generation of significant contamination. The locations of these are presented on **Figure 2.6.4 Potential Sources of Contamination**.

Table 2.6.1: Potential sources of contamination

PSC number	Name	Location	Description	Risk ranking
PSC within Suffolk Scoping Boundary				
1	Farms	Many located across the study area	Present since the earliest mapping dated 1885. Typically comprise a farmhouse with outbuildings, barns, farmyard etc. Potential for on-site storage of agrichemicals and fuels.	Low
2	Historical Pits and Quarries	Many located across the study area	Present since the earliest mapping dated 1885. Former pits and quarries, typically limited in size. Most first recorded in the late 1800s / early 1900s and typically not recorded after 1950 and potentially infilled.	Low

3	Historical brickworks	Approximate NGR 644590 E, 263086 N. Northern edge of Leiston	Former brick works and brick pit. Recorded from earliest available mapping dated 1885 until the map dated 1892-1914. The pits appear to have been infilled based on Google Earth Aerial photography dated of the site from 2000. Part of the historical brickworks is classified as a historical landfill by the Environment Agency (see PSC13)	Low
4	Historical Allotment Gardens	Approximate NGRs 645735 E, 263320 N and 641360 E, 260610 N.	Historical allotment gardens recorded in late 1800s / early 1900s.	Very Low
5	Concrete batching plant	Approximate NGR 641335 E, 264365 N	Concrete surfaced yard, storage of aggregates.	Low
6	Former RAF Leiston Airfield	Approximate 700m radius around NGR 642990 E, 264331 N	Historical airfield, constructed 1942 - closed 1955. Sold off / returned to public 1950s - 1965. Airfield within the Suffolk Scoping Boundary comprises runways, hangars, grassed land between runways. Airfield uses within the wider study area comprise fuel storage and technical areas. Potential for hydrocarbons, radiological contaminants, inorganic compounds, unexploded ordnance, asbestos.	Moderate to high
7	Aldhurst Farm Landfill	Approximate NGR 644955 E, 263262 N	Located within historical pit/quarry. Historical landfill operated between 1990 and 2006 by Mike Taylor. Licenced to receive inert, industrial, commercial and domestic waste. Has a gas control system. Ref: EAHLD02429, WRC Ref: 3500/0567, WML: 70716. Site Ref: SC10, SFK/LS/092/10. The pit/quarry is first shown on map dated 1888-1913. By the Google Aerial imagery dated 2000 the pit appears to have been restored.	Moderate

8	Abbey Pit Landfill	Approximate NGR 645150, 263780	Located within historical pit/quarry. Historical landfill. Details of operational dates and wastes received not available. Mapping dated 1888-1913, first shows the pit/quarry. The earliest available Google Aerial imagery dated 2000, shows no evidence of the landfill or a pit/quarry. Ref: EAHLD03297. WRC Ref: 3500.0605. Site Ref: OFSSC10.	Moderate
9	Waste Water Treatment Works	Approximate NGR 645115 E, 263158 N	Waste Water Treatment Works (WWTW). Small-scale works with primary and secondary treatment[145], discharging to the Leiston Beck. Historical mapping indicates that the WWTW was constructed in the late 1800s/early 1900s and comprised a 'tank' and a probable settlement lagoon. The WWTW was further developed during the 1900s with a new inlet works and additional tanks in the area of the former lagoon. The 1949 – 1970 map records a small area of possible sludge bed/refuse heap in the north-eastern corner of the WWTW.	Low
10	Railway (including dismantled railway)	Crosses Suffolk Scoping Boundary and study area in the northwest and southeast.	Present since the earliest mapping dated 1885. Railway line appears to have been constructed approximately "at-grade". Line between Leiston and Aldeburgh appears to have closed during the second half of the 20th Century. However, the railway lines are still in place between Saxmundham and Leiston but appears to have been dismantled from Leiston onwards.	Low
11	Leiston Household Waste	East of Lover's Lane, Leiston, NGR	Household waste recycling centre, located entirely on hardstanding with no on site disposal. The site is licenced as a Household Waste	Low

[145] European Commission Urban Waste Water Website: United Kingdom (2022). [online] Available at: https://uwwtd.eu/United-Kingdom/treatment-plant/ukenanawtp000159/2018 [Accessed 30 June 2022].

	Recycling Centre	N645500, E263400	amenity Centre and the licence was first issued in 1994.	
PSCs within wider study area				
12	Carr's Pit Landfill	Located on western edge of former brick pit (PSC 3). Approximate NGR 644590 E, 263086 N.	Part of the historical brickworks (PSC3) and comprises a historical landfill operated between 1976 and 1987 by Henry Boot Ltd. Licenced to receive inert and commercial waste. Ref: EAHLD01884, WRC Ref: 3500/0617, Site Ref: 907/01/16/3	Moderate
13	Farms	Several located within wider study area. Present since the earliest mapping viewed dated 1885.	Typically comprise a farmhouse with outbuildings, barns, farmyard etc. Potential for on-site storage of agrichemicals and fuels.	Low
14.	Historical Pits and Quarries	Many located within wider study area. Present since the earliest mapping dated 1885.	Former pits and quarries, typically limited in size. Most first recorded in the late 1800s / early 1900s and typically not recorded after 1950 and potentially infilled.	Low
15	Electrical Substations x 3	Approximate NGRs 646610 E, 262710 N, 646860 E, 262850 N and, 643060 E, 261165 N	2 x large substations associated with Sizewell Nuclear Power Station – constructed on greenfield land between 2007 and 2019. Due to age of construction is considered unlikely to utilise Poly-Chlorinated Biphenyl (PCB) containing oils or oil-cooled cables (TPHs). Older substation at Coldfair Green constructed between 1970 and 2000 and may have used PCB containing oils.	Low
16	Brickworks	Approximate NGR 645310 E, 262180N	Historical brickworks present since the mapping dated 1888 to 1913 until the mid-20th Century where it is no longer shown.	Low

Future Baseline

2.6.4.43 There are no foreseeable significant changes anticipated in relation to geology, hydrogeology or land contamination either prior to, or during, the construction and operational phases. It is assumed that any man-made changes (i.e., new developments) would be appropriately permitted and operated to prevent the creation of potentially adverse ground conditions or impacts to controlled waters.

2.6.5 Embedded and Control & Management Measures

Embedded Measures

2.6.5.1 The Project has, wherever possible, avoided sensitive features, such as groundwater SPZ 1, through the options appraisal.

Control and Management Measures

2.6.5.2 For the purpose of assessing the effects of the Project, it has been assumed that best practice health and safety and environmental controls will be in place during constriction, in accordance with standard good practice across the construction industry.

2.6.5.3 The outline Code of Construction Practice (CoCP) contained within **Appendix 1.4.A Outline Code of Construction Practice** contains a list of relevant good practice measures which will be adopted, including the following key commitments relating to geology and hydrogeology:

- GH01: Intrusive ground investigations and assessment will be undertaken prior to construction which will inform appropriate geotechnical design in relation to the site/structure specific ground conditions including ground instability/adverse ground conditions.
- GH02: Construction methods such as appropriate piling techniques (if required) to minimise the risk of mixing of aquifer bodies through the creation of new pathways. This includes the provision of a Foundation Works Risk Assessment (FWRA), which would be undertaken once the proposed foundation solutions are known, in accordance with EA guidance ‘Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination’ (EA, 2001).
- GH03: Use of appropriate occupational health and safety measures e.g. Personal Protective Equipment (PPE), and statutory health and safety compliance (e.g. compliance with the Confined Spaces Regulations, 1997 in relation to ground gas from working in confined spaces/trenches) to minimise the risks associated with anticipated/unexpected contamination. Based on risk assessment informed by site specific information.
- GH04: Appropriate training of construction and maintenance workers in the handling and use of potentially hazardous substances and the associated risks.
- GH05: All use and storage of chemicals to be undertaken in accordance with EA Pollution Prevention Guideline (PGG) notes, and controlled and monitored under

the Construction and Environmental Management Plan (CEMP) and general construction site good environmental and waste management procedures

- GH06: The control of earthworks or materials movement (including any re-use of materials) under appropriate Environmental Permits, exemptions or CL:AIRE 'The definition of Waste: The development industry Code of Practice (2011).
- GH07: Any temporary dewatering activities during construction will be undertaken in accordance with EA guidance, and if required, an Abstraction Licence and Environmental Permit (for the discharge) and will be limited to the depth and time required to facilitate construction activities.
- GH09: A protocol for dealing within any unexpected contamination.

2.6.6 Potential for Significant Effects

2.6.6.1 The geology and hydrogeology assessment will consider the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

2.6.6.2 The proposed scope of the geology and hydrogeology assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

2.6.6.3 This section identifies the sources and impacts that that are relevant to the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme.

2.6.6.4 The potential for the Suffolk Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- existing contamination;
- excavation of trenchless crossings;
- dewatering activities;
- general construction activities such as foundations;
- discharge of groundwater from dewatering;
- damage to sensitive receptors from the built environment;
- introduction of new contamination; and
- ground gas.

Sources of operational impacts

- introduction of new contamination;

- introduction of impermeable surfaces; and
- ground gas.

Sources of maintenance impacts

- introduction of new contamination; and
- ground gas.

Sources of decommissioning impacts

2.6.6.5 It is considered that the sources of impacts during decommissioning would be of a similar nature to those considered during the construction phase. Decommissioning would also be undertaken in accordance with relevant environmental legislation current at the time and in accordance with any required licences and permits. Decommissioning activities would be subject to an environmental management plan that would identify and mitigate the potential impacts of decommissioning activities that could harm sensitive receptors.

Potential impacts

2.6.6.6 Table 2.6.2 identifies the potential impacts that could result from the sources identified above.

Table 2.6.2: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction and decommissioning	Existing contamination	Human health exposure to potential contamination through ground disturbance during construction and decommissioning	Yes - Has the potential to result in significant effects	**Scoped in**
Construction and decommissioning	Existing contamination	Mobilisation of existing contamination during general construction/decommissioning, impacting on land and/or groundwater quality	Yes - Has the potential to result in significant effects	**Scoped in**
Construction	Excavation of trenchless Crossings	Connection of two aquifer units at trenchless crossings	No - Not likely to result in a significant effect due to the incorporation of the	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			mitigation by design.	
Construction	Dewatering activities	Changes to groundwater levels, quality and groundwater flow caused by dewatering	Yes -Potential to result in a significant effect	**Scoped in**
Construction, maintenance, and decommissioning	Construction activities	Introduction of new potential contaminants to the environment from leaks, spills, fuels and oils	No - Not likely to result in a significant effect due to the incorporation of the mitigation by design.	Scoped out
Construction	Discharge of groundwater from dewatering	Physical and chemical changes to groundwater	No - Not likely to result in a significant effect due to the incorporation of the mitigation by design.	Scoped out
Construction, operation, maintenance, and decommissioning	Ground gas	Ingress and accumulation of ground gas in buildings/confined spaces/trenches – resulting in explosion/asphyxiation/exposure	Yes - Potential to result in a significant effect	**Scoped in**
Construction	General construction	Construction activities and the built development (operational phase) can be affected by natural geological hazards (dissolution features/soft ground/landslides/aggressive ground conditions etc)	No - Not likely to result in a significant effect due to the incorporation of the mitigation by design.	Scoped out
Construction	Built Environment	Damage to/destruction of designated sites of geological importance	Yes - Potential to result in a significant effect	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction and Operation	Built Environment	Sterilisation of safeguarded minerals	Yes -The Suffolk Scoping Boundary is within a mineral consultation area therefore there is the potential to result in significant effects.	**Scoped in**
Operation and maintenance	Existing contamination	Human health exposure to existing contamination	No - Not likely to result in a significant effect due to the nature of the project and the incorporation of the mitigation by design.	Scoped out
Operation and maintenance	Introduction of new contamination	Introduction of new potential contaminants to the environment from leaks, spills, fuels and oils during the operational phase	No - Not likely to result in a significant effect given the nature of the project and in consideration of best practice measures and maintenance.	Scoped out
Operation	Introduction of impermeable surfaces	Changes to groundwater levels and/or recharge rates	No - Not likely to result in significant effects due to the small surface area of the built parts of the project.	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			Any new areas of hardstanding would be designed to meet current drainage standards (see **Part 2, Chapter 5, Water Environment**).	

Impact Pathways with Receptors (Step 2)

Suffolk Converter Station Site 1 Emerging Preference

2.6.6.7 Table 2.6.3 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Emerging Preference as shown on as shown on **Figure 2.1.4 Suffolk Site 1 Emerging Preference** and **Figure 2.1.9 Suffolk Site 1 Emerging Preference Option Area**.

Table 2.6.3: Impact pathways with receptors – Suffolk Site 1 Emerging Preference

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Human health exposure to existing contamination through ground disturbance during construction and decommissioning	Site workers, neighbours	Yes -Potential for existing contamination within the study area to result in significant effects	**Scoped in for construction and decommissioning** Scoped out for operation and maintenance
Mobilisation of existing contamination during general construction, impacting on land and/or groundwater quality	Environmentally sensitive sites, groundwater, Groundwater Dependant Terrestrial Ecosystems	Yes -Potential for existing contamination within the study area to result in significant effects	**Scoped in for construction and decommissioning** Scoped out for operation and maintenance

	(GWDTE), surface water, land quality.		
Changes to groundwater levels, quality and groundwater flow direction caused by dewatering and discharge	Environmentally sensitive sites, groundwater, GWDTE, surface water	Yes -Potential for dewatering to be required within the study area which could result in significant effects	**Scoped in for construction** Scoped out for operation, decommissioning, and maintenance
Ingress and accumulation of ground gas in buildings/confined spaces/trenches (construction and operation) – resulting in explosion/asphyxiation/exposure	Construction/ maintenance workers, future users, built environment	Yes -Potential for gas generating strata within study area which could result in significant effects	**Scoped in for construction, operation, maintenance and decommissioning**
Damage to/destruction of designated sites of geological importance	Designated sites of geological importance	Yes -Designated sites located within the study area which could be damaged and could result in significant effects	**Scoped in for construction** Scoped out for operation, maintenance and decommissioning
Sterilisation of safeguarded minerals	Mineral reserves	Yes -Mineral reserves are present within the study area which could be damaged and result in significant effects.	**Scoped in for construction and operation** Scoped out for maintenance and decommissioning

Suffolk Converter Station Site 1 Alternative

2.6.6.8 Table 2.6.4 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Alternative Preference as shown on as shown on **Figure 2.1.7 Suffolk Site 1 Alternative** and **Figure 2.1.11 Suffolk Site 1 Alternative Option Area**.

Table 2.6.4: Impact pathways with receptors – Suffolk Site 1 Alternative

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out

Human health exposure to existing contamination through ground disturbance during construction and decommissioning	Site workers, neighbours	Yes -Potential for existing contamination within the study area to result in significant effects	**Scoped in for construction and decommissioning** Scoped out for operation and maintenance
Mobilisation of existing contamination during general construction, impacting on land and/or groundwater quality	Environmentally sensitive sites, groundwater, GWDTE, surface water, land quality	Yes -Potential for existing contamination within the study area to result in significant effects	**Scoped in for construction and decommissioning** Scoped out for operation and maintenance
Changes to groundwater levels, quality and groundwater flow direction caused by dewatering and discharge	Environmentally sensitive sites, groundwater, GWDTE, surface water	Yes -Potential for dewatering to be required within the study area which could result in significant effects	**Scoped in for construction** Scoped out for operation, maintenance and decommissioning
Ingress and accumulation of ground gas in buildings/confined spaces/trenches (construction and operation) – resulting in explosion/asphyxiation/exposure	Construction/ maintenance workers, future users, built environment	Yes -Potential for gas generating within study area which could result in significant effects	**Scoped in for construction, operation, maintenance and decommissioning**
Sterilisation of safeguarded minerals	Mineral reserves	Yes -Mineral reserves are present within the study area which could be damaged and result in significant effects.	**Scoped in for construction and operation** Scoped out for maintenance and decommissioning

Suffolk Converter Station Site 3 Emerging Preference

2.6.6.9 Table 2.6.5 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Emerging Preference as shown on as shown on **Figure 2.1.5 Suffolk Site 3 Emerging Preference** and **Figure 2.1.10 Suffolk Site 3 Emerging Preference Option Area**.

Table 2.6.5: Impact pathways with receptors – Suffolk Site 3 Emerging Preference

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Human health exposure to existing contamination through ground disturbance during construction	Site workers, neighbours	Yes -Potential for existing contamination within the study area to result in significant effects	**Scoped in for construction and decommissioning** Scoped out for operation and maintenance
Mobilisation of existing contamination during general construction, impacting on land and/or groundwater quality	Environmentally sensitive sites, groundwater, GWDTE, surface water, land quality	Yes -Potential for existing contamination within the study area to result in significant effects	**Scoped in for construction and decommissioning** Scoped out for operation and maintenance
Changes to groundwater levels, quality and groundwater flow direction caused by dewatering and discharge	Environmentally sensitive sites, groundwater, GWDTE, surface water	Yes -Potential for dewatering to be required within the study area which could result in significant effects	**Scoped in for construction** Scoped out for operation, decommissioning and maintenance
Ingress and accumulation of ground gas in buildings/confined spaces/trenches (construction and operation) – resulting in explosion/asphyxiation/exposure	Construction/ maintenance workers, future users, built environment	Yes -Potential for gas generating within study area which could result in significant effects	**Scoped in for construction, operation, maintenance and decommissioning**
Damage to/destruction of designated sites of geological importance	Designated sites of geological importance	Yes -Designated sites located within the study area which could be damaged and could result in significant effects	**Scoped in for construction** Scoped out for operation, maintenance and decommissioning
Sterilisation of safeguarded minerals	Mineral reserves	Yes -Mineral reserves are present within the study area which could be	**Scoped in for construction and operation**

		damaged and result in significant effects.	Scoped out for maintenance and decommissioning

Suffolk Converter Station Site 3 Alternative (Option 1)

2.6.6.10 Table 2.6.5 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option 1) as shown on as shown on **Figure 2.1.7 Suffolk Site 3 Alternative (Option 1)** and **Figure 2.1.12 Suffolk Site 3 Alternative (Option 1).**

Table 2.6.6: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 1)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Human health exposure to existing contamination through ground disturbance during construction	Site workers, neighbours	Yes -Potential for existing contamination within the study area to result in significant effects	**Scoped in for construction and decommissioning** Scoped out for operation and maintenance
Mobilisation of existing contamination during general construction, impacting on land and/or groundwater quality	Environmentally sensitive sites, groundwater, GWDTE, surface water, land quality	Yes -Potential for existing contamination within the study area to result in significant effects	**Scoped in for construction and decommissioning** Scoped out for operation and maintenance
Changes to groundwater levels, quality and groundwater flow direction caused by dewatering and discharge	Environmentally sensitive sites, groundwater, GWDTE, surface water	Yes -Potential for dewatering to be required within the study area which could result in significant effects	**Scoped in for construction** Scoped out for operation, maintenance, and decommissioning
Ingress and accumulation of ground gas in buildings/confined spaces/trenches (construction and operation) – resulting in explosion/asphyxiation/exposure	Construction/ maintenance workers, future users, built environment	Yes -Potential for gas generating within study area which could	**Scoped in for construction, operation, maintenance and decommissioning**

		result in significant effects	
Sterilisation of safeguarded minerals	Mineral reserves	Yes -Mineral reserves are present within the study area which could be damaged and result in significant effects.	**Scoped in for construction and operation** Scoped out for maintenance and decommissioning

Suffolk Converter Station Site 3 Alternative (Option 2)

2.6.6.11 Table 2.6.6 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option 2) as shown on as shown on **Figure 2.1.8 Suffolk Site 3 Alternative (Option 2)** and **Figure 2.1.13 Suffolk Site 3 Alternative (Option 2) Option Area**.

Table 2.6.7: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 2)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Human health exposure to existing contamination through ground disturbance during construction	Site workers, neighbours	Yes -Potential for existing contamination within the study area to result in significant effects	**Scoped in for construction and decommissioning** Scoped out for operation and maintenance
Mobilisation of existing contamination during general construction, impacting on land and/or groundwater quality	Environmentally sensitive sites, groundwater, GWDTE, surface water, land quality	Yes -Potential for existing contamination within the study area to result in significant effects	**Scoped in for construction and decommissioning** Scoped out for operation and maintenance
Changes to groundwater levels, quality and groundwater flow direction caused by dewatering and discharge	Environmentally sensitive sites, groundwater, GWDTE, surface water	Yes -Potential for dewatering to be required within the study area which could result in significant effects	**Scoped in for construction** Scoped out for operation,

			decommissioning and maintenance
Ingress and accumulation of ground gas in buildings/confined spaces/trenches (construction and operation) – resulting in explosion/asphyxiation/exposure	Construction/ maintenance workers, future users, built environment	Yes -Potential for gas generating within study area which could result in significant effects	**Scoped in for construction, operation, maintenance and decommissioning**
Damage to/destruction of designated sites of geological importance	Designated sites of geological importance	Yes -Designated sites located within the study area which could be damaged and could result in significant effects	**Scoped in for construction** Scoped out for operation, maintenance and decommissioning
Sterilisation of safeguarded minerals	Mineral reserves	Yes -Mineral reserves are present within the study area which could be damaged and result in significant effects.	**Scoped in for construction and operation** Scoped out for maintenance and decommissioning

2.6.7 Proposed Assessment Methodology

2.6.7.1 The proposed generic project wide approach to the assessment methodologies is presented in **Part 1, Chapter 5, EIA Approach and Methodology**. However, whilst this has informed the approach used in this chapter, it is necessary to set out how this methodology will be applied and adapted as appropriate, to address the specific needs of the assessment in relation to geology and hydrogeology.

Proposed Data Sources

2.6.7.2 The following data sources are proposed to proposed to be used to inform the assessment

- Historical borehole records held by the BGS;
- Groundwater abstraction details as available from the EA and LPAs;
- Any relevant information regarding historical ground contamination that the LPAs hold; and
- Any relevant information held by the LPAs regarding geological sites.

Proposed Assessment Methodology

2.6.7.3 The methodology which has been followed for the work undertaken to date, and which will be developed during the EIA process, builds on the guidance set out earlier in this chapter for environmental effects assessed as likely to be significant. Therefore, to inform the ES, additional data gathering will be undertaken, building on the initial appraisal of baseline conditions provided in this scoping report and incorporating any additional information received from the Environment Agency and Local Authority (in response to requests for information), together with stakeholder responses from the Scoping Opinion.

2.6.7.4 The baseline information will be used to identify potential source-pathway-receptor linkages and inform a risk-based assessment of the effects of the project in relation to geology and hydrogeology. The risk based assessment will be undertaken following a tiered approach as supported by guidance provided in land contamination risk management (LCRM)[125], with progression through the different Tiers (Tier 1 Preliminary Risk Assessment, Tier 2 Generic Quantitative Risk Assessment and Tier 3 Detailed Quantitative Risk Assessment) dependent on the outcome of each previous Tier (therefore proportionate).

2.6.7.5 In the context of the length and size of the study area, and to provide a comprehensive yet proportionate assessment, an additional Tier (Tier 0) is proposed for the ES relating to geology and hydrogeology.

2.6.7.6 A Tier 0 assessment will be undertaken as a first stage screening of the Suffolk Scoping Boundary and study area to identify potential pollutant linkages and assign a risk rating based on potential for significant contamination to be present. Those sources which are assessed to have a moderate, high or very high potential risk of contamination will be taken forward for further assessment to ensure the assessment is targeted in areas where significant effects are most likely. Where a very low or low risk rating is assessed, these areas will not be taken forward for further assessment in the ES on the basis they have a low likelihood of significant effects. The potential risk of contamination will be identified based on the historical and current land use:

Table 2.6.8: Criteria for classifying potential for generating contamination

Classification score	Potential for generating contamination
Very Low	Land Use Examples: Residential, retail or office use, agriculture. Contamination Potential: Limited
Low	Land Use Examples: Recent small scale industrial and light industry Contamination Potential: Locally slightly elevated concentrations
Moderate	Land Use Examples: Railway yards, collieries, scrap yards, inert landfills Contamination Potential: Possible widespread slightly elevated concentrations and locally elevated
High	Land Use Examples: Heavy industry, non-hazardous landfills

	Contamination Potential: Possible widespread elevated concentrations
Very High	Land Use Examples: Hazardous waste landfills, gas works, chemical works Contamination Potential: Likely widespread elevated concentrations

2.6.7.7 Risks associated with unexpected contamination will be managed through the protocols and good practice measures identified within the CoCP.

2.6.7.8 In order to evaluate whether the presence of a source of contamination could potentially lead to harmful consequences, a source-pathway-receptor methodology is adopted, with the underlying principle that the identification of pollutant linkages consists of the following three elements

- A source/hazard (a substance or situation that has the potential to cause harm or pollution);
- A pathway (a means by which the hazard moves along / generates exposure); and
- A receptor/target (an entity that is vulnerable to the potential adverse effects of the hazard).

2.6.7.9 Whilst the contamination may be a hazard it would not constitute a risk unless a pathway and receptor are also present, and a pollutant linkage can be determined. Therefore, in assessing the potential for contamination to cause a significant effect: the extent and nature of the potential source or sources of contamination must be assessed; any pathways present must be identified; and sensitive receptors or resources identified and appraised to determine their value and sensitivity to contamination related impacts.

2.6.7.10 The methodology adopted in this chapter is qualitative with a progression from factual information (stated with reasonable certainty) regarding the baseline conditions, to appraisal informed by professional judgement and expression of opinions on the relative significance.

2.6.7.11 The risk assessment approach proposed in this methodology will be transposed into EIA classification as follows;

- For each potential effect the receptor sensitivity and impact magnitude will be assigned using the Tables 2.6.9 and 2.6.10 below, which will then be combined to give a significance of effect using the matrix provided in Table 2.6.11.

2.6.7.12 There is no equivalent published assessment methodology that relates to impacts relating to geology (e.g. geo-conservation). For consistency, a similar approach will be adopted to assess these effects (i.e. combination of receptor identification and associated sensitivity and magnitude of potential impacts) as stated above.

2.6.7.13 A Minerals Resource Assessment (MRA) will be completed, in accordance with the requirements of the mineral's local plans and with regard to Minerals Safeguarding

Practice Guidance[146]. The MRA will be used to inform the assessment in the geology and hydrogeology chapter in relation to minerals.

2.6.7.14 A source-pathway-receptor linkage approach, as detailed above, will also be applied to assessing the potential effects on groundwater which relate to the geological/hydrogeological settings between the Order Limits and identified groundwater abstractions and receptors, in accordance with the policy guidance outlined at the start of this chapter. Localised Hydrogeological Risk Assessment may also be required where dewatering is proposed. Assessment of the impacts on groundwater receptors will be undertaken based on the approach and methodology described in Environment Agency, Hydrogeological Impact Appraisal for dewatering guidance (2007).

2.6.7.15 The proposed assessment approach in this chapter is based on desk study information. 'Reasonable worst case' assumptions regarding the likely ground conditions will be made when assessing effects in the ES, determined from the desk study information.

Sensitivity of receptors

2.6.7.16 The criteria used to determine the value and sensitivity of receptors specific to geology and hydrogeology are set out in Table 2.6.9. These criteria are based on the generic criteria presented in **Part 1, Chapter 5, EIA Approach and Methodology**.

Table 2.6.9: Value/sensitivity criteria

Value/sensitivity	General criteria
Very High	Very high importance and rarity. International scale and limited potential for substitution **Geology**: Very rare and of international importance with no potential for replacement (e.g. UNESCO World Heritage Sites, UNESCO Global Geoparks, Site of Special Scientific Interest (SSSI) and Geological Conservation Review (GCR) where citations indicate features of international importance). Geology meeting international designation citation criteria which is not designated as such. **Minerals:** Existing Mineral sites **Contamination:** 1) human health: very high sensitivity land use such as residential or allotments;

[146] The Mineral Products Association, and The Planning Officer's Society (2019). Minerals Safeguarding Practice Guide. [online] Available at: https://mineralproducts.org/MPA/media/root/Publications/2019/MPA_POS_Minerals_Safeguarding_Guidance_Document.pdf

	2) surface water: Watercourse having a Water Framework Directive (WFD) classification shown in a River Basin Management Plan (RBMP) and Q95 ≥ 1.0 m3/s. Site protected/designated under EC or UK legislation (Special Areas of Conservation (SAC), Special Protection Areas (SPA), Sites of Special Scientific Interest (SSSI), Ramsar site) 3) groundwater: Principal aquifer providing a regionally important resource and regionally important public water supplies, Source Protection Zone (SPZ) 1 **Hydrogeology:** Principal aquifer providing a regionally important source and regionally important public water supplies. Groundwater quality associated with SPZ 1 associated with licensed abstractions. Water supplying GWDTEs with a high groundwater dependence with a high environmental importance and international or national value, such as Ramsar sites, Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSIs).
High	High importance and rarity. National scale and limited potential for substitution **Geology:** Rare and of national importance with little potential for replacement (e.g. geological SSSI, Area of Special Scientific Interest (ASSI), National Nature Reserves (NNR)). Geology meeting national designation citation criteria which is not designated as such. **Minerals:** Mineral preferred areas **Contamination:** 1) human health: high sensitivity land use such as public open space; 2) surface water: Watercourse having a WFD classification shown in a RBMP and Q95 <1.0m^3/s. 3) groundwater: Principal aquifer providing locally important resource or supporting a river ecosystem, SPZ2. **Hydrogeology:** Principal aquifer providing a locally important source and locally important public water supplies, SPZ 2. Water supplying GWDTEs with a moderate groundwater dependence with high environmental importance and international or national value, such as Ramsar sites, SACs, SPAs and SSSIs; or water feeding highly groundwater dependent GWDTE with a national non-statutory UK Biodiversity Action Plan (BAP) priority

Medium	Medium or high importance and rarity, regional scale, limited potential for substitution **Geology:** Regional importance with limited potential for replacement (e.g. RIGS). Geology meeting regional designation citation criteria which is not designated as such. **Minerals:** Mineral Safeguarded Areas and Mineral Consultation Area **Contamination**: 1) human health: medium sensitivity land use such as commercial or industrial; 2) surface water: Watercourses not having a WFD classification shown in a RBMP and Q95 >0.001m3/s. 3) groundwater: Secondary A Aquifers. extensive non-licensed private water abstractions (i.e. supplying ten or more properties or supplying large farming / animal estates). SPZ3. **Hydrogeology:** Secondary A aquifer. Groundwater flow and yield and quality associated with extensive non-licensed private water abstractions (i.e. supplying ten or more properties or supplying large farming / animal estates). Groundwater quality associated with SPZ2 (Outer Protection Zone) associated with licensed abstractions. Residential and commercial properties. Water supplying GWDTEs of low groundwater dependence with a high environmental importance and international or national value, such as Ramsar sites, SACs, SPAs and SSSIs; or water feeding moderately groundwater dependent GWDTE with a national non-statutory UK Biodiversity Action Plan (BAP) priority
Low	Low or medium importance and rarity, local scale **Geology:** Local importance / interest with potential for replacement (e.g. non designated geological exposures, former quarry's / mining sites). **Minerals:** Mineral present but outside of any MPS/MSA/MCA **Contamination:** 1) human health: low sensitivity land use such as highways and rail; 2) surface water: Watercourses not having a WFD classification shown in a RBMP and Q95 ≤0.001m3/s.

	3) groundwater: Secondary B or Secondary Undifferentiated aquifer. Small scale private water abstractions (i.e. supplying fewer than ten properties). **Hydrogeology:** Secondary B or Secondary Undifferentiated aquifer. Groundwater flow and yield and quality associated with small scale private water abstractions (i.e. feeding fewer than ten properties). Groundwater quality associated with SPZ3 (Source Catchment Protection Zone) associated with licensed abstractions and with licensed abstractions for which no SPZ is defined. Water supplying GWDTEs of low groundwater dependence with a national non-statutory UK BAP priority; or water supplying highly or moderately groundwater dependent GWDTE sites with no conservation designation.
Negligible	Very low importance and rarity, local scale **Geology:** No geological exposures, little / no local interest. **Mineral:** No mineral identified **Contamination:** 1) human health: undeveloped surplus land / no sensitive land use proposed; 2) surface water: not present 3) groundwater: Unproductive strata **Hydrogeology:** Very poor groundwater quality and/or very low permeability make exploitation of groundwater unfeasible. No active groundwater supply. Water supplying GWDTEs of low groundwater dependence with no designation or groundwater that supports a wetland not classified as a GWDTE, although may receive some minor contribution from groundwater

Impact magnitude

Table 2.6.10: Magnitude criteria

Magnitude	General criteria

Large	**Geology Adverse**: Permanent loss of geological feature / designation and/or quality and integrity, severe damage to key characteristics, features or elements.
	Contamination Adverse: Significant contamination identified, and contamination level significantly exceed human health and environmental assessment criteria with the potential for significant harm to be caused. Contamination heavily restricts future use of land **Contamination Benefit**: Substantial betterment of ground or groundwater quality/contamination conditions through remediation and/or mitigation.
	Hydrogeology Adverse: Major or irreversible change to groundwater aquifer(s) flow, water level, quality or available yield which endangers the resources currently available. Groundwater resource use / abstraction is irreparably impacted upon, with a major or total loss of an existing supply or supplies. Changes to water table level or quality would result in a major or total change in, or loss of, a groundwater dependent area, where the value of a site would be severely affected. Changes to groundwater aquifer(s) flow, water level and quality would result in major changes to groundwater baseflow contributions to surface water and/ or alterations in surface water quality. **Hydrogeology Beneficial**: Major increase in groundwater resource availability. Results in the achievement of Good Status for a WFD groundwater body or GWDTE which is currently failing its WFD objectives. Removal of existing or potential polluting discharge to groundwater
Medium	**Geology Adverse**: partial loss of geological feature / designation, potentially adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.
	Contamination Adverse: Contamination levels marginally exceed human health and environment assessment criteria. Control / remediation measures are required to reduce risks to human health / make land suitable for intended use. **Contamination Benefit**: Moderate Betterment of ground or groundwater quality/contamination conditions through remediation and/or mitigation.
	Hydrogeology Adverse: Moderate long term or temporary significant changes to groundwater aquifer(s) flow, water level, quality or available yield which results in moderate long term or temporarily significant decrease in resource availability. Groundwater resource use / abstraction is impacted slightly, but existing supplies remain sustainable. Changes to water table level or groundwater quality would result in partial change in or loss of a groundwater dependent area, where the value of the site would be affected, but not to a major degree. Changes to groundwater aquifer(s) flow, water level and quality would result in moderate changes

	to groundwater baseflow contributions to surface water and/ or alterations in surface water quality, resulting in a moderate shift from baseline conditions **Hydrogeology Beneficial**: Moderate increase in groundwater resource availability. Contributes, in combination with other effects, to the achievement of Good Status for a WFD groundwater body or GWDTE which is currently failing its WFD objectives. Significant reduction of existing or potential polluting discharge to groundwater.
Small	**Geology Adverse**: minor measurable change in geological feature / designation attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Contamination Adverse: Contamination levels below human health and environment assessment criteria and remediation is not required. Significant contamination is unlikely with a low risk to human health. Best practice measures can be required to minimise risks to human health; **Contamination Benefit**: Slight betterment of ground or groundwater quality/contamination conditions through remediation and/or mitigation.
	Hydrogeology Adverse: Minor changes to groundwater aquifer(s) flow, water level, quality or available yield leading to a noticeable change, confined largely to the Project area. Changes to water table level, groundwater quality and yield result in little discernible change to existing resource use. Changes to water table level or groundwater quality would result in minor change to groundwater dependent areas, but where the value of the site would not be affected. Changes to groundwater aquifer(s) flow, water level and quality would result in minor changes to groundwater baseflow contributions to surface water and / or alterations in surface water quality, resulting in a minor shift from baseline conditions. **Hydrogeology Beneficial**: Minor increase in groundwater resource availability. Leads to improvement of a WFD groundwater body which is currently failing its WFD objectives but insufficient effect to achieve Good Status. Minor reduction of existing or potential polluting discharge to groundwater.
Negligible	**Geology Adverse**: Very minor loss or detrimental alteration to one or more characteristics, features or elements of geological feature / designation. Overall integrity of resource not affected.
	Contamination: Contamination levels substantially below human health and environment assessment criteria and remediation is not required. No requirement for control measures to reduce risks to human health / make land suitable for intended use.

Hydrogeology Adverse: Very slight change from groundwater baseline conditions, approximating to 'no change' conditions. Dewatering effects create no or no noticeable effects.

Significance

Table 2.6.11: Significance matrix

		Value/sensitivity of receptor				
		Very High	**High**	**Medium**	**Low**	**Negligible**
Magnitude	**Large**	Major	Major/Moderate	Major/Moderate /Minor	Moderate/Minor	Minor/Negligible
	Medium	Major/Moderate	Major/Moderate	Moderate/Minor	Minor/Negligible	Negligible
	Small	Major/Moderate	Moderate/Minor	Moderate/Minor	Minor/Negligible	Negligible
	Negligible	Minor/Negligible	Minor/Negligible	Minor/Negligible	Negligible	Negligible

2.6.8 Conclusion

2.6.8.1 The Geology and Hydrogeology receptors that have been identified within the Scoping Boundary include human health, groundwater, surface waters, designated sites of geological importance, mineral reserves and land quality. The preliminary baseline assessment indicates that there is the potential for significant effects on these receptors, however with the implementation of both the embedded mitigation and good practice measures described, the significance of the potential effects can be reduced for certain impacts so that significant effects are unlikely. Where significant effects have been assessed as unlikely, those impacts are scoped out of further assessment. Where there is potential for significant effects, these impacts have been scoped into the ES and will be assessed further, in accordance with the methodology described. The impacts proposed to be scoped in and out of the assessment are summarised in Table 3.6.8.

Proposed Scope of the Assessment

2.6.8.2 A summary of the proposed scope of the assessment is provided in Table 2.6.12.

Table 2.6.12: Proposed scope of the assessment

Receptor	Potential significant effects	Project phase(s)	Proposed to be scoped in / out and for which option
Geology			
Built development	Damage to/destruction of the built development (operational phase) due to natural geological hazards (dissolution features/soft ground/landslides/aggressive ground conditions etc)	Construction, Operation, maintenance and decommissioning	Scoped out for all options
Designated sites of geological importance	Damage to/destruction of designated sites of geological importance	Construction	**Scoped in for Site 1 Emerging Preference, Site 3 Emerging Preference** Scoped out for Site 1 Alternative and Site 3 Alternative
		Operation, maintenance and decommissioning	Scoped out for all options
Mineral Reserves	Sterilisation of safeguarded minerals	Construction and Operation	**Scoped in for all options**
		Maintenance and decommissioning	Scoped out for all options
Contamination			
Site workers, neighbours	Human health exposure to existing potential contamination through ground disturbance during construction and decommissioning	Construction and decommissioning	**Scoped in for all options**
Environmentally sensitive sites, groundwater,	Mobilisation of existing contamination during general	Construction and decommissioning	**Scoped in for all options**

GWDTE, surface water, land quality	construction, impacting on land and/or groundwater quality	Operation and maintenance	Scoped out for all options
Environmentally sensitive sites, groundwater, GWDTE, surface water, land quality.	Introduction of new potential contaminants to the environment from leaks, spills, fuels and oils	Construction, operation, maintenance, and decommissioning	Scoped out for all options
Construction/ maintenance workers, future users, built environment	Ingress and accumulation of ground gas in buildings/confined spaces/trenches (construction and operation) – resulting in explosion/asphyxiation/exposure	Construction, operation maintenance, and decommissioning	**Scoped in for all options**
Site workers, maintenance workers, neighbours	Human health exposure to existing contamination during operation and maintenance	Operation and maintenance	Scoped out for all options
Hydrogeology			
Environmentally sensitive sites, groundwater, GWDTE, surface water	Mixing of aquifer bodies due to the connection of aquifer units at trenchless crossings	Construction, operation, maintenance and decommissioning	Scoped out for all options
Environmentally sensitive sites, groundwater, GWDTE, surface water	Changes to groundwater levels, quality and groundwater flow direction caused by dewatering	Construction	**Scoped in for all options**
		Operation, maintenance and decommissioning	Scoped out for all options
Environmentally sensitive sites, groundwater, GWDTE, surface water	Physical and chemical changes to groundwater from the discharge of groundwater from dewatering	Construction, operation, maintenance and decommissioning	Scoped out for all options
Environmentally sensitive sites, groundwater, GWDTE, surface water	Changes to groundwater levels and/or recharge rates from the introduction of impermeable surfaces	Construction, operation, maintenance and decommissioning	Scoped out for all options

2.7 Agriculture and Soils

2.7.1 Introduction

2.7.1.1 This chapter presents the Agriculture and Soils assessment which will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**) on agricultural and soil receptors. This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

2.7.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Suffolk Onshore Scheme Scoping Boundary, hereafter referred to as the Suffolk Scoping Boundary, is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**.

2.7.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme**.

2.7.1.4 This chapter is supported by the following figures:

- **Figure 2.7.1 Soilscape Mapping;**
- **Figure 2.7.2 Provisional Agricultural Land Classification Mapping;**
- **Figure 2.7.3 Detailed Agricultural Land Classification Mapping;** and
- **Figure 2.7.4 Environmental Stewardship Agreements and Woodland Grant Schemes.**

2.7.1.5 The receptors included within this chapter comprise:

- The presence and potential impact on best and most versatile (BMV) land (as defined by the Agricultural Land Classification (ALC) system), including land affected temporarily during construction and the land required permanently.
- The nature and potential impacts on landholdings in agricultural use, including land affected temporarily during construction and the land required permanently. This will cover issues of potential fragmentation, biosecurity risks and impacts on any land under agri-environmental, woodland or forestry schemes.

2.7.1.6 The assessment of potentially significant effects on agricultural and soil receptors will be supported by information presented in other chapters: **Part 2, Chapter 2, Ecology**

and Biodiversity; Part 2, Chapter 5, Water Environment; and **Part 2, Chapter 6, Geology and Hydrogeology.**

2.7.2 Regulatory and Planning Context

2.7.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on agriculture and soils associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

2.7.2.2 There is no primary legislation relevant to this topic.

Planning Policy

National planning policy

2.7.2.3 National Policy Statement (NPS) for Energy (EN-1)[147] contains paragraphs relating to agriculture and soils which have been considered within this chapter.

2.7.2.4 Paragraph 5.10.8 states that 'Applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification) and preferably use land in areas of poorer quality (grades 3b, 4 and 5) except where this would be inconsistent with other sustainability considerations. Applicants should also identify any effects and seek to minimise impacts on soil quality taking into account any mitigation measures proposed'.

2.7.2.5 Paragraph 5.10.15 states that the Secretary of State (formerly the Infrastructure Planning Commission) should 'ensure that applicants do not site their scheme on the best and most versatile agricultural land without justification. It should give little weight to the loss of poorer quality agricultural land (in grades 3b, 4 and 5), except in areas (such as uplands) where particular agricultural practices may themselves contribute to the quality and character of the environment or the local economy'.

2.7.2.6 EN-1 is supported by the National Policy Statement for Electricity Networks Infrastructure (EN-5)[148] which contains paragraphs relating to agriculture and soils which have been considered within this chapter. Paragraph 1.7.5 states that, in relation to a presumption that electricity lines should be put underground, '*effects on soil, water, ecology and archaeology are likely to be negative, at least in the short term, requiring significant mitigation, but there is uncertainty around long term effects depending on the specific location and sensitivity of the receiving environment*'. This is reiterated in paragraph 2.8.9 (third bullet point).

[147] Department for Business, Energy & Industrial Strategy (2021). Draft Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015233/en-1-draft-for-consultation.pdf

[148] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf

Local planning policy

2.7.2.7 Relevant policies from the East Suffolk Council Suffolk Coastal Local Plan, adopted 23rd September 2020[149], will also be considered. These are listed below:

- SCLP2.3: Cross-boundary mitigation of effects on Protected Habitats
- SCLP9.3 Coastal Change Management Area
- SCLP10.1: Biodiversity and Geodiversity
- SCLP10.3: Environmental Quality

Guidance

2.7.2.8 Several standards and non-statutory guidelines, which provide details of assessment methodologies and mitigation techniques, will also be referenced to inform the assessment, including:

- Construction Code of Practice for the sustainable re-use of soils on construction sites[150];
- Technical Information Note (TIN) 049[151]. Agricultural Land Classification: protecting the best and most versatile agricultural land;
- Good Practice Guide for Handling Soils[152]; and
- A new perspective on land and soil in Environmental Impact Assessment[153].

2.7.3 Study Area

2.7.3.1 The study area for agriculture and soils comprises the land which would be directly affected by the Suffolk Onshore Scheme (through disturbance or temporary covering of the soils). This will be based on the proposed Order Limits in the ES but for the purposes of this Scoping Report the study area includes the land within the Suffolk Scoping Boundary. This is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**.

[149] East Suffolk Council (2020). Suffolk Coastal Local Plan. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Planning-Policy-and-Local-Plans/Suffolk-Coastal-Local-Plan/Adopted-Suffolk-Coastal-Local-Plan/East-Suffolk-Council-Suffolk-Coastal-Local-Plan.pdf

[150] Department for Environment, Food and Rural Affairs (2009). Construction Code of Practice for the sustainable re-use of soils on construction sites. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716510/pb13298-code-of-practice-090910.pdf#:~:text=1.%20This%20Code%20of%20Practice%20for%20the%20sustainable,It%20is%20particularly%20intended%20for%20use%20in%20England

[151] Natural England (2012). Technical Information Note TIN049. Agricultural Land Classification: protecting the best and most versatile agricultural land. [online] Available at: https://www.iow.gov.uk/azservices/documents/2782-FE14-Natural-England-TIN049-Agricultural-Land-Classification.pdf

[152] Ministry of Agriculture, Fisheries and Food (2000). Good Practice Guide for Handling Soils. [online] Available at: https://webarchive.nationalarchives.gov.uk/ukgwa/20090317221756/http://www.defra.gov.uk/farm/environment/land-use/soilguid/index.htm

[153] Institute of Environmental Management & Assessment (2022). A new perspective on land and soil in Environmental Impact Assessment.

2.7.4 Baseline Conditions

Data Sources

2.7.4.1 The agriculture and soils baseline assessment has been informed by a desk study which has drawn on the following key information sources:

- Ordnance Survey mapping and aerial photography to establish land use and settlement patterns;
- Soilscape mapping showing the distribution of main soil types was assessed on the Land Information System website[154];ALC mapping, including provisional and (where available) detailed ALC mapping from the MAGIC website[155]; and
- Extent of agri-environmental and woodland schemes from the MAGIC website.

Baseline

Soils

2.7.4.2 The solid geology underlying the study area is described as comprising of undifferentiated Neogene and Quaternary Rocks. This comprises gravel, sand, silt, and clay sedimentary bedrock formed up to 23 million years ago in the Quaternary and Neogene Periods. This solid geology is in the main overlain by diamicton till superficial deposits. This material was deposited around 3 million years ago in the Quaternary Period when the local environment was dominated by ice age conditions. Closer to the coast the superficial deposits are replaced by glacial sand and gravel formed up to 3 million years ago in the Quaternary Period.

2.7.4.3 The soil types present within the study area are comprised of three major types as seen on **Figure 2.7.1 Soilscape Mapping**. Along the eastern areas the soil is described as freely draining and slightly acidic sandy soils. Moving westwards the soils around Leiston are categorised as freely draining acid but base-rich highly fertile loamy soils. The north-western section of the proposed site around Saxmundham consists of slowly permeable, and seasonally wet slightly acid but base-rich loamy and clayey soils.

Agricultural land classification

2.7.4.4 **Figure 2.7.2 Provisional ALC Mapping** shows that the study area comprises Grades 2, 3, and 4 land. This mapping, at a scale of 1:250,000, does not distinguish between Grades 3a and 3b (and cannot be used to inform site-specific assessments) but provides an indication of the likely land classification.

2.7.4.5 There is some detailed ALC mapping available local to the study area, based on surveys undertaken between 1993 and 2016. The land around Sizewell, and fields to

[154] Cranfield University (2021). LandIS: The Land Information System. [online] Available at: https://www.cranfield.ac.uk/themes/environment-and-agrifood/landis

[155] Department for Environment, Food and Rural Affairs (2022). Multi-Agency Geographic Information for the Countryside (MAGIC). [online] Available at: https://magic.defra.gov.uk/.

the North near Minsmere have been mapped as a mix of Grade 3a, Grade 3b and Grade 4, with a small area of Grade 1 located east of Lover's Lane (as shown in **Figure 2.7.3 Detailed ALC Mapping**).

2.7.4.6 Climate is unlikely to pose an overall limitation on ALC grade in relation to the criteria set out in the ALC Guidelines[156] (MAFF, 1988). Climate does, however, have an important influence on the interactive limitations of soil wetness and soil droughtiness, which is the balance between rainfall and water losses from the soil. The site has both relatively low rainfall and a long growing season, acting to decrease the severity of any potential soil wetness limitation, but increasing the severity of any potential soil droughtiness limitation.

Land use

2.7.4.7 A desk-based study using aerial photographs has shown that the land use appears to be principally arable, with areas of urban development at Leiston, Saxmundham and Thorpness.

2.7.4.8 There are areas of land within the study area under Countryside Stewardship (Higher Tier) Agreements, and areas south and east of Leiston under Entry Level plus Higher Level Environmental Stewardship agreements. There are also further small areas within the study area under Higher Level Environmental Stewardship, as well as Organic Entry Level plus Higher Level Stewardship areas to the north. Five small areas of land across the proposed site are also under Woodland Grant schemes (see **Figure 2.7.4 Environmental Stewardship Agreements and Woodland Grant Schemes**).

Future Baseline

2.7.4.9 It is considered that the baseline in relation to soils and ALC grades will not change from that described within the timeframe for the construction of this Project. Whilst there may be potential changes in relation to climate change, including greater rainfall intensity and droughts, that could affect soil conditions, land grade and farming practices, it is likely that these would only be visible over longer time frames.

2.7.4.10 There could potentially be changes to land management practices and business approaches across the landowners/land managers.

2.7.5 Embedded and Control & Management Measures

Embedded Measures

2.7.5.1 The assessment of effects will take account of mitigation, including measures embedded into the Project's design and good practice measures. Key measures are described below.

2.7.5.2 The temporary nature of many construction activities and the subsequent restoration of the land and its return to the preconstruction use is likely to result in the avoidance of long-term impacts on agricultural and soil receptors.

[156] Ministry of Agriculture, Fisheries and Food (1988). Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.

Control and Management Measures

2.7.5.3 Where effects cannot be avoided through design, commitments will be made and secured through Requirements in the DCO, to control and manage effects.

2.7.5.4 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the assessment relating to agriculture and soils are:

- GG03: A CEMP, a LEMP and an CTMP will be produced prior to construction. The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans.
- GG19: Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression where appropriate.
- AS01: Soil management measures will be included within the CEMP. Measures would include but not be limited to the following:
  - details of the soil resources present;
  - how the topsoil and subsoil will be stripped and stockpiled;
  - suitable conditions for when soil handling will be undertaken, for example avoiding handling of waterlogged soil;
  - indicative soil storage locations;
  - how soil stockpiles will be designed taking into consideration site conditions and the nature/composition of the soil;
  - specific measures for managing sensitive soils;
  - suitable protective surfacing where soil stripping can be avoided, based on sensitivity of the environment and proposed works;
  - approach to reinstating soil that has been compacted, where required; and
  - details of measures required for soil restoration.
- AS02: Where land is being returned to agricultural use, the appropriate soil conditions (for example through the replacement of stripped layers and the removal of any compaction) will be recreated. This will be achieved to a depth of 1.2m (or the maximum natural soil depth if this is shallower) except over the buried cables where the reinstated soil depth will be approximately 0.9m.
- AS03: Access to and from residential, commercial, community and agricultural land uses will be maintained throughout the construction period or as agreed through landowner discussions. This may require signed diversions or temporary restrictions to access. The means of access to affected properties, facilities and land parcels will be communicated to affected parties at the start of the project, with any changes communicated in advance of the change being implemented. Where field-to-field access points require alteration as a result of construction, alternative field access will be provided in consultation with the landowner/occupier.

- AS04: Existing water supplies for livestock will be identified pre-construction. Where supplies will be lost or access compromised by construction works, temporary alternative supplies will be provided. Water supplies will be reinstated following construction.
- AS05: Consultation with affected landowners will be carried out to investigate the current extent of land drainage. A scheme of pre-construction land drainage will be designed with the intent of maintaining the efficiency of the existing land drainage system and to assist in maintaining the integrity of the working area during construction. The project may include a system of 'cut-off' drains which feed into a new header drain and the project will also take into account surface water runoff measures.
- AS06: Should animal bones be discovered during construction, which may indicate a potential burial site, works will cease, and advice will be sought from the Animal Health Regional Office on how to proceed, relevant to the origin and age of the materials found.
- AS07: All movement of plant and vehicles between fields will cease in the event of a notification by Defra of a disease outbreak in the vicinity of the site that requires the cessation of activities. Advice will be sought from Defra in order to develop suitable working methods required to reduce the biosecurity risk associated with the continuation of works.
- AS08: Clay bungs or other vertical barriers will be constructed within trench excavations where deemed necessary by a suitably experienced person, to prevent the creation of preferential drainage pathways.

2.7.6 Potential for Significant Effects

2.7.6.1 The agriculture and soils assessment will consider the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

2.7.6.2 The proposed scope of the agricultural and soils assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

2.7.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme.

2.7.6.4 The potential for the Suffolk Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- temporary removal of land from agricultural production;

- disruption and disturbance to agricultural operations (from noise, fragmentation by fencing and disruption to water supplies or land drainage); and
- temporary disturbance to soils (potentially resulting in long-term changes to one or more soil functions).

Sources of operational impacts

- permanent removal of land from agricultural production;
- permanent loss of soils; and
- electric and magnetic fields (EMFs).

Sources of maintenance impacts

- temporary removal of land from agricultural production;
- temporary disruption and disturbance to agricultural operations (from noise, fragmentation by fencing and disruption to water supplies or land drainage); and
- temporary disturbance to soils (potentially resulting in long-term changes to one or more soil functions).

Sources of decommissioning impacts

- temporary removal of land from agricultural production;
- temporary disruption and disturbance to agricultural operations (from noise, fragmentation by fencing and disruption to water supplies or land drainage); and
- temporary disturbance to soils (potentially resulting in long-term changes to one or more soil functions).

Potential impacts

Soils and ALC

Soils and ALC during construction

2.7.6.5 During construction there would be a potential loss of BMV land (ALC Grades 1, 2 and 3a) from agricultural productivity. There would also be disturbance to soils, either from access for overhead line installation/removal or due to the excavation and soil stripping working areas for the underground cable trenches, pylon footings, converter station footprint and areas required temporarily (such as construction compounds). There would also be the potential for impacts on the ecosystem services the soils provide. The good practice measures set out within the Outline CoCP and the good practice soil management measures set out within the CEMP for soil handling, storage and reinstatement, would reduce the effects on soils.

2.7.6.6 By the end of construction, all land required temporarily would be reinstated minimising the risk of long-term effects on soils or ALC. However, until soil surveys have been undertaken to understand the sensitivity of the soils to handling, storage and reinstatement the construction effects on soils and ALC will be scoped into the ES.

Soils and ALC during operation

2.7.6.7 During operation, there would be a permanent loss of areas of agricultural land and associated soils for the permanent infrastructure. It is unlikely that this would give rise to a significant effect; however, the land grades and soil types affected would be confirmed through the assessment process and as such permanent impacts on soils and ALC will initially be scoped into the assessment. This would be informed by a survey following published guidelines[157]. However, if the site survey confirms that the permanent land affected is not BMV land or that the cumulative loss is below the magnitude threshold for a likely significant effect, then permanent loss of agricultural land during operation would be scoped out of the ES.

2.7.6.8 Any maintenance or repair works required which would result in disturbance to soils during operation of the project would be undertaken in accordance with good practice soil handling methods. No likely significant effects on soils or ALC during operational maintenance or repair activities are therefore concluded and this aspect is scoped out of the ES.

Land use

Land use during construction

2.7.6.9 During construction there would be potential impacts on agricultural operations due to disturbance (in particular where livestock are present), fragmentation, access restrictions or disruption to water supplies or land drainage. The measures set out within the Outline CoCP, including AS03, to maintain access throughout construction, would reduce the effects to agricultural land use. Effects on land drainage are covered in **Part 2, Chapter 5, Water Environment.**

2.7.6.10 By the end of the construction phase, all land required temporarily would be reinstated. As the footprint of the permanent infrastructure is limited and as impacts on agricultural operations will be dealt with through compensation agreements (which lies outside of the EIA process) it is considered that, on completion of the reinstatement of land required temporarily, there would be no significant effects on agricultural landholdings. Therefore, construction effects on land use are proposed to be scoped out of the ES.

Land use during operation

2.7.6.11 During operation, there would be limited effects on agricultural operations. Limited areas of agricultural land would be lost permanently and there is the potential for restrictions to activities immediately over or adjacent to buried cables or under overhead lines; however, these will be dealt with through compensation agreements (which lies outside of the EIA process). Any maintenance or repair works required which would result in disturbance to agricultural operations would be undertaken in accordance with good practice soil handling methods. Therefore, there are no likely significant effects on agricultural landholdings during operation and this aspect is proposed to be scoped out of the ES.

2.7.6.12 The majority of any financial consequences on individual landowners and farmers will be temporary, as most of the land will be reinstated by the end of the construction

[157] Ministry of Agriculture, Fisheries and Food (1988). Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.

phase and any claims regarding compensation will be addressed outside of the EIA process. As such, potential economic effects on individual landowners and farmers are proposed to be scoped out of the ES.

2.7.6.13 During operation, there can be landowner concerns that (EMFs) can affect land use. However, paragraph 2.10.8 of EN-5 states that, in relation to EMFs, '*there is little evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs has any agriculturally significant consequences*'. National Grid will be undertaking a walkover of the Indicative Alignment to identify land use and activities that may require additional clearance of the conductors. Land uses include intensive activities involving horses, such as riding schools, stud farms and areas habitually used for loading or unloading horse boxes. With these measures in place, there would be no likely significant effects during operation on land use from EMF or microshocks, and this is proposed to be scoped out of the ES.

2.7.6.14 National Grid will provide the relevant information on EMFs in a separate document submitted as part of the application for development consent. This document will demonstrate compliance in accordance with the ICNIRP guidelines and paragraph 2.10.9 of EN-5.

Soils, ALC and land use during decommissioning

2.7.6.15 Decommissioning of the Project would consider all the relevant environmental legislation and technology available at the time. Decommissioning activities would be subject to an environmental management plan that would identify and mitigate the potential impacts of decommissioning activities that could harm sensitive receptors.

2.7.6.16 It is considered likely that the impacts associated with decommissioning would be similar to those identified during the construction phase, with land taken permanently returned to agricultural use where practicable.

2.7.6.17 Table 2.7.1 identifies the potential impacts that could result from the sources identified above.

Table 2.7.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction	Temporary removal of land from agricultural production	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
		Temporary loss of BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline	**Scoped in (to be reviewed once soil surveys are complete).**

			CoCP. Soil surveys will be undertaken to confirm this.	
Construction	Temporary disruption and disturbance to agricultural operations (from noise, fragmentation and disruption to water supplies and land drainage	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Construction	Temporary disturbance to soils	Changes to one or more soil functions	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Operation	Permanent removal of land from agricultural production	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
		Permanent loss of BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Operation	Permanent loss of soils	Changes to one or more soil functions	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Operation	EMFs	EMFs impacting crops and livestock	No - Little evidence to indicate EMFs have a significant effect.	Scoped out

Maintenance	Temporary removal of land from agricultural production	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
		Temporary loss of BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Maintenance	Temporary disruption and disturbance to agricultural operations (from noise, fragmentation and disruption to water supplies and land drainage	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Maintenance	Temporary disturbance to soils	Changes to one or more soil functions	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Decommissioning	Temporary removal of land from agricultural production	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
		Temporary loss of BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**

Decommissioning	Temporary disruption and disturbance to agricultural operations (from noise, fragmentation and disruption to water supplies and land drainage	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Decommissioning	Temporary disturbance to soils	Changes to one or more soil functions	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**

Impact Pathways with Receptors (Step 2)

2.7.6.18 This section identities whether there are any impact pathways associated with all 5 options from the impacts identified above that could give rise to potentially significant effects on the receptors within the agricultural and soils study area or area.

2.7.6.19 Table 2.7.2 provides a summary of the impact pathways identified and the matters scoped into and out of the assessment for all options as shown on:

- **Figure 2.1.4 Suffolk Site 1 Emerging Preference** and **Figure 2.1.9 Suffolk Site 1 Emerging Preference Option Area**;
- **Figure 2.1.5 Suffolk Site 3 Emerging Preference** and **Figure 2.1.10 Suffolk Site 3 Emerging Preference Option Area**;
- **Figure 2.1.6 Suffolk Site 1 Alternative** and **Figure 2.1.11 Suffolk Site 1 Alternative Option Area**;
- **Figure 2.1.7 Suffolk Site 3 Alternative (Option 1)** and **Figure 2.1.12 Suffolk Site 3 Alternative (Option 1) Option Area**; and
- **Figure 2.1.8 Suffolk Site 3 Alternative (Option 2)** and **Figure 2.1.13 Suffolk Site 3 Alternative (Option 2) Option Area**.

Table 2.7.2: Impact pathways with receptors – all options

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary removal of land from	BMV land	Yes -Land required temporarily to be returned to preconstruction	**Scoped in**

agricultural production during construction		condition through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once extent of BMV land and soil characteristics understood from surveys.	
	Agricultural landholdings	No - No potential for a significant effect relating to land area or disturbance/ disruption due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Permanent removal of land from agricultural production during operation	BMV land	Yes -Soil handling and re-use to be undertaken through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once extent of BMV land and soil characteristics understood from surveys.	**Scoped in**
	Agricultural landholdings	No - No potential for a significant effect relating to land area or disturbance/ disruption due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Temporary disturbance to soils during construction	Soil quality and associated ecosystem services	Yes -Land required temporarily to be returned to preconstruction condition through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once soil characteristics and resilience understood from surveys.	**Scoped in**
Permanent loss of soils during operation	Soil quality and associated ecosystem services	Yes -Soil handling and re-use to be undertaken through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once soil characteristics and resilience understood from surveys.	**Scoped in**
EMFs during operation	Agricultural operations	No - Little evidence to indicate EMFs have a significant effect.	Scoped out

Temporary removal of land from agricultural production due to maintenance activities	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
	BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in**
Temporary disruption and disturbance due to maintenance activities	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Temporary disturbance to soils during decommissioning activities	Soil quality and associated ecosystem services	Yes -Land required temporarily to be returned to preconstruction condition through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once soil characteristics and resilience understood from surveys.	**Scoped in**
Temporary removal of land from agricultural production due to decommissioning activities	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Temporary disruption and disturbance due to decommissioning activities	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out

2.7.7 Proposed Assessment Methodology

2.7.7.1 An overview of the proposed assessment methodology is provided in **Part 1, Chapter 5, EIA Approach and Methodology.**

Proposed Data Sources

2.7.7.2 The following data sources are proposed to be used to inform the assessment:

- Soil surveys (as required);

- Ordnance Survey mapping and aerial photography to establish land use and settlement patterns;
- Soilscape mapping showing the distribution of main soil types was assessed on the Land Information System website; ALC mapping, including provisional and (where available) detailed ALC mapping from the MAGIC website ; and
- Extent of agri-environmental and woodland schemes from the MAGIC website.

Proposed Assessment Methodology

2.7.7.3 The assessment will be based on guidance set out by the Institute of Environmental Management and Assessment on how land and soil should be assessed in Environmental Impact Assessment[158]. This recently published guidance and the sensitivity and magnitude tables have been based on guidance set out in LA109[159] Geology and Soils of the Design Manual for Roads and Bridges (DMRB) which has traditionally been used to assess the impacts of both highways' projects and other linear infrastructure projects on agriculture and soil receptors.

2.7.7.4 The IEMA guidance seeks to move practice away from a narrow focus on quantifying and financially compensating impacts on agricultural land and advocates a new and wider approach to assessing the soil functions, ecosystem services and natural capital provided by land and soils.

2.7.7.5 The sensitivity of receptors will be assessed based on the criteria set out in Table 2.7.3 below.

Table 2.7.3: Sensitivity of receptor criteria

Receptor sensitivity (in-situ soils)	Soil resource and soil functions
Very High	***Biomass production***: ALC Grades 1 & 2 ***Ecological habitat, soil biodiversity and platform for landscape***: Soils supporting protected features within a European site (e.g., SAC, SPA, Ramsar); Peat soils; Soils supporting a National Park, or Ancient Woodland ***Soil carbon***: Peat soils Soils with potential for ecological/landscape restoration ***Soil hydrology***: Very important catchment pathway for water flows and flood risk management ***Archaeology, Cultural heritage, Community benefits and Geodiversity***: SAMs and adjacent areas; World Heritage and European designated sites; Soils with known archaeological interest; Soils supporting

[158] Institute of Environmental Management and Assessment (2022). A new perspective on land and soil in Environmental Impact Assessment.

[159] Highways England (2020). Design Manual for Roads and Bridges. LA 109 Geology and Soils. [online] Available at: https://www.standardsforhighways.co.uk/prod/attachments/adca4c7d-4037-4907-b633-76eaed30b9c0?inline=true

	community/recreational/educational access to land covered by National Park designation ***Source of materials***: Important surface mineral reserves that would be sterilised (i.e., without future access)
High	***Biomass production***: ALC Grade 3a ***Ecological habitat, soil biodiversity and platform for landscape***: Soils supporting protected features within a UK designated site (e.g., UNESCO Geoparks, SSSI or AONB, Special Landscape Area and Geological Conservation Review sites); Native Forest and woodland soils; Unaltered soils supporting semi-natural vegetation ***Soil carbon***: Organo-mineral soils (e.g. peaty soils) ***Soil hydrology***: Important catchment pathway for water flows and flood risk management ***Archaeology, Cultural heritage, Community benefits and Geodiversity***: Soils with probable but as yet unproven (prior to being revealed by construction) archaeological interest; Historic parks and gardens; RIGS; Soils supporting community/recreational/educational access to RIGS and AONBs; ***Source of materials***: Surface mineral reserves that would be sterilised (i.e., without future access)
Medium	***Biomass production***: ALC Grade 3b ***Ecological habitat, soil biodiversity and platform for landscape***: Soils supporting protected or valued features within non-statutory designated sites (e.g. Local Nature Reserves (LNR), Local Geological Sites (LGSs), Sites of Nature Conservation Importance (SNCIs), Special Landscape Areas; Non-Native Forest and woodland soils ***Soil carbon***: Mineral soils ***Soil hydrology***: Important minor catchment pathway for water flows and flood risk management ***Archaeology, Cultural heritage, Community benefits and Geodiversity***: Soils with possible but as yet unproven (prior to being revealed by construction) archaeological interest; Soils supporting community/recreational/educational access to land ***Source of materials***: Surface mineral reserves that would remain accessible for extraction
Low	***Biomass production***: ALC Grade 4 and 5 ***Ecological habitat, soil biodiversity and platform for landscape***: Soils supporting valued features within non-designated notable or priority habitats/landscapes. Agricultural soils ***Soil carbon***: Mineral soils ***Soil hydrology***: Pathway for local water flows and flood risk management ***Archaeology, Cultural heritage, Community benefits and Geodiversity***: Soils supporting no notable cultural heritage, geodiversity nor community benefits; Soils supporting limited community/recreational/educational access to land

	Source of materials: Surface mineral reserves that would remain accessible for extraction
Negligible	As for low sensitivity, but with only indirect, tenuous, and unproven links between sources of impact and soil functions

2.7.7.6 The magnitude of impacts will be assessed based on the criteria set out in Table 2.7.4 below.

Table 2.7.4: Magnitude criteria

Magnitude of impact (change)	Description of impacts restricting proposed land use
Large	Permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading), over an area of more than 20ha or loss of soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team (including effects from 'temporary developments'*) or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of more than 20ha, or gain in soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team (including effects from 'temporary developments'*)
Medium	Permanent, irreversible loss of one or more soil functions or soil volumes, over an area of between 5 and 20ha or loss of soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team (including effects from 'Temporary Developments'*) or Potential for improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of between 5 and 20ha, or gain in soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team
Small	Permanent, irreversible loss over less than 5ha or a temporary, reversible loss of one or more soil functions or soil volumes), or temporary, reversible loss of soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of less than 5ha or a temporary improvement in one or more soil functions due to remediation or restoration or off-site improvement, or temporary gain in soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team

Negligible	No discernible loss or reduction or improvement of soil functions or soil volumes that restrict current or proposed land use

*Temporary developments can result in a permanent impact if resulting disturbance or land use change causes permanent damage to soils

2.7.7.7 The significance of an effect is then derived using the matrix set out in **Part 1, Chapter 5, EIA Approach and Methodology**.

2.7.8 Conclusion

2.7.8.1 The Suffolk Onshore Scheme has the potential to affect agriculture and soil receptors as a result of the temporary and permanent removal of land from agricultural production including BMV land), disturbance to soils and disruption to agricultural operations. A suite of measures is set out in the Outline CoCP which seek to minimise the potential impacts on these receptors. Soil and ALC surveys will be undertaken in key areas where there would be permanent loss of land and sections of undergrounded cable to further inform the assessment.

Proposed Scope of the Assessment

2.7.8.2 A summary of the proposed scoped of the assessment is provided in Table 2.7.5.

Table 2.7.5: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out and for which option
Temporary loss of BMV land	No likely significant effect; extent to be confirmed through ALC surveys	Construction, Maintenance, Decommissioning	**Scoped in for all options**
Permanent loss of BMV land	Potential for permanent loss of BMV land; extent to be confirmed through ALC surveys	Operation	**Scoped in for all options**
Soil quality and associated ecosystem services	No likely significant effect; to be confirmed through ALC surveys	Construction, Maintenance, Decommissioning	**Scoped in for all options**
Temporary loss of BMV land; Soil quality and associated	No likely significant effect	Operation	**Scoped in for all options**

ecosystem services			
Agricultural landholdings and effects of EMFs	No likely significant effect	Operation	Scoped out for all options
Removal of land from agricultural use	No likely significant effect	Construction, Operation, Maintenance, Decommissioning	Scoped out for all options

2.8 Traffic and Transport

2.8.1 Introduction

2.8.1.1 This chapter presents how the Traffic and Transport assessment will consider the potentially significant effects on heritage assets that may arise from the construction, and operation, maintenance and decommissioning of the Suffolk Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

2.8.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Suffolk Onshore Scheme Scoping Boundary hereafter referred to as the Suffolk Scoping Boundary is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**.

2.8.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme**.

2.8.1.4 This chapter is supported by the following figure:

- **Figure 2.8.1 Proposed Study Area in Suffolk (Traffic & Transport**).

2.8.2 Regulatory and Planning Policy Context

2.8.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on traffic and transport associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

2.8.2.2 There is no transport specific legislation relevant to the proposals.

Planning Policy

National planning policy

National Policy Statement for Energy (NPS EN-1, 2011)

2.8.2.3 The NPS for Energy (EN-1) was published in 2011 and provides the basis for decisions regarding nationally significant energy infrastructure. Section 5.14 outlines the planning policy for traffic and transport, including guidance on undertaking relevant parts of the EIA. The most relevant paragraphs for this purpose are 5.13.3 to 5.13.5 which are set out as follows:

- Paragraph 5.13.3, which states that if a project is likely to have significant transport implications a Transport Assessment should be included with the ES;
- Paragraph 5.13.4, which states that where appropriate, a Travel Plan to include demand management measures to mitigate transport impacts should be prepared; and
- Paragraph 5.13.5, which states that where additional transport infrastructure is proposed, this should be discussed with the relevant network providers (in terms of the possibility of co-funding by Government for any third-party benefits).

2.8.2.4 In addition, Section 3.1 relates to Infrastructure Planning Commission (IPC) decision making which includes the following:

- Paragraph 3.1.1, the UK needs all the types of energy infrastructure covered by this NPS in order to achieve energy security at the same time as dramatically reducing greenhouse gas emissions;
- Paragraph 3.1.2, it is for industry to propose new energy infrastructure projects within the strategic framework set by Government. The Government does not consider it appropriate for planning policy to set targets for or limits on different technologies;
- Paragraph 3.1.3, the IPC should therefore assess all applications for development consent for the types of infrastructure covered by the energy NPSs on the basis that the Government has demonstrated that there is a need for those types of infrastructure and that the scale and urgency of that need is as described for each of them in this Part; and
- Paragraph 3.1.4, the IPC should give substantial weight to the contribution which projects would make towards satisfying this need when considering applications for development consent under the Planning Act 2008.

2.8.2.5 The NPS EN-1 is currently under review and an updated draft was published for consultation in September 2021, where the above paragraphs are proposed to be relocated to Section 5.14, supported by the following proposed updates:

- Paragraph 5.14.4, which also states that the assessment should consider any possible disruption to services and infrastructure (such as road, rail and airports); and

- Paragraph 5.14.8, which states that the Secretary of State (SoS) should only consider preventing or refusing development on highways grounds if there would be an unacceptable impact on highway safety, or residual cumulative impacts on the road network would be severe.

National Policy Statement for Electricity Networks Infrastructure (NPS EN-5, 2011)

2.8.2.6 The NPS for Electricity Networks Infrastructure (EN-5) was published in 2011 and sets out the policies relating to electricity networks infrastructure for consideration in conjunction with NPS EN-1.

2.8.2.7 The NPS EN-5 is currently under review and an updated draft was published for consultation in September 2021. While the adopted document does not refer to transport or highways requirements, the most relevant paragraphs are set out as follows:

- Paragraph 2.2.2, which discusses the factors that inform site selection for the proposed infrastructure; and
- Paragraph 2.2.3 and 2.2.4, which considers the land requirements to gain access for the purposes of installation and maintenance of networks.

National planning policy framework (July 2021)

2.8.2.8 The Government's National Planning Policy Framework (NPPF) was originally published in March 2012 and later revised in July 2021, outlining the Government's planning policies and how they are expected to be applied. The TA will set out the key guidance points of relevance to this application.

2.8.2.9 The most relevant paragraphs in the context of transport are set out below:

- Paragraph 104 outlines that 'transport issues should be considered from the earliest of stages of plan-making and development proposals'; this is to ensure that:
  - The potential impacts of development on transport networks can be addressed;
  - Opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;
  - Opportunities to promote walking, cycling and public transport use are identified and pursued;
  - The environmental impacts of traffic and transport infrastructure can be identified, assessed and considered – including appropriate opportunities for mitigation and for net gains in environmental quality; and
  - Patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places.
- Paragraph 110 outlines the key considerations when assessing sites to be allocated for development in plans or specific development applications. These are:

- Appropriate opportunities to promote sustainable transport modes can be (or have been) taken up, given the type of development and its location;
- Safe and suitable access to the Order limits can be achieved for all users;
- The design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance; and
- Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

- Paragraph 111 states that development should only be prevented or refused on highways grounds where there would be an unacceptable impact on highway safety, or the residual cumulative impacts of development on the road network would be severe.
- Within this context, paragraph 112 states that applications for development should:
  - Give priority first to pedestrian and cycle movements and then, as far as possible, facilitate access to high quality public transport;
  - Address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
  - Create places that are safe, secure and attractive, which minimise the scope for conflicts between pedestrians, cyclists and vehicles;
  - Allow for the efficient delivery of goods, and access by service and emergency vehicles; and
  - Be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.
- As outlined in Paragraph 113, all developments that generate significant amounts of movement should be required to provide a Travel Plan, and the application should be supported by a Transport Statement or TA so that the likely impacts of the proposal can be assessed.

National planning practice guidance (2014)

2.8.2.10 The Government's Planning Practice Guidance; Travel Plans, TAs and Transport Statements in Decision Taking (2014) provides advice on when TAs and Transport Statements are required, and what they should contain. The most relevant paragraphs are summarised below:

- Paragraph 002 states that Travel Plans, TAs and Transport Statements are all ways of assessing and mitigating the negative transport impacts of development in order to promote sustainable development. They are required for all developments which generate significant amounts of movements;
- Paragraphs 004 and 005 state that TAs should primarily focus on evaluating the potential transport impacts of a development proposal and may propose mitigation measures to promote sustainable development in order to avoid unacceptable or "severe" impacts where necessary;

- Paragraph 006 states that TAs support national planning policy and can positively contribute to encouraging sustainable travel, reducing traffic generation and detrimental impacts, reducing carbon emissions and climate impacts, creating accessible, connected and inclusive communities, improving health outcomes and quality of life, improving road safety and reducing the need for new development to increase existing road capacity of provide new roads;
- Paragraph 007 states that TAs should be established at an early stage and be tailored to local circumstances, as well as proportionate to the size and scope of the proposed development. In addition, they should be brought forward through collaborative ongoing working between the local planning authority/transport authority, transport operators, rail network operators, as well as National Highways where there may be implications for the strategic road network and other relevant bodies; and
- Paragraphs 013 to 015 provide further details of when TAs are required, how the need and scope of a TA should be established and what information should be included.

Guidelines for the environmental assessment of road traffic (1993)

2.8.2.11 Institute of Environmental Management and Assessment (IEMA) Guidelines for the Environmental Assessment of Road Traffic (1993) provides guidance on examining the environmental impacts of developments in terms of traffic and transportation.

Local planning policy

2.8.2.12 Local planning policy relating to transport and pertinent to the Suffolk Onshore Scheme is set out below.

Suffolk's Local Transport Plan (2011 – 2031)

2.8.2.13 The Local Transport Plan was prepared by Suffolk County Council (SCC) with an aim to provide a clear vision for the future of transport across the county up to 2031. The document outlines policies and provides a four-year implementation plan to manage and enhance the local transport network; the key aims and strategy focus on:

- The challenge of maintaining the highway network in good condition;
- Tackling congestion in the larger towns by more efficient management of traffic, reducing the demand for car travel and promoting more sustainable means of travel;
- Improved connectivity and accessibility in rural areas;
- Seeking improvement to the A11, A12 and A14 trunk roads connecting businesses in Suffolk to each other and to their markets;
- Seeking improvement to the rail network for freight and passengers;
- Relief for our market towns suffering from high levels of through traffic; and
- Recognising that securing high speed broadband throughout Suffolk is very important at present in addressing accessibility and connectivity issues throughout Suffolk and supporting business growth.

2.8.2.14 The Local Transport Plan (LTP) recognises the potential of promoting transport systems with the aim of reducing carbon emissions. In addition, the LTP supports the County's Sustainable Community Strategy to meet the following objectives:

- Creating a prosperous and vibrant economy;
- Improving learning and skills for the future;
- Creating the greenest county; and
- Providing safe, healthy and inclusive communities.

2.8.2.15 The key measures proposed within the Implementation Plan are region, mode and route specific.

East Suffolk Council – Suffolk Coastal Local Plan (2020)

2.8.2.16 The Local Authority was created from a merger of the former Suffolk Coastal and Waveney district, and as such there are two adopted Local Plans within East Suffolk. The Study area is located within the former Suffolk Coastal district and subject to decision making with reference to the relevant Local Plan adopted in September 2020.

2.8.2.17 The Local Plan sets out a vision and a framework for the future development of the area, addressing needs and opportunities for housing, the economy, community facilities and infrastructure, as well as the basis for conserving and enhancing the natural and historic environment, mitigating and adapting to climate change, and achieving well designed places. Chapter 7 of the document sets out the Council's strategy for transport and infrastructure provision in the district and the relevant policies, which focuses on sustainable transport (Policy SCLP7.1) and parking (Policy SCLP7.2).

2.8.3 Study Area

2.8.3.1 At this stage, a total of five options are considered for the proposal, with the proposed study area therefore comprising the land requirement for all options collectively, including directly linked transport infrastructure adjacent to the land required for all options, and the inclusion of the village of Leiston, which is surrounded by the proposal options.

2.8.3.2 The proposed study area in Suffolk is defined by **Figure 1.1.2 Suffolk Scoping Boundary** and also includes additional parts of the highway network and the pedestrian/ cycle network including Public Rights of Way (PRoW) which may potentially be affected by the Suffolk Onshore Scheme. The proposed study area for traffic and transport is shown on **Figure 2.8.1 Proposed Study Area in Suffolk (Traffic & Transport)**.

2.8.3.3 The extent of the proposed study area for assessment in terms of highway impact will be subject to discussion, and agreement of this study area will be sought, with Suffolk County Council (SCC) as the local highway authority. Therefore, the proposed study area will be updated as required when the ES is prepared.

2.8.3.4 The proposed study area includes the following parts of the highway network for consideration:

- A1094 Saxmundham Road between Church Common and Aldeburgh;
- B1119 Church Hill/Saxmundham Road/Waterloo Avenue;
- B1122 Abbey Road;
- B1069 Snape Road;
- B1353 Aldringham Lane;
- B1122 Aldeburgh Road/Leiston Road
- All roads within and connected to the village of Leiston;
- Road links to Sizewell nuclear power stations and the Beach View Holiday Park;
- All roads within and connected to the village of Thorpeness including Thorpe Road;
- All roads within the west portion of Aldeburgh, from the roundabout junction of A1094 Saxmundham Road with B1122 Leiston Road;
- All roads within and connected to the village of Friston including B1121 Saxmundham Road; and
- Grove Road from Friston to the western edge of Saxmundham.

2.8.3.5 The following key local junctions along the perimeter of the Study Area will be considered:

- Junction of B1122 with Moat Road;
- Junction of Hawthorn Road with Moat Road;
- Junction of Hawthorn Road with Harrow Lane;
- Junction of Hawthorn Road with access road towards the Concrete Plant and Cakes and Ale Holiday Park;
- Junction of the B1121 with Clayhills Road;
- Junction of B1121 with Sandy Lane;
- Junction of the A1094 with the B1121;
- Junction of the A1094 with the B1069; and
- Roundabout junction of the A1094 with the B1122.

2.8.3.6 The proposed study area also includes the following walking and cycling routes (including PRoW) which will be considered:

- National Cycle Network Route 42, which runs from southwest to northeast across the centre of the Study Area;
- A significant number of PRoW, as set out within the SCC definitive map. The PRoW are located within the parishes of Leiston-cum-Sizewell, Theberton, Knodishall, Friston, Aldringham-cum-Thorpe, Aldeburgh, Sternfield, Saxmundham, and Snape;

- Promoted Route: Sandlings Walk from Ipswich to Lowestoft, which runs from north to south and across the east of the Leiston; and
- Suffolk Coast Path.

2.8.3.7 The specific transport and highways assets are set out and listed in the Baseline Conditions by Option. As a preferred option is taken forward, these assets will become subject to the assessment, with agreement from SCC.

2.8.4 Baseline Conditions

Data Sources

2.8.4.1 The traffic and transport baseline conditions described in this section have been informed by a review of the following data sources:

- Publicly available mapping and aerial imagery from Google Maps;
- Publicly available information on websites for public transport operators and online resources for promoted recreational routes; and
- Data held within the AECOM WebGIS platform, with transport infrastructure information, including routes and labelling for PRoW routes.

Baseline

Site 1 Emerging Preference

Highway network

2.8.4.2 The proposed Option Area includes portions of a number of main local highways. The most prominent is the A1094 to the west of Aldeburgh. This route operates with a single lane in each direction and is the main route between Aldeburgh and the A12(T). The portion of the A1094 within the Option Area provides access to a number of farms and operates with the national speed limit.

2.8.4.3 The Option Area includes a portion of the B1122 Leiston Road which runs from Aldeburgh to the south towards Aldringham and Leiston in the north. The portion of the B1122 within the Option Area provides access to a farm access and operates with a 30mph speed limit. The B1122 is not linked with any other main routes within the Option Area itself.

2.8.4.4 Thorpe Road is a coastal road linking Aldeburgh in the south with Thorpeness to the north. The route, which operates with the national speed limit, does not include any connectivity with any other routes within the Option Area.

2.8.4.5 The B1069 Snape Road bisects the centre of the Option Area and connects the A1094 to the south with the village of Knodishall Common to the north. Grove Road is also a north-south route through the Option Area, running northwards from the village of Friston. School Road forms a junction with Grove Road and runs eastwards towards Knodishall. Both Grove Road and School Road are unclassified with single lane carriageways subject to the national speed limit within the Option Area.

2.8.4.6 The Option Area includes a network of unmade tracks that provide agricultural access, some of which are connected to each other, as well as the A1094 and B1069 via a series of access points. The northwest perimeter of the Option Area also abuts the B1121 which runs from Sternfield to Friston and operates with a 30mph speed limit.

Public transport network

2.8.4.7 There are bus stops in both directions on the B1122 Linden Road at the south of the Option Area. The bus routes that operate along the B1122 are 64, 65 and 522. The 522 service operates between Saxmundham and Aldeburgh, with services operating from 07:00 and 17:00, at a frequency of one service per hour in each direction. The 64 service runs from Ipswich to Aldeburgh via Leiston between 06:00 and 20:00 at a frequency of one service per hour in each direction. The 65 service runs from Ipswich to Leiston via Woodbridge between 06:00 and 15:30 on an hourly frequency in each direction.

2.8.4.8 The B1121 along the southwest perimeter of the Option Area is used by bus route 521 between Aldeburgh and Halesworth. The service operates four times per day in each direction and can be accessed from stops at Friston to the west of the Option Area, and Sandy Lane further to the west.

2.8.4.9 There are no rail services within the Option Area, although Saxmundham railway station is located circa. 2.5km to the northwest of the Option Area. The station operates services between Lowestoft and Ipswich at one service per hour in each direction. There is a branch railway line between Saxmundham and Leiston, although this is solely for service access to Sizewell power station.

Active travel network

2.8.4.10 There is a significant number of bridleways and shared walking and cycling routes within the Option Area. The specific links within the Option Area are set out, with PROW ID, Route Code and Type of PROW as follows:

- 6318 E-103/006/0 Footpath
- 6333 E-103/016/0 Footpath
- 6334 E-103/019/0 Footpath
- 6335 E-103/020/0 Footpath
- 7442 E-260/001/0 Footpath
- 7445 E-260/007/0 Footpath
- 7446 E-260/008/0 Footpath
- 7972 E-354/004/0 Footpath
- 7973 E-354/019/0 Footpath
- 7974 E-354/005/0 Footpath
- 7975 E-354/006/0 Footpath
- 7976 E-354/007/0 Footpath
- 7977 E-354/007/A Footpath
- 7978 E-354/008/0 Footpath

- 7447 E-260/009/0 Footpath
- 7449 E-260/012/0 Bridleway
- 7450 E-260/012/A Bridleway
- 7452 E-260/013/A Footpath
- 7455 E-260/017/0 Footpath
- 7969 E-354/001/0 Bridleway
- 7970 E-354/002/0 Bridleway
- 7971 E-354/003/0 Footpath
- 7986 E-354/016/0 Footpath
- 7988 E-354/018/0 Footpath
- 7989 E-354/018/A Footpath
- 7990 E-354/020/0 Bridleway
- 7991 E-354/022/0 Footpath
- 10027 E-103/001/0 Footpath
- 14032 E-354/036/0 Bridleway

2.8.4.11 National Cycle Network Route 42, which runs from southwest to northeast direction across the west of the Option Area. The Suffolk Coast Path crosses the southeast of the Option Area, beyond the northern edge of Aldeburgh. Sandlings Walk, which is a promoted route from Ipswich to Lowestoft, runs east to west across the study area.

Site 1 Alternative

Highway network

2.8.4.12 The Option Area includes portions highways across rural land from the southwest perimeter of Knodishall, southeast perimeter of Leiston and leading towards land to the south of the Sizewell power station. The Option Area includes Sizewell Gap to the east, which is an unclassified road linking Leiston to Sizewell, that acts as a link road with ample visibility provided at junctions, including wide junction bellmouths along its length, and a footway along the southern side of the road.

2.8.4.13 Sizewell Gap provides a link onto Lovers Lane and the B1122 Abbey Road which run to the north of Leiston. The A1122 Abbey Road provides connections with Theberton in the north and Leiston to the south.

2.8.4.14 Within the centre, the Option Area includes extents and the junction of the B1353 and B1122 Aldeburgh Road at the southeast of Aldringham. The junction includes a slip lane from the B1122 southeast bound onto the B1353, and each link on the junction is provided with flared lanes. The two links, within the Option Area, operate with 30mph speed limits.

2.8.4.15 The B1069 Snape Road within the southwest of the Option Area, connects the A1094 with the village of Knodishall Common. The route has a single lane in each direction, without kerb lines or footway, and is a national speed limit route. Grove Road is also a

north-south route through the Option Area, running northwards from the village of Friston. School Road forms a junction with Grove Road and runs eastwards towards Knodishall Both Grove Road and School Road are unclassified with single lane carriageways subject to the national speed limit within the Option Area.

2.8.4.16 The Option Area includes a network of unmade tracks that provide agricultural access, some of which are connected to each other, as well as the A1094 and B1069 via a series of access points. The northwest perimeter of the Option Area also abuts the B1121 which runs from Sternfield to Friston and operates with a 30mph speed limit.

Public transport network

2.8.4.17 The bus stop and route serving the B1121 is the 521 service between Aldeburgh and Halesworth. The service operates four times per day in each direction and can be accessed from the Parrot & Punchbowl and Church Lane stops at the east of the Option Area.

2.8.4.18 There are three services operating on the B1122, the 64, 65 and 522. The 64 service runs from Ipswich to Aldeburgh via Leiston between 06:00 and 20:00 at a frequency of one service per hour in each direction. The 65 service runs from Ipswich to Leiston via Woodbridge between 06:00 and 15:30 on an hourly frequency in each direction. The 522 service operates between Saxmundham and Aldeburgh, with services operating from 07:00 and 17:00, at a frequency of one service per hour in each direction. The 522 bus route also operates along the B1119 at the northwest perimeter of the Option Area, with access points within Saxmundham, including from the Waitrose store on this road.

2.8.4.19 There are no rail services within the Option Area, although Saxmundham railway station is located circa. 2.5km to the northwest of the Option Area. The station operates services between Lowestoft and Ipswich at one service per hour in each direction. There is a branch railway line between Saxmundham and Leiston, although this is solely for service access to Sizewell power station.

Active travel network

2.8.4.20 There is a significant number of bridleways and shared walking and cycling routes within the Option Area. The specific links within the Option Area are set out, with PROW ID, Route Code and Type of PROW as follows:

- 6349 E-106/008/0 Footpath
- 16991 E-260/030/0 Footpath
- 6370 E-106/028/0 Footpath
- 7988 E-354/018/0 Footpath
- 8036 E-363/024/0 Footpath
- 7452 E-260/013/A Footpath
- 7989 E-354/018/A Footpath
- 7972 E-354/004/0 Footpath
- 8026 E-363/016/0 Footpath
- 6314 E-106/001/0 Footpath

- 7971 E-354/003/0 Footpath
- 7990 E-354/020/0 Bridleway
- 7450 E-260/012/A Bridleway
- 8041 E-363/029/0 Footpath
- 7976 E-354/007/0 Footpath
- 8034 E-363/022/0 Footpath
- 6347 E-106/006/0 Bridleway
- 8024 E-363/014/A Footpath
- 7975 E-354/006/0 Footpath
- 6407 E-106/067/0 Footpath
- 7455 E-260/017/0 Footpath
- 7970 E-354/002/0 Bridleway
- 8040 E-363/028/0 Bridleway
- 6338 E-106/003/0 Footpath
- 16992 E-260/031/0 Footpath
- 7969 E-354/001/0 Bridleway
- 8035 E-363/023/0 Footpath
- 7447 E-260/009/0 Footpath
- 8038 E-363/026/0 Bridleway
- 14032 E-354/036/0 Bridleway
- 8037 E-363/025/0 Footpath
- 8039 E-363/027/0 Bridleway
- 7991 E-354/022/0 Footpath
- 8031 E-363/019/0 Bridleway
- 6362 E-106/026/0 Byway Open to All Traffic
- 7449 E-260/012/0 Bridleway
- 7977 E-354/007/A Footpath
- 7974 E-354/005/0 Footpath
- 7986 E-354/016/0 Footpath
- 7978 E-354/008/0 Footpath
- 7446 E-260/008/0 Footpath
- 8033 E-363/021/0 Footpath
- 6405 E-106/065/0 Footpath
- 7445 E-260/007/0 Footpath
- 7973 E-354/019/0 Footpath
- 8025 E-363/015/0 Bridleway
- 6369 E-106/027/0 Bridleway

- 8023 E-363/014/0
  Footpath

2.8.4.21 National Cycle Network Route 42, which runs from southwest to northeast direction across the west of the Option Area. The Suffolk Coast Path crosses the Option Area, at Sizewell. Sandlings Walk, which is a promoted route from Ipswich to Lowestoft, runs east to west across the study area, with a further portion running north to south at Sizewell.

Site 3 Emerging Preference

Highway network

2.8.4.22 The proposed Option Area includes five main portions of the surrounding highway network. The most prominent is the A1094 to the west of Aldeburgh. This route operates single lanes in each direction and is the main route between Aldeburgh and the A12(T). The portion of the A1094 within the Option Area includes a number of farm accesses and operates with the national speed limit.

2.8.4.23 The Option Area includes a small portion of the B1122 Leiston Road which runs from Aldeburgh to the south towards Aldringham and Leiston in the north. The portion of the B1122 within the Option Area provides access to a farm access and operates with a 30mph speed limit. The B1122 is not linked with any other main routes within the Option Area.

2.8.4.24 Thorpe Road is a coastal road to the west of the Option Area which links Aldeburgh in the south with Thorpeness to the north. The route, which operates with the national speed limit, does not include connectivity with any other key routes within the Option Area.

2.8.4.25 The B1069 Snape Road bisects the centre of the Option Area and connects the A1094 to the south with the village of Knodishall Common to the north. Grove Road is also a north-south route through the centre Option Area, running northwards from the village of Friston. Grove Road is unclassified and is a single lane carriageway, subject to a 30mph speed limit to the south and the national speed limit towards the north portion of the Option Area. School Road also forms a junction with Grove Road and runs eastwards towards Knodishall. There are a number of unmade tracks which provide agricultural access within the centre of the Option Area via the A1094 and the B1069.

2.8.4.26 The northwest section of the Option Area includes several minor rural roads which provide agricultural access. The northwest perimeter of the Option Area also interacts with the B1119 and B1121 routes, which run from Saxmundham to Leiston and Sternfield to Friston respectively. The B1121 operates with a 30mph speed limit whereas the B1119 is subject to the national speed limit, at the extents abutting the study area.

Public transport network

2.8.4.27 There are bus stops in both directions on the B1122 Linden Road at the south of the Option Area. The bus routes that operate along the B1122 are 64, 65 and 522. The 522 service operates between Saxmundham and Aldeburgh, with services operating from 07:00 and 17:00, at a frequency of one service per hour in each direction. The 64 service runs from Ipswich to Aldeburgh via Leiston between 06:00 and 20:00 at a

frequency of one service per hour in each direction. The 65 service runs from Ipswich to Leiston via Woodbridge between 06:00 and 15:30 on an hourly frequency in each direction.

2.8.4.28 The B1121 along the southwest perimeter of the Option Area is used by bus route 521 between Aldeburgh and Halesworth. The service operates four times per day in each direction and can be accessed from stops at Friston to the west of the Option Area, and Sandy Lane further to the west. The 522 bus route also operates along the B1119 at the northern perimeter of the Option Road, with access points within Saxmundham, including from the Waitrose store on this road.

2.8.4.29 There are no rail services within the Option Area, although Saxmundham railway station circa. 900m to the northwest of the Option Area. The station operates services between Lowestoft and Ipswich at one service per hour in each direction. There is a branch railway line between Saxmundham and Leiston, although this is solely for service access to Sizewell power station.

Active travel network

2.8.4.30 There is a significant number of bridleways and shared walking and cycling routes within the Option Area. The specific links within the Option Area are set out, with PROW ID, Route Code and Type of PROW as follows:

- 8904 E-491/006/0 Footpath
- 7988 E-354/018/0 Footpath
- 7971 E-354/003/0 Footpath
- 8907 E-491/012/0 Bridleway
- 8903 E-491/005/0 Footpath
- 7990 E-354/020/0 Bridleway
- 7450 E-260/012/A Bridleway
- 7976 E-354/007/0 Footpath
- 7975 E-354/006/0 Footpath
- 7455 E-260/017/0 Footpath
- 7979 E-354/009/0 Footpath
- 7452 E-260/013/A Footpath
- 7989 E-354/018/A Footpath
- 7972 E-354/004/0 Footpath
- 14032 E-354/036/0 Bridleway
- 7464 E-260/029/0 Bridleway
- 7991 E-354/022/0 Footpath
- 7453 E-260/015/0 Footpath
- 7449 E-260/012/0 Bridleway
- 7977 E-354/007/A Footpath
- 7986 E-354/016/0 Footpath
- 7978 E-354/008/0 Footpath

- 7970 E-354/002/0 Bridleway
- 8902 E-491/004/0 Footpath
- 16992 E-260/031/0 Footpath
- 7969 E-354/001/0 Bridleway
- 7454 E-260/016/0 Footpath
- 7997 E-354/031/0 Footpath
- 7447 E-260/009/0 Footpath
- 10027 E-103/001/0 Footpath
- 8906 E-491/010/0 Bridleway
- 7456 E-260/018/0 Footpath
- 7446 E-260/008/0 Footpath
- 7457 E-260/020/0 Footpath
- 6333 E-103/016/0 Footpath
- 7445 E-260/007/0 Footpath
- 7973 E-354/019/0 Footpath
- 6318 E-103/006/0 Footpath
- 12866 E-260/026/0 Bridleway
- 8644 E-460/023/0 Footpath
- 6334 E-103/019/0 Footpath

2.8.4.31 National Cycle Network Route 42, which runs from southwest to northeast direction across the centre of the Option Area. The Suffolk Coast Path crosses the Option Area, north of Aldeburgh. Sandlings Walk, which is a promoted route from Ipswich to Lowestoft, runs east to west across the south of the study area.

Site 3 Alternative (Option 1)

Highway network

2.8.4.32 The Option Area includes portions of highways across rural land from the northern perimeters of Leiston and Knodishall, leading towards land to the south of the Sizewell power station. The Option Area includes Sizewell Gap, which is an unclassified road linking Leiston to Sizewell, that acts as a link road, with ample visibility provided at junctions, including wide junction bellmouths along its length, and a footway along the southern side of the road.

2.8.4.33 Sizewell Gap provides a link onto Lovers Lane and the B1122 Abbey Road which run to the north of Leiston. The A1122 Abbey Road provides connections with Theberton in the north and Leiston to the south.

2.8.4.34 The north of the Option Area is bisected by a series of routes including Abbey Lane, Harrow Lane, The Green and Workhouse Lane, which are rural lanes which operate national speed limit. To the west, a portion of the B1119 crosses the Option Area, and runs from Saxmundham to Leiston and operates with the national speed limit, at the

extent within the study area. The Option Area also includes a number of other unmade tracks that provide agricultural access.

2.8.4.35 The Option Area also includes portions of highways predominantly on the perimeter, including the B1121 to the southwest which runs from Sternfield to Friston. The B1121 operates with a 30 mph speed limit at the extents abutting the study area.

2.8.4.36 At the south-western portion of the Option Area, Grove Road is a north-south route which runs southwards towards the village of Friston. The road is unclassified and is a single lane carriageway with a national speed limit on the portion within the Option Area.

Public transport network

2.8.4.37 The bus stop and route serving the B1121 is the 521 service between Aldeburgh and Halesworth. The service operates four times per day in each direction and can be accessed from the Parrot & Punchbowl and Church Lane stops at the east of the Option Area.

2.8.4.38 There are three services operating on the B1122, the 64, 65 and 522. The 64 service runs from Ipswich to Aldeburgh via Leiston between 06:00 and 20:00 at a frequency of one service per hour in each direction. The 65 service runs from Ipswich to Leiston via Woodbridge between 06:00 and 15:30 on an hourly frequency in each direction. The 522 service operates between Saxmundham and Aldeburgh, with services operating from 07:00 and 17:00, at a frequency of one service per hour in each direction. The 522 bus route also operates along the B1119 to the west of the Option Area, with access points within Saxmundham, including from the Waitrose store on this road.

2.8.4.39 There are no rail services within the Option Area, although Saxmundham railway station is located circa. 900m to the west of the Option Area. The station operates services between Lowestoft and Ipswich at one service per hour in each direction. There is a branch railway line between Saxmundham and Leiston, although this is solely for service access to Sizewell power station.

Active travel network

2.8.4.40 There is a significant number of bridleways and shared walking and cycling routes within the Option Area. The specific links within the Option Area are set out, with PROW ID, Route Code and Type of PROW as follows:

- 9045 E-515/001/0 Footpath
- 6370 E-106/028/0 Footpath
- 8904 E-491/006/0 Footpath
- 8042 E-363/030/0 Footpath
- 7459 E-260/022/0 Footpath
- 7998 E-354/032/0 Bridleway
- 8037 E-363/025/0 Footpath
- 8039 E-363/027/0 Bridleway
- 7464 E-260/029/0 Bridleway
- 8031 E-363/019/0 Bridleway

- 8036 E-363/024/0 Footpath
- 8907 E-491/012/0 Bridleway
- 8022 E-363/013/0 Bridleway
- 8903 E-491/005/0 Footpath
- 7976 E-354/007/0 Footpath
- 7975 E-354/006/0 Footpath
- 7455 E-260/017/0 Footpath
- 7979 E-354/009/0 Footpath
- 8040 E-363/028/0 Bridleway
- 8902 E-491/004/0 Footpath
- 8030 E-363/018/0 Footpath
- 8035 E-363/023/0 Footpath
- 7454 E-260/016/0 Footpath
- 8038 E-363/026/0 Bridleway
- 8906 E-491/010/0 Bridleway
- 7456 E-260/018/0 Footpath
- 7453 E-260/015/0 Footpath
- 6362 E-106/026/0 Byway Open to All Traffic
- 7977 E-354/007/A Footpath
- 8015 E-363/006/0 Footpath
- 7986 E-354/016/0 Footpath
- 7978 E-354/008/0 Footpath
- 7457 E-260/020/0 Footpath
- 8033 E-363/021/0 Footpath
- 8019 E-363/010/0 Footpath
- 8905 E-491/008/0 Footpath
- 8644 E-460/023/0 Footpath
- 6369 E-106/027/0 Bridleway

2.8.4.41 National Cycle Network Route 42, which runs from southwest to northeast direction across the centre of the Option Area. The Suffolk Coast Path crosses the Option Area, at Sizewell. Sandlings Walk, which is a promoted route from Ipswich to Lowestoft, also crosses the Option Area at Sizewell.

Site 3 Alternative (Option 2)

Highway network

2.8.4.42 The Option Area includes portions of highways across rural land from the southwest perimeter of Knodishall and southeast perimeter of Leiston, leading towards land to the south of the Sizewell power station. The Option Area to the east includes Sizewell Gap, which is an unclassified road linking Leiston to Sizewell, that acts as a link road with ample visibility provided at junctions, including wide junction bellmouths along its length, and a footway along the southern side of the road.

2.8.4.43 Sizewell Gap provides a link onto Lovers Lane and the B1122 Abbey Road which run to the north of Leiston. The A1122 Abbey Road provides connections with Theberton in the north and Leiston to the south.

2.8.4.44 Within the centre, the Option Area includes extents and the junction of the B1353 and B1122 Aldeburgh Road at the southeast of Aldringham. The junction includes a slip lane from the B1122 southeast bound onto the B1353, and each link on the junction is provided with flared lanes. The two links, within the Option Area, operate with 30mph speed limits.

2.8.4.45 The B1069 Snape Road also bisects the centre of the Option Area and connects the A1094 to the south with the village of Knodishall Common to the north. Grove Road is also a north-south route through the centre Option Area, running northwards from the village of Friston. Grove Road is unclassified and is a single lane carriageway, subject to a 30mph speed limit to the south and the national speed limit towards the north portion of the Option Area. School Road also forms a junction with Grove Road and runs eastwards towards Knodishall. There are a number of unmade tracks which provide agricultural access within the centre of the Option Area via the A1094 to the south and the B1069.

2.8.4.46 The northwest section of the Option Area includes several minor rural roads which provide agricultural access. The northwest perimeter of the Option Area also interacts with the B1119 and B1121 routes, which run from Saxmundham to Leiston and Sternfield to Friston respectively. The B1121 operates with a 30mph speed limit whereas the B1119 is subject to the national speed limit, at the extents abutting the study area.

Public transport network

2.8.4.47 There are three services operating on the B1122, the 64, 65 and 522. The 64 service runs from Ipswich to Aldeburgh via Leiston between 06:00 and 20:00 at a frequency of one service per hour in each direction. The 65 service runs from Ipswich to Leiston via Woodbridge between 06:00 and 15:30 on an hourly frequency in each direction. The 522 service operates between Saxmundham and Aldeburgh, with services operating from 07:00 and 17:00, at a frequency of one service per hour in each direction. The 522 bus route also operates along the B1119 at the northwest perimeter of the Option Area, with access points within Saxmundham, including from the Waitrose store on this road.

2.8.4.48 The B1121 towards the western perimeter of the Option Area is used by bus route 521 between Aldeburgh and Halesworth. The service operates four times per day in each

direction and can be accessed from stops at Friston to the west of the Option Area, and Sandy Lane further to the west.

2.8.4.49 There are no rail services within the Option Area, although Saxmundham railway station is located circa. 900m to the west of the Option Area. The station operates services between Lowestoft and Ipswich at one service per hour in each direction. There is a branch railway line between Saxmundham and Leiston, although this is solely for service access to Sizewell power station.

Active travel network

2.8.4.50 There is a significant number of bridleways and shared walking and cycling routes within the Option Area. The specific links within the Option Area are set out, with PROW ID, Route Code and Type of PROW as follows:

- 6349 E-106/008/0 Footpath
- 16991 E-260/030/0 Footpath
- 6370 E-106/028/0 Footpath
- 8904 E-491/006/0 Footpath
- 7988 E-354/018/0 Footpath
- 8036 E-363/024/0 Footpath
- 7971 E-354/003/0 Footpath
- 8907 E-491/012/0 Bridleway
- 8903 E-491/005/0 Footpath
- 7990 E-354/020/0 Bridleway
- 7450 E-260/012/A Bridleway
- 8041 E-363/029/0 Footpath
- 7976 E-354/007/0 Footpath
- 8034 E-363/022/0 Footpath
- 8906 E-491/010/0 Bridleway
- 7456 E-260/018/0 Footpath
- 8023 E-363/014/0 Footpath
- 7452 E-260/013/A Footpath
- 7989 E-354/018/A Footpath
- 7972 E-354/004/0 Footpath
- 8026 E-363/016/0 Footpath
- 6314 E-106/001/0 Footpath
- 14032 E-354/036/0 Bridleway
- 8037 E-363/025/0 Footpath
- 8039 E-363/027/0 Bridleway
- 7464 E-260/029/0 Bridleway
- 7991 E-354/022/0 Footpath
- 8031 E-363/019/0 Bridleway

- 6347 E-106/006/0 Bridleway
- 8024 E-363/014/A Footpath
- 7975 E-354/006/0 Footpath
- 6407 E-106/067/0 Footpath
- 7455 E-260/017/0 Footpath
- 7979 E-354/009/0 Footpath
- 7970 E-354/002/0 Bridleway
- 8040 E-363/028/0 Bridleway
- 8902 E-491/004/0 Footpath
- 6338 E-106/003/0 Footpath
- 16992 E-260/031/0 Footpath
- 7969 E-354/001/0 Bridleway
- 8035 E-363/023/0 Footpath
- 7454 E-260/016/0 Footpath
- 7997 E-354/031/0 Footpath
- 7447 E-260/009/0 Footpath
- 8038 E-363/026/0 Bridleway
- 10027 E-103/001/0 Footpath
- 7453 E-260/015/0 Footpath
- 6362 E-106/026/0 Byway Open to All Traffic
- 7449 E-260/012/0 Bridleway
- 7977 E-354/007/A Footpath
- 7986 E-354/016/0 Footpath
- 7978 E-354/008/0 Footpath
- 7446 E-260/008/0 Footpath
- 7457 E-260/020/0 Footpath
- 8033 E-363/021/0 Footpath
- 6405 E-106/065/0 Footpath
- 6333 E-103/016/0 Footpath
- 7445 E-260/007/0 Footpath
- 7973 E-354/019/0 Footpath
- 12866 E-260/026/0 Bridleway
- 8025 E-363/015/0 Bridleway
- 8644 E-460/023/0 Footpath
- 6369 E-106/027/0 Bridleway

2.8.4.51 National Cycle Network Route 42, which runs from southwest to northeast direction across the centre of the Option Area. The Suffolk Coast Path crosses the Option Area, at Sizewell. Sandlings Walk, which is a promoted route from Ipswich to Lowestoft, also

crosses the Option Area at Sizewell, and across the southernmost portion of the area, between Knoddishall Common and the A1094 route.

Future Baseline

2.8.4.52 The ES will consider future baseline conditions for the land within the proposed study area for the relevant assessment year. For example, base traffic flows will be factored up to the future base year using growth factors derived from TEMPro v7.2 for the relevant areas impacted by the Suffolk Onshore Scheme. In addition, consideration will be given to any committed developments or highway schemes that are due to be under construction or operational during the future baseline year; see **Part 2, Chapter 13, Cumulative Effects** for further details.

2.8.5 Embedded and Control & Management Measures

Embedded Measures

2.8.5.1 The Project will need to comply with design safety standards including NETS SQSS and the suite of National Grid policies and processes which contains details on design standards required to be met when designing, constructing and operating its projects.

2.8.5.2 The proposed High Voltage Direct Cable (HVDC) cable route will typically be installed within a 40m wide working width. The exception to this is where environmental or engineering constraints mean additional land is required such as where the proposed HVDC route is required to cross obstacles such as roads, watercourses or railway lines using a trenchless technique. In these locations working width may be required to be larger in order to accommodate the larger construction equipment required to undertake installation works.

2.8.5.3 Trenchless methods will typically be utilised where obstacles (watercourses, roads, railway lines, flood defences or other utilities) require to be crossed. This would involve the installation of ducts below the obstacle. The cables would then be pulled through the ducts. This method is designed to avoid any potential impacts on the railway network.

2.8.5.4 The specific proposed construction method for the selected Option will be set out in further detail within the ES chapter.

Control and Management Measures

2.8.5.5 In addition to the embedded design mitigation measures, a number of control and management measures will be implemented as detailed in the outline Code of Construction Practice (CoCP). This will include the preparation of a Framework Construction Traffic Management Plan (CTMP).

2.8.5.6 The Outline CoCP which is contained in **Appendix 1.4.A Outline Code of Construction Practice** contains a list of relevant good practice measures, including the following key commitments relating to traffic and transport:

- GG03: A Construction Traffic Management Plan (CTMP) will be produced prior to construction.

- GG12: Appropriate site layout and housekeeping measures will be implemented by the contractor(s) at all construction sites. This will include but not be limited to:
  - Managing staff/vehicles entering or leaving site, especially at the beginning and end of the working day; and
  - Managing potential off-site contractor and visitor parking.
- GG13: Vehicles will be correctly maintained and operated in accordance with the manufacturers recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so. In addition, plant and vehicles will conform to relevant applicable standards for the vehicle type.
- TT01: The CTMP will set out measures to reduce route and journey mileage to and from, as well as around site, and prevent nuisance to the residents, businesses and the wider community caused by parking, vehicle movements and access restrictions. It will also provide suitable control for the means of access and egress to the public highway and set out measures for the maintenance and upkeep of the public highway. The plan will also identify access for emergency vehicles. It will also set out measures to reduce safety risks through construction vehicle and driver quality standards.
- TT02: The contractor(s) will implement a monitoring and reporting system to check compliance with the measures set out within the CTMP. This will include the need for a GPS tracking system to be fitted to Heavy Goods Vehicles to check for compliance with authorised construction routes. The contractor(s) will also be expected to monitor the number of construction vehicles between the site and the strategic road network. Deviations from the authorised routes or changes to traffic levels that are higher than the CTMP assumptions will require discussion of the need for additional mitigation measures with highways authorities.
- TT03: All designated Public Rights of Way (PRoW) will be identified, and any potential temporary closures applied for/detailed in the DCO. All designated PRoW crossing the working area will be managed with access only closed for short periods while construction activities occur. Any required temporary diversions will be clearly marked at both ends with signage explaining the diversion, the duration of the diversion and a contact number for any concerns.

2.8.5.7 In addition to the above, construction vehicles will be managed at any road/rail/pedestrian/cycle crossing points and further details will be provided within the Framework CTMP.

2.8.6 Potential for Significant Effects

2.8.6.1 The traffic and transport assessment will consider the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

2.8.6.2 The proposed scope of the traffic and transport assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

2.8.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme.

2.8.6.4 The potential for the Suffolk Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures describe in section 5.

2.8.6.5 The nature of the Suffolk Onshore Scheme is such that the greatest impact is likely to occur during the construction phase and this will be the focus of the assessment of transport effects presented in the ES.

2.8.6.6 During the operational and maintenance phase, the Suffolk Onshore Scheme will be manned by a limited number of operatives across the site, with additional infrequent trips associated with maintenance/inspections or repairs when required. Staff vehicles and those used for maintenance are primarily expected to be pickup trucks and vans, with HGVs rarely accessing the site. Therefore, due to the low level of trips likely to be generated, it is proposed to exclude operational and maintenance phase transport effects from the EIA. Further detail of the operational and maintenance phase transport arrangements will be set out in the ES and Transport Assessment to support this approach.

2.8.6.7 In the event that the Project is decommissioned, there is expected to be fewer HGV, LGV and construction worker arrivals and departures associated with the decommissioning phase of the Suffolk Onshore Scheme than during the construction phase. It is therefore considered reasonable to assume that the impacts will be the same as, or not greater than, the construction phase. Therefore, and given that the exact timing of this scenario is unknown, it is proposed to adopt the assessment of the construction phase to determine the anticipated impact of the Suffolk Onshore Scheme during its decommissioning phase. Further detail of the decommissioning stage transport arrangements will be set out in the ES and Transport Assessment to support this approach.

2.8.6.8 It is recognised that a potential source of impacts arises from hazardous loads. These include the transport of explosives, gases, flammable liquid/solids, oxidising/toxic substances, radioactive material or corrosive substances. SF6 Gas will be required for the circuit breakers, oil for the transformers, and other mixed, non-SF6 gases will be used in the Gas Insulated Switchgear. These inputs are expected to be predominantly required during the construction and decommissioning phases and the transport of hazardous loads will be considered accordingly within the ES and Transport Assessment.

2.8.6.9 Although the Suffolk Onshore Scheme is located near to a number of settlements including Leiston, Saxmundham and Aldeburgh, the majority of staff and/or visitors (associated with each phase) are expected to travel by vehicle as opposed to on foot, by bicycle or by public transport for logistical reasons e.g. due to travel distance or the requirement to carry equipment. Therefore, this has not been detailed in this Scoping Report although for completeness these modes will be reviewed within the Transport Assessment.

2.8.6.10 Vehicular access during each phase is anticipated to be taken from the A and B routes including the A1094 from Benhall to Aldeburgh, which is a link from the A12. The B1121, B1119 and B1122 also provide the main vehicle routes into the Study Area. Further details on proposed access to the Suffolk Onshore Scheme will be included within the ES and the Transport Assessment which will be submitted with the DCO application.

2.8.6.11 The ES and Transport Assessment will assess the peak construction period, which will include Heavy Goods Vehicle (HGV) movements, Light Goods Vehicle (LGV) movements and vehicle movements associated with construction worker arrivals and departures. Construction traffic forecasts will be confirmed in the ES and Transport Assessment.

Sources of construction impacts

2.8.6.12 A summary of the potential sources of construction impacts (traffic and transport) is as follows:

- Construction works e.g. where these require temporary traffic management, or result in temporary diversions or closures to the highway network or pedestrian/cycle routes including PRoW;
- Construction routes e.g. where these interact with the existing transport networks (road/rail/pedestrian/cycle) such as at vehicle crossing points; and
- Construction vehicles:
  - HGVs;
  - LGVs;
  - Construction staff vehicles; and
  - Abnormal loads.

Sources of operational impacts

2.8.6.13 A summary of the potential sources of operational impacts (traffic and transport) is as follows:

- Operational staff vehicles.

Sources of maintenance impacts

2.8.6.14 A summary of the potential sources of maintenance impacts (traffic and transport) is as follows:

- Maintenance staff vehicles relating to monthly visual inspections, and rolling three year maintenance cycle; and
- Repair staff vehicles (including LGVs) relating to refurbishment and repair works, including the transportation of materials for such works.

Sources of decommissioning impacts

2.8.6.15 The potential sources of decommissioning impacts (traffic and transport) are considered to be the same as those set out above for the construction phase, albeit these would relate to the decommissioning phase.

Potential impacts

2.8.6.16 A summary of the potential impacts of the Suffolk Onshore Scheme is set out below in Table 2.8.1. The potential impacts and proposal to scope in / out is consistent across all of the Options.

Table 2.8.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction	Construction works, routes and vehicles	Additional severance to pedestrians and cyclists	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Additional delay to drivers	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Additional delay to pedestrians	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Decline in pedestrian and cyclist amenity	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Additional fear and intimidation to pedestrians and cyclists	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Decline in road safety	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Results in PRoW Diversions and/or Closures	Yes	**Scoped in**
Construction	Construction vehicles	Additional hazardous loads	Yes	**Scoped in**
Operation	Operational staff vehicles	Additional severance to pedestrians and cyclists	No - (limited traffic movements)	Scoped out

Operation	Operational staff vehicles	Additional delay to drivers	No - (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Additional delay to pedestrians	No - (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Decline in pedestrian and cyclist amenity	No - (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Decline in road safety	No - (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Results in PRoW Diversions and/or Closures	No - (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Additional hazardous loads	No - (few expected)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Additional severance to pedestrians and cyclists	No - (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Additional delay to drivers	No - (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Additional delay to pedestrians	No - (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Decline in pedestrian and cyclist amenity	No - (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Decline in road safety	No - (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Results in PRoW Diversions and/or Closures	No - (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Additional hazardous loads	No - (few expected)	Scoped out
Decommissioning	Decommissioning works, routes and vehicles	Additional severance to pedestrians and cyclists	Yes	**Scoped in** (to be inferred by assessment of construction)

Decommissioning	Decommissioning works, routes and vehicles	Additional delay to drivers	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Additional delay to pedestrians	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Decline in pedestrian and cyclist amenity	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Additional fear and intimidation to pedestrians and cyclists	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Decline in road safety	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Results in PRoW Diversions and/or Closures	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning vehicles	Additional hazardous loads	Yes	**Scoped in** (to be inferred by assessment of construction)

Impact Pathways with Receptors (Step 2)

2.8.6.17 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within each of the options that comprise the proposed study area. Further details of the road links, junctions, PRoW and national/regional walking and cycling routes relevant to each Option Area are set out within section 4.

Suffolk Converter Station Site 1 Emerging Preference

2.8.6.18 Table 2.8.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Emerging Preference as shown on as shown on **Figure 2.1.4 Suffolk Site 1 Emerging Preference** and **Figure 2.1.9 Suffolk Site 1 Emerging Preference Option Area.**

Table 2.8.2: Impact pathways with receptors – Suffolk Site 1 Emerging Preference

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Construction and decommissioning Additional severance to pedestrians and cyclists	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Additional delay to drivers	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not utilised by drivers so no impact pathway	Scoped out
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by drivers so no impact pathway	Scoped out
Construction and decommissioning Additional delay to pedestrians	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking routes	Yes	**Scoped in**
Construction and decommissioning Decline in pedestrian and cyclist amenity	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Additional fear and intimidation to	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**

pedestrians and cyclists	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Decline in road safety	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – no collision data available for footpaths and bridleways (not utilised by vehicles so no impact)	Scoped out
	National/regional walking and cycling routes	No – no collision data available for walking and cycling routes (not utilised by vehicles so no impact)	Scoped out
Construction and decommissioning Results in PRoW Diversions and/or Closures	Road links	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
	Road junctions	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
Construction and decommissioning Additional hazardous loads	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not utilised by vehicles or hazardous loads so no impact	Scoped out
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by vehicles or	Scoped out

		hazardous loads so no impact	

Suffolk Converter Station Site 1 Alternative

2.8.6.19 Table 2.8.3 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Alternative Preference as shown on as shown on **Figure 2.1.7 Suffolk Site 1 Alternative** and **Figure 2.1.11 Suffolk Site 1 Alternative Option Area.**

Table 2.8.3: Impact pathways with receptors – Suffolk Site 1 Alternative

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Construction and decommissioning Additional severance to pedestrians and cyclists	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Additional delay to drivers	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not utilised by drivers so no impact	Scoped out
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by drivers so no impact	Scoped out
Construction and decommissioning Additional delay to pedestrians	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking routes	Yes	**Scoped in**
Construction and decommissioning	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**

Decline in pedestrian and cyclist amenity	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Additional fear and intimidation to pedestrians and cyclists	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Decline in road safety	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – no collision data available for footpaths and bridleways (not utilised by vehicles so no impact)	Scoped out
	National/regional walking and cycling routes	No – no collision data available for walking and cycling routes (not utilised by vehicles so no impact)	Scoped out
Construction and decommissioning Results in PRoW Diversions and/or Closures	Road links	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
	Road junctions	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
	Road links	Yes	**Scoped in**

Construction and decommissioning Additional hazardous loads	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not utilised by vehicles or hazardous loads so no impact	Scoped out
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by vehicles or hazardous loads so no impact	Scoped out

Suffolk Converter Station Site 3 Emerging Preference

2.8.6.20 Table 2.8.4 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Emerging Preference as shown on as shown on **Figure 2.1.5 Suffolk Site 3 Emerging Preference** and **Figure 2.1.10 Suffolk Site 3 Emerging Preference Option Area.**

Table 2.8.4: Impact pathways with receptors – Suffolk Site 3 Emerging Preference

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Construction and decommissioning Additional severance to pedestrians and cyclists	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Additional delay to drivers	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not utilised by drivers so no impact	Scoped out
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by drivers so no impact	Scoped out
	Road links	Yes	**Scoped in**

Construction and decommissioning Additional delay to pedestrians	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking routes	Yes	**Scoped in**
Construction and decommissioning Decline in pedestrian and cyclist amenity	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Additional fear and intimidation to pedestrians and cyclists	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Decline in road safety	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – no collision data available for footpaths and bridleways (not utilised by vehicles so no impact)	Scoped out
	National/regional walking and cycling routes	No – no collision data available for walking and cycling routes (not utilised by vehicles so no impact)	Scoped out
Construction and decommissioning Results in PRoW Diversions and/or Closures	Road links	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
	Road junctions	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out

	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
Construction and decommissioning Additional hazardous loads	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not utilised by vehicles or hazardous loads so no impact	Scoped out
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by vehicles or hazardous loads so no impact	Scoped out

Suffolk Converter Station Site 3 Alternative (Option 1)

2.8.6.21 Table 2.8.5 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option 1) as shown on as shown on **Figure 2.1.7 Suffolk Site 3 Alternative (Option 1)** and **Figure 2.1.12 Suffolk Site 3 Alternative (Option 1) Option Area**.

Table 2.8.5: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 1)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Construction and decommissioning Additional severance to pedestrians and cyclists	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Additional delay to drivers	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not	Scoped out

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		utilised by drivers so no impact	
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by drivers so no impact	Scoped out
Construction and decommissioning Additional delay to pedestrians	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking routes	Yes	**Scoped in**
Construction and decommissioning Decline in pedestrian and cyclist amenity	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Additional fear and intimidation to pedestrians and cyclists	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Decline in road safety	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – no collision data available for footpaths and bridleways (not utilised by vehicles so no impact)	Scoped out
	National/regional walking and cycling routes	No – no collision data available for walking and cycling routes (not utilised by vehicles so no impact)	Scoped out
	Road links	No – this impact pathway relates	Scoped out

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Construction and decommissioning Results in PRoW Diversions and/or Closures		solely to PRoW, not applicable to this receptor type	
	Road junctions	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
Construction and decommissioning Additional hazardous loads	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not utilised by vehicles or hazardous loads so no impact	Scoped out
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by vehicles or hazardous loads so no impact	Scoped out

Suffolk Converter Station Site 3 Alternative (Option 2)

2.8.6.22 Table 2.8.6 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option 2) as shown on as shown on **Figure 2.1.8 Suffolk Site 3 Alternative (Option 2)** and **Figure 2.1.13 Suffolk Site 3 Alternative (Option 2) Option Area.**

Table 2.8.6: Impact pathways with receptors– Suffolk Site 3 Alternative (Option 2)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Construction and decommissioning	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Additional severance to pedestrians and cyclists	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Additional delay to drivers	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not utilised by drivers so no impact	Scoped out
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by drivers so no impact	Scoped out
Construction and decommissioning Additional delay to pedestrians	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking routes	Yes	**Scoped in**
Construction and decommissioning Decline in pedestrian and cyclist amenity	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Additional fear and intimidation to pedestrians and cyclists	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Decline in road safety	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – no collision data available for footpaths and bridleways (not	Scoped out

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		utilised by vehicles so no impact)	
	National/regional walking and cycling routes	No – no collision data available for walking and cycling routes (not utilised by vehicles so no impact)	Scoped out
Construction and decommissioning Results in PRoW Diversions and/or Closures	Road links	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
	Road junctions	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
Construction and decommissioning Additional hazardous loads	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not utilised by vehicles or hazardous loads so no impact	Scoped out
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by vehicles or hazardous loads so no impact	Scoped out

2.8.7 Proposed Assessment Methodology

Proposed Data Sources

2.8.7.1 To inform the assessment of the Suffolk Onshore Scheme, information from a number of sources will be collected. The sources which will be used are set out below:

- Local travel and network information from various sources including SCC and local rail and bus operators;
- Personal Injury Accident (PIA) data from SCC;
- OS/Architectural Base Mapping to ascertain an accurate geographical representation of the areas in the vicinity of the Suffolk Onshore Scheme;
- Highway boundary information from SCC;
- Mode share data from the 2011 Census (or 2021 data if available and considered appropriate given the context of COVID-19); and
- Various traffic count and speed survey data where required (see below).

2.8.7.2 Peak hour traffic flows will be identified from historic data held by SCC with respect to the A1094, B1069, B1119, B1121, B1122, B1353, and the unclassified routes of Sizewell Gap, Lovers Lane, Abbey Lane that provides links across the northern portion of the Study Area, from the edge of Saxmundham to Leiston and Sizewell. The data would be requested from traffic survey company databases if available. If suitable data is not available traffic counts will be undertaken at locations in the vicinity of the Suffolk Onshore Scheme to determine the baseline traffic conditions on the surrounding highway network. The extent of the traffic data and scope for any traffic surveys that may be required will be agreed with the Highway Authority (Suffolk County Council), as a statutory consultee, where possible.

2.8.7.3 To determine the impact of the Suffolk Onshore Scheme, a number of scenarios will be assessed using the information collated above. The scenarios considered appropriate for assessment are:

- Baseline (2022) – AM, PM and Daily; and
- Peak Construction Year (to be confirmed) With and Without Development – AM, PM and Daily.

2.8.7.4 The proposed construction period for the Suffolk Onshore Scheme is 2026 to 2030, and the peak construction year will be identified when the ES is prepared as this is not currently known.

2.8.7.5 The Transport Assessment Scoping Report will be formally presented to SCC as a statutory consultee in order to seek to agree the scope of the Transport Assessment. In the event that junction capacity analysis is required, this will be discussed and agreed with SCC where necessary.

Proposed Assessment Methodology

2.8.7.6 In accordance with the Institute of Environmental Management and Assessment (IEMA) Guidelines for the Environmental Assessment of Road Traffic (1993) for

assessing the environmental impacts of road traffic as well as professional judgement, the following criteria will be considered in this assessment.

- Severance;
- Pedestrian delay;
- Pedestrian and cyclist amenity;
- Fear and intimidation;
- Driver delay;
- Highway safety;
- PRoW diversions and/or closures; and
- Hazardous and dangerous loads.

2.8.7.7 The IEMA guidelines set out two rules in identifying potential links for analysis:

- Rule 1: include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); and
- Rule 2: include any other specifically sensitive areas (e.g. accident black spots, conservation areas, hospitals, links with high pedestrian flows etc) where traffic flows have increased by 10% or more.

2.8.7.8 Based on this, it is proposed to assess links where traffic flows are expected to increase by 30% or more. However, it is not proposed to assess links where there is expected to be a less than a 30% increase in traffic flows as a result of the Suffolk Onshore Scheme, unless any specifically sensitive areas are identified. In addition, it is proposed to assign a very low magnitude of change as there is expected to be fewer than 30 additional vehicle trips per hour during each of the development peak hours as a result of the Suffolk Onshore Scheme, irrespective of the proportional increase in traffic flows.

2.8.7.9 In addition to the above, potential traffic-related effects will also be considered by other topics, including (and not limited to) the following examples:

- Potential effects of construction traffic on sites of ecological and nature conservation value are considered in **Part 2, Chapter 3, Ecology and Biodiversity**;
- Potential effects of construction traffic on air quality are considered in **Part 2, Chapter 9, Air Quality**;
- Potential effects of construction traffic on noise and vibration are considered in **Part 2, Chapter 10, Noise and Vibration**; and
- Potential effects of construction traffic on tourists, visitor attractions and other businesses are considered in **Part 2, Chapter 11, Socio Recreation and Tourism**.

2.8.7.10 The type of traffic which is anticipated to be generated by the Suffolk Onshore Scheme will be categorised as follows; primarily general traffic, LGVs, HGVs and Abnormal Indivisible Loads (AILs). The vehicle routeing and movement associated with the

Project's construction will be considered in detail and will be discussed through consultation with the relevant Highway Authority (Suffolk County Council).

2.8.7.11 Once the locations and volumes of the proposed traffic have been identified it will be necessary to identify those receptors that may be impacted upon, due to the increase in vehicle movements. This will be done by identifying the percentage increase in vehicular activity along the identified construction routes following the collection of traffic data. The Automatic Traffic Counts (ATCs) will be used to derive baseline Annual Average Daily Traffic (AADT) for individual links, subdivided into 24 hour and 18 hour counts for total traffic and HGVs.

2.8.7.12 Typically, when assessing the impacts of traffic effects, there are a range of particular groups and locations which may be sensitive to changes in traffic conditions compliant with the criteria previously outlined.

2.8.7.13 These are outlined in the IEMA Guidance as 'Affected Parties', as follows:

- People at home;
- People in workplaces;
- Sensitive groups including children, elderly and disabled;
- Sensitive locations, e.g. hospitals, churches, schools, historic buildings;
- People walking;
- People cycling;
- Open spaces, recreational sites, shopping areas;
- Sites of ecological/nature conservation value; and
- Sites of tourist/visitor attraction.

2.8.7.14 The IEMA guidance states that this list of affected parties is not exhaustive. One affected party that is not on the list but will nevertheless be considered in this assessment is 'other road users'. All of the affected parties have one thing in common which is that their potential exposure to changes in traffic volumes comes about through their proximity to a construction traffic route.

2.8.7.15 It is important to note that the IEMA methodology does not consider the duration of effect, especially whether it is temporary (construction and decommissioning) or permanent (operational traffic). As such, effects that, using this methodology, may appear to be significant, may be considered not significant if the effect is temporary or infrequent (occurring only occasionally during construction for example).

2.8.7.16 To calculate the trip distribution of workers travelling to and from the proposed construction compounds each day, a simple gravity model will be developed (based on 2011 Census data, given that relevant 2021 Census data is not currently available). Construction traffic associated with the Suffolk Onshore Scheme will be distributed onto the local highway network to calculate the resultant percentage increase on each link.

2.8.7.17 Assessments will be undertaken at the peak of construction, and this may cover more than one year as the peak year for traffic volumes can vary along various routes depending on which section of the Suffolk Onshore Scheme they serve.

2.8.7.18 Currently, it is anticipated that construction may take approximately two years. If historical data is utilised, base traffic flows will be factored up to the future base year in order to establish baseline flows and then factored up further to the identified peak year of construction. Growth factors will be derived from TEMPro v7.2 for the relevant areas impacted by the Suffolk Onshore Scheme. Meanwhile, the peak construction traffic flows will be derived by analysing construction traffic data and construction programmes provided by Design Engineers.

Transport Assessment

2.8.7.19 The ability of the highway network to accommodate the development traffic will be assessed and reported in a Transport Assessment (TA) which will form a technical annex to the ES Chapter. The TA will include information on:

- A review of relevant national, regional and local policies;
- Description of the existing baseline conditions – a description of the roads, railway lines, footpaths, bridleways and cycle paths crossed by the route and/or impacted by the works. The requirement to carry out any surveys on these routes will be agreed with the relevant planning authority;
- A review of the road safety data for the most recent five-year period within the proposed study area;
- Description of the Project and Suffolk Onshore Scheme setting out timescales for construction, identification of route sections, typical working width layout, compound locations, access routes to compounds, construction methods for individual railway and road crossings (where required);
- Traffic generation of compounds and any other relevant sites for construction staff with a profile of arrivals and departures for the day and HGV traffic with a profile of arrivals and departures for the day;
- Distribution and assignment of trips to the network with construction traffic distributed based on a simple gravity model of worker catchment area and HGVs assigned from the A road network;
- Mitigation measures; and
- Summary and conclusions.

Defining Significance

2.8.7.20 The significance of effect is determined through consideration of two elements; the magnitude of the impact and the sensitivity of the receptor. The following sections outline the approach that would be used to determine these factors.

Sensitivity, value, or importance

2.8.7.21 The general criteria for defining the importance or sensitivity of receptors are set out in Table 2.8.7. Key factors influencing this include:

- The value of the receptor or resource based upon empirical and/or intrinsic factors, for example considering any legal or policy protection afforded which is indicative of the receptor or resources' value internationally, nationally or locally; and
- The sensitivity of the receptor or resource to change, for example is the receptor likely to acclimatise to the change. This will consider legal and policy thresholds which are indicative of the ability of the resources to absorb change.

Table 2.8.7: Categorising the overall sensitivity of receptors

Receptor sensitivity	Receptor examples
Very High	Highway Links and Junctions: More than two sensitive users present (e.g. schools, play areas, care/retirement homes, disabled parking bays, hospitals, places of worship, historic buildings) Walk/Cycle Links including PRoW: Heavily trafficked highway with on-road pedestrian/cycle route
High	Highway Links and Junctions: Two sensitive users present (e.g. schools, play areas, care/retirement homes, disabled parking bays, hospitals, places of worship, historic buildings) Walk/Cycle Links including PRoW: Lightly trafficked highway with on-road pedestrian/cycle route
Medium	Highway Links and Junctions (at least one of the following): • One sensitive user present (e.g. schools, play areas, care/retirement homes, disabled parking bays, hospitals, places of worship, historic buildings) • Many residential properties with direct frontage to highway link being used as construction route • Pedestrians using footways, PRoW and/or crossings on highway link • Cyclists using on-road designated cycle routes along highway link Walk/Cycle Links including PRoW: Heavily trafficked highway with off-road pedestrian/cycle route
Low	Highway Links and Junctions (at least one of the following): • Few residential properties with direct frontage to the highway link being used as a construction traffic route • Workplaces with direct frontage to highway link being used as construction route • Cyclists using off-road designated cycle routes along highway link Walk/Cycle Links including PRoW: Lightly trafficked highway with off-road pedestrian/cycle route

Receptor sensitivity	Receptor examples
Neutral	Highway Links and Junctions: No receptors along link Walk/Cycle Links including PRoW: Pedestrian/cycle route not running alongside highway

2.8.7.22 An assessment of the railway network is proposed to be scoped out from the Traffic and Transport chapter given that trenchless methods will be employed when installing cables to avoid any potential impacts on the railway, and that any vehicle crossing points of the railway (if required) will be managed to ensure operational rail safety. It is also notable that the only extents of railway within the Study Area are part of a branch line that provides service access to Sizewell and does not admit passengers.

Magnitude

2.8.7.23 The IEMA guidelines state that the magnitude of each impact should be determined as the predicted deviation from the baseline conditions.

2.8.7.24 This assessment will consider a range of potential effects that could be experienced during the construction stage of the Suffolk Onshore Scheme and this section identifies how magnitude will be considered for each.

2.8.7.25 **Severance** is defined in the IEMA guidelines as the "*perceived division that can occur with a community when it becomes separated by a major traffic artery*". The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by the road itself. It can also relate to quite minor traffic flows if they impede pedestrian access to essential facilities. The assessment will consider both total traffic and the proportion of HGVs. The guidance for thresholds of magnitude is taken from DMRB Volume 11, Section 3, Part 8.

2.8.7.26 **Pedestrian Delay** is considered to be affected by the changes in volume, composition or speed of traffic, in terms of their respective impacts on the ability of pedestrians to cross roads. In general, increases in traffic levels and/or traffic speeds are likely to lead to greater increases in pedestrian delay. Effects are only likely to be realised when the total two-way traffic on the carriageway exceeds 1,400 vehicles per hour (IEMA Guidelines).

2.8.7.27 **Pedestrian and Cyclist Amenity** is broadly defined as "the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic". The guidance suggests that a tentative threshold for judging the significance of changes in pedestrian and cycle amenity would be where the traffic flow is halved or doubled.

2.8.7.28 **Fear and Intimidation** occurs through a combination of traffic flow, speed, proportion of HGVs and the proximity of the above to people or receptors on highway links. These indicators are often heightened by a perceived lack of protection or buffers from the highway or through narrow or non-existent footways. The assessment will consider each road on a case by case basis, however there are indicative thresholds provided in the IEMA guidelines which are presented in Table 2.8.8 below.

2.8.7.29 **Driver Delay** is an effect cited in the IEMA guidance and relates to incremental increases in traffic (as outlined in Table 2.8.8 below). As a further consideration, where any temporary road closures or traffic management is likely to be in place to enable the construction of the Suffolk Onshore Scheme, any additional potential delay caused by these resultant diversion routes will be reported.

2.8.7.30 **Highway Safety** considers Personal Injury Collision (PIC) data obtained for the most recent five-year period available at junctions and links along the proposed construction traffic routes. These will be used to assess whether the additional traffic during construction of the Suffolk Onshore Scheme would be likely to have a detrimental effect of road safety.

2.8.7.31 **PRoW Diversions and/or Closures** will be considered on the basis of the type of impact i.e. whether a temporary PRoW closure or diversion is proposed, as well as any increases in pedestrian journey length following a closure/ diversion and how long any potential disruption to an existing route would occur for. The assessment will consider the indicative thresholds presented in Table 2.8.9 below which have been derived based on professional judgement.

2.8.7.32 With regard to **Hazardous and Dangerous Loads**, the guidance indicates that "the Statement should include a risk or catastrophe analysis to illustrate the potential for an accident to happen and the likely effect of such an event". Analysis of the road network within the proposed study area and understanding of the Suffolk Onshore Scheme works indicates that there are no particular features, such as a significant vertical drop immediately beyond the carriageway, which would suggest that the transfer of materials poses a particular risk beyond that which would be expected on the general highway network. However, there will be a requirement to transport gas and oil during the Project (particularly during the construction and decommissioning phases) which are categorised as Hazardous and Dangerous Loads (see Section 2.8.6).

2.8.7.33 In view of the above, the impacts of Hazardous and Dangerous Loads will be considered within the ES, in the form of a qualitative risk assessment to establish the likelihood and extent of such effects. The projected impacts of the Suffolk Onshore Scheme will be measured separately, dependent upon the receptor, for the construction and decommissioning periods. The Framework CTMP and the ES will include details of measures that will be employed to ensure the safe vehicular transport of components to and from the Suffolk Onshore Scheme.

2.8.7.34 Tables 2.8.8 and 2.8.9 summarise the criteria that will be used to assess the magnitude of effect (based on increases i.e. 'adverse' effects), along with the thresholds that will be used to determine whether effects are considered large, medium, small and negligible. Depending on the baseline information available, the various thresholds identified for the proportional increases in traffic flow relate to peak hour flows and daily flows (whichever is highest). Within these tables, neither the sensitivity of receptors, nor the duration of effects, is taken into consideration. These tables are formed using IEMA Guidelines and professional judgement.

Table 2.8.8: Categorising the overall magnitude of effect of a highway link or junction

Impact	Negligible	Small	Medium	Large
Severance	Increase in total traffic flows of 29% or under (or increase in HGV flows under 10%).	Increase in total traffic flows of 30-59% (or increase in HGV flows of between 20%-39%).	Increase in total traffic flows of 60%-89% (or increase in HGV flows between 40%-89%).	Increase in total traffic flows or HGV flows of 90% and above.
Pedestrian Delay	Total traffic flows under 1,400 per hour.	Where traffic flows exceed 1,400 vehicles per hour the severity of the impact will be determined based on the thresholds identified above for severance.		
Pedestrian and Cycle Amenity	Increase in total traffic flows of 49% or under.	Increase in total traffic flows of 50-69%.	Increase in total traffic flows of 70%-99%.	Increase in total traffic flows of 100% or above.
Fear and Intimidation	Increase in total traffic flows or HGV flows of 29% or under (or increase in HGV flows under 10%).	Increase in total traffic flows of 30-59% (or increase in HGV flows of between 10%-39%).	Increase in total traffic flows of 60%-89% (or increase in HGV flows between 40%-89%).	Increase in total traffic flows or HGV flows of 90% and above.
Driver Delay	Increase in total traffic flow of less than 29%.	Increase in total traffic flow of between 30% and 59%.	Increase in total traffic flow of between 60% and 89%.	Increase in traffic flow of 90% and above.
Highway Safety	Increase in total traffic flows of 30% or under (or increase in HGV flows under 10%).	All links estimated to experience increases in total traffic flows above 30% or increases in HGV flows above 10% are analysed further on a case by case basis.		
Hazardous Loads	Based on the probability of a personal injury collision, categorised as fatal or serious, involving a hazardous load occurring.			

2.8.7.35 An assessment of national/regional walking and cycling routes, as well as PRoW will also be carried out where these are directly affected by construction works or intersected by a construction route (for example), including in terms of severance, pedestrian delay, pedestrian and cycle amenity and for fear and intimidation, by reviewing the thresholds as identified in Table 2.8.8 above where relevant. In terms of PRoW diversions and/or closures, the following thresholds are proposed to identify magnitude of effect based on professional judgement.

Table 2.8.9: Categorising the overall magnitude of effect of a PRoW diversion and/or closure

Impact	Negligible	Small	Medium	Large
PRoW Diversions and/or Closures	A temporary PRoW diversion (no closure) with either no increase in pedestrian journey length or an increase in pedestrian journey length for one to five days.	A temporary PRoW diversion (no closure) with an increase in pedestrian journey length for one to four weeks.	A short term PRoW closure (for less than four weeks in any 12 month period) without a diversion route; OR A temporary PRoW diversion (no closure) with an increase in pedestrian journey length for more than four weeks.	A short term PRoW closure (for more than four weeks in any 12 month period) without a diversion route.

2.8.7.36 Tables 2.8.8 and 2.8.9 above set out the proposed magnitude thresholds for the respective environmental effects that will be considered in the ES. With the exception of PRoW Diversion and Closure effects, all effects have a proposed magnitude that does not, initially, consider the duration over which an effect is likely to be experienced.

2.8.7.37 Duration is considered when assessing the overall significance of residual effects, noting that the DMRB Volume 11 Section 2 Part 5 states in Paragraph 1.47:

"Recognition should be made that permanent impacts will be more significant than those of a temporary nature. For example, the impact may only occur during a single phase of the project construction and may be temporary. Alternatively, the impact may be long-term or irreversible and hence permanent. It is, therefore, important that the assessment distinguishes between permanent and temporary impacts".

2.8.7.38 All of the traffic and transport effects associated with the construction and decommissioning of the Suffolk Onshore Scheme would be temporary effects. Some temporary effects would be likely to last longer than others, and these will be clearly reported in the ES. Following the quantified assessment, residual effects will be reported taking into account professional judgement on the duration over which effects are likely to be experienced.

Significance

2.8.7.39 In order to determine the effect on specific receptors, both the sensitivity of receptors and the magnitude of impact, as outlined above, are considered. Table 2.8.10 below shows the matrix that has been used to determine the effect category. Effects which are classified as **major** or **moderate** are considered to be significant (shown in **bold**).

Table 2.8.10: Significance matrix

Magnitude of Effect	Receptor Sensitivity				
	Very High	**High**	**Medium**	**Low**	**Neutral**
Large	**Major**	**Major/ Moderate**	**Major/ Moderate/ Minor**	**Moderate**/ Minor	Minor/ Negligible
Medium	**Major/ Moderate**	**Major/ Moderate**	**Moderate**/ Minor	Minor/ Negligible	Negligible
Small	**Major/ Moderate/ Minor**	**Moderate**/ Minor	**Moderate**/ Minor	Minor/ Negligible	Negligible
Negligible	Minor/ Negligible	Minor/ Negligible	Minor/ Negligible	Negligible	Negligible

2.8.8 Conclusion

2.8.8.1 This scoping chapter presents the potential for effects in respect of the traffic and transport that may arise from the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

2.8.8.2 The proposed scope of assessment is set out in the following section for each of the five options.

Proposed Scope of the Assessment

2.8.8.3 A summary of the proposed scope of the assessment for Site 1 Emerging Preference is provided in Table 2.8.11.

Table 2.8.11: Proposed scope of the assessment for Site 1 Emerging Preference

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out for Site 1 Emerging Preference
Road links	Severance	Construction and decommissioning	**Scoped in**

	Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation Driver Delay Highway Safety Hazardous Loads	Operation and maintenance	Scoped out
Road junctions	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation Driver Delay Highway Safety Hazardous Loads	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
PRoW	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation PRoW Diversions and/or Closures	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
National/regional walking and cycle routes	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out

2.8.8.4 A summary of the proposed scope of the assessment for Site 1 Alternative is provided in Table 2.8.12.

Table 2.8.12: Proposed scope of the assessment for Site 1 Alternative

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out for Site 1 Alternative
Road links	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out

	Driver Delay Highway Safety Hazardous Loads		
Road junctions	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation Driver Delay Highway Safety Hazardous Loads	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
PRoW	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation PRoW Diversions and/or Closures	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
National/regional walking and cycle routes	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out

2.8.8.5 A summary of the proposed scope of assessment for Site 3 Emerging Preference is provided in Table 2.8.13.

Table 2.8.13: Proposed scope of the assessment for Site 3 Emerging Preference

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out for Site 3 Emerging Preference
Road links	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation Driver Delay Highway Safety Hazardous Loads	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out

Road junctions	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation Driver Delay Highway Safety Hazardous Loads	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
PRoW	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation PRoW Diversions and/or Closures	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
National/regional walking and cycle routes	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out

2.8.8.6 A summary of the proposed scope of assessment for Site 3 Alternative (Option 1) is provided in Table 2.8.14.

Table 2.8.14: Proposed scope of the assessment for Site 3 Alternative (Option 1)

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out for Site 3 Alternative (Option 1)
Road links	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation Driver Delay Highway Safety Hazardous Loads	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
Road junctions	Severance	Construction and decommissioning	**Scoped in**

	Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation Driver Delay Highway Safety Hazardous Loads	Operation and maintenance	Scoped out
PRoW	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation PRoW Diversions and/or Closures	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
National/regional walking and cycle routes	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out

2.8.8.7 A summary of the proposed scope of assessment for Site 3 Alternative (Option 2) is provided in Table 2.8.15.

Table 2.8.15: Proposed scope of the assessment for Site 3 Alternative (Option 2)

Receptor	**Potential for significant effect**	**Project Phase(s)**	**Proposed to be scoped in/out for Site 3 Alternative (Option 2)**
Road links	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation Driver Delay Highway Safety Hazardous Loads	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
Road junctions	Severance Pedestrian Delay Pedestrian and Cycle Amenity	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out

	Fear and Intimidation Driver Delay Highway Safety Hazardous Loads		
PRoW	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation PRoW Diversions and/or Closures	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
National/regional walking and cycle routes	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out

2.9 Air Quality

2.9.1 Introduction

2.9.1.1 This chapter presents how the air quality assessment will consider the potentially significant effects on air quality that may arise from the construction, and operation, maintenance and decommissioning of the Suffolk Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

2.9.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Suffolk Onshore Scheme Scoping Boundary hereafter referred to as the Suffolk Scoping Boundary is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**.

2.9.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Project Description**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme.**

2.9.2 Regulatory and Planning Context

2.9.2.1 **Part 1, Chapter 2, Regulatory and Planning Contex**t describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on air quality associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

- EU Framework Directive 96/62/EC[160];
- Directive 2008/50/EC on ambient air quality and cleaner air for Europe[161];
- Part IV of the Environment Act (1995, amended 2021)[162];

[160] Council Directive 96/62/EC (1996). Ambient Air Quality Assessment and Management [online]. Available at: https://www.legislation.gov.uk/eudr/1996/62

[161] Directive 2008/50/EC of the European Parliament and of the Council (2008). Ambient Air Quality and Cleaner Air for Europe [online]. Available at: https://www.legislation.gov.uk/eudr/2008/50/introduction

[162] Environment Act 1995 (amended 2021) [online]. Available at: https://www.legislation.gov.uk/ukpga/2021/30/part/4/enacted

- Air Quality Standards Regulations[163];
- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)[164]; and
- The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018[165].

Planning Policy

National Planning Policy

- Overarching National Policy Statement for Energy (EN-1)[166] – Section 5.2 of EN-1 suggests that if a project is likely to have adverse effects on air quality an assessment of the impacts should be included in the Environmental Statement (ES). Paragraph 5.2.7 puts forth a number of aspects associated with the assessment of air quality that should be included in the ES, for example, "existing air quality levels and the relative change in air quality from existing levels"; and
- National Planning Policy Framework (Revised) (NPPF)[167].

Local Planning Policy

- East Suffolk Council- Suffolk Coastal Local Plan[168]; and
- East Suffolk Air Quality Strategy 2021[169].

Guidance

- National Planning Policy Guidance (update) (NPPG)[170];
- Institute of Air Quality Management Guidance on the assessment of dust from demolition and construction, 2014[171];

[163] The Air Quality Standards Regulations 2010 [online]. Available at: https://www.legislation.gov.uk/uksi/2010/1001/contents

[164] Department for Environment, Food and Rural Affairs (2007). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf

[165] The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018. [online] Available at: https://www.legislation.gov.uk/uksi/2018/764/made

[166] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf

[167] Ministry of Housing Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

[168] East Suffolk Council (2020). Suffolk Coastal Local Plan. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Planning-Policy-and-Local-Plans/Suffolk-Coastal-Local-Plan/Adopted-Suffolk-Coastal-Local-Plan/East-Suffolk-Council-Suffolk-Coastal-Local-Plan.pdf

[169] East Suffolk Council (2021). East Suffolk Air Quality Strategy. [onlne] Available at: https://www.eastsuffolk.gov.uk/assets/Environment/Environmental-Protection/Air-Quality/AQ-Strategy-2021.pdf

[170] Department for Levelling Up, Housing and Communities, and Ministry of Housing, Communities & Local Government (2019). Planning Practice Guidance – Air Quality. [online] Available at: https://www.gov.uk/guidance/air-quality--3

[171] Institute of Air Quality Management (2014). Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management, London. V.1.1.

- Institute of Air Quality Management and Environmental Protection UK: Land-use Planning & Development Control: Planning for Air Quality. v1.2. Institute of Air Quality Management, London[172]; and
- Local Air Quality Management Technical Guidance (LAQM.TG(16))[173].

2.9.3 Study Area

2.9.3.1 The Institute of Air Quality Management (IAQM) construction dust guidance[171] requires that construction dust impacts are assessed up to 350m from the locations of demolition, construction and earthworks activities for human receptors and up to 50m for ecological receptors. Construction activities are assumed to take place anywhere within the Suffolk Scoping Boundary, therefore as a worst-case approach, the construction dust study area will include up to 350m from the edge of the Suffolk Scoping Boundary. The construction phase Study Area also includes the first 50m of any road within 500m from the main site entrance(s) used by the site construction vehicles, as per IAQM construction dust guidance[171].

2.9.3.2 The number of vehicles associated with the construction phase of the Suffolk Onshore Scheme is not yet confirmed; however, it is anticipated that detailed assessment of construction vehicle emissions will be scoped out as traffic flows are expected to be below the IAQM screening criteria[172]. This will be confirmed upon receipt and screening of construction traffic data. If construction Heavy Duty Vehicle (HDV) flows are expected to be greater than 100 Annual Average Daily Traffic (AADT) flows on a road during the construction phase or 25 AADT within an Air Quality Management Area (AQMA), then exhaust emissions from construction vehicles will be modelled at receptors within 200m of these roads.

2.9.3.3 The IAQM development control guidance[172] details its own indicative criteria with respect to change as a result of a project's operational phase that, if met, highlight the need for an assessment, rather than necessarily defining the boundaries of a study area. The criteria are:

- A change in Light Duty Vehicle (LDV) flows of >100 AADT within or adjacent to an AQMA, or >500 AADT elsewhere;
- A change in HDV flows of >25 AADT within or adjacent to an AQMA, or >100 AADT elsewhere;
- Where a road is realigned by 5m or more and is within an AQMA;
- Where a junction is added or removed close to existing receptors; and
- Where there are one or more substantial combustion processes where there is a risk of impacts at relevant receptors.

2.9.3.4 The same screening criteria will be used to define the study area should the operational phase be scoped in for assessment. However, operational phase traffic flows are expected to be below these screening criteria and therefore it is proposed to scope out

[172] Institute of Air Quality Management and Environmental Protection UK (2017). Land-use Planning & Development Control: Planning for Air Quality. Institute of Air Quality Management, London. V.1.2.

[173] Department for Environment, Food and Rural Affairs (2018). Local Air Quality Management Technical Guidance (TG16). [online] Available at: https://www.scottishairquality.scot/sites/default/files/publications/2022-08/LAQM-TG16-April-21-v1.pdf

the assessment of operational vehicle emissions as air quality impacts will be negligible.

2.9.4 Baseline Conditions

Data Sources

2.9.4.1 Baseline data has been collated to determine the existing air quality conditions in the area that is likely to be affected by the Suffolk Onshore Scheme. A review of the existing baseline will be undertaken to establish an understanding of the baseline air quality environment, to identify areas that are likely to be sensitive to changes in emissions as a result of the Suffolk Onshore Scheme. The air quality environment baseline described in this section has been informed by the following data sources:

- Defra UK Air website[174] – to establish predicted background concentrations for Nitrogen Dioxide (NO_2), Particulate Matter less than 10 microns in diameter (PM_{10}) and Particulate Matter less than 2.5 microns in diameter ($PM_{2.5}$).
- Local authority websites and annual Air Quality Status Reports – to determine existing AQMAs and local air quality monitoring results:
- East Suffolk Council website[175];
- Suffolk County Council website[176]; and
- East Suffolk Council Air Quality Annual Status Report[177].
- MAGIC website[178] – to identify ecological sites within the air quality Study Area.

Baseline

2.9.4.2 As required by Part IV of the Environment Act (1995), all local authorities produce Annual Status Reports (ASRs) each year. The most recently available reports for East Suffolk is the 2021 ASR[177] which summarises air quality within their areas during 2020.

2.9.4.3 A review of the most recently published ASR[177] confirmed that exceedances of the NO_2 annual mean objective set in the AQS have been identified, resulting in the current declaration of the following AQMAs:

- Woodbridge AQMA – declared in 2006, due to be revoked;
- Stratford St Andrew AQMA – declared in 2014.

2.9.4.4 The Suffolk Scoping Boundary area is not located close to or within either of the East Suffolk Council AQMAs.

[174] Department of Environment, Food and Rural Affairs (2022). UK Air – An Information Resource. [online] Available at: https://uk-air.defra.gov.uk/

[175] East Suffolk Council (2022). East Suffolk Council website. [online] Available at: https://www.eastsuffolk.gov.uk/

[176] Suffolk County Council (2022). Suffolk County Council website. [online] Available at: https://www.suffolk.gov.uk/

[177] East Suffolk Council (2021). 2021 Air Quality Annual Status Report. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Environment/Environmental-Protection/Air-Quality/East-Suffolk-Council-ASR-2021.pdf

[178] Department for Environment, Food and Rural Affairs (2022). Multi-Agency Geographic Information for the Countryside. [online] Available at: https://magic.defra.gov.uk/

2.9.4.5 The closest monitoring location to the Suffolk Scoping Boundary is diffusion tube site FAR2abc which is a triplicate site in Farnham monitored by East Suffolk Council. The annual average NO_2 concentration at this site is well below the AQS objective for the last five years of monitoring.

2.9.4.6 A review of the available modelled background concentrations for the Suffolk Scoping Boundary and surrounding area has been carried out using Defra predicted annual mean background concentrations provided in 1km x 1km grid squares. Background concentrations for 2022 are well below the relevant objective values for all pollutants.

Future Baseline

2.9.4.7 Background pollutant concentrations and are predicted to decrease in future years, along with air pollutant concentrations from vehicle emissions sources due to improvements in technologies and increased emissions standards. This is supported by trends observed from local authority monitoring data and future predicted Defra background map concentrations.

2.9.5 Embedded and Control & Management Measures

Embedded Measures

2.9.5.1 The routeing and siting of the Suffolk Onshore Scheme has been evolved to avoid settlement areas as far as possible.

Control and Management Measures

2.9.5.2 Construction phase mitigation measures will be proposed as a function of the dust soiling and human health risk ratings allocated by following the IAQM construction dust guidance[171]. The IAQM construction dust guidance[171] also details an extensive list of potential mitigation measures by construction activity. Appropriate mitigation measures identified from the construction dust risk assessment will be secured through a Code of Construction Practice (CoCP), that will be secured as a requirement in the draft Development Consent Order (DCO).

2.9.5.3 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. The Outline CoCP contains a list of relevant good practice measures, including the following key commitments relating to air quality:

- GG04: The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans.
- GG10: Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.
- GG13: Plant and vehicles will conform to relevant applicable standards for the vehicle type as follows:

- Euro 4 (NOx) for petrol cars, vans and minibuses;
- Euro 6 (NOx and PM) for diesel cars, vans and minibuses; and
- Euro VI (NOx and PM) for lorries, buses, coaches and Heavy Goods Vehicles (excluding specialist abnormal indivisible loads).
- Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so.
- GG14: Materials and equipment will not be moved or handled unnecessarily. When loading and unloading materials from vehicles, including cable drums and excavated materials, drop heights will be limited.
- GG18: Wheel washing will be provided at each main compound access point on to the highway. An adequate supply of water will be made available at these locations at all times. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits.
- GG19: Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression where appropriate.
- GG20: Bonfires and the burning of waste material will be prohibited.
- TT01: The CTMP will set out measures to reduce route and journey mileage to and from and around site, and prevent nuisance to the residents, businesses and the wider community caused by parking, vehicle movements and access restrictions. It will also provide suitable control for the means of access and egress to the public highway and set out measures for the maintenance and upkeep of the public highway. The plan will also identify access for emergency vehicles. It will also set out measures to reduce safety risks through construction vehicle and driver quality standards and measures to manage abnormal loads.

2.9.5.4 During construction, mitigation measures will be employed to ensure that dust emissions are minimised to a negligible impact, such as:

- Site management (logging of incidents/complaints);
- Monitoring (site inspections, soiling checks, compliance with Dust Management plan, etc);
- Preparing and maintaining the site (locate dust causing activities away from receptors, barriers, cleaning, enclosed specific operations with high potential for dust production, cover stockpiles, etc);
- Operating vehicle/machinery and sustainable travel (comply with NRMM standards, no idling, use mains electricity, travel plan etc);
- Operations (employ dust suppression, use enclosed chutes, minimise drop heights, etc);
- Demolition measures (damp down, avoid explosive blasting, soft strip interiors before demolition, etc);

- Earthworks measures (revegetate promptly, use hessian mulches and cover with topsoil, etc);
- Construction measures (avoid scabbling, keep aggregates damp, ensure fine powder materials are delivered enclosed and stored in silos, ensure bags are sealed after use); and
- Trackout measures (wash access and local roads, avid dry sweeping of large areas, ensure vehicle-borne materials are covered, install hard surface haul routes, wheel washing, etc).

2.9.5.5 Construction dust mitigation measures are considered tertiary mitigation i.e., actions that are standard best practices used to manage commonly occurring environmental effects.

2.9.6 Potential for Significant Effects

2.9.6.1 The air quality assessment will consider the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

2.9.6.2 The proposed scope of the air quality assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

2.9.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme.

2.9.6.4 The potential for the Suffolk Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section.

Sources of construction impacts

2.9.6.5 Construction phase activities associated with the Project such as earthworks and trackout (the transport of dust and dirt from the construction site onto the public road network) can give rise to adverse impacts from fugitive emissions of dust such as nuisance and health impacts if left unmitigated. A construction dust risk assessment is therefore required to identify the risk and determine the appropriate mitigation measures to mitigate construction dust impacts. Additionally, the movement of materials and waste to and from the site by construction vehicles can lead to adverse impacts from increased exhaust emissions of air pollutants, such as nitrogen dioxide and particulate matter.

2.9.6.6 There may also be increases in NO_2, PM_{10} and $PM_{2.5}$ concentrations due to emissions from non-road mobile machinery (NRMM) used during construction. However, it is proposed for construction vehicle emissions to be scoped out and this will be confirmed with relevant consultees following screening of construction traffic flow data.

2.9.6.7 The potential sources of construction impacts are therefore:

- Construction activities such as earthworks and trackout resulting in emissions of dust;
- Emissions from NRMM; and
- Emissions from construction traffic.

Sources of operational impacts

2.9.6.8 Traffic trips associated with the operation of the Project are anticipated to be below the IAQM indicative criteria[172] for potential significant effects. Therefore, air quality impacts associated with operational phase vehicle emissions will be negligible and are proposed to be scoped out of further assessment.

2.9.6.9 There are no other operational phase emissions sources or air quality impacts associated with the Project anticipated for inclusion in the air quality assessment.

Sources of maintenance impacts

2.9.6.10 Traffic trips associated with the maintenance of the Project are anticipated to be below the IAQM indicative criteria[172] for potential significant effects. Therefore, air quality impacts associated with operational phase vehicle emissions will be negligible and are proposed to be scoped out of further assessment.

2.9.6.11 Any potential NRMM emissions or dust generating activities associated with maintenance would be transient and temporary in nature, therefore there are no other maintenance emissions sources or air quality impacts associated with the Project anticipated for inclusion in the air quality assessment.

Sources of decommissioning impacts

2.9.6.12 The decommissioning phase of the Project will be assessed following the same approach as construction to consider any dust impacts associated with demolition and potential impacts from vehicle emissions. Therefore the potential sources of decommissioning impacts are:

- decommissioning activities such as earthworks and trackout resulting in emissions of dust;
- emissions from NRMM; and
- emissions from decommissioning traffic.

Potential impacts

2.9.6.13 The most common air quality impacts that may arise during demolition and construction activities are;

- dust deposition, resulting in the soiling of surfaces and reduction in amenity; and
- elevated PM_{10} concentrations, as a result of dust generating activities on site.

2.9.6.14 These impacts may affect human and ecological receptors. The IAQM construction dust guidance[171] defines a human receptor as:

"any location where a person or property may experience the adverse effects of airborne dust or dust soiling, or exposure to PM_{10} over a time period relevant to the Air Quality Objectives. In terms of annoyance effects, this will most commonly relate to dwellings, but may also refer to other premises such as buildings housing cultural heritage collections (e.g. museums and galleries), vehicle showrooms, food manufacturers, electronics manufacturers, amenity areas and horticultural operations (e.g. salad or soft-fruit production)."

2.9.6.15 An ecological receptor is defined as:

"any sensitive habitat affected by dust soiling. This includes the direct impacts on vegetation or aquatic ecosystems of dust deposition, and the indirect impacts on fauna (e.g. on foraging habitats)".

2.9.6.16 The potential for dust emissions will be assessed for each activity that is likely to take place and considers three separate dust effects:

- Annoyance due to dust soiling;
- Harm to ecological receptors; and
- The risk of health effects due to a significant increase in exposure to PM_{10}.

2.9.6.17 Construction dust impacts are likely to be temporary in nature and have the potential to be well controlled through best practice mitigation measures.

2.9.6.18 Table 2.9.1 identifies the potential impact that could result from the sources identified above.

Table 2.9.1:Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction	Construction activities such as earthworks and trackout resulting in emissions of dust	Dust deposition and human health impacts	Yes - Negligible	**Scoped in**
	Emissions from NRMM	Change in local air pollutant concentrations	No - Not significant due to temporary and transient nature and incorporation of best practice measures (CoCP)	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	Emissions from construction traffic	Change in local air pollutant concentrations	No - Not significant due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out
Operation	Operational traffic vehicle emissions	Change in local air pollutant concentrations	No - Not significant due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out
Maintenance	Maintenance traffic vehicle emissions	Change in local air pollutant concentrations	No - Not significant due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out
Decommissioning	Decommissioning activities such as earthworks and trackout resulting in emissions of dust	Dust deposition and human health impacts	Yes - Negligible	**Scoped in**
	Emissions from NRMM	Change in local air pollutant concentrations	No - Not significant due to temporary and transient nature and incorporation of best practice measures (CoCP)	Scoped out
	Emissions from decommissioning traffic	Change in local air pollutant concentrations	No - Not significant due to traffic numbers anticipated to	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			be below IAQM screening criteria	

Impact Pathways with Receptors (Step 2)

2.9.6.19 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the air quality study area.

2.9.6.20 It should be noted that potential air quality impacts associated with the Project are anticipated to be the same for all options as construction dust impacts would be mitigated to negligible effect following a dust risk assessment and vehicle emissions are proposed to be scoped out as not significant.

2.9.6.21 Table 2.9.2 identifies the potential impact pathways with receptors for all options as shown on:

- **Figure 2.1.4 Suffolk Site 1 Emerging Preference** and **Figure 2.1.9 Suffolk Site 1 Emerging Preference Option Area**;
- **Figure 2.1.5 Suffolk Site 3 Emerging Preference** and **Figure 2.1.10 Suffolk Site 3 Emerging Preference Option Area**;
- **Figure 2.1.6 Suffolk Site 1 Alternative** and **Figure 2.1.11 Suffolk Site 1 Alternative Option Area**;
- **Figure 2.1.7 Suffolk Site 3 Alternative (Option 1)** and **Figure 2.1.12 Suffolk Site 3 Alternative (Option 1) Option Area**; and
- **Figure 2.1.8 Suffolk Site 3 Alternative (Option 2)** and **Figure 2.1.13 Suffolk Site 3 Alternative (Option 2) Option Area**.

Table 2.9.2: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Dust deposition and human health impacts during construction	Nearby Air Quality Sensitive Receptors	Yes - Negligible	**Scoped in**
Change in local air pollutant concentrations	Nearby Air Quality Sensitive Receptors	No - Not significant due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out

2.9.7 Proposed Assessment Methodology

2.9.7.1 Detailed technical assessment methodologies are presented in **Part 1, Chapter 5, EIA Approach and Methodology**. This section provides on overview of the methodologies used in the assessment of air quality from the Project.

Proposed Data Sources

2.9.7.2 No additional data sources are proposed other than those outlined in section 4. Should detailed dispersion modelling of vehicle emissions be required following the screening of construction traffic data then one year of meteorological data would be obtained from a nearby met station for the base year.

Proposed Assessment Methodology

Construction dust assessment

2.9.7.3 There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These will be assessed in accordance with the methodology outlined in the IAQM construction dust guidance[171].

2.9.7.4 If there are no ecological receptors within 50m or human receptors within 350m of the Suffolk Onshore Scheme boundary, or within 50m of the haul routes (up to 500m from the site entrance(s)) then the need for a construction dust assessment is to be screened out. However, if there are receptors within in these distances then an assessment should be carried out. Initial review of the study area has identified that receptors are present and therefore a construction dust risk assessment is required.

2.9.7.5 A site is allocated a risk category based on two factors:

- The scale and nature of the works, which determines the magnitude of dust arising as: small, medium or large; and
- The sensitivity of the area to dust impacts, which can be defined as low, medium or high sensitivity.

2.9.7.6 The two factors are combined to determine the risk of dust impacts without mitigation applied.

2.9.7.7 The relevant criteria to define the potential magnitude of dust emission includes the following factors detailed in Table 2.9.3

Table 2.9.3: Dust emission magnitude criteria

Magnitude	Criteria
Small	Demolition volume under 20,000m^3 less than 10m above ground level, total site area less than 2,500m^2, soil type with large grain size, total material moved less than 20,000 tonnes, construction material with low potential for dust release, less than 10 HDV trips per day, unpaved road length less than 50m etc.

Medium	Demolition activities 10m-20m above ground level, moderately dusty soil type, potentially dusty construction material, total material moved 20,000-100,000 tonnes, 10 to 50 HDV trips per day, unpaved road length 50-100m etc.
Large	On-site crushing and screening demolition, demolition activities greater than 20m above ground level, total site area greater than 10,000m^2, more than 10 heavy earth moving vehicles active at any one time, more than 10,000 tonnes of material moved, on site concrete batching, sandblasting, more than 50 HDV trips per day, unpaved road length greater than 100m etc.

2.9.7.8 The influencing factors to define receptor sensitivity to dust impacts are detailed in Table 2.9.4.

Table 2.9.4: Receptor sensitivity criteria

Sensitivity	Criteria
High	Where human receptors expected to be present continuously for extended periods of time e.g. residential properties, hospitals, schools and care homes. Internationally or nationally designated ecological sites.
Medium	Where users would expect to enjoy a reasonable level of amenity and value could be diminished by dust soiling e.g. parks and places of work. Nationally designated ecological sites.
Low	Where enjoyment of amenity would not reasonably be expected and exposure would be for limited periods e.g. footpaths, shopping streets and car parks. Locally designated ecological sites.

2.9.7.9 The IAQM construction dust guidance[171] categorises the unmitigated risk of dust impacts on human health and amenity (rather than ascribe a significance of effect) as a means of identifying the level of dust emissions mitigation required to ensure that residual impacts are 'not significant'. A higher dust risk rating requires more stringent mitigation measures in order to limit residual effects.

Vehicle emissions assessment

2.9.7.10 Assessment of vehicle emissions will be undertaken should the screening of traffic data meet the criteria set out by IAQM development control guidance[172].

2.9.7.11 If these criteria are not exceeded, then the IAQM development control guidance[172] considers air quality impacts associated with a scheme in terms of traffic emissions to be negligible and no further assessment is required

2.9.7.12 Should screening of the relevant data indicate that any of the above criteria are met, then potential impacts at sensitive receptor locations can be assessed by calculating the change in NO_2 and particulate matter concentrations as a result of the Project.

Detailed dispersion modelling would be undertaken using Atmospheric Dispersion Modelling Software (ADMS) to predict pollutant concentrations at worst case receptor locations within 200m of affected vehicle routes and compared against relevant AQS objectives. The significance of predicted impacts can then be determined in accordance with the methodology outlined in the IAQM development control guidance[172].

2.9.7.1 The significance of impacts would be assessed dependent upon the percentage change in concentration between the without and with Project scenarios, relative to the relevant air quality objectives, as presented in Table 2.9.5.

Table 2.9.5: IAQM impact descriptors for individual receptors

Long term average concentration at receptor in assessment year	% change in concentration relative to air quality assessment level (AQAL)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76 - 94% of AQAL	Negligible	Slight	Moderate	Moderate
95 - 102% of AQAL	Slight	Moderate	Moderate	Substantial
103 - 109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

2.9.8 Conclusion

2.9.8.1 With regards to air quality impacts associated with the Suffolk Onshore Scheme, the assessment of construction dust is scoped into the assessment. It is proposed that construction traffic vehicle emissions are scoped out of the assessment due to the number of vehicles anticipated to be below the IAQM screening criteria[172], subject to confirmation upon receipt of construction traffic data.

Proposed Scope of the Assessment

2.9.8.2 A summary of the proposed scope of the assessment is provided in Table 2.9.6.

Table 2.9.6: Proposed scope of the assessment

Receptor	Potential for significant effects	Project phase(s)	Proposed to be scoped in/out and for which option
Nearby Air Quality	Dust deposition	Construction and Decommissioning	**Scoped in for all options**

Sensitive Receptors			
Nearby Air Quality Sensitive Receptors	Human health dust impacts	Construction and Decommissioning	**Scoped in for all options**
Nearby Air Quality Sensitive Receptors	Increase in vehicle emissions	Construction, Operational, Maintenance and Decommissioning	Scoped out for all options
Nearby Air Quality Sensitive Receptors	Emissions from NRMM	Construction and Decommissioning	Scoped out for all options

2.10 Noise and Vibration

2.10.1 Introduction

2.10.1.1 This chapter presents how the noise and vibration assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

2.10.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Suffolk Onshore Scheme Scoping Boundary hereafter referred to as the Suffolk Scoping Boundary is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**.

2.10.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme**.

2.10.1.4 This chapter is supported by the following figure:

- **Figure 2.10.1 – Noise and Vibration Baseline – Suffolk**.

2.10.1.5 The potential effects of noise and vibration on ecological receptors and heritage assets are considered in **Part 2, Chapter 3, Ecology and Biodiversity**, and **Part 2, Chapter 4, Cultural Heritage**, respectively.

2.10.2 Regulatory and Planning Context

2.10.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on noise and vibration associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

2.10.2.2 The below legislation will be considered when identifying potential constraints to the Suffolk Onshore Scheme, design options and mitigation.

- The Control of Pollution Act 1974[179]; and
- Environmental Protection Act 1990[180].

Planning Policy

National Planning Policy

2.10.2.3 The assessment will take account of the relevant National Policy Statements (NPSs) for energy: the Overarching National Policy Statement for Energy (EN-1)[181] and the National Policy Statement for Electricity Networks (EN-5)[182]. These NPSs are, as of June 2022, in the process of being updated and therefore relevant sections of the draft NPSs are also included below, where relevant.

2.10.2.4 EN-1 states that 'where noise impacts are likely to arise from the proposed development, the applicant should include the following in the noise assessment' including a description of the noise generating aspects leading to noise impacts, noise sensitive properties that may be affected, an assessment of the effect of predicted changes in the noise environment at noise sensitive properties and measures to be employed in mitigating noise.

2.10.2.5 EN-5 contains the following guidance relating to noise which has been considered within this chapter:

'The IPC should ensure that relevant assessment methodologies have been used in the evidence presented to them, and that the appropriate mitigation options have been considered and adopted. Where the applicant can demonstrate that appropriate mitigation measures will be put in place, the residual noise impacts are unlikely to be significant.'

2.10.2.6 The National Planning Policy Framework (NPPF) (2012; revised in 2021)[183] details the Government's planning policies for England and how these are expected to be applied. The NPPF includes statements relating to noise and the requirement to take it into account in the planning process. Section 174 indicates that the planning system should contribute to and enhance the natural and local environment by:

'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.'

2.10.2.7 Section 185 is specifically related to noise, requiring planning policy decisions to:

[179] Control of Pollution Act 1974 [online]. Available at: https://www.legislation.gov.uk/ukpga/1974/40 [Accessed July 2022].
[180] Environmental Protection Act 1990 [online]. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents [Accessed July 2022]

[181] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[182] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[183] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

- mitigate and reduce to a minimum, potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life; and
- identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason

2.10.2.8 The terms 'significant adverse effect' and 'adverse effect' reflect the terminology used in the Noise Policy Statement for England, 2010 (NPSE)[184] which sets out the long-term vision of Government noise policy:

'to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.'

2.10.2.9 The NPSE outlines three aims for the effective management and control of environmental, neighbour and neighbourhood noise:

- avoid significant adverse impacts on health and quality of life;
- mitigate and minimise adverse impacts on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life.

2.10.2.10 In its aims, the NPSE uses the key phrases "significant adverse" and "adverse". The NPSE states in its explanatory note that there are two established concepts that are currently being applied to noise impacts, which are:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected.
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected.

2.10.2.11 The NPSE then extends this concept to include:

- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

2.10.2.12 The NPSE notes that it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to vary for different noise sources, receptors and times. It is for the project to identify relevant SOAELs taking account of the sources of exposure and receptors.

2.10.2.13 The NPPF and NPSE do not, therefore, provide absolute limits on noise that are acceptable or unacceptable in a given situation. It does however, set out the need to use planning decisions, including through the use of conditions, to avoid or mitigate adverse impacts on health and quality of life resulting from noise. The Planning Practice Guidance for Noise (PPGN)[185] advises on how planning can manage potential noise impacts. In this guidance it advises that local planning authorities' plan making

[184] Department for Environment, food and Rural Affairs (2010). Noise Policy Statement for England. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69533/pb13750-noise-policy.pdf

[185] Department for Levelling Up, Housing and Communities, and Ministry of Housing, Communities and Local Government (2019). Planning Practice Guidance – Noise. [online] Available at: https://www.gov.uk/guidance/noise--2 [Accessed July 2022].

and decision taking should take account of the acoustic environment and in doing so consider:

- whether or not a significant adverse effect is occurring or likely to occur;
- whether or not an adverse effect is occurring or likely to occur; and
- whether or not a good standard of amenity can be achieved.

2.10.2.14 PPGN provides a noise exposure hierarchy explaining how effects of noise can be categorised, as reproduced in Table 2.10.1.

Table 2.10.1: PPGN noise exposure hierarchy

Response	Example of outcomes	Increasing effect level	Action
Not present	No effect	No Observed Effect	No specific measures required
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response.		
	Lowest Observed Effect Level (LOAEL)		
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
	Significant Observed Effect Level (SOAEL)		
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite,	Unacceptable Adverse Effect	Prevent

Response	Example of outcomes	Increasing effect level	Action
	significant, medically definable harm, e.g. auditory and non-auditory.		

Local planning policy

2.10.2.15 Relevant policies from the East Suffolk Council Suffolk Coastal Local Plan, adopted September 2020[186]. These are reproduced in Table 2.10.2.

Table 2.10.2: Local planning policies applicable to Suffolk Onshore Scheme

Document	Planning policy	Purpose
Suffolk Coastal Local Plan, Adopted September 2020	SCLP10.3: Environmental Quality	Development proposals will be expected to protect the quality of the environment and to minimise and, where possible, reduce all forms of pollution and contamination. Development proposals will be considered in relation to impacts on; a) Air quality, and the impact on receptors in Air Quality Management Areas; b) Soils and the loss of agricultural land; c) Land contamination and its effects on sensitive land uses; d) Water quality and the achievement of Water Framework Directive objectives; e) Light pollution; and f) Noise pollution. Proposals should seek to secure improvements in relation to the above where possible. The cumulative effect of development, in this regard, will be considered.
	SCLP11.2: Residential Amenity	When considering the impact of development on residential amenity, the Council will have regard to the following: a) Privacy/overlooking; b) Outlook; c) Access to daylight and sunlight; d) Noise and disturbance; e) The resulting physical relationship with other properties; f) Light spillage; g) Air quality and other forms of pollution; and

[186] East Suffolk Council (2020). Suffolk Coastal Local Plan. [online] Available at: https://eastsuffolk.inconsult.uk/consult.ti/suffolkcoastallocalplan2020/viewCompoundDoc?docid=11955764&partid=11958292

	h) Safety and security. Development will provide for adequate living conditions for future occupiers and will not cause an unacceptable loss of amenity for existing or future occupiers of development in the vicinity.

2.10.3 Study Area

2.10.3.1 This section describes the study areas for each aspect of the noise and vibration assessment. The study areas for each aspect of the noise and vibration assessment are shown in **Figure 2.10.1 Noise and Vibration Baseline – Suffolk**.

Construction Noise Study Area

2.10.3.2 The study area for construction noise impacts within the ES will consider noise sensitive receptors (NSRs) within 300m of the Suffolk Onshore Scoping Boundary, excluding construction traffic on the public highway which is assessed separately. This is based on guidance in British Standard 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise' (BS 5228-1)[187], which states that caution is needed when making construction noise predictions beyond 300m due to meteorological effects, particularly when a soft ground correction factor has been applied. A 300m construction noise study area is also advocated by DMRB LA 111 (Highways England, 2020)[188]. This will be refined as the Suffolk Onshore Scheme develops.

Construction Traffic Noise Study Area

2.10.3.3 The construction traffic routes are not currently defined at this stage. However, noise from construction traffic on the existing road network will be assessed for each applicable road based on guidance from DMRB LA 111 (Highways England, 2020). The assessment principally considers the change in Basic Noise Level (BNL) of each road, calculated in line with the methodology described in technical memorandum Calculation of Road Traffic Noise (CRTN)[189], with a subsequent assessment of the impacts on NSRs within 50m of routes where a change in BNL of at least 1dB is identified due to construction traffic.

Construction Vibration Study Area

2.10.3.4 The proposed study area for construction vibration impacts, based on guidance from BS 5228-2:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration' (BS 5228-2)[190] and DMRB LA 111, will

[187] British Standards Institute (2008). BS 5228-1:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites: Noise.

[188] Highways England (2020). Design Manual for Roads and Bridges - LA 111 Noise and Vibration. [online] Available at: https://www.standardsforhighways.co.uk/prod/attachments/cc8cfcf7-c235-4052-8d32-d5398796b364?inline=true

[189] Department of Transport and Welsh Office (1988). Calculation of Road Traffic Noise. London. HMSO

[190] British Standards Institute (2008). BS 5228-1:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites: Noise.

consider NSRs within 100m of the Suffolk Scoping Boundary. This will be refined as the Suffolk Onshore Scheme develops.

Operational Noise Study Area

2.10.3.5 The study area for operational noise impacts from the proposed converter station and substation is 1000m from the Suffolk converter station Site Option Areas and proposed Friston substation/extension, based on guidance from ISO 9613:1996 'Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of calculation' (ISO 9613)[191]. There will be particular emphasis on the NSRs closest to the converter station and/or Substation. This will be refined as the Suffolk Onshore Scheme develops.

2.10.3.6 The AC connection between the proposed converter station the National Grid connection point at the proposed Friston substation will be via underground cables. Noise from underground cables are proposed to be scoped out since their operation does not generate material levels noise.

Operational Vibration Study Area

2.10.3.7 There are no material sources of operational vibration proposed as part of the Suffolk Onshore Scheme. Operational vibration is therefore proposed to be scoped out of further assessment.

2.10.4 Baseline Conditions

Data Sources

2.10.4.1 The noise and vibration baseline described in this section has been informed by the following data sources Defra strategic noise mapping (2017) [192];

- Ordnance Survey mapping;
- East Anglia ONE NORTH Offshore Windfarm Environmental Statement Volume, Chapter 25 – Noise and Vibration.
- East Anglia TWO Offshore Windfarm Environmental Statement Volume, Chapter 25 – Noise and Vibration.

2.10.4.2 Pertinent baseline information is provided in **Figure 2.10.1 Noise and Vibration Baseline – Suffolk**.

[191] International Standards Organisation (1996). ISO 9613:1996 Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of calculation.

[192] Department for Environment, Food and Rural Affairs (2019). Strategic noise mapping: explaining which noise sources were included in the 2017 noise maps. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/902825/strategic-noise-mapping-round3.pdf

Baseline

2.10.4.3 The study area includes a mix of predominantly residential and rural environments. The noise climate is therefore expected to be relatively quiet away from main transport routes.

2.10.4.4 The main sources of noise are likely to include road traffic from the A12 to the west and, the A1094 which runs between the A12 at Friday Street to the west and Aldeburgh to the east. There will also be lower levels of traffic on local roads. Away from road traffic sources, ambient sound levels would be expected to be lower. There is also a train line running east-west through the Suffolk Onshore Scoping Boundary between Saxmundham in the west and Leiston in the east. Sizewell nuclear power station is the only major industrial facility in the area, albeit, outside just of the study area, approximately 500m to the north-east of the Suffolk Onshore Scoping Boundary.

2.10.4.5 There are built-up residential areas at:

- Saxmundham to the west;
- Friston to the south;
- Goldfair Green to the south;
- Aldeburgh to the southeast;
- Sizewell to the northeast; and
- Leiston to the northeast.

2.10.4.6 There are also a relatively large number of isolated NSRs and small settlements within the study area located between the main built-up residential areas identified above.

2.10.4.7 Defra strategic noise mapping indicates that ambient noise levels are moderate to high in the vicinity of the A12 and A1094 but reduce to relatively low levels beyond approximately 300m from the roads.

2.10.4.8 There are no Noise Important Areas (NIA) on the existing local public highway along routes within which may be used for construction traffic associated with the Suffolk Onshore Scheme. NIAs are determined via strategic noise maps and highlight the residential areas experiencing the highest 1% of noise levels from road and rail sources in England.

2.10.4.9 There are however NIAs in the wider area on main transport routes (e.g. The A12 at Farnham and Little Glemham to the southwest) which are not likely to be significantly affected by the Suffolk Onshore Scheme.

2.10.4.10 With regards to background sound levels, which are applicable to the assessment of operational noise, the 2018 noise survey data indicates that background sound levels at the nearest NSRs are likely to be in the order of 32 to 37 dB $L_{A90,T}$ during daytime periods, and 24 to 36 dB $L_{A90,T}$ during night-time periods (further noise surveys will be conducted as part of this Suffolk Onshore Scheme). These sound levels are typical for a rural area.

2.10.4.11 With regards to the vibration baseline, it is assumed that existing vibration levels are negligible in the study area.

Future Baseline

2.10.4.12 The future baseline has the potential to change in isolated areas due to proposed infrastructure projects in the area; principally the East Anglia One North and East Anglia Two Offshore Windfarms, with the proposed Friston substation farming part of that application. Baseline noise surveys would likely be conducted prior to commencing of the operation or construction of the substation and as such consideration will be given to pre-development background noise levels in the assessment of operational noise from additional plant required at Friston in relation to the Suffolk Onshore Scheme in order to control cumulative effects.

2.10.5 Embedded and Control & Management Measures

Embedded Measures

Construction noise and vibration

2.10.5.1 Where feasible, the Suffolk Onshore Scheme has avoided NSRs, such as settlements, through routeing and siting.

Operational noise

2.10.5.2 At this stage, the proposed converter station and substation have not yet been designed. However, they will be designed to meet applicable noise limits at nearby NSRs using readily available techniques. This will include consideration of plant selection, site layout, screening, and enclosures, as may be considered appropriate. Additionally, the converter station and substation siting has avoided NSR, such as settlements, through the optioneering process.

2.10.5.3 Similarly, the AC connection between the proposed converter station the substation will be via underground cables. Underground cables do not generate material levels of noise.

2.10.5.4 There are no material sources of vibration from the operation of the converter station and substation. There are, however, sources of low levels of vibration including transformers and cooling plant. Such plant would be expected to be installed on anti-vibration mountings and levels of vibration would not be expected to be perceptible, even in close proximity to the equipment.

Control and Management Measures

Construction noise control and management measures

2.10.5.5 An outline Code of Construction Practice (CoCP) is provided **in Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the noise and vibration assessment are:

- GG04 - The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans.

- GG06 - Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the project. Topics will include but are not limited to:
  - working hours and noise and vibration reducing measures; and
  - agreed traffic routes, access points, etc.
- GG11 - Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.
- GG26 - Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use to raise any concerns or complaints about the project. All construction-related complaints will be logged by the contractor(s) in a complaints register, together with a record of the responses given and actions taken.
- NV01 - Construction working will be undertaken within the agreed working hours set out within the Development Consent Order (DCO). Best practicable means to reduce construction noise will be set out within the CEMP.

2.10.5.6 In developing the noise control measures to be used, the following hierarchy will be followed:

- Control at source – for example the selection of quieter equipment;
- The choice of location for equipment on site;
- Control of working hours; and
- The provision of acoustic enclosures around equipment or barriers around work sites.

2.10.5.7 As per the hierarchy above, the first source of control for noise pollution is to control at the source. To this end, where reasonably practicable, efforts will be made to use equipment that reduces the noise produced where located in close proximity to NSRs.

2.10.5.8 Where works may be required to be undertaken outside of the core hours, the local planning authority will be notified in advance along with any neighbouring receptors.

Operational noise control and management Measures

2.10.5.9 It is anticipated that further detailed assessment of operational noise from the proposed converter station and substation, once the design has been finalised, detailing specific mitigation measures, would be secured via DCO Requirement.

Operational vibration control and management measures

2.10.5.10 There are no material sources of operational vibration proposed as part of the Project. Some converter station and substation plant would include rotating and moving parts, such as the fans of cooling equipment. However, levels of vibration generated by such plant is low and applicable plant, including transformers, would be expected to be

mounted on suitable anti-vibration mounts. These are primarily to protect the plant itself from potential vibration impacts but also serve to attenuate vibration generated by the plant. Vibration would therefore not be expected to be perceptible even in very close proximity to plant.

2.10.6 Potential for Significant Effects

2.10.6.1 The noise and vibration assessment will consider the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

2.10.6.2 The proposed scope of the noise and vibration assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

2.10.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme.

2.10.6.4 The potential for the Suffolk Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- noise effects from construction activities;
- vibration effects from construction activities; and
- noise effects from construction traffic.

Sources of operational impacts

- noise effects from the converter station; and
- noise effects from the substation.

Sources of maintenance impacts

- noise and vibration effects from maintenance activities.

Sources of decommissioning impacts

- noise and vibration effects from decommissioning activities.

Potential impacts

2.10.6.5 Table 2.10.3 identifies the potential impacts that could result from the sources identified above.

Table 2.10.3:Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction	Noise from construction activities	Construction noise at NSRs	Yes -There will be potential significant effects due to construction noise at NSRs within the study area. However, this depends on the nature and the duration of activities, the distance between the noise source and the NSR, and the good practice measures employed to reduce noise.	**Scoped in**
Construction	Vibration from construction activities	Construction vibration at NSRs	Yes -There will be potential significant effects on human receptors (i.e. nuisance) due to construction vibration at NSRs within the study area. The level of significance will depend on the nature and the duration of activities, the distance between the source of vibration and the NSR, and the good practice measures employed to reduce vibration. However, the duration of such activities would be expected to be relatively short at any one location, and, together with the implementation of good practice measures, significant	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			effects from such works are not expected.	
Construction	Vibration from construction activities	Construction vibration at structures	Yes -Construction vibration would not be expected to cause damage to buildings or structures unless very high levels of vibration are generated. Such levels would only be expected to occur where vibration generating activities occur very close to structures, within several meters, and specific control measures would be in place in such instances.	**Scoped in**
Construction	Noise from construction traffic	Construction traffic noise at NSRs	Yes -There is the potential for significant effects at NSRs close to construction traffic routes depending on the number of construction vehicle movements and existing traffic flows along proposed routes.	**Scoped in**
Construction	Vibration from construction traffic	Construction traffic vibration at NSRs	No - Vibration from traffic on the public highway is caused by irregularities in the road surface. Where the road surface is free from irregulates, such as potholes, significant vibration	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			effects would not be expected, even at relatively short distances. This is confirmed by the Design Manual for Roads and Bridges LA 111 Noise and Vibration (2020) (DRMB).	
Operation	converter station and substation	Operational noise at NSRs	Yes -There are a number of potential sources of audible noise from converter station and substation. Each of these has its own characteristic frequency spectrum and pattern of occurrence due to the nature of the noise-generating mechanisms involved. The primary sources of noise are likely to be transformers, cooling equipment, alternating current (AC) and direct current (DC) switch gear, and AC filters and voltage smoothing equipment. Transformer noise is almost constant, with a hum occurring at exact harmonics of the supply frequency; 100Hz and 200Hz components are usually dominant. Transformers	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			generally run continuously except for occasional maintenance and fault outages. Transformer coolers typically emit a broadband noise; however, their operation depends on temperature and loading.	
Operation			No - Switchgear noise is generated, in the main, by the operation of circuit breakers, for which the noise emissions are ‘impulsive’ in character (i.e. of short duration). Switchgear operations would be very infrequent. Modern switchgear of the Sulphur Hexafluoride (SF6) type operates with a dull ‘thud’. Switchgear would operate infrequently and is therefore proposed to be scoped out. Auxiliary plant may comprise standby diesel generators and air compressors to provide emergency back-up power to cooling plant. When present and operating, these may contribute to the broadband noise	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			climate. They do not run continuously, and in any case, would be housed in a building or outdoor acoustic enclosure. Noise from such assets is therefore not considered significant, given its emergency function and as such is proposed to be scoped out.	
Operation		Operational vibration at NSRs	No - There are no material sources of operational vibration proposed as part of the Project. Some converter station plant would include rotating and moving parts, such as the fans of cooling equipment. However, levels of vibration generated by such plant is low and all plant, including transformers, would be expected to be mounted on suitable anti-vibration mounts. These are primarily to protect the plant itself from potential vibration impacts but also serve to attenuate vibration generated by the plant. Vibration would therefore not be expected to be perceptible even in	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			very close proximity to plant.	
Operation	Maintenance activities	Operational noise and vibration at NSRs	Yes -Maintenance of the underground cables and the converter station would be infrequent, localised, and would follow good practice measures for the reduction of noise and vibration where required. Noise and vibration effects from maintenance activities would be expected to be no worse, and typically less than, the effects of during the construction phase.	**Scoped in**
Operation	Underground cables	Operational noise and vibration at NSRs	No - Underground cables are practically quiet. Operational noise from underground cables is scoped out of the ES	Scoped out
Operation	Operational road traffic	Operational road traffic noise and vibration at NSRs	No - The Suffolk Onshore Scheme is not likely to generate significant levels of additional road traffic during operation, with a low level of manned activity at the converter station site and occasional maintenance activities.	Scoped out
Decommissioning	Decommissioning activities	Decommissioning noise and vibration at NSRs	Yes - Decommissioning of the underground cables and the	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			converter station would follow good practice measures for the reduction of noise and vibration where required. Noise and vibration effects from decommissioning activities would be expected to be similar to the effects of during the construction phase.	

Impact Pathways with Receptors (Step 2)

2.10.6.6 Table 2.10.4 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Onshore Scheme for all options as shown on:

- **Figure 2.1.4 Suffolk Site 1 Emerging Preference** and **Figure 2.1.9 Suffolk Site 1 Emerging Preference Option Area**;
- **Figure 2.1.5 Suffolk Site 3 Emerging Preference** and **Figure 2.1.10 Suffolk Site 3 Emerging Preference Option Area**;
- **Figure 2.1.6 Suffolk Site 1 Alternative** and **Figure 2.1.11 Suffolk Site 1 Alternative Option Area**;
- **Figure 2.1.7 Suffolk Site 3 Alternative (Option 1)** and **Figure 2.1.12 Suffolk Site 3 Alternative (Option 1) Option Area**; and
- **Figure 2.1.8 Suffolk Site 3 Alternative (Option 2)** and **Figure 2.1.13 Suffolk Site 3 Alternative (Option 2) Option Area.**

Table 2.10.4: Impact pathways with receptors – all options

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Disturbance from construction noise	Residential and non-	Yes -There will be potential significant effects due to construction noise at	**Scoped in**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	residential NSR	NSRs within the study area. However, this depends on the nature and the duration of activities, the distance between the noise source and the NSR, and the good practice measures employed to reduce noise.	
Disturbance from construction vibration	Residential and non-residential NSR	Yes -There will be potential significant effects on human receptors (i.e. nuisance) due to construction vibration at NSRs within the study area. The level of significance will depend on the nature and the duration of activities, the distance between the source of vibration and the NSR, and the good practice measures employed to reduce vibration. However, the duration of such activities would be expected to be relatively short at any one location, and, together with the implementation of good practice measures, significant effects from such works are not expected.	**Scoped in**
Structural damage from construction vibration	Structures	Yes -Construction vibration would not be expected to cause damage to buildings or structures unless very high levels of vibration are generated. Such levels would only be expected to occur where vibration generating activities occur very close to structures, within several meters, and specific control measures would be in place in such instances.	**Scoped in**
Disturbance from construction traffic noise	Residential and non-residential NSR	Yes -There is the potential for significant effects at NSRs close to construction traffic routes depending on the number of construction vehicle movements and existing traffic flows along proposed routes.	**Scoped in**
Disturbance from construction traffic vibration	Residential and non-residential NSR	No - Vibration from traffic on the public highway is caused by irregularities in the road surface. Where the road surface is free from irregulates, such as potholes, significant vibration effects would not be expected, even at	Scoped out

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		relatively short distances. This is confirmed by the Design Manual for Roads and Bridges LA 111 Noise and Vibration (2020) (DRMB).	
Disturbance from operational noise from Proposed (converter station and Substation)	Residential and non-residential NSR	Yes -There are a number of potential sources of audible noise from converter stations and substations. Each of these has its own characteristic frequency spectrum and pattern of occurrence due to the nature of the noise-generating mechanisms involved. The primary sources of noise are likely to be transformers, cooling equipment, alternating current (AC) and direct current (DC) switch gear, and AC filters and voltage smoothing equipment. Transformer noise is almost constant, with a hum occurring at exact harmonics of the supply frequency; 100Hz and 200Hz components are usually dominant. Transformers generally run continuously except for occasional maintenance and fault outages. Transformer coolers typically emit a broadband noise; however, their operation depends on temperature and loading.	**Scoped in**
Disturbance from operational vibration	Residential and non-residential NSR	No - There are no material sources of operational vibration proposed as part of the Project. Some converter station plant would include rotating and moving parts, such as the fans of cooling equipment. However, levels of vibration generated by such plant is low and all plant, including transformers, would be expected to be mounted on suitable anti-vibration mounts. These are primarily to protect the plant itself from potential vibration impacts but also serve to attenuate vibration generated by the plant. Vibration would therefore not be expected to be perceptible even in very close proximity to plant.	Scoped out

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Disturbance from operational traffic noise	Residential and non-residential NSR	No - The Suffolk Onshore Scheme is not likely to generate significant levels of additional road traffic during operation, with a low level of manned activity at the converter station site and occasional maintenance activities.	Scoped out
Disturbance from noise and vibration from maintenance activities	Residential and non-residential NSR	Yes -Maintenance of the underground cables and the converter station would be infrequent, localised, and would follow good practice measures for the reduction of noise and vibration where required. Noise and vibration effects from maintenance activities would be expected to be no worse, and typically less than, the effects of during the construction phase.	**Scoped in**
Disturbance from decommissioning noise and vibration	Residential and non-residential NSR	Yes -Decommissioning of the underground cables and the converter station would follow good practice measures for the reduction of noise and vibration where required. Noise and vibration effects from decommissioning activities would be expected to be similar to the effects of during the construction phase.	**Scoped in**

2.10.7 Proposed Assessment Methodology

2.10.7.1 The assessment methodology for the EIA is outlined in **Part 1, Chapter 5, EIA Approach and Methodology**. This section provides on overview of the methodologies proposed to be used in the assessment of noise and vibration from the Suffolk Onshore Scheme.

Proposed Data Sources

2.10.7.2 The following data sources would be used in the noise and vibration assessment:

- AddressBase Plus data;
- Noise survey data;
- Project design information;
- Construction programme, schedule, and plant data (if available);

- Baseline and construction traffic data;
- Topography data;
- Converter station plant and/or specification data (if available).

2.10.7.3 Where detailed data is not available at the time of the ES, suitable assumptions will be made and documented. In terms of construction data, information would be based on the methodologies used in similar projects. With regards to the converter station, it is unlikely that a full design will be available at the time of the ES. As such, the ES will serve to determine noise limits for the proposed converter station via the noise survey data. It is anticipated that further detailed assessment of operational noise from the proposed converter station, once the design has been finalised, detailing specific mitigation measures, would be secured via DCO Requirement to meet the determined noise criteria.

Ascribing Sensitivity

2.10.7.4 NSRs are determined partly on property type, for example residential properties are of a higher sensitivity than factories and offices.

2.10.7.5 Although all residential NSRs are sensitive to noise and vibration, there are also cases where the sensitivity of an NSR may depend on the pre-existing noise climate. For example, NSRs falling with NIAs (existing high noise areas) may be more sensitive to increases in noise than those outside NIAs. Consideration will be given to such instances as part of the assessment of construction traffic noise impacts.

2.10.7.6 The sensitivity of residential NSRs is factored into the assessment criteria for noise and vibration impacts through the various guidance documents. The significance of effects at residential NSR is therefore directly related to magnitude of effect. However, additional consideration of sensitivity may be required in certain cases for non-residential NSRs. Consideration would also be given to the times that the specific NSR is expected to be used (e.g. if daytime only). The criteria used to determine the value and sensitivity of non-residential NSRs specific to noise and vibration are set out in Table 2.10.5. These values are based on standard practice.

Table 2.10.5: Criteria for determining value/sensitivity (Non-Residential NSRs)

Sensitivity/value	Criteria
Very High	Schools and education premises, hospitals, clinics.
High	Care Homes, places of worship, community centres, libraries.
Medium	Areas primarily used for leisure activities including PRoWs, sports facilities, and sites of historic or cultural importance, camp sites, hotels, gardens, parks.
Low	Offices, cafes/bars with external areas.
Negligible	Industrial or retail premises

Ascribing Impact Magnitude

Construction noise

2.10.7.7 Construction noise impacts will be assessed in accordance with BS 5228-1 and will take account of the guidance of DMRB.

2.10.7.8 Construction noise levels will be calculated at NSRs within the study area in accordance with the methodology described in Annex F of BS 5228-1. The predicted construction noise levels at NSRs will be compared against applicable noise thresholds as detailed in Section E.3.2 of BS 5228-1 (the 'ABC' method) together with temporal criteria as detailed in DMRB. Given the rural area of the majority of the Suffolk Onshore Scheme area, the lower threshold values (Category 'A') would be applied as a worst-case assessment to all residential NSR in lieu of baseline noise monitoring for construction impacts.

2.10.7.9 The lowest observed adverse effect level (LOAEL) and the significant adverse effect level (SOAEL) will be established in accordance with Table 2.10.6.

Table 2.10.6: Construction noise effect levels at residential receptors

Time period	LOAEL	SOAEL
Weekdays 7:00am to 7:00pm, and Saturdays 7:00am to 1:00pm	50dB $L_{Aeq,T}$	65dB $L_{Aeq,T}$
Weekdays 7:00pm to 11:00pm, Saturdays 1:00pm to 11:00pm, and Sundays 7:00am to 11:00pm	50dB $L_{Aeq,T}$	55dB $L_{Aeq,T}$
Night-time 11:00pm to 7:00am	40dB $L_{Aeq,T}$	45dB $L_{Aeq,T}$

Construction vibration

2.10.7.10 Construction vibration levels will be calculated and assessed in accordance with the methodologies described in BS 5228-2 and will take account of the guidance of DMRB. No vibration baseline study is proposed.

2.10.7.11 Vibration levels from construction activities will be calculated in accordance with the methodology described in Annex E of BS 5228-2. Predicted vibration levels will be compared against applicable guidance values for both potential annoyance to human receptors together with temporal criteria detailed in DMRB.

2.10.7.12 Construction vibration effect threshold levels, including applicable LOAEL and SOAEL, are shown Table 2.10.7.

Table 2.10.7:Construction vibration effect magnitudes at residential receptors

Magnitude	Vibration level mm/s PPV*	Effect

Negligible	0.14	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration
Small	0.3	Vibration might be just perceptible in residential environments (LOAEL)
Medium	1.0	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents (SOAEL)
Large	10	Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments
	* Peak Particle Velocity	

Construction traffic noise

2.10.7.13 Noise from construction traffic on the public highway will be calculated in accordance with CRTN and assessed against the criteria detailed in DMRB. The BNL from roads within the construction traffic study area will be calculated in accordance with CRTN for the do-nothing and do-something scenarios in the construction year. The calculated BNL values will be compared to determine the magnitude of the impact as detailed in Table 2.10.8.

Table 2.10.8: Magnitude of impact from construction traffic at residential receptors

Magnitude	Increase in BNL of closest public road used for construction traffic (dB)
Large	Greater than or equal to 5.0
Medium	Greater than or equal to 3.0 and less than 5.0
Small	Greater than or equal to 1.0 and less than 3.0
Negligible	Less than 1.0

Operational converter station and substation noise

2.10.7.14 The assessment of operational noise will follow the methodology stated in BS 4142:2014+A1:2019 ‘Methods for rating and assessing industrial and commercial sound’ (BS 4142)[193].

2.10.7.15 Noise limits will be determined based on background sound level surveys at locations representative of nearby NSR. Surveys will be conducted in accordance with the requirements of BS 4142 and in general accordance with the methodology detailed in

[193] British Standards Institute (2019). BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound. BSI

BS 7445-1:2003 ‘Description and measurement of environmental noise. Guide to quantities and procedures’ (BS 7445)[194].

2.10.7.16 BS 4142 assesses the potential significance of effects by comparing the 'rating sound level' of an industrial source to the typically representative ‘background sound level’ at the location of nearby receptors. The sound rating is a combination of the specific sound level at the NSR and any applicable penalties that may be required for acoustic character, such as tonality or impulsivity.

2.10.7.17 The specific sound level at nearby NSR will be predicted by incorporating the available converter station design information in a computer noise model, based on the methodology detailed in ISO 9613.

2.10.7.18 The predicted sound rating levels will be compared against the relevant noise limits determined from the baseline sound level survey data. The lower the rating level is relative to the measured background sound level, the less likely it is that there will be an adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

2.10.7.19 When considering context, BS 4142 references BS 8233:2014 ‘Guidance on sound insulation and noise reduction for buildings’ (BS 8233)[195] as providing context where background and rating noise levels are low. BS 8233 recommends internal sound levels in habitable spaces such as living rooms and bedrooms.

2.10.7.20 As noted above, it is anticipated that further detailed assessment of operational noise from the proposed converter station, once the design has been finalised, detailing specific mitigation measures would be secured via a condition attached to the outline planning permission, if granted. The assessment will therefore focus on setting of noise limits such that adverse impacts are avoided. It is standard practice to set the limit for operational noise such that the sound rating level does not exceed the background sound level, such that the impact is negligible (defined in BS 4142 as ‘low’). The magnitude impacts for operational noise are detailed in Table 2.10.9.

Table 2.10.9: Magnitude of impact from operational converter station and substation noise

Magnitude	Comparison of sound rating level and background sound level
Large	Rating level > 10dB above the background sound level
Medium	Rating level between 5 and 9 dB above background sound level
Small	Rating level between 0 and 4 dB above background sound level
Negligible	Rating level below background sound level

[194] British Standards Institute (2003). BS 7445-1:2003 Description and measurement of environmental noise. Guide to quantities and procedures. BSI

[195] British Standards Institute (2014). BS 8233:2014 Guidance on sound insulation and noise reduction for buildings. BSI

Maintenance noise and vibration

2.10.7.21 Noise and vibration effects from maintenance activities during operation will be assessed as per construction noise and vibration impacts, as described above.

Decommissioning noise and vibration

2.10.7.22 Noise and vibration effects from decommissioning activities during operation will be assessed as per construction noise and vibration impacts, as described above.

Ascribing Significance of Effect

Construction, maintenance, and decommissioning noise and vibration – residential receptors

2.10.7.23 Noise and vibration from construction, maintenance, and decommissioning activities, and construction traffic noise will constitute a significant adverse effect where it is determined that a Large or Medium magnitude of impact will occur at a residential NSR for a duration exceeding:

- 10 or more days or nights in any 15 consecutive days or nights; or
- a total number of days exceeding 40 in any six consecutive months.

Operational noise and vibration – residential receptors

2.10.7.24 Operational noise impacts will constitute a significant adverse effect where it is determined that a Large or Medium magnitude of impact will occur at residential NSRs.

Significance of effect at non-residential NSR

2.10.7.25 With regards to non-residential receptors, the significance of effect will be determined via the matrix shown in Table 2.10.10, taking account of the sensitivity of the NSR and the impact magnitude. For construction impacts, the duration of impact will also be taken into account, as above.

Table 2.10.10:Significance matrix at non-residential NSR

		NSR sensitivity:				
		Very High	**High**	**Medium**	**Low**	**Negligible**
Impact magnitude	**Large**	Major	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Moderate	Minor	Negligible
	Small	Moderate	Moderate	Minor	Negligible	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible

2.10.7.26 Major and moderate effects are typically considered to be significant, whilst minor and negligible effects are considered to be not significant. However, professional judgement will also be applied in reaching conclusions as to the significance of effects.

2.10.8 Conclusion

2.10.8.1 This chapter has considered the scoping of noise and vibration impacts during the construction, operation, and decommissioning of the Suffolk Onshore Scheme and describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

Proposed Scope of the Assessment

2.10.8.2 A summary of the proposed scope of assessment is provided in Table 2.10.11.

Table 2.10.11: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out and for which option
Nearby NSRs	Construction noise	Construction	**Scoped in for all options**
Nearby NSRs and structures	Construction vibration	Construction	**Scoped in for all options**
Nearby NSRs	Construction traffic noise	Construction	**Scoped in for all options**
Nearby NSRs	Operational converter station and substation noise	Operation	**Scoped in for all options**
Nearby NSRs	Operational vibration	Operation	Scoped out for all options
Nearby NSRs	Operational road traffic	Operation	Scoped out for all options
Nearby NSRs	Operational maintenance noise and vibration	Operation	**Scoped in for all options**
Nearby NSRs	Decommissioning noise and vibration	Decommissioning	**Scoped in for all options**

2.11 Socio-economics, Recreation and Tourism

2.11.1 Introduction

2.11.1.1 This chapter presents how the socio-economics, recreation and tourism assessment will consider the potentially significant effects that may arise from the construction, and operation, maintenance and decommissioning of the Suffolk Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

2.11.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Suffolk Onshore Scheme Scoping Boundary hereafter referred to as the Suffolk Scoping Boundary is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**.

2.11.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description for the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme.**

2.11.1.4 This chapter is supported by the following figure:

- **Figure 2.11.1 Suffolk Onshore Scheme Socio-economic Recreation and Tourism Study Areas and Receptors.**

2.11.1.5 The assessment will consider potentially significant socio-economic, recreation and tourism effects on the following receptors:

- Employment (including training and apprenticeship opportunities);
- Users of recreational routes and Public Rights of Way (PRoW);
- Local communities that could be affected by community severance; and
- Residential properties, local businesses, visitor attractions, community facilities, open space and development land.

2.11.2 Regulatory and Planning Context

2.11.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. There is no legislation of relevance to the assessment of socio-economics, recreation and tourism effects. Detailed below is a

summary of planning policy of relevance to socio-economics, recreation and tourism. It includes relevant paragraphs of the Overarching National Policy Statement for Energy (EN1)[196]; the National Policy Statement for Electricity Networks Infrastructure (EN-5)[197]; the National Planning Policy Framework (NPPF)[198]; and National Planning Practice Guidance (NPPG)[199], as well as relevant local planning policy.

Legislation

2.11.2.2 No legislation of relevance to socio-economic, recreation and tourism effects.

Planning Policy

National planning policy

National Policy Statement for Energy (EN-1)

2.11.2.3 Paragraphs 5.12.2 – 5.12.5 of the Overarching National Policy Statement for Energy (EN-1)[196] details requirements for NSIP applications to consider all relevant socio-economic impacts, and to highlight that socio-economic impacts may be linked to other impacts (for example links between visual impacts and tourism and local businesses). Socio-economic impacts may include:

- "the creation of jobs and training opportunities;
- the provision of additional local services;
- effects on tourism;
- the impact of a changing influx of workers during the different construction, operation and decommissioning phases…There could also be effects on social cohesion depending on how populations and service provision change as a result of the development; and
- cumulative effects."

National Policy Statement for Energy (EN-5)

2.11.2.4 The National Policy Statement for Electricity Networks Infrastructure (EN-5)[197] supplements EN-1, with additional guidance specific to the development of electricity networks infrastructure. This document makes no reference to socio-economics, recreation or tourism.

[196] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[197] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[198] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

[199] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2021). Planning Practice Guidance. [online] Available at: https://www.gov.uk/government/collections/planning-practice-guidance

National planning policy framework

2.11.2.5 The National Planning Policy Framework (NPPF)[198] sets out various policies with respect to the social and economic objectives of the planning system.

- Paragraph 8 outlines the economic objective of the planning system 'to help build a strong, responsive, and competitive economy by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity'.
- Paragraph 100 states 'decisions should protect and enhance public rights of way'.

National planning practice guidance

2.11.2.6 The National Planning Practice Guidance (NPPG)[199] provides guidance including on: planning and the economy and to consider the existing and potential future needs of the population in terms of economic development, jobs and employment opportunities; and on open space, sports and recreation facilities, public rights of way and local green space. The contents of the NPPG are not materially relevant to the assessment of socio-economic, recreation and tourism effects as the content does not influence the undertaking of the assessment of effects.

Local planning policy

2.11.2.7 Local planning policy to the socio-economic, recreation and tourism assessment includes:

- Suffolk County Council (SCC) Energy Infrastructure Policy[200];
- Suffolk Coastal Local Plan, 2020[201], including:
  - Policy SCLP3.1: Strategy for Growth;
  - Policy SCLP3.4: Proposals for Major Energy Infrastructure Projects;
  - Policy SCLP6.1: Tourism;
  - Policy SCLP8.2: Open Space; and
- Leiston Neighbourhood Plan[202].

2.11.2.8 Additional planning guidance documents relevant to the socio-economic, recreation and tourism assessment includes:

- New Anglia Local Enterprise Partnership (LEP), Norfolk and Suffolk Economic Strategy[203];

[200] Suffolk County Council (2021). Suffolk County Council's Energy Infrastructure Policy. [online] Available at: https://www.suffolk.gov.uk/assets/planning-waste-and-environment/major-infrastructure-projects/SCC-Energy-Policy.pdf

[201] East Suffolk Council (2020). Suffolk Coastal Local Plan. [online] Available at: https://eastsuffolk.inconsult.uk/consult.ti/suffolkcoastallocalplan2020/viewCompoundDoc?docid=11955764&partid=11958292

[202] Leiston-cum-Sizewell Town Council (2017). Leiston Neighbourhood Plan 2015-2029. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Neighbourhood-Planning/Designated-Neighbourhood-Areas/Leiston/Leiston-NP-Made-Version-March-2017.pdf

[203] New Anglia (2022). Norfolk and Suffolk Economic Strategy. [online] Available at: https://newanglia.co.uk/wp-content/uploads/2022/01/FINAL-Norfolk-and-Suffolk-economic-strategy-Jan-2022.pdf

- New Anglia LEP, Local Energy East Strategy[204];
- New Anglia LEP Economic Recovery Restart Plan[205];
- New Anglia LEP Visitor Economy Recovery Plan[206]; and
- New Anglia LEP Energy Sector Recovery and Resilience Plan[207].

2.11.3 Study Area

2.11.3.1 The study area for socio-economic, recreation and tourism varies depending on the likely spatial extent of the effect under consideration.

2.11.3.2 The Scoping Report sets out potential effects with respect to the Suffolk Scoping Boundary (as set out in **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**).

2.11.3.3 Effects on employment will be considered within the local authority of East Suffolk, the local authority that the Suffolk Scoping Boundary falls within.

2.11.3.4 Effects on users of recreational routes and PRoW will consider impacts on routes and PRoW likely to be affected by alterations in their use. This will include all routes located within 500m of the Suffolk Scoping Boundary.

2.11.3.5 The study area for local communities that could be affected by community severance will consider communities that may potentially be directly and indirectly affected by the Suffolk Onshore Scheme. These will include communities directly connected by recreational routes and PRoW. The communities that could be impacted are within 1km of the Suffolk Scoping Boundary and which is illustrated on **Figure 2.11.1 Suffolk Onshore Scheme Socio-economic Recreation and Tourism Study Areas and Receptors**.

2.11.3.6 The study area for residential properties, local businesses, visitor attractions relevant for tourism, community facilities, open space and development land will consider receptors that could be directly or indirectly affected by the Suffolk Onshore Scheme. The receptors that could be impacted are within 500m of the Suffolk Scoping Boundary **Figure 2.11.1 Suffolk Onshore Scheme Socio-economic Recreation and Tourism Study Areas and Receptors**. Potential significant effects included within the Landscape and Visual chapter will also be reviewed and receptors beyond 500m will be considered should significant amenity impacts be identified.

[204] New Anglia (2018). Local Energy East Strategy. [online] Available at: https://newanglia.co.uk/wp-content/uploads/2020/04/LEE-Strategy-LOW-RES.pdf

[205] New Anglia (2020). Economic Recovery Restart Plan. [online] Available at: https://newanglia.co.uk/wp-content/uploads/2020/11/Recovery-Plan-Progress-Report-autumn-2020-FINAL.pdf

[206] New Anglia (2020). A Recovery Plan for the Visitor Economy. [online] Available at: https://newanglia.co.uk/wp-content/uploads/2020/07/New-Anglia_Norfolk-Suffolk-Unlimited_Visitor-Economy-Recovery-FOR-WEB.pdf

[207] New Anglia (2020). Energy Sector Recovery and Resilience Plan. [online] Available at: https://newanglia.co.uk/wp-content/uploads/2021/05/New-Anglia-LEP-Energy-Recovery-and-Resilience-Plan-V5.pdf

2.11.4 Baseline Conditions

Data Sources

2.11.4.1 The socio-economic, recreation and tourism assessment baseline environment described in this section has been informed by the following data sources:

- Office of National Statistics (ONS), (2021), Mid-Year Population Estimates[208];
- ONS, (2021), Claimant count by sex and age (May 2022)[209];
- ONS, (2021), Annual Population Survey (January 2021to December 2021)[210]; and
- Ministry of Housing, Community and Local Government (MHCLG), (2020), English Indices of Deprivation (2019)[211].

2.11.4.2 The baseline for recreational routes and PRoW is based on:

- SCC Definitive Map and Statement of public rights of way[212]; and
- Sustrans National Cycle Network route map[213].

2.11.4.3 The baseline for private assets is based on desk research with reference to:

- East Suffolk Policies Map[214]

2.11.4.4 The baseline for development land is based on:

- Suffolk Coastal Local Plan; and
- SCC planning applications portals.

Baseline

2.11.4.5 The Suffolk Scoping Boundary is located within the East Suffolk local authority. In 2020, East Suffolk had an estimated population of approximately 250,300.

[208] Office for National Statistics (2021). Population estimates for the UK, England and Wales, Scotland and Northern Ireland: mid-2020. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/latest

[209] Office for National Statistics (2022). CLA02: Claimant Count by age group (Experimental Statistics). [online] Available at: https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/outofworkbenefits/datasets/cla02claimantcountbyagegroup

[210] Office for National Statistics (2021). Annual Population Survey (January 2020 to December 2020). [online] Available at: https://www.nomisweb.co.uk/datasets/apsnew

[211] Ministry of Housing, Communities & Local Government (2019). English Indices of Deprivation 2019. [online] Available at: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019

[212] Suffolk County Council (2022). Definitive Map and Statement of public rights of way. [online] Available at: https://www.suffolk.gov.uk/roads-and-transport/public-rights-of-way-in-suffolk/view-definitive-maps-of-public-rights-of-way/ [Accessed July 2022].

[213] Ordnance Survey Maps (2022). Map of the National Cycle Network. [online] Available at: https://explore.osmaps.com/?lat=52.229585&lon=1.342731&style=Standard&zoom=7.5461&overlays=os-ncn-layer&type=2d&placesCategory= [Accessed April 2022].

[214] East Suffolk Council (2020). Suffolk Coastal Local Plan - Policies Map. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Planning-Policy-and-Local-Plans/Suffolk-Coastal-Local-Plan/Adopted-Suffolk-Coastal-Local-Plan/Policies-Maps-Part-1-inc.-Erratum-updated-February-2021.pdf

2.11.4.6 The Suffolk Scoping Boundary comprises predominantly agricultural land as well as a number of isolated residential properties. There are a number of towns and villages which lie outside of, but close to the Suffolk Scoping Boundary. These include:

- Aldeburgh town which lies adjacent to the south of the Suffolk Scoping Boundary;
- Leiston town is located adjacent to the inner boundary of the Suffolk Scoping Boundary
- Saxmundham town is adjacent to the western border of the Suffolk Scoping Boundary;
- Aldringham village is adjacent to the inner boundary of the Suffolk Scoping Boundary;
- Knodishall village is adjacent to the inner boundary of the Suffolk Scoping Boundary;
- Friston village is adjacent to the Suffolk Scoping Boundary to the south west;
- Sizewell village is adjacent to the northeast of the Suffolk Scoping Boundary; and
- Benhall is a village located approximately 500m to the west of the Suffolk Scoping Boundary;
- Theberton village is approximately 800m to the north of the Suffolk Scoping Boundary;

2.11.4.7 Approximately 6.8% of Lower Layer Super Output Areas (LSOAs) located in East Suffolk are ranked within the most deprived decile of LSOAs in England. Out of the 317 local authorities in England, East Suffolk is ranked as the 146th most deprived.

Employment and labour market

2.11.4.8 In 2020, the proportion of the population of East Suffolk that was of working-age (16-64 years) was 55.6% which was lower than the proportion for the East region (60.6%) and England and Wales (62.2%).

2.11.4.9 In 2021, the economic activity rate among the working age population in East Suffolk of 79.1% was lower than the East average (81.1%), but slightly higher than England and Wales (78.9%).

2.11.4.10 In the same year, the unemployment rate among the working age population in East Suffolk was 4.1%. This was higher than the East average (3.9%) but lower than across England and Wales (4.6%). The claimant count (as a proportion of residents aged 16-64 years), recorded in May 2022, was 3.0% in East Suffolk. This is broadly in line with the count in the East (3.1%) but lower than across England and Wales (3.9%).

2.11.4.11 In 2021 the proportion of the population that held a higher level NVQ Level 4+ qualification in East Suffolk (39.4%) was broadly in line with the proportion across the East (39.5%), but lower than across England and Wales (42.9%). The proportion of the population with no formal qualifications in East Suffolk (5.5%) was lower than both the East region (5.7%) and England and Wales (6.5%).

Recreational routes and PRoW

2.11.4.12 The study area for recreational routes and PROW is intersected by a number of recreational routes and PRoW, including National Cycle Network Route 42 (NCR 42), an on-road cycle route running between Friston and Leiston Abbey.

Residential properties

2.11.4.13 Residential areas in the communities of Aldeburgh, Aldringham, Knodishall, Friston, Behall Green, Saxmundham, Leiston, and Sizewell listed in paragraph 2.11.4.6 are located within the study area. The remainder of the study area for residential properties comprises a sparsely populated rural area and contains some dispersed private properties and farm buildings.

Business premises

2.11.4.14 There are a large number of businesses located within the study area.

2.11.4.15 A number of isolated businesses located within the Suffolk Scoping Boundary including Breedon Saxmundham Concrete Plant and Happy Days Retro Vacations near Saxmundham, Redhouse Christmas Barn and a holiday rental property near Benhall, a number of holiday rental properties and Aldringham Tea Room to the south of Aldringham, and Aldeburgh Golf Club northwest of Aldeburgh.

2.11.4.16 There are further businesses located within the settlements of Aldeburgh, Aldringham, Knodishall, Friston, Benhall, Saxmundham, Leiston, and Sizewell listed in paragraph 2.11.4.6.

Visitor attractions

2.11.4.17 The Scallop at Aldeburgh Beach lies within the southern portion of the Suffolk Scoping Boundary and within the study area. The Red House in Aldeburgh, a museum, lies with 100m to the south of the Suffolk Scoping Boundary. Leiston Abbey lies within 300m to north of the Suffolk Scoping Boundary.

Community facilities

2.11.4.18 There are a large number of community facilities within the study area. They are all located within settlements surrounding the Suffolk Scoping Boundary and are listed in Table 2.11.1.

Table 2.11.1: Community facilities within the study area

Settlement	Community facility	Type
Aldringham	Aldringham Care Home	Care home
Friston	Friston Village Hall	Community asset
Leiston	Summerhill School	Education

	Aylward Park School	Education
	Suffolk New College – On The Coast	Education
	Alde Valley Academy	Education
	Leiston Community Centre	Community asset
	Waterloo Centre	Community asset
	Leiston Library	Community asset
	The Leiston Surgery	Health and wellbeing
	Leiston Fire Station	Emergency services
	Leiston Leisure Centre	Sports and leisure
	Sizewell Sports and Social Club	Sports and leisure
Knodishall	Knodishall Village Hall	Community asset
	Coldfair Green County Primary School	Education
Leiston Abbey	Leiston Old Abbey Residential Home	Care home
	Pro Corda Leiston Abbey	Education

Open Space

2.11.4.19 There are a number of open spaces and publicly accessible greenspaces within the study area which are listed in Table 2.11.2.

Table 2.11.2: Open spaces within the study area

Settlement	Open space
Leiston	Leiston Park
	Leiston Allotments
	Leiston Primary School playing fields
Knodishall	Knodishall Playground
	Knodishall Common

Aldeburgh	Aldeburgh Beach
	Church Field Road open space
	Kemps Field
Saxmundham	Saxmundham Park
Friston	Friston Playground

Development land

2.11.4.20 There are four residential site allocations in the Suffolk Coastal Local Plan located within the study area:

- Allocation for up to 10 dwellings on the Land to the rear of Rose Hill (Policy SCLP12.27) - to the south east of the Suffolk Scoping Boundary near Aldeburgh;
- Allocation for up to 40 dwellings on the Land to the East of Aldeburgh Road (Policy SCLP12.42), also to the south east of the Suffolk Scoping Boundary near Aldringham;
- Allocation for up to 40 dwellings on the Land North-East of Street Farm in Saxmundham (Policy SCLP12.30) to the west of the Suffolk Scoping Boundary;
- Allocation for up to 16 dwellings on the Land at School Road in Knodishall (Policy SCLP12.55) located 500m north of the Suffolk Scoping Boundary.

2.11.4.21 In addition, there is one planning application for the development of a site to provide 15 dwellings in Leiston located approximately 400m of the inner boundary of the Suffolk Scoping Boundary (DC/22/1770/AM). The application is awaiting a decision.

Future Baseline

2.11.4.22 ONS population projections[215] show over the 10-year period from 2022 to 2032 the population across East Suffolk is expected to grow by 5.3% to approximately 268,800 people. This increase is greater than the projected rate of increase in the East (4.0%) and across England as a whole (4.0%) over the same period.

2.11.4.23 The future baseline for residential properties, businesses, community facilities, open spaces, visitor attractions and development land over the medium-term is highly uncertain. Due to this uncertainty, for the purposes of this assessment, it is assumed the future baseline for the Suffolk Onshore Scheme study area would be unchanged from the current baseline to the completion of the Suffolk Onshore Scheme, except where new development is expected to be delivered in line with allocated and planned development sites as set out above.

[215] Office for National Statistics (2018). Population Projections. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections

2.11.5 Embedded and Control & Management Measures

Embedded Measures

2.11.5.1 Mitigation measures will be included in the design (Mitigation by Design) where practicable to help avoid, prevent or reduce effects on the environment. The Suffolk Onshore Scheme has been routed and sited to avoid residential areas where possible.

Control and Management Measures

2.11.5.2 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the socio-economics, recreation and tourism assessment are:

- GG03: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP) and a Construction Traffic Management Plan (CTMP) will be produced prior to construction;
- GG05: A suitably experienced Environmental Manager will be appointed for the duration of the construction phase. In addition, a qualified and experienced Environmental Clerk of Works will be available during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the CEMP. The Environmental Clerk of Works will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required good practice and mitigation measures;
- GG08: Land used temporarily will be reinstated where practicable to its pre-construction condition and use. Hedgerows, fences and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, with landowner agreement; and
- GG26: Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use to raise any concerns or complaints about the project. All construction-related complaints will be logged by the contractor(s) in a complaints register, together with a record of the responses given and actions taken.

2.11.5.3 Where possible, measures would be implemented to ensure accessibility to recreational routes and PRoWs, community facilities and healthcare facilities, residential properties, businesses, visitor attractions and development land is maintained. This will be achieved through the use of best practice measures, including with regard to phasing of construction works and if necessary, providing diversions for users. Severance will also be reduced through careful siting of construction compounds and lay down areas, and careful planning of construction activities through consultation with landowners. Where temporary or permanent disruption to PRoW or other recreational routes is unavoidable, suitable diversions would be agreed with the relevant local planning authorities and implemented where required.

2.11.5.4 Direct impacts to land use would be managed through negotiations with stakeholders including landowners and owners of businesses to mitigate impact.

2.11.6 Potential for Significant Effects

2.11.6.1 The socio-economics, recreation and tourism assessment will consider the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

2.11.6.2 The proposed scope of the socio-economics recreation and tourism assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

2.11.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme.

2.11.6.4 The potential for the Suffolk Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- generation of construction-related employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain;
- generation of Gross value added (GVA);
- potential temporary closure or diversions to PRoW and recreational routes;
- potential temporary severance of access to community facilities for residents; and
- potential temporary adverse land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land.

Sources of operational impacts

- potential permanent closure or diversions to PRoW and recreational routes;
- potential permanent severance of access to community facilities for residents;
- potential permanent adverse land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land;
- potential creation of permanent operational phase employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain; and
- potential generation of Gross value added (GVA) during the operational phase.

Sources of maintenance impacts

2.11.6.5 The sources of maintenance impacts are assessed to be the same as those listed as sources of construction impacts.

Sources of decommissioning impacts

2.11.6.6 The sources of decommissioning impacts are assessed to be the same as those listed as sources of construction impacts.

Potential impacts

2.11.6.7 Table 2.11.3 below identifies the potential impact that could result from the sources identified above.

Table 2.11.3: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance and decommissioning	Generation of construction-related employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain.	Generation of construction-related employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain in East Suffolk.	Yes -The Suffolk Onshore Scheme will generate direct and indirect temporary employment, training and apprenticeship opportunities both on Site and in the supply chain during the construction, maintenance and decommissioning phases.	**Scoped in**
	Generation of Gross value added (GVA)	Generation of Gross value added (GVA) in East Suffolk,	Yes -The employment and wider economic activity created during the construction maintenance and decommissioning phases will generate GVA within the local	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			East Suffolk economies.	
	Potential temporary closure or diversions to PRoW and recreational routes.	Potential temporary closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary causing disruption to users.	Yes -Disruption to PRoW or other recreational routes during the construction maintenance and decommissioning phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Scoped in**
	Potential temporary severance of access to community facilities	Potential temporary severance of access to community facilities within 1km of the Suffolk Scoping Boundary for local residents, leading to deterioration of social cohesion and affecting mental health.	Yes -Disruption to PRoW or other recreational routes affecting access to facilities would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Scoped in**
	Potential temporary land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land.	Potential temporary land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land within 500m of the	Yes -A number of residential properties, local businesses, visitor attractions, community facilities, open spaces and development land allocations have been identified within the study area	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		Suffolk Scoping Boundary.	which could be impacted by land take or amenity impacts.	
Operation	Potential permanent closure or diversions to PRoW and recreational routes.	Potential permanent closure or diversions to PRoW and recreational routes within 500 m of the Suffolk Scoping Boundary.	Yes -Disruption to PRoW or other recreational routes during the operation phase would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Scoped in**
	Potential permanent severance of access to community facilities.	Potential permanent severance of access to community facilities within 1km of the Suffolk Scoping Boundary for local residents, leading to deterioration of social cohesion and affecting mental health.	Yes -Disruption to PRoW or other recreational routes affecting access to facilities would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Scoped in**
	Potential permanent adverse land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or	Potential permanent land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land within 500m of the	Yes -A number of residential properties, local businesses, visitor attractions, community facilities, open spaces and development land allocations have been identified within the study area	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	development land.	Suffolk Scoping Boundary.	which could be impacted by land take or amenity impacts.	
	Creation of permanent operational phase employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain.	Creation of permanent operational phase employment, training and apprenticeship opportunities, both directly at work sites and indirectly in East Suffolk.	No - The scale of operational employment generated is likely to be very limited.	Scoped out
	Generation of Gross value added (GVA) during the operational phase.	Generation of Gross value added (GVA) in East Suffolk during the operational phase.	No - The scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small.	Scoped out

Impact Pathways with Receptors (Step 2)

2.11.6.8 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the socioeconomics, recreation and tourism study areas.

Suffolk Converter Station Site 1 Emerging Preference

2.11.6.9 Table 2.11.4 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Emerging Preference as shown on as shown on **Figure 2.1.4 Suffolk Site 1 Emerging Preference** and **Figure 2.1.9 Suffolk Site 1 Emerging Preference Option Area.**

Table 2.11.4: Impact pathways with receptors – Suffolk Site 1 Emerging Preference

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
Generation of employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain in East Suffolk.	Employment levels within East Suffolk.	Yes -The Suffolk Onshore Scheme will generate direct and indirect temporary employment, training and apprenticeship opportunities both on Site and in the supply chain during the construction, maintenance and decommissioning phases. No - The scale of operational employment generated is likely to be very limited.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Generation of Gross value added (GVA) in East Suffolk.	Local economy within East Suffolk.	Yes -The employment and wider economic activity created during the construction maintenance and decommissioning phases will generate GVA within the local East Suffolk economy. No - The scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Potential temporary or permanent closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary.	Users of PRoW and recreational routes within 500m of Suffolk Scoping Boundary.	Yes -Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions	**Proposed to be scoped in for all project phases**

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
		would be agreed with SCC.	
Potential temporary or permanent severance of access to community facilities within 1km of the Suffolk Scoping Boundary.	Local communities within 1km of the Suffolk Scoping Boundary, including Aldeburgh, Aldringham, Knodishall and Friston.	Yes - As above, disruption to PRoW or other recreational routes would be avoided as far as possible at all phases. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all project phases**
Potential temporary or permanent land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land within 500m of the Suffolk Scoping Boundary.	Residential properties within 500m of the Suffolk Scoping Boundary including those located in Aldeburgh, Aldringham, Knodishall and Friston.	Yes - A number of residential properties, local businesses, visitor attractions, community facilities, open spaces and development land allocations have been identified within the study area.	**Proposed to be scoped in for all project phases**
	Businesses within 500m of the Suffolk Scoping Boundary including those located in Aldeburgh, Aldringham, Knodishall and Friston.		
	Visitor attractions within 500m of the Suffolk Scoping Boundary including The Scallop at Aldeburgh Beach and The Red House in Aldeburgh.		
	Community facilities within 500m of the Suffolk Scoping Boundary		

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
	including, Aldringham Care Home, Friston Village Hall, Knodishall Village Hall, Coldfair Green County Primary School.		
	Development land within 500m of the Suffolk Scoping Boundary including Land to the rear of Rose Hill, Land to the East of Aldeburgh Road and Land at School Road.		
	Open space within 500m of the Suffolk Scoping Boundary including Knodishall Playground, Knodishall Common, Aldeburgh Beach, Church Field Road open space, Kemps Field and Friston Playground.		

Suffolk Converter Station Site 1 Alternative

2.11.6.10 Table 2.11.5 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 1 Alternative Preference as shown on as shown on **Figure 2.1.7 Suffolk Site 1 Alternative** and **Figure 2.1.11 Suffolk Site 1 Alternative Option Area** and.

Table 2.11.5: Impact Pathways with receptors– Suffolk Site 1 Alternative

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
Generation of employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain in East Suffolk.	Employment levels within East Suffolk.	Yes -The Suffolk Onshore Scheme will generate direct and indirect temporary employment, training and apprenticeship opportunities both on Site and in the supply chain during the construction, maintenance and decommissioning phases. No - The scale of operational employment generated is likely to be very limited.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Generation of Gross value added (GVA) in East Suffolk.	Local economy within East Suffolk.	Yes -The employment and wider economic activity created during the construction maintenance and decommissioning phases will generate GVA within the local East Suffolk economy. The scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Potential temporary or permanent closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary.	Users of PRoW and recreational routes within 500m of Suffolk Scoping Boundary.	Yes -Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions	**Proposed to be scoped in for all project phases**

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
		would be agreed with SCC.	
Potential temporary or permanent severance of access to community facilities within 1km of the Suffolk Scoping Boundary.	Local communities within 1km of the Suffolk Scoping Boundary including Sizewell, Leiston, Aldringham, Knodishall and Friston.	Yes - As above, disruption to PRoW or other recreational routes would be avoided as far as possible at all phases. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all project phases**
Potential temporary or permanent land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land within 500m of the Suffolk Scoping Boundary.	Residential properties within 500m of the Suffolk Scoping Boundary including those located in Sizewell, Leiston, Aldringham, Knodishall and Friston.	Yes - A number of residential properties, local businesses, community facilities, open spaces and development land allocations have been identified within the study area.	**Proposed to be scoped in for all project phases**
	Businesses within 500m of the Suffolk Scoping Boundary including those located in Sizewell, Leiston, Aldringham, Knodishall and Friston.		
	Community facilities within 500m of the Suffolk Scoping Boundary including Aldringham Care Home, Friston Village Hall, Alde Valley Academy, Suffolk New College, Leiston Leisure Centre,		

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Sizewell Sports and Social Club, Knodishall Village Hall and Coldfair Green County Primary School.		
	Development land within 500m of the Suffolk Scoping Boundary including Land at School Road and Land to the East of Aldeburgh Road.		
	Open space within 500m of the Suffolk Scoping Boundary including Friston Playground, Knodishall Playground, Knodishall Common, Leiston Allotments and Leiston Primary School playing fields.		
	Visitor attractions within 500m of the Suffolk Scoping Boundary		

Suffolk Converter Station Site 3 Emerging Preference

2.11.6.11 Table 2.11.6 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Emerging Preference as shown on as shown on and **Figure 2.1.5 Suffolk Site 3 Emerging Preference** and **Figure 2.1.10 Suffolk Site 3 Emerging Preference Option Area**

Table 2.11.6: Impact pathways with receptors – Suffolk Site 3 Emerging Preference

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
Generation of employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain in East Suffolk.	Employment levels within East Suffolk.	Yes -The Suffolk Onshore Scheme will generate direct and indirect temporary employment, training and apprenticeship opportunities both on Site and in the supply chain during the construction, maintenance and decommissioning phases. No - The scale of operational employment generated is likely to be very limited.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Generation of Gross value added (GVA) in East Suffolk.	Local economy within East Suffolk.	Yes -The employment and wider economic activity created during the construction maintenance and decommissioning phases will generate GVA within the local East Suffolk economy. No - The scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Potential temporary or permanent closure or diversions to PRoW and recreational routes within 500m of the	Users of PRoW and recreational routes within 500m of Suffolk Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions	**Proposed to be scoped in for all project phases**

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
Suffolk Scoping Boundary.		would be agreed with SCC.	
Potential temporary or permanent severance of access to community facilities within 1km of the Suffolk Scoping Boundary.	Local communities within 1km of the Suffolk Scoping Boundary including Benhall, Saxmundham, Friston, Knodishall, Aldringham and Aldeburgh.	Yes - As above, disruption to PRoW or other recreational routes would be avoided as far as possible at all phases. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all project phases**
Potential temporary or permanent land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land within 500m of the Suffolk Scoping Boundary.	Residential properties within 500m of the Suffolk Scoping Boundary including those located in Saxmundham, Friston, Knodishall, Aldringham and Aldeburgh.	Yes - A number of residential properties, local businesses, visitor attractions, community facilities, open spaces and development land allocations have been identified within the study area.	**Proposed to be scoped in for all project phases**
	Businesses within 500m of the Suffolk Scoping Boundary including those located in Saxmundham, Friston, Knodishall, Aldringham and Aldeburgh.		
	Visitor attractions within 500m of the Suffolk Scoping Boundary including The Scallop at Aldeburgh Beach and The Red House in Aldeburgh.		

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Community facilities within 500m of the Suffolk Scoping Boundary including Aldringham Care Home, Friston Village Hall, Knodishall Village Hall and Coldfair Green County Primary School.		
	Development land within 500m of the Suffolk Scoping Boundary including Land to the rear of Rose Hill, Land to the East of Aldeburgh Road, Land at School Road and Land North-East of Street Farm		
	Open space within 500m of the Suffolk Scoping Boundary including Knodishall Playground, Knodishall Common, Aldeburgh Beach, Church Field Road open space, Kemps Field, Friston Playground and Saxmundam Park.		

Suffolk Converter Station Site 3 Alternative (Option 1)

2.11.6.12 Table 2.11.7 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option 1) as shown on as shown on **Figure 2.1.7 Suffolk Site 3**

Alternative (Option 1) and **Figure 2.1.12 Suffolk Site 3 Alternative (Option 1) Option Area**.

Table 2.11.7: Impact pathways with receptors – Suffolk Site 3 Alternative (Option1)

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
Generation of employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain in East Suffolk	Employment levels within East Suffolk.	Yes -The Suffolk Onshore Scheme will generate direct and indirect temporary employment, training and apprenticeship opportunities both on Site and in the supply chain during the construction, maintenance and decommissioning phases. No - The scale of operational employment generated is likely to be very limited.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Generation of Gross value added (GVA) in East Suffolk.	Local economy within East Suffolk.	Yes -The employment and wider economic activity created during the construction maintenance and decommissioning phases will generate GVA within the local East Suffolk economy. No - The scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Potential temporary or permanent closure or diversions to PRoW and recreational	Users of PRoW and recreational routes within 500m of Suffolk Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as	**Proposed to be scoped in for all project phases**

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
routes within 500m of the Suffolk Scoping Boundary.		far as possible. Where necessary, suitable diversions would be agreed with SCC.	
Potential temporary or permanent severance of access to community facilities within 1km of the Suffolk Scoping Boundary.	Local communities within 1km of the Suffolk Scoping Boundary including Sizewell, Leiston, Saxmundham, Benhall, Kondishall and Friston.	Yes - As above, disruption to PRoW or other recreational routes would be avoided as far as possible at all phases. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all project phases**
Potential temporary or permanent land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land within 500m of the Suffolk Scoping Boundary.	Residential properties within 500m of the Suffolk Scoping Boundary including those located in Sizewell, Leiston, Saxmundham and Friston.	Yes -A number of residential properties, local businesses, visitor attractions, community facilities, open spaces and development land allocations have been identified within the study area.	**Proposed to be scoped in for all project phases**
	Businesses within 500m of the Suffolk Scoping Boundary including those located in Sizewell, Leiston, Saxmundham and Friston.		
	Visitor attractions within 500m of the Suffolk Scoping Boundary including Leiston Abbey.		
	Community facilities within 500m of the Suffolk Scoping Boundary including Friston Village Hall, Summerhill School, Aylward		

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Park School, Suffolk New College, Leiston Community Centre, Waterloo Centre, Leiston Library, The Leiston Surgery, Leiston Fire Station, Sizewell Sports and Social Club, Leiston Old Abbey Residential Home and Pro Corda Leiston Abbey.		
	Development land within 500m of the Suffolk Scoping Boundary including Land North-East of Street Farm and planning application DC/22/1770/AM.		
	Open space within 500m of the Suffolk Scoping Boundary including, Leiston Park, Leiston Allotments, Leiston Primary School Playing Fields, Saxmundam Park and Friston Playground.		

Suffolk Converter Station Site 3 Alternative (Option 2)

2.11.6.13 Table 2.11.8 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Suffolk Site 3 Alternative (Option 2) as shown on as shown on **Figure 2.1.8 Suffolk Site 3 Alternative (Option 2)** and **Figure 2.1.13 Suffolk Site 3 Alternative (Option 2) Option Area** and

Table 2.11.8: Impact pathways with receptors– Suffolk Site 3 Alternative (Option 2)

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
Generation of employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain in East Suffolk	Employment levels within East Suffolk.	Yes -The Suffolk Onshore Scheme will generate direct and indirect temporary employment, training and apprenticeship opportunities both on Site and in the supply chain during the construction, maintenance and decommissioning phases. No - The scale of operational employment generated is likely to be very limited.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Generation of Gross value added (GVA) in East Suffolk.	Local economy within East Suffolk.	Yes -The employment and wider economic activity created during the construction maintenance and decommissioning phases will generate GVA within the local East Suffolk economy. No - The scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Potential temporary or permanent closure or diversions to PRoW and recreational routes within 500m of the	Users of PRoW and recreational routes within 500m of Suffolk Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions	**Proposed to be scoped in for all project phases**

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
Suffolk Scoping Boundary.		would be agreed with SCC.	
Potential temporary or permanent severance of access to community facilities within 1km of the Suffolk Scoping Boundary.	Local communities within 1km of the Suffolk Scoping Boundary including Saxmunham, Benhall, Friston, Knodishall, Aldringham, Leiston and Sizewell.	Yes - As above, disruption to PRoW or other recreational routes would be avoided as far as possible at all phases. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all project phases**
Potential temporary or permanent land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land within 500m of the Suffolk Scoping Boundary.	Residential properties within 500m of the Suffolk Scoping Boundary including those located in Saxmunham, Friston, Knodishall, Aldringham, Leiston and Sizewell.	Yes -A number of residential properties, local businesses, community facilities, open spaces and development land allocations have been identified within the study area.	**Proposed to be scoped in for all project phases**
	Businesses within 500m of the Suffolk Scoping Boundary including those located in Saxmundham, Friston, Knodishall, Aldringham, Leiston and Sizewell.		
	Community facilities within 500m of the Suffolk Scoping Boundary including Aldringham Care Home, Friston		

Impact	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Village Hall, Alde Valley Academy, Suffolk New College, Leiston Leisure Centre, Sizewell Sports and Social Club, Knodishall Village Hall and Coldfair Green County Primary School.		
	Development land within 500m of the Suffolk Scoping Boundary including Land at School Road, Land to the East of Aldeburgh Road and Land North-East of Street Farm.		
	Open space within 500m of the Suffolk Scoping Boundary including Leiston Allotments, Leiston Primary School playing fields, Knodishall Playground, Knodishall Common, Saxmundham Park and Friston Playground.		
	Visitor attractions within 500m of the Suffolk Scoping Boundary		

2.11.7 Proposed Assessment Methodology

2.11.7.1 The assessment methodology for the EIA is outlined in **Part 1, Chapter 5, EIA Approach and Methodology.**

Proposed Data Sources

2.11.7.2 A desk-based baseline assessment will be undertaken using a rage of sources to provide a description of the socio-economic conditions within the socio -economic and land use study areas set out above. This will be done using established statistical sources, and in consultation with stakeholders, where relevant. Relevant policy will be reviewed at the local regional and national levels to identify the key issues of relevance to the Project.

Proposed Assessment Methodology

2.11.7.3 An assessment of potential impacts will be undertaken to determine the effect of the Suffolk Onshore Scheme on the baseline socio-economic conditions. The methodology for assessing socio-economic impacts will follow standard EIA guidance and will entail:

- Assessment of the likely scale, permanence and significance of effects associated with socio-economics, recreation & tourism receptors; and
- An assessment of the potential cumulative impacts with other projects within the surrounding area.

2.11.7.4 The assessment of potential socio-economic impacts will use policy thresholds and expert judgment to assess the scale and nature of the impacts of the Project against baseline conditions. For socio-economics, recreation and tourism there is no accepted definition of what constitutes a significant (or not significant) socio-economic effect. It is however recognised that effects are categorised based upon the relationship between the scale (or magnitude) of effect and the sensitivity (or value) of the affected resource or receptor.

2.11.7.5 As such, the socio-economics, recreation and tourism effects will be assessed on the basis of:

- *Consideration of sensitivity to impact*: specific values in terms of sensitivity are not attributed to socio-economic resources/receptors due to their diverse nature and scale, however the assessment takes account of the qualitative (rather than quantitative) 'sensitivity' of each receptor and, in particular, their ability to respond to change based on recent rates of change and turnover (if appropriate); and
- *Scale of impact*: this entails consideration of the size of the impact on people or business in the context of the area in which effects will be experienced.

2.11.7.6 The assessment aims to be objective and quantify effects as far as possible. However, some effects can only be evaluated on a qualitative basis. Effects are proposed to be defined as follows:

- *Beneficial classifications of effect*: indicate an advantageous or beneficial effect on an area, which may be minor, moderate, or major in effect;
- *Negligible classifications of effect*: indicate imperceptible effects on an area;
- *Adverse classifications of effect*: indicate a disadvantageous or adverse effect on an area, which may be minor, moderate or major in effect; and
- *No effect classifications*: indicate that there are no effects on an area.

2.11.7.7 Based on consideration of the above, where an effect is assessed as being beneficial or adverse, the scale of the effect are proposed to be assigned using the below criteria:

- *Minor*: a small number of receptors are beneficially or adversely affected. The effect will make a small measurable positive or negative difference on receptors at the relevant area(s) of effect;
- *Moderate*: a noticeable number of receptors are beneficially or adversely affected. The effect will make a measurable positive or negative difference on receptors at the relevant area(s) of effect; and
- *Major*: all or a large number of receptors are beneficially or adversely affected. The effect will make a measurable positive or negative difference on receptors at the relevant area(s) of effect.

2.11.7.8 Those effects which are found to be moderate or major are considered to be 'significant' and those which are minor or negligible are 'not significant'.

2.11.7.9 Duration of impact will also be considered, with more weight given to reversible long-term or permanent changes than to temporary ones. Temporary impacts are considered to be those associated with the construction works. Long-term reversible impacts are generally those associated with the completed and operational development.

Assumptions and Limitations

2.11.7.10 The commercial agreement for land, including productive land, between the proponent and land owners is beyond the scope of this assessment and the future Environmental Statement (ES) documentation.

2.11.7.11 The approximately four year construction period is expected to require a peak workforce across the Suffolk Onshore, Kent Onshore and Offshore Schemes of between 300-400 workers. A proportion of these workers are likely to live locally to the site, while a proportion will travel to the site to work. More detail on the average and peak number of workers expected to work on each of the Offshore and Onshore Schemes across the construction period, and the proportion of workers who will be expected to live locally to the site will be set out in the Preliminary Environmental Information Report.

2.11.8 Conclusion

2.11.8.1 This chapter of the Scoping Report has set out the proposed scope and methodology for the ES assessment of socio-economic effects arising from the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. The socio-economic, recreation and tourism receptors that have been identified within the respective study areas surrounding the Suffolk Onshore Scheme include local communities, the local economy within East Suffolk, users of PRoW and open space, residential and business properties, visitor attractions, development land, and community facilities within the respective study areas. The preliminary baseline assessment indicates that there is the potential for significant effects on these receptors.

Proposed Scope of the Assessment

2.11.8.2 A summary of the proposed scope of the assessment is provided in Table 2.11.9

Table 2.11.9: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out and for which option
Employment levels within East Suffolk	The Suffolk Onshore Scheme will generate direct and indirect temporary employment, training and apprenticeship opportunities both on Site and in the supply chain during the construction, maintenance and decommissioning phases. The scale of operational employment generated is likely to be very limited.	Construction, maintenance and decommissioning	**Scoped in for all options**
		Operation	Scoped out for all options
Local economy within East Suffolk	The employment and wider economic activity created during the construction maintenance and decommissioning phases will generate GVA within the local East Suffolk economy. The scale of operational employment generated is likely to be very limited	Construction, maintenance and decommissioning	**Scoped in for all options**
		Operation	Scoped out for all options

	and therefore any effect on GVA will be small.		
Users of PRoW and recreational routes within 500 m of the Suffolk Scoping Boundary.	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	Construction, maintenance and decommissioning	**Scoped in for all options**
		Operation	**Scoped in for all options**
Local communities within 1 km of Suffolk Scoping Boundary.	As above, disruption to PRoW or other recreational routes would be avoided as far as possible at all phases. Where necessary, suitable diversions would be agreed with SCC.	Construction, maintenance and decommissioning	**Scoped in for all options**
		Operation	**Scoped in for all options**
Residential properties within 500m of the Suffolk Scoping Boundary.	A number of residential properties, local businesses, community facilities, open spaces and development land allocations have been identified within the study area.	Construction, maintenance and decommissioning	**Scoped in for all options**
Businesses within 500m of the Suffolk Scoping Boundary		Operation	**Scoped in for all options**
Community facilities within 500m of the Suffolk Scoping Boundary			
Development land within 500m of the Suffolk Scoping Boundary			
Open space within 500m of the Suffolk Scoping Boundary			

Visitor attractions within 500m of the Suffolk Scoping Boundary	Visitor attractions have been identified in the study area for Site 1 – Emerging Preference, Site 3 – Emerging Preference and Site 3 – Alternative (Option 1).	Construction, maintenance and decommissioning	**Scoped in for all options**
		Operation	**Scoped in for all options**

2.12 Health and Wellbeing

2.12.1 Introduction

2.12.1.1 This chapter presents how the Health and Wellbeing assessment will consider the potential effects that may arise from the construction, and operation, maintenance and decommissioning of the Suffolk Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential effects to be considered within the assessment, and how the potential effects will be assessed for the purpose of an EIA.

2.12.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Suffolk Onshore Scheme Scoping Boundary (hereafter referred to as the Suffolk Scoping Boundary) is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary**.

2.12.1.3 The assessment will consider potential health and wellbeing effects on the following receptors:

- Quality of life and safety of local residents, workers and visitors;
- Users of recreational routes and Public Rights of Way (PRoW);
- Users of open space;
- Users of local community services and social infrastructure; and
- Local communities that could be affected by community severance.

2.12.1.4 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Methodology;**
- **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme;**
- **Part 2, Chapter 2, Landscape and Visual;**
- **Part 2, Chapter 6, Geology and Hydrogeology;**
- **Part 2, Chapter 8, Traffic and Transport;**
- **Part 2, Chapter 9, Air Quality;**
- **Part 2, Chapter 10, Noise and Vibration**; and
- **Part 2, Chapter 11, Socio-economics Recreation and Tourism**

2.12.1.5 This chapter is supported by the following figure:

- **Figure 2.12.1 Suffolk Onshore Scheme Health and Wellbeing Study Areas and Receptors.**

2.12.2 Regulatory and Planning Context

2.12.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on health and wellbeing associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

2.12.2.2 Relevant legislation includes the Planning Act 2008[216] provides the legislative basis for, and defines, the application process under which a Development Consent Order (DCO) is sought.

2.12.2.3 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017; and The Marine Works (Environmental Impact Assessment) Regulations 2007[217] also require the EIA for infrastructure projects to consider potential impacts on health and wellbeing.

Planning Policy

National planning policy

National Policy Statement for Energy (EN-1)

2.12.2.4 Paragraphs 4.3.1 – 4.3.5 of the Overarching National Policy Statement for Energy (NPS EN-1)[196] details requirements for National Policy Statement (NPS) applications to consider all relevant impacts to health and wellbeing.

National Policy Statement for Energy (EN-5)

2.12.2.5 The NPS for Electricity Networks Infrastructure (NPS EN-5)[197] supplements EN-1, with additional guidance specific to the development for electricity networks infrastructure. This document provides guidance on the effects of electro-magnetic fields (EMFs) and their impact on health.

National Planning Policy Framework (NPPF)

2.12.2.6 The National Planning Policy Framework (NPPF)[218] sets out various policies with respect to the health and wellbeing objectives of the planning system. Chapter 8 on 'Promoting healthy and safe communities' outlines the health and community

[216] The Planning Act 2008 [online]. Available at: https://www.legislation.gov.uk/ukpga/2008/29/contents

[217] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[218] Ministry of Housing Communities & Local Government (2021). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

objectives of the NPPF, including the management of PRoW access to open spaces and access to community amenities.

National planning practice guidance

2.12.2.7 The National Planning Practice Guidance (NPPG)[219] provides additional guidance to the NPPF. Guidance of particular relevance to health includes Paragraphs 92 to 103 which set out how the design and use of the built and natural environment are major determinants of health and wellbeing, and how in turn positive planning can contribute to healthier communities.

Additional national guidance

2.12.2.8 Additional national guidance relevant to health and wellbeing includes:

- Design Manual for Roads and Bridges (DMRB) Document LA112[220];
- NHS Healthy Urban Development Unit (HUDU)[221] Rapid Health Impact Assessment (HIA) Tool;
- Public Health England (PHE) Guidance:Spatial Planning for Health: An evidence resource for designing healthier places[222];
- PHE Strategy 2020 to 2025[223];
- The Marmot Review: Fair Society Healthy Lives (2010)[224];
- Health Equity in England 10 Years On (2020)[225]; and
- Build Back Fairer – The Covid-19 Marmot Review (2020)[226].

Local planning policy

2.12.2.9 Local planning policy and guidance of relevance to the socio-economic, recreation and tourism assessment includes:

[219] Department for Levelling Up, Housing and Communities, and Ministry of Housing Communities & Local Government (2019). Planning Practice Guidance. [online] Available at: https://www.gov.uk/government/collections/planning-practice-guidance

[220] Highways England (2020). Design Manual for Roads and Bridges: LA112 - Population and human health. v.11. Design Manual for Roads and Bridges, Volume 11, Section 3, Part 6. Population and human health. LA112.

[221] NHS London Healthy Urban Development Unit (2019). Rapid Health Impact Assessment Tool. [online] Available at: https://www.healthyurbandevelopment.nhs.uk/wp-content/uploads/2019/10/HUDU-Rapid-HIA-Tool-October-2019.pdf#:~:text=The%20Rapid%20HIA%20tool%20The%20tool%20is%20designed,renewal%20programmes%20and%20outline%20and%20detailed%20planning%20applications.

[222] Public Health England (2017). Spatial Planning for Health: An evidence resource for designing healthier places. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729727/spatial_planning_for_health.pdf

[223] Public Health England (2019). PHE Strategy 2020 to 2025. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831562/PHE_Strategy_2020-25.pdf

[224] Marmot, M. (2010). Fair Society, Healthy Lives: The Marmot Review. Strategic Review of Health Inequalities in England Post 2010. [online] Available at: https://www.parliament.uk/globalassets/documents/fair-society-healthy-lives-full-report.pdf

[225] Marmot, M., Allen, J., Boyce, T., Goldblatt, P., and Morrison, J. (2020). Health Equity in England: The Marmot Review 10 Years On. [online] Available at: https://www.health.org.uk/publications/reports/the-marmot-review-10-years-on

[226] Marmot, M., Allen, J., Goldblatt, P., Morrison, J., and Herd, E. (2020). Build Back Fairer: The COVID-19 Marmot Review. [online] Available at: https://www.health.org.uk/publications/build-back-fairer-the-covid-19-marmot-review

- New Anglia LEP, Local Energy East Strategy227;
- Suffolk County Council (SCC) Energy Infrastructure Policy228;
- Suffolk Coastal Local Plan, 2020229, including:
  - Policy SCLP3.4: Proposals for Major Energy Infrastructure Projects; and
  - Policy SCLP8.2: Open Space.
- Leiston Neighbourhood Plan; and230
- Draft East Suffolk Cycling and Walking Strategy231.

2.12.3 Study Area

2.12.3.1 The study area for the health and wellbeing assessment will vary by the type of impact being assessed, these include:

- The human health profile baseline study area will comprise a local ward area comprising the wards in which the Suffolk Onshore Scheme is located, within which there is a high likelihood that effects arising from the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme could be experienced: Aldeburgh and Leiston ward and Saxmundam ward in East Suffolk. Where data is not available at the ward level, local authority level data will be provided for East Suffolk district.
- The study areas for assessing the health and wellbeing impacts of the Suffolk Onshore Scheme will be influenced by the geographic extent of the relevant technical assessments, these include:
  - **Part 2, Chapter 2, Landscape and Visual**;
  - **Part 2, Chapter 6, Geology and Hydrogeology**;
  - **Part 2, Chapter 8, Transport and Transport**;
  - **Part 2, Chapter 9, Air Quality**;
  - **Part 2, Chapter 10, Noise and Vibration**; and
  - **Part 2, Chapter 11, Socio-economics, Recreation and Tourism**.

2.12.3.2 The assessment will refer to the study areas identified by the relevant EIA chapters.

[227] New Anglia (2018). Local Energy East Strategy. [online] Available at: https://newanglia.co.uk/wp-content/uploads/2020/04/LEE-Strategy-LOW-RES.pdf

[228] Suffolk County Council (2021). Suffolk County Council's Energy Infrastructure Policy. [online] Available at: https://www.suffolk.gov.uk/assets/planning-waste-and-environment/major-infrastructure-projects/SCC-Energy-Policy.pdf

[229] East Suffolk Council (2020). Suffolk Coastal Local Plan. [online] Available at: https://eastsuffolk.inconsult.uk/consult.ti/suffolkcoastallocalplan2020/viewCompoundDoc?docid=11955764&partid=11958292

[230] Leiston-cum-Sizewell Town Council (2017). Leiston Neighbourhood Plan 2015-2029. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Neighbourhood-Planning/Designated-Neighbourhood-Areas/Leiston/Leiston-NP-Made-Version-March-2017.pdf

[231] East Suffolk Council (2021). Draft East Suffolk Cycling and Walking Strategy. [online] Available at: https://storymaps.arcgis.com/stories/cbc57e4a9cc24eeea7d174fb34b1bf0e

2.12.4 Baseline Conditions

Data Sources

2.12.4.1 This overview of community health indicators is based on the following public data sources:

- Office for National Statistics (ONS). Mid-year sub-national population estimate data (2020)[232];
- ONS 2011 Census Data[233];
- PHE Local Health Data[234]; and
- ONS Claimant Count Data[235].

Baseline

2.12.4.2 Table 2.12.1 sets out a summary of key health indicators across the local ward and local authority study areas, compared to regional (East) and national (England) averages.

Table 2.12.1: Community health profile

	Local wards	East Suffolk/Suffolk Coastal*	East of England	England
Population (2020)	16,990	250,373	6,269,161	56,550,138
Population aged under 16 (%) (2020)	16.0%	16.7%	19.4%	19.2%
Population aged over 65 (%) (2020)	30.9%	27.7%	20.0%	18.5%
Unemployment rate	4.2%	3.9%	5.3%	6.3%
Unemployment (% working age population claiming out of work benefits)	2.7%	2.8%	3.0%	3.8%

[232] Office for National Statistics (2020). Sub-national population projections for England. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2018based

[233] Office for National Statistics (2012). Census 2011. [online] Available at: https://www.ons.gov.uk/census/2011census

[234] Office for Health Improvement and Disparities (2019). Local Health. [online] Available at: https://www.gov.uk/government/collections/local-health-public-health-data-and-mapping-tool-for-small-areas

[235] Office for National Statistics (2022). CLA02: Claimant Count by age group (Experimental Statistics). [online] Available at: https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/outofworkbenefits/datasets/cla02claimantcountbyagegroup

General Health – bad or very bad (%)	5.9%	4.5%	4.7%	5.5%
Long term health problem or disability (%)	23.0%	18.5%	16.7%	17.6%
Life Expectancy at Birth (males) (2018-2020)	N/a	80.4	80.2	79.4
Life Expectancy at Birth (females) (2018-2020)	N/a	83.8	83.8	83.1
Inequality in Life Expectancy at Birth (males 2018-2020)	N/a	7.3	7.9	9.7
Inequality in Life Expectancy at Birth (females 2018-2020)	N/a	5.4	6.2	7.9
Obese children (Year 6) (%)	N/a	15.8%	19.1%	21.0%
Under 75 mortality rate from all causes (2018-2020) (per 100,000 people)	N/a	297.6	303.5	336.5

*Prior to 2015 the Suffolk Onshore Scheme was located in Suffolk Coastal Local Authority.

Future Baseline

2.12.4.3 ONS population projections[236] show over the 10-year period from 2022 to 2032 the population across East Suffolk is expected to grow by 5.3% to approximately 268,800 people. This increase is greater than the projected rate of increase in the East (4.0%) and across England as a whole (4.0%) over the same period.

2.12.4.4 Due to the broad range of individual and environmental determinants that can influence physical and mental health outcomes, the future community health baseline over the medium-term is highly uncertain. Due to this uncertainty, for the purposes of this assessment, it is assumed the future baseline for the Suffolk Onshore Scheme study area would be unchanged from the current baseline to the completion of the Suffolk Onshore Scheme.

[236] Office for National Statistics (2018). Population Projections. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections

2.12.5 Embedded and Control & Management Measures

Embedded Measures

2.12.5.1 The Suffolk Onshore Scheme has been routed and sited to avoid residential areas where possible.

2.12.5.2 The design of the Suffolk Onshore Scheme will be compliant with the guidelines and policies relating to electromagnetic fields stated in NPS EN-5, including the International Commission on Non-Ionizing Radiation Protection guidelines (1998).

Control and Management Measures

2.12.5.3 An outline Code of Construction Practice (CoCP) for the Suffolk Onshore Scheme is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures outlined in the CoCP which are relevant to the control and management of impacts that could affect health and wellbeing are:

- GG02GG03: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP) and a Construction Traffic Management Plan (CTMP) will be produced prior to construction;
- GG05: A suitably experienced Environmental Manager will be appointed for the duration of the construction phase . In addition, a qualified and experienced Environmental Clerk of Works (ECoW) will be available during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls as outlined in the CEMP. The ECoW will monitor the works to ensure these proceed in accordance with the relevant environmental measures as set out in the DCO application and its Environmental Statement (ES) and adhere to the required best practice and mitigation measures as set out in the relevant applicable guidelines;
- GG06: Construction workers will undergo specific training to increase their awareness of environmentally sensitive sites across the Project as applicable to their role. Topics will include, but will not be limited to, the following:
  - pollution prevention and pollution incident response;
  - dust management and control measures;
  - working hours and noise and vibration reduction measures;
  - working with potentially contaminated materials;
  - waste management and storage; and
  - flood risk response actions;
- GG11: Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting will be located away from sensitive receptors such as residential properties or ecological sites as far as practicable;
- GG13: Plant and vehicles will conform to relevant applicable standards for the vehicle type as follows:

  - Euro 4 (NOx) for petrol cars, vans and minibuses;
  - Euro 6 (NOx and PM) for diesel cars, vans and minibuses; and
  - Euro VI (NOx and PM) for lorries, buses, coaches and Heavy Goods Vehicles (excluding specialist abnormal indivisible loads).
  - Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so;
- GG20: Bonfires and the burning of waste material on-site will be prohibited;
- GG21: Construction lighting will be of the lowest luminosity necessary to safely perform each task. It will be designed, positioned and directed to reduce the intrusion into adjacent properties, protected species and habitats;
- GG23: An Emergency Action Plan will be developed for the construction phase which will outline procedures to be implemented in case of unplanned emergency events including but not limited to site flooding and pollution incidents; and
- GG26: Members of the community and local businesses will be kept informed regularly of the planned and ongoing works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use to raise any concerns or complaints about the Project. All construction-related complaints will be logged by the appointed contractor(s) in a complaints register, together with a record of the responses given and actions taken.

2.12.6 Potential for Significant Effects

2.12.6.1 The health and wellbeing assessment will consider the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project.**

2.12.6.2 The proposed scope of the health and wellbeing assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

2.12.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme.

2.12.6.4 The potential for the Suffolk Onshore Scheme to result in potential effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- Potential temporary and permanent impacts on the quality of life and safety of local residents, visitors and workers arising from construction of the Suffolk Onshore Scheme related to air quality, noise, landscape amenity and traffic and transport;
- Potential temporary and permanent impacts related to accessibility of PRoW recreational routes and open space, impacting local residents, visitor and workers' accessibility to these active travel routes;
- Potential temporary and permanent accessibility impacts on PRoW and recreational routes impacting local resident access to local community services and social infrastructure; and
- Potential temporary and permanent impacts on community cohesion arising from impacts to accessibility and community engagement work impacting local residents.

Sources of operational impacts

- Potential permanent accessibility impacts on PRoW and recreational routes and open space, impacting local residents, visitor and worker accessibility to active travel routes and open space;
- Potential permanent accessibility impacts on PRoW and recreational routes impacting local resident access to local community services and social infrastructure;
- Potential permanent impacts on community cohesion arising from permanent accessibility impacts; and
- Potential permanent quality of life impacts on residents and visitors arising from noise disturbance; and
- Potential permanent impacts on local residents arising from the generation of electro-magnetic fields (EMFs).

Sources of maintenance impacts

2.12.6.5 The sources of maintenance impacts are assessed to be the same as those listed as sources of construction impacts.

Sources of decommissioning impacts

2.12.6.6 The sources of decommissioning impacts are assessed to be the same as those listed as sources of construction impacts.

Potential impacts

2.12.6.7 Table 2.12.2 below identifies the potential impacts that could result from the sources identified above.

Table 2.12.2: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance and decommissioning	Potential temporary and permanent impacts of construction, maintenance and decommissioning on air quality, noise, landscape amenity and traffic and transport.	Potential temporary quality of life and safety impacts on local residents, workers and visitors within the relevant technical assessment study areas.	Yes -Potential health related effects experienced during construction, maintenance and decommissioning of the Suffolk Onshore Scheme would be determined through the topic specific assessments, but are expected to include air quality, noise and vibration, landscape amenity and traffic and transport effects.	**Scoped in**
	Potential temporary closure or diversions to PRoW and recreational routes.	Potential temporary closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary causing disruption to users.	Yes -Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Scoped in**
	Potential temporary and permanent severance of access to open space.	Potential temporary severance of access to open space within 500m	Yes -As above, disruption to PRoW or other recreational routes and access to open	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		of the Suffolk Scoping Boundary for local residents, workers and visitors affecting mental health.	space during all phases of the would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	
	Potential temporary and permanent severance of access to community services and social infrastructure.	Potential temporary closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary impacting on local residents' access to local community services and social infrastructure.	Yes -As above, disruption to PRoW, other recreational routes or roads offering access to community services and social infrastructure during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Scoped in**
	Potential temporary and permanent severance of access to local communities.	Potential temporary severance of access to local communities within 1km of the Suffolk Scoping Boundary for local residents, leading to deterioration of community cohesion and	Yes -As above, disruption to PRoW or other recreational routes which facilitate community cohesion during construction, maintenance and decommissioning phases of the Suffolk Onshore Scheme would be avoided as far as possible.	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		affecting mental health.	Where necessary, suitable diversions would be agreed with SCC.	
Operation	Potential permanent closure or diversions to PRoW and recreational routes.	Potential permanent closure or diversions to PRoW and recreational routes within 500 m of the Suffolk Scoping Boundary.	Yes -Disruption to PRoW or other recreational routes affecting access to facilities would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Scoped in**
	Potential permanent severance of access to open space.	Potential permanent severance of access to open space within 500m of the Suffolk Scoping Boundary for local residents, workers and visitors affecting mental health.	Yes -Disruption to PRoW or other recreational routes affecting access to facilities would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Scoped in**
	Potential permanent severance of access to community services and social infrastructure.	Potential permanent severance of access to community services and social infrastructure within 1km of	Yes -Disruption to PRoW or other recreational routes affecting access to facilities would be avoided as far as possible. Where	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		the Suffolk Scoping Boundary for local residents, leading to deterioration of social cohesion and affecting mental health.	necessary, suitable diversions would be agreed with SCC.	
	Potential permanent severance of access to local communities.	Potential permanent severance of access to local communities within 1km of the Suffolk Scoping Boundary for local residents, leading to deterioration of community cohesion and affecting mental health.	Yes -Disruption to PRoW or other recreational routes affecting access to facilities would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Scoped in**
	Potential permanent impacts of operational noise.	Potential permanent quality of life impacts on residents and visitors within 1km of the Suffolk Scoping Boundary.	Yes -Potential health related effects experienced during the operation of the Suffolk Onshore Scheme would be determined through the topic specific assessments but are expected to	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			include noise effects.	
	Potential permanent impacts of operation associated with the generation of EMFs.	Potential permanent impacts on local residents and workers associated with the generation of EMFs.	No - The Applicant will ensure that policies and procedures are in place at the design phase to ensure that all equipment will comply with public EMF exposure limits.	Scoped out

Impact Pathways with Receptors (Step 2)

2.12.6.8 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potential effects on the receptors within the health and wellbeing study areas.

2.12.6.9 Table 2.12.3 to Table 2.12.7 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment of health and wellbeing for the Suffolk Onshore Scheme as shown on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary** and for each of the five options.

2.12.6.10 Table 2.12.3 summarises the impact pathways for Suffolk Site 1 Emerging Preference as shown on **Figure 2.1.4 Suffolk Site 1 Emerging Preference** and **Figure 2.1.9 Suffolk Site 1 Emerging Preference Option Area**.

Table 2.12.3: Impact pathways with receptors – Suffolk Site 1 Emerging Preference

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Potential temporary and permanent quality of life and safety impacts on local residents, workers and visitors within the relevant technical assessment study areas.	Local residents, workers and visitors within the relevant technical assessment study areas. This may include receptors within Aldeburgh, Aldringham, Knodishall and Friston.	Yes - Potential health related effects experienced as a result of the Suffolk Onshore Scheme would be determined through the topic specific assessments, but	**Proposed to be scoped in for all phases**

		are expected to include air quality, noise and vibration, landscape amenity and traffic and transport effects during the construction, maintenance and decommissioning phase, and noise and vibration during the operational phase.	
Potential temporary and permanent closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary.	Users of PRoW and recreational routes within 500m of Suffolk Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**
Potential temporary severance of access to open space within 500m of the Suffolk Scoping Boundary for local residents, workers and visitors.	Users of open space within 500m of Suffolk Scoping Boundary including Knodishall Playground, Knodishall Common, Aldeburgh Beach, Church Field Road open space, Kemps Field and Friston Playground.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary impacting on local	Community facilities within 500m of the Suffolk Scoping Boundary including, Aldringham Care Home, Friston Village Hall, Knodishall Village Hall, Coldfair Green County Primary School.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**

residents' access to local community services and social infrastructure.			
Potential temporary and permanent severance of access to local communities within 1km of the Suffolk Scoping Boundary for local resident.	Local communities within 1km of the Suffolk Scoping Boundary, including Aldeburgh, Aldringham, Knodishall and Friston.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**

2.12.6.11 Table 2.12.4 summarises the impact pathways for Suffolk Site 1 Alternative as shown on **Figure 2.1.6 Suffolk Site 1 Alternative** and **Figure 2.1.11 Suffolk Site 1 Alternative Option Area**.

Table 2.12.4: Impact pathways with receptors – Suffolk Site 1 Alternative

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Potential temporary and permanent quality of life and safety impacts on local residents, workers and visitors within the relevant technical assessment study areas.	Local residents, workers and visitors within the relevant technical assessment study areas. This may include receptors within Sizewell, Leiston, Aldringham, Knodishall and Friston.	Yes - Potential health related effects experienced as a result of the Suffolk Onshore Scheme would be determined through the topic specific assessments, but are expected to include air quality, noise and vibration, landscape amenity and traffic and transport effects during the construction, maintenance and decommissioning phase, and noise and vibration during the operational phase.	**Proposed to be scoped in for all phases**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Potential temporary and permanent closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary.	Users of PRoW and recreational routes within 500m of Suffolk Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent severance of access to open space within 500m of the Suffolk Scoping Boundary for local residents, workers and visitors.	Users of open space within 500m of Suffolk Scoping Boundary including Friston Playground, Knodishall Playground, Knodishall Common, Leiston Allotments and Leiston Primary School playing fields.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary impacting on local residents' access to local community services and social infrastructure.	Community facilities within 500m of the Suffolk Scoping Boundary including, Aldringham Care Home, Friston Village Hall, Alde Valley Academy, Suffolk New College, Leiston Leisure Centre, Sizewell Sports and Social Club, Knodishall Village Hall and Coldfair Green County Primary School.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent severance of access	Local communities within 1km of the Suffolk Scoping	Yes - Disruption to PRoW or other recreational routes	**Proposed to be scoped in for all phases**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
to local communities within 1km of the Suffolk Scoping Boundary for local resident.	Boundary, including Sizewell, Leiston, Aldringham, Knodishall and Friston.	during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	

2.12.6.12 Table 2.12.5 summarises the impact pathways for Suffolk Site 3 Emerging Preference as shown on **Figure 2.1.5 Suffolk Site 3 Emerging Preference** and **Figure 2.1.10 Suffolk Site 3 Emerging Preference Option Area**.

Table 2.12.5: Impact pathways with receptors – Suffolk Site 3 Emerging Preference

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Potential temporary and permanent quality of life and safety impacts on local residents, workers and visitors within the relevant technical assessment study areas.	Local residents, workers and visitors within the relevant technical assessment study areas. This may include receptors within Benhall, Saxmundham, Friston, Knodishall, Aldringham and Aldeburgh.	Yes - Potential health related effects experienced as a result of the Suffolk Onshore Scheme would be determined through the topic specific assessments, but are expected to include air quality, noise and vibration, landscape amenity and traffic and transport effects during the construction, maintenance and decommissioning phase, and noise and vibration during the operational phase.	**Proposed to be scoped in for all phases**
Potential temporary or permanent closure or diversions to PRoW and recreational routes within 500m	Users of PRoW and recreational routes within 500m of Suffolk Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary,	**Proposed to be scoped in for all phases**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
of the Suffolk Scoping Boundary.		suitable diversions would be agreed with SCC.	
Potential temporary and permanent severance of access to open space within 500m of the Suffolk Scoping Boundary for local residents, workers and visitors.	Users of open space within 500m of Suffolk Scoping Boundary including Knodishall Playground, Knodishall Common, Aldeburgh Beach, Church Field Road open space, Kemps Field, Friston Playground and Saxmundam Park.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary impacting on local residents' access to local community services and social infrastructure.	Community facilities within 500m of the Suffolk Scoping Boundary including, Aldringham Care Home, Friston Village Hall, Knodishall Village Hall and Coldfair Green County Primary School.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent severance of access to local communities within 1km of the Suffolk Scoping Boundary for local resident.	Local communities within 1km of the Suffolk Scoping Boundary, including Benhall, Saxmundham, Friston, Knodishall, Aldringham and Aldeburgh.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**

2.12.6.13 Table 2.12.6 summarises the impact pathways for Suffolk Site 3 Alternative (Option 1) as shown on **Figure 2.1.7 Suffolk Site 3 Alternative (Option 1)** and **Figure 2.1.12 Suffolk Site 3 Alternative (Option 1) Option Area**.

Table 2.12.6: Impact pathways with receptors– Suffolk Site 3 Alternative (Option 1)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Potential temporary and permanent quality of life and safety impacts on local residents, workers and visitors within the relevant technical assessment study areas.	Local residents, workers and visitors within the relevant technical assessment study areas. This may include receptors within Sizewell, Leiston, Saxmundham, Benhall, Kondishall and Friston.	Yes - Potential health related effects experienced as a result of the Suffolk Onshore Scheme would be determined through the topic specific assessments, but are expected to include air quality, noise and vibration, landscape amenity and traffic and transport effects during the construction, maintenance and decommissioning phase, and noise and vibration during the operational phase.	**Proposed to be scoped in for all phases**
Potential temporary and permanent closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary.	Users of PRoW and recreational routes within 500m of Suffolk Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent severance of access to open space within 500m of the Suffolk Scoping Boundary for local residents, workers and visitors.	Users of open space within 500m of Suffolk Scoping Boundary including Leiston Park, Leiston Allotments, Leiston Primary School Playing Fields, Saxmundam Park and Friston Playground.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Potential temporary and permanent closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary impacting on local residents' access to local community services and social infrastructure.	Community facilities within 500m of the Suffolk Scoping Boundary including, Friston Village Hall, Summerhill School, Aylward Park School, Suffolk New College, Leiston Community Centre, Waterloo Centre, Leiston Library, The Leiston Surgery, Leiston Fire Station, Sizewell Sports and Social Club, Leiston Old Abbey Residential Home and Pro Corda Leiston Abbey.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent severance of access to local communities within 1km of the Suffolk Scoping Boundary for local resident.	Local communities within 1km of the Suffolk Scoping Boundary, including Sizewell, Leiston, Saxmundham, Benhall, Kondishall and Friston.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**

2.12.6.14 Table 2.12.7 summarises the impact pathways for Suffolk Site 3 Alternative (Option 2) as shown on **Figure 2.1.8 Suffolk Site 3 Alternative (Option 2**) and **Figure 2.1.13 Suffolk Site 3 Alternative (Option 1) Option Area**.

Table 2.12.7: Impact pathways with receptors – Suffolk Site 3 Alternative (Option 2)

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Potential temporary and permanent quality of life and safety impacts on local residents, workers and visitors within the relevant technical assessment study areas.	Local residents, workers and visitors within the relevant technical assessment study areas. This may include receptors within Saxmunham, Benhall, Friston, Knodishall, Aldringham, Leiston and Sizewell.	Yes - Potential health related effects experienced as a result of the Suffolk Onshore Scheme would be determined through the topic specific assessments, but are expected to include air quality, noise and vibration, landscape amenity and traffic and transport effects during the construction, maintenance and decommissioning phase, and noise and vibration during the operational phase.	**Proposed to be scoped in for all phases**
Potential temporary and permanent closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary.	Users of PRoW and recreational routes within 500m of Suffolk Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent severance of access to open space within 500m of the Suffolk Scoping Boundary for local residents, workers and visitors.	Users of open space within 500m of Suffolk Scoping Boundary including, Leiston Allotments, Leiston Primary School playing fields, Knodishall Playground, Knodishall Common, Saxmundham Park	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	and Friston Playground.		
Potential temporary and permanent closure or diversions to PRoW and recreational routes within 500m of the Suffolk Scoping Boundary impacting on local residents' access to local community services and social infrastructure.	Community facilities within 500m of the Suffolk Scoping Boundary including, Aldringham Care Home, Friston Village Hall, Alde Valley Academy, Suffolk New College, Leiston Leisure Centre, Sizewell Sports and Social Club, Knodishall Village Hall and Coldfair Green County Primary School.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent severance of access to local communities within 1km of the Suffolk Scoping Boundary for local resident.	Local communities within 1km of the Suffolk Scoping Boundary, including Saxmunham, Benhall, Friston, Knodishall, Aldringham, Leiston and Sizewell.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	**Proposed to be scoped in for all phases**

2.12.7 Proposed Assessment Methodology

2.12.7.1 There is no consolidated methodology or practice for the assessment of effects on human health and wellbeing. Best practice principles are provided in the NHS England's Healthy Urban Development Unit's Rapid Health Impact Assessment (HIA) Toolkit 2019 and this toolkit will form the basis of the approach to assessing the impacts on health arising from the Suffolk Onshore Scheme.

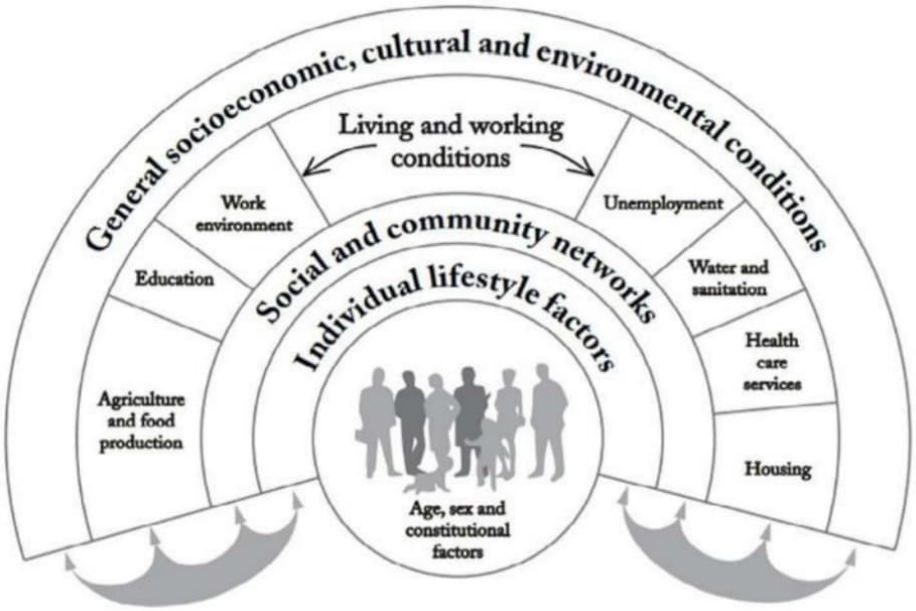
2.12.7.2 The World Health Organisation (WHO) Europe defines health as 'a state of complete physical, mental and social wellbeing and not merely the absence of disease or

infirmity'[237]. Public health therefore encompasses general wellbeing, not just the absence of illness.

2.12.7.3 The health and wellbeing of individuals is determined by a broad range of individual constitutional and behavioural factors, as well as broader environmental, social and economic factors. Some factors are direct and obvious, others are indirect.

2.12.7.4 Dahlgreen and Whitehead's model of the main determinants of health illustrates the breadth of possible influences on health, as show in Image 2.12.1. At the centre of the illustration are factors that are largely fixed – including individual age, sex, constitutional and genetic factors. Outside of this are factors generally described as the wider or broader determinants of health. The model emphasises interactions between the layers. Moving outwards from the centre, individual lifestyle choices are embedded in social norms and community networks, and in living and working conditions, which in turn are shaped by and related to the wider socioeconomic and cultural environment.

Image 2.12.1 Determinants of health

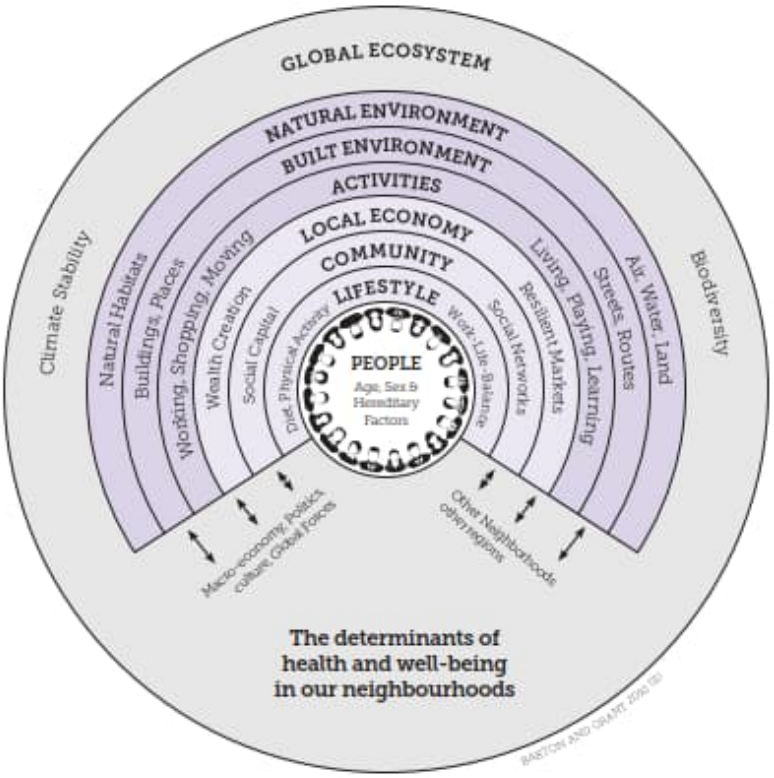


Source: Dahlgreen and Whitehead, 1993

2.12.7.5 This model has been developed to show elements of the built environment and communities that are the key determinants of health, as shown in Image 2.12.2.

[237] World Health Organisation (2018). Health inequities and their causes. [online] Available at: https://www.who.int/news-room/facts-in-pictures/detail/health-inequities-and-their-causes

Image 2.12.2 Determinants of health in neighbourhoods



Source: Barton and Grant, 2006

2.12.7.6 Within a population there can also be health inequalities, defined by the WHO as "differences in health status or in the distribution of health determinants between different population groups. For example, differences in mobility between elderly people and younger populations or differences in mortality rates between people from different social classes"[238].

Baseline

2.12.7.7 Relevant policy will be reviewed at the local, regional and national levels to identify the key issues of relevance to the Suffolk Onshore Scheme.

2.12.7.8 A baseline assessment will be undertaken using a range of sources to provide a description of the health conditions within the health study areas as set out above. This will be done using established statistical sources and desk based research.

Assessment of Potential Effects

2.12.7.9 As set out above the factors contributing to individual health and wellbeing are broad, and the health of existing and new residents, workers and visitors will be largely

[238] World Health Organisation (2018). Health inequities and their causes. [online] Available at: https://www.who.int/news-room/facts-in-pictures/detail/health-inequities-and-their-causes

determined by individual age and constitutional factors and lifestyle factors unrelated to the Suffolk Onshore Scheme.

2.12.7.10 Taking account of these factors, the health assessment will use relevant guidance set out in the framework for assessment set out by the *NHS HUDU Planning for Health Rapid HIA Tool* to consider how the Suffolk Onshore Scheme could influence health – including how it could influence health inequalities, during the construction, maintenance, operational and decommissioning phases.

2.12.7.11 The HUDU assessment tool identifies eleven broad determinants that are likely to be influenced by specific development proposals and can be influenced through design and management measures, against which the likely impacts of new developments can be assessed. Of these, the following five broad determinants are relevant to the potential health impacts arising from the Scheme:

- Access to health and social care services and other social infrastructure;
- Access to open space and nature;
- Air quality, noise and neighbourhood amenity;
- Accessibility and active travel; and
- Social cohesion and inclusive design.

2.12.7.12 Due to the diverse nature of health determinants and outcomes which are assessed, and the difficulty of quantifying these with respect to health outcomes, NHS HUDU guidance does not provide a methodology for assessing the significance of effects. In line with this, the assessment of likely health impacts of the Suffolk Onshore Scheme will be described qualitatively, based on professional judgement and best practice guidance, and effects will be assessed as 'positive', 'negative', 'neutral' or 'uncertain', using the criteria set out in Table 2.12.8.

2.12.7.13 Where an impact is identified, actions will be proposed to mitigate any negative impact on health, or to realise opportunities to create health benefits. It should be noted that in many cases, mitigation will be embedded within the design of the Suffolk Onshore Scheme, and the implementation of this will be an underlying assumption of the assessment.

Table 2.12.8: Health assessment impact categories

Impact category	Description
Positive	A beneficial impact is identified
Neutral	No discernible health impact is identified
Negative	An adverse impact is identified
Uncertain	Where uncertainty exists as to the overall impact

2.12.7.14 The assessment will draw on the findings of related technical assessments, as listed in section 2. The geographical extent of health effects will be determined by the assessments set out in those related chapters.

2.12.8 Conclusion

Summary

2.12.8.1 This chapter of the Scoping Report has set out the proposed scope and methodology for the ES assessment of health and wellbeing effects arising from the construction, operation, maintenance and decommissioning of the Suffolk Onshore Scheme. The socio-economic, recreation and tourism receptors that have been identified within the respective study areas surrounding the Suffolk Onshore Scheme include local communities, residents and workers, as well as visitors and users of PRoW, open space and community facilities within the respective study areas.

Proposed Scope of the Assessment

2.12.8.2 A summary of the proposed scope of the assessment is provided in Table 2.12.9.

Table 2.12.9: Proposed scope of the assessment

Receptor	Potential for significant effects	Project phase(s)	Proposed to be scoped in/out and for which option
Local residents, workers and visitors within the relevant technical assessment study areas.	Potential health related effects experienced as a result of the Suffolk Onshore Scheme would be determined through the topic specific assessments, but are expected to include air quality, noise and vibration, landscape amenity and traffic and transport effects during the construction, maintenance and decommissioning phase, and noise and vibration during the operational phase.	Construction, maintenance and decommissioning	**Scoped in for all options**
		Operation	**Scoped in for all options**
Users of PRoW and recreational routes within 500m of Suffolk Scoping Boundary.	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	Construction, maintenance and decommissioning	**Scoped in for all options**
		Operation	**Scoped in for all options**

Users of open space within 500m of Suffolk Scoping Boundary.	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	Construction, maintenance and decommissioning	**Scoped in for all options**
		Operation	**Scoped in for all options**
Community facilities within 500m of the Suffolk Scoping Boundary.	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	Construction, maintenance and decommissioning	**Scoped in for all options**
		Operation	**Scoped in for all options**
Local communities within 1km of the Suffolk Scoping Boundary.	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC.	Construction, maintenance and decommissioning	**Scoped in for all options**
		Operation	**Scoped in for all options**
Local residents and workers in close proximity to the Suffolk Scoping Boundary.	The Applicant will ensure that policies and procedures are in place at the design phase to ensure that all equipment will comply with public EMF exposure limits.	Construction, maintenance and decommissioning	Scoped out for all options
		Operation	Scoped out for all options

2.13 Cumulative Effects

2.13.1 Introduction

2.13.1.1 This chapter presents how the intra-project and inter-project cumulative effects assessment will consider the potentially significant cumulative effects that may arise from the Suffolk Onshore Scheme. A description of intra-project and inter-project cumulative effects is presented in **Part 1, Chapter 5, EIA Approach and Methodology**.

2.13.1.2 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Methodology;** and
- **Part 2, Technical Chapters 2-12**.

2.13.1.3 This chapter is supported by the following figures:

- **Figure 2.13.1 Zone of Influence for the Suffolk Onshore Scheme;**
- **Figure 2.13.2 All Projects and Development Plans located within the Zone of Influence for the Suffolk Onshore Scheme;** and
- **Figure 2.13.3 Projects proposed to be taken forward to Stage 2 for the Suffolk Onshore Scheme**.

2.13.2 Intra-Project

2.13.2.1 The proposed method for assessing the intra-project cumulative effects is presented in **Part 1, Chapter 5, EIA Approach and Methodology**. This describes a proposed three staged approach that will be used to assess whether the culmination of effects on an individual receptor is likely to lead to an overall effect of greater significance.

2.13.2.2 The first stage (pre-screening) in the process is to identify whether individual or groups of receptors could be affected by more than one type of effect (usually where they are considered by more than one technical chapter).

2.13.2.3 Where multiple types of effects are considered within one chapter, the findings are not proposed to be presented within the Intra-Project Cumulative Effects Chapter. This is likely to be:

- effects on ecological receptors as the Ecology and Biodiversity Chapter will identify all potential types of effects on ecological receptors; and
- effects on Human Health as the Human Health Chapter will identify all potential types of effect.

2.13.2.4 Where this first stage identifies that either:

- there is only one type of effect for a particular receptor; or
- only one topic has identified effects on that receptor,

- it is considered that there will be no potential for an intra-project effects and receptors will not be taken through to the next stage (screening) of the assessment.

2.13.2.5 An initial pre-screening assessment is presented in Table 2.13.1 showing how the receptor groups are likely to interact between chapters. This will be revisited as part of the ES to ensure all receptors considered within the ES are taken through this pre-screening assessment.

Table 2.13.1: Pre-screening stage

Receptors	Technical chapters+										
	2	3	4	5	6	7	8	9	10	11	12
Landscape elements	✓		✓								
Residential receptors	✓							✓	✓	✓	
Commercial receptors									✓	✓	
Designated Sites	✓	✓			✓			✓	✓	✓	
Ecological receptors	✓	✓						✓			
Notable Habitats (terrestrial and aquatic)	✓	✓		✓				✓			
Designated heritage assets			✓								
Non-designated heritage assets			✓								
Water resources (existing abstractions and discharges)				✓	✓						
Watercourses and waterbodies				✓	✓						
Flood risk receptors				✓							
BMV Agricultural Land						✓					
Agricultural holdings						✓					
Soil						✓				✓	
Public rights of way	✓						✓			✓	
Cycle Routes	✓						✓				
Roads							✓				
Communities	✓				✓				✓	✓	
Geology					✓						
Mineral Reserves					✓						
Groundwater					✓						
Human Health					✓						✓

+ Chapter numbers refer to the Scoping Technical Chapters: Chapter 2 Landscape and Visual (Part 2.2); Chapter 3 Ecology and Biodiversity (Part 2.3); Chapter 4 Cultural Heritage (Part 2.4), Chapter 5 Water Environment (Part 2.5); Chapter 6 Geology and Hydrogeology, (Part 2.6); Chapter 7 Agriculture and Soils (Part 2.7); Chapter 8 Traffic and Transport (Part 2.8); Chapter 9 Air Quality (Part 2.9); Chapter 10 Noise and Vibration (Part 2.10) and Chapter 11 Socioeconomic Recreation and Tourism (Part 2.11); and Human Health (Part 2.12)

2.13.3 Inter-Project

2.13.3.1 The proposed method for assessing the inter-project cumulative effects is presented in **Part 1, Chapter 5, EIA Approach and Methodology**. The following section sets out the methodology for Stage 1 and Stage 2 in relation to the Suffolk Onshore Scheme.

Stage 1

2.13.3.2 Stage 1 of the approach outlined in PINS Advice Note Seventeen requires a 'long list' of other developments to be identified, as well as high level information, such as the location/application boundary. This initial long list is provided in **Appendix 1.5.A Inter Project Cumulative Effects Long List** and will be continually reviewed and updated as required.

Establishing the ZOI

2.13.3.3 The first step in identifying the long list is to establish the Zone of Influence (ZOI) for the Suffolk Onshore Scheme. **Part 1, Chapter 5, EIA Approach and Methodology** describes how the ZOI has been defined based on the largest study area of the technical chapters.

2.13.3.4 The study areas proposed for technical chapters 2-12 are summarised in Table 2.13.2. The rationale for these study areas are explained in section 3 of the relevant technical topic chapters 2-12.

Table 2.13.2: Study areas for environmental topics

Environmental topic	Study areas
Ecology and Biodiversity	10km
Landscape and Visual	3km
Historic Environment	1km
Water Environment, Geology and Hydrogeology, Air Quality	<0.5km
Noise and Vibration, Geology, Agriculture and Soils, Traffic and Transport*	<0.25km

*at this stage construction traffic routes are not yet known, however it is not anticipated that construction traffic routes ultimately assessed within the ES routes would extend beyond 10km due to the proximity of the strategic road network. This will be reviewed once construction traffic routes are known.

2.13.3.5 The largest topic study area has been identified as 10km from the Suffolk Onshore Scheme Scoping Boundary, therefore a ZOI of 20km from the Suffolk Onshore Scheme Scoping Boundary has been set to establish the long list of developments. This is illustrated on **Figure 2.13.1 Zone of Influence for the Suffolk Onshore Scheme**.

2.13.3.6 This will be kept under review of the Project develops and the long list updated as required.

Identify the long list of 'Other Developments'

2.13.3.7 A long list of other projects within the ZOI has been established and is presented in **Appendix 1.5.A Inter Project Cumulative Effects Long List** and on **Figure 2.13.2 Long List Projects within the Suffolk Onshore Scheme Zone of Influence**. This has been established using the guidance provided in Advice Note Seventeen and the 'other developments' have been categorised into three Tiers as described in **Part 1, Chapter 5, EIA Approach and Methodology**. The long list has been established by a search of the Planning Inspectorate's Programme of Projects (undertaken in July 2022) and planning applications held on the following relevant planning authority websites:

- East Suffolk District Council
- Mid Suffolk District Council

2.13.3.8 Allocated sites in Local Plans or other Development Plans which were not yet subject to planning applications have also been identified on the long list.

2.13.3.9 Minor planning applications have been excluded from the assessment, as these relate to projects of small scale and local significance. These projects are highly unlikely to give rise to significant cumulative environmental effects over and above the Suffolk Onshore Scheme in isolation.

Stage 2

2.13.3.10 The long list is presented **in Appendix 1.5.A Inter Project Cumulative Effects Long List** and those projects relevant to the Suffolk Onshore Scheme are illustrated on **Figure 2.13.2 Long List Projects within the Suffolk Onshore Scheme Zone of Influence.** The projects included on the long list were then screened as to the nature and scale of development to identify whether they would be likely to result in a potential for a significant cumulative effect with the Suffolk Onshore Scheme.

2.13.3.11 The long list of projects to be proposed to be taken forward to Stage 2 are listed in Table 2.13.3 below and illustrated on **Figure 2.13.3 Projects proposed to be taken to Stage 2 for the Suffolk Onshore Scheme.**

Table 2.13.3: Projects proposed to be taken forward for Stage 2

ID	Application ref (where applicable)	Planning authority	Project and location	Description	Tier	Distance from Project Scoping Boundary (km)
1	EN10012	PINS	Development Consent Order for the Sizewell C Nuclear Power Station	The Sizewell C Project	Tier 1	0.72
6	EN010078	PINS	East Anglia TWO Offshore	An offshore wind farm which could consist of	Tier 1	1.62

			Windfarm - Southern North Sea approx. 32.6km from the Suffolk Coast. Onshore cable route connecting to onshore substation	up to 75 turbines, generators and associated infrastructure, with an installed capacity of up to 900MW		
7	N/A	PINS	Nautilus - Offshore interconnector between UK and Belgium	Proposed second Interconnector between Great Britain and Belgium. It would create a new 1.4 gigawatts (GW) high voltage direct current (HVDC) electricity link	Tier 2	0.66
202	DC/20/4846 /EIA	East Suffolk	B-17 Solar Farm Parham Airfield Parham Suffolk	EIA Screening Opinion - Proposed Solar Energy Scheme	Tier 2	6.53
221	DC/20/3142 /FUL	East Suffolk	High Lodge Leisure Darsham Road Hinton Blythburgh Saxmundham Suffolk IP17 3QT	Redevelopment of golf course and vacant paddock land for the siting of 170 holiday lodges, 3 tree houses, new Facilities Building, Maintenance and Housekeeping Building, car parking and associated highway works.	Tier 1	4.69
228	DC/21/3254 /FUL	East Suffolk	Land and buildings at Croft Farm Hulver Lane Snape Suffolk IP17 1QU	Change of use for agricultural land and part of an existing agricultural building to a touring caravan site for up to 30 caravans and associated facilities including toilets, showers and a guest reception.	Tier 1	2.29
233	DC/21/5550 /FUL	East Suffolk	Land at Park Farm Loudham Hall Road Loudham Woodbridge Suffolk IP13 0NW	Erection of a solar photovoltaic (PV) array, with a total export capacity of up to 21 MW. Each of the solar panels will be mounted on a fixed panel system. The	Tier 1	10.79

				panels are covered by high transparency solar glass with an anti-reflective coating which minimises glare and glint, while aiding in the maximum absorption of the available sunlight. The panels are dark grey/blue in colour and are mounted on a frame of anodized aluminium alloy and galvanized steel.		
234	DC/19/4987 /EIA	East Suffolk	Land at Rock Barracks Heath Road Woodbridge Suffolk IP12 3LZ	EIA Screening Opinion - Photovoltaic PV Solar Park of approximately 1.5MW along with associated PV equipment.	Tier 2	13.87
245	DC/21/4044 /EIA	East Suffolk	Land south of Darsham Station Main Road Darsham Suffolk	EIA Screening Opinion - Proposed residential development of up to 110 dwellings	Tier 2	4.85
248	DC/21/1001 /FUL	East Suffolk	Land to the north and south of New Road east of Silverlace Green Parham Suffolk	Construction and operation of a solar farm together with all associated works, equipment and necessary infrastructure	Tier 1	7.81
253	DC/21/2387 /EIA	East Suffolk	Land west of Sandpit House and Sewage Pumping Station Loudham Hall Road Pettistree Suffolk	EIA Screening Opinion - Proposed development of a 21 MWp Solar PV Development	Tier 2	7.38
263	DC/22/2276 /EIA	East Suffolk	Proposed reservoir at Grange Farm Yoxford Road Westelton Suffolk	EIA Screen Opinion - Proposed Reservoir.	Tier 1	3.94
266	DC/18/2794 /EIA	East Suffolk	Saxmundham to Peasenhall Water Mains	Installation of approximately 7.7 kilometres of 250mm	Tier 1	6.74

			Installation Suffolk	diameter pipeline between Lodgewood Water Tower in Peasenhall and Saxmundham Water Tower.		
269	DC/17/4188 /EIA	East Suffolk	Site SSP12 Rendlesham Suffolk	Screening opinion - erection of up to 75 dwellings.	Tier 2	10.40
270	DC/19/1637 /FUL	East Suffolk	Sizewell B Power Station Complex and adjoining land Sizewell Power Station Road Sizewell Leiston Suffolk IP16 4UR	1. In outline, comprising a Visitor Centre (maximum 2,000sq.m GEA) and a maximum of 9,500sq.m (GEA) of floorspace to provide administration, storage, welfare and canteen facilities with all matters reserved apart from access. 2. In full, for the demolition of the existing Outage Store, Laydown Area, Operations Training Centre, Technical Training Facility, Visitor Centre, and Rosery Cottage garage; removal of technical training and pool car park (63 spaces), Coronation Wood car park (21 spaces), Visitor Centre car park (16 spaces) and northern outage car park (576 spaces); meantime use of the Technical Training Centre as an interim Visitor Centre followed by its demolition; and erection of new (all floorspace in GEA) Outage Store (2,778sq.m), Laydown Area (11,990sq.m) including New Western Access Road,	Tier 1	0.72

				Yardman's Office (23sq.m), Training Centre (4,032sq.m), Rosery Cottage garage (30sq.m), Replacement Car Park (2,363sq.m) providing 112 spaces, and Outage Car Park (15,525sq.m) providing (576 spaces) including new access road (and alternative access to bridleway), footpath and amended junction at Sizewell Gap; and associated landscaping earthworks/recontouring, tree felling and boundary treatment.		
271	DC/20/4646/FUL	East Suffolk	Sizewell B Sizewell Power Station Complex and adjoining Land Sizewell Power Station Road Sizewell Leiston Suffolk IP16 4UR	Hybrid application seeking outline planning permission, with all matters reserved, for up to 9,500 square metres Gross External Area (GEA) to provide administration, storage, welfare and canteen facilities and a visitor centre of up to 1,000 square metres GEA. Detailed planning permission is sought for demolition of some existing structures and redevelopment to include a training centre and interim visitor centre, an outage store, lay down area, car and cycle parking, landscaping, associated infrastructure (including utilities, plant and highway	Tier 1	0.72

				works), tree felling and other relevant works.		
272	DC/21/5408 /EIA	East Suffolk	Sizewell C Sizewell Power Station Road Sizewell Leiston Suffolk	Formal screening opinion pursuant to Regulation 6 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended)1 (herein referred to as the EIA Regulations) in relation to a proposed development on land north of the Sizewell B Power station, Sizewell, Leiston. The proposed development comprises two types of geotechnical trials, these being: (i) ground anchor trials; and (ii) deep soil mixing trials, both located within the proposed Sizewell C power stations main platform area (herein referred to as the Proposed Development). The trials will be undertaken to inform the geotechnical design development for the enabling works of the proposed Sizewell C power station. The Proposed Development is located within the ESC's administrative boundary.	Tier 1	0.72
277	DC/21/5515 /FUL	East Suffolk	Town Farm Town Farm Lane Kelsale Cum Carlton Saxmundham Suffolk IP17 2RJ	Erection of 21 MW Solar PV Development with associated equipment and ecological improvement works on Land at Town Farm, Town Hall Lane,	Tier 1	3.13

				Kelsale cum Carlton, IP17 2RJ		
278	DC/21/2943 /EIA	East Suffolk	Town Farm Town Farm Lane Kelsale Cum Carlton Suffolk	Screening Opinion - The erection of a 21MWp Solar PV Development	Tier 2	2.98
279	DC/21/4643 /EIA	East Suffolk	UKZ139 BC Wissett Solar Farm Grays Lane Wissett Suffolk	EIA Screening Opinion - Proposed solar photovoltaic (PV) farm, with battery energy storage	Tier 2	16.04
285	DC/21/0002 2	Mid Suffolk	Brundish Manor The Street Brundish Woodbridge Suffolk IP13 8BL	Full Planning Application - Change of Use of land and siting 180No (45kw) photovoltaic array in paddock.	Tier 1	15.23
287	N/A	East Suffolk	EuroLink - Offshore interconnector between UK and The Netherlands	Proposed second link to the Netherlands of 1.4GW by 2030. Current proposal for interconnector / hybrid - windconnector	Tier 3	0
288	N/A	East Suffolk	East Anglia Green	The East Anglia Green Energy Enablement (GREEN) project is a proposal to build a new high voltage network of 150km line reinforcement between Norwich, Bramford and Tilbury.	Tier 3	24

2.13.4 Conclusion

2.13.4.1 As outlined above inter and intra cumulative effects are proposed to be scoped into the EIA and the results will be presented in the Environmental Statement (ES). **Appendix 1.5.A Inter-Project Cumulative Effects Long List** considers each scoped in environmental discipline, the ZOI and whether effects associated with each of the developments could interact with the effects associated with this project. Table 2.13.3 outlines the proposed short-listed developments that further information including, design, location, programme, operation and decommissioning information and reported environmental effects will be gathered for, to inform which of those developments will be assessed as part of the inter-project cumulative effects assessment.

Sea Link

Environmental Impact Assessment Scoping Report
Volume 1 Main Text
Part 3 Kent Onshore Scheme

October 2022



nationalgrid

Contents

3.1 Evolution of the Kent Onshore Scheme 1

3.1.1 Introduction 1
3.1.2 Network Connection Point 1
3.1.3 Study Area 1
3.1.4 Landfall Areas of Search 2
3.1.5 Converter Station Site Option Areas 4
3.1.6 Route Corridors 5
3.1.7 Identification of the Preferred Option 6
3.1.8 Stakeholder Feedback and Option Refinement 7
3.1.9 Kent Onshore Scheme Description 7

3.2 Landscape and Visual 8

3.2.1 Introduction 8
3.2.2 Regulatory and Planning Context 9
3.2.3 Study Area 12
3.2.4 Baseline Conditions 12
3.2.5 Embedded and Control & Management Measures 21
3.2.6 Potential for Significant Effects 22
3.2.7 Proposed Assessment Methodology 30
3.2.8 Conclusion 38

3.3 Ecology and Biodiversity 40

3.3.1 Introduction 40
3.3.2 Regulatory and Planning Context 40
3.3.3 Study Area 50
3.3.4 Baseline Conditions 51
3.3.5 Embedded and Control & Management Measures 63
3.3.6 Potential for Significant Effects 64
3.3.7 Proposed Assessment Methodology 76
3.3.8 Conclusion 81

3.4 Cultural Heritage 86

3.4.1 Introduction 86
3.4.2 Regulatory and Planning Context 86

3.4.3 Study Area 89
3.4.4 Baseline Conditions 89
3.4.5 Embedded and Control & Management Measures 91
3.4.6 Potential for Significant Effects 92
3.4.7 Proposed Assessment Methodology 96
3.4.8 Conclusion 100

3.5 Water environment 102
3.5.1 Introduction 102
3.5.2 Regulatory and Planning Context 102
3.5.3 Study Area 104
3.5.4 Baseline Conditions 105
3.5.5 Embedded and Control & Management Measures 106
3.5.6 Potential for Significant Effects 108
3.5.7 Proposed Assessment Methodology 113
3.5.8 Conclusion 117

3.6 Geology and Hydrogeology 118
3.6.1 Introduction 118
3.6.2 Regulatory and Planning Context 119
3.6.3 Study Area 123
3.6.4 Baseline Conditions 124
3.6.5 Embedded and Control & Measurement Measures 132
3.6.6 Potential for Significant Effects 133
3.6.7 Proposed Assessment Methodology 138
3.6.8 Conclusion 146

3.7 Agriculture and Soils 149
3.7.1 Introduction 149
3.7.2 Regulatory and Planning Context 150
3.7.3 Study Area 151
3.7.4 Baseline Conditions 152
3.7.5 Embedded and Control & Management Measures 153
3.7.6 Potential for Significant Effects 155
3.7.7 Proposed Assessment Methodology 165
3.7.8 Conclusion 168

3.8 Traffic and Transport 170
3.8.1 Introduction 170

3.8.2 Regulatory and Planning Context 170
3.8.3 Study Area 176
3.8.4 Baseline Conditions 177
3.8.1 Embedded and Control & Management Measures 180
3.8.2 Potential for Significant Effects 182
3.8.3 Proposed Assessment Methodology 189
3.8.4 Conclusion 198

3.9 Air Quality 200
3.9.1 Introduction 200
3.9.2 Regulatory and Planning Context 200
3.9.3 Study Area 202
3.9.4 Baseline Conditions 203
3.9.5 Embedded and Control & Management Measures 204
3.9.6 Potential for Significant Effects 206
3.9.7 Proposed Assessment Methodology 210
3.9.8 Conclusion 213

3.10 Noise and Vibration 215
3.10.1 Introduction 215
3.10.2 Regulatory and Planning Context 215
3.10.3 Study Area 220
3.10.4 Baseline Conditions 222
3.10.5 Embedded and Control & Management Measures 223
3.10.6 Potential for Significant Effects 225
3.10.7 Assessment Methodology 236
3.10.8 Conclusion 241

3.11 Socio-economics, Recreation & Tourism 243
3.11.1 Introduction 243
3.11.2 Regulatory and Planning Context 243
3.11.3 Study Area 247
3.11.4 Baseline Conditions 247
3.11.5 Embedded and Control & Management Measures 251
3.11.6 Potential for Significant Effects 251
3.11.7 Proposed Assessment Methodology 258
3.11.8 Conclusion 260

3.12 Health and Wellbeing 263

3.12.1 Introduction 263
3.12.2 Regulatory and Planning Context 264
3.12.3 Study Area 266
3.12.4 Baseline Conditions 267
3.12.5 Embedded and Control & Management Measures 269
3.12.6 Potential for Significant Effects 271
3.12.7 Proposed Assessment Methodology 278
3.12.8 Conclusion 282

3.13 Cumulative Effects 284

3.13.1 Introduction 284
3.13.2 Intra-Project 284
3.13.3 Inter-Project 286
3.13.4 Conclusion 289

Tables

Table 3.2.1: Representative viewpoint locations for the Kent Onshore Scheme 17
Table 3.2.2: Sources and impacts 24
Table 3.2.3: Impact pathways with receptors 28
Table 3.2.4: Sensitivity of landscape receptors 33
Table 3.2.5: Sensitivity of visual receptors 34
Table 3.2.6: Magnitude of effect – landscape receptors 35
Table 3.2.7:Magnitude of effect – visual receptors 36
Table 3.2.8: Significance of effect 37
Table 3.2.9: Proposed scope of the assessment 38
Table 3.3.1: Statutorily designated sites within 10km (international) and 5km (national) of the Kent Onshore Scheme 54
Table 3.3.2: Non-statutory designated sites currently identified within 2km of the Kent Onshore Scheme 57
Table 3.3.3: Sources and impacts 66
Table 3.3.4: Impact pathways with receptors 71
Table 3.3.5: Examples of criteria used to evaluate important ecological features in a defined geographical context 77
Table 3.3.6: Relating CIEEM assessment terms to those used in other EIA chapters 80
Table 3.3.7: Proposed scope of the assessment 81
Table 3.4.1: Sources and impacts 93
Table 3.4.2: Impact Pathways with receptors 96
Table 3.4.3: Criteria for assessing the value of heritage assets 98
Table 3.4.4: Factors influencing the assessment of magnitude of impacts. 99
Table 3.4.5: Assessment of effect 100
Table 3.4.6: Proposed scope of the assessment 101
Table 3.5.1: Sources and impacts 110
Table 3.5.2: Impact pathways with receptors 112
Table 3.5.3: Criteria for assigned receptor value (sensitivity) 114
Table 3.5.4:Criteria for assigning impact magnitude 115
Table 3.5.5:Proposed scope of the assessment 117
Table 3.6.1: Potential sources of contamination 130
Table 3.6.2: Sources and impacts 134
Table 3.6.3: Impact pathways with receptors 137
Table 3.6.4: Criteria for classifying potential for generating contamination 139
Table 3.6.5: Value/sensitivity criteria 141

Table 3.6.6: Magnitude criteria 144
Table 3.6.7: Significance matrix 146
Table 3.6.8: Proposed Scope of the assessment 147
Table 3.7.1: Sources and impacts 158
Table 3.7.2: Impact pathways with receptors 163
Table 3.7.3: Sensitivity of receptor criteria 165
Table 3.7.4: Magnitude criteria 167
Table 3.7.5: Proposed scope of the assessment 168
Table 3.8.1: Sources and impacts 184
Table 3.8.2: Impact pathways with receptors 187
Table 3.8.3:Categorising the overall sensitivity of receptors 193
Table 3.8.4:Categorising the overall magnitude of effect of a highway link 196
Table 3.8.5:Categorising the overall magnitude of effect of a PRoW diversion and/or closure 197
Table 3.8.6: Significance matrix 198
Table 3.8.7: Proposed scope of the assessment 198
Table 3.9.1: Sources and impacts 208
Table 3.9.2: Impact pathways with receptors 210
Table 3.9.3: Dust emission magnitude criteria 211
Table 3.9.4:Receptor sensitivity criteria 211
Table 3.9.5: IAQM impact descriptors for individual receptors 213
Table 3.9.6: Proposed scope of the assessment 213
Table 3.10.1: PPGN noise exposure hierarchy 218
Table 3.10.2: Planning policies that relate to the Kent Onshore Scheme 219
Table 3.10.3: Sources and impacts 226
Table 3.10.4: Impact pathways with receptors 232
Table 3.10.5: Criteria for determining value/sensitivity (Non-Residential NSRs) 237
Table 3.10.6: Criteria for determining value/sensitivity (Non-Residential NSRs) 238
Table 3.10.7: Construction vibration effect magnitudes at residential receptors 238
Table 3.10.8: Magnitude of impact from construction traffic at residential receptors 239
Table 3.10.9: Magnitude of impact from operational converter station noise 240
Table 3.10.10: Significance matrix at Non-Residential NSR 241
Table 3.10.11: Proposed scope of the assessment 242
Table 3.11.1:Sources and impacts 253
Table 3.11.2: Impact pathways with receptors 256
Table 3.11.3: Proposed scope of the assessment 260
Table 3.12.1: Sources and impacts 272
Table 3.12.2: Impact pathways with receptors 277
Table 3.12.3:Proposed scope of the assessment 282
Table 3.13.1: Pre-screening Stage 285
Table 3.13.2:Study Areas for Environmental Topics 286
Table 3.13.3:Projects proposed to be taken forward for Stage 2 287

Images

Image 3.12.1 Determinants of health 279
Image 3.12.2 Determinants of health in neighbourhoods 280

3.1 Evolution of the Kent Onshore Scheme

3.1.1 Introduction

3.1.1.1 The current stage of Project design is the result of an iterative process that commenced at project inception when the initial need to reinforce the network in the South East of England was identified in 2019.

3.1.1.2 **Part 1 Chapter 3 Main Alternatives Considered** describes National Grid's approach to options appraisal and summarises both the strategic options that have been considered for the Project and the routeing and siting process. This chapter provides a more detailed summary of the routeing and siting appraisal relevant to the evolution of the Kent Onshore Scheme, from the point at which a preferred strategic option was selected to definition of the Kent Onshore Scheme Scoping Boundary as illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.1.1.3 This chapter should be read in conjunction with:

- **Part 1 Chapter 3 Main Alternatives Considered**;
- **Part 2 Chapter 1 Evolution of the Suffolk Onshore Scheme**; and
- **Part 4 Chapter 1 Evolution of the Offshore Scheme**.

3.1.1.4 This chapter is supported by the following figure:

- **Figure 3.1.1 Evolution of the Kent Onshore Scheme**.

3.1.2 Network Connection Point

3.1.2.1 The preferred strategic option identified Richborough substation as the network connection point in Kent as described in **Part 1, Chapter 3, Main Alternatives Considered**. This was used as the basis for defining the routeing and siting study area and the identification of landfall areas of search, converter station site option areas and terrestrial route corridors in Kent.

3.1.3 Study Area

3.1.3.1 The routeing and siting study area in Kent extended from Herne Bay on the north Kent coast to Kingsdown on the east Kent Coast and, inland, to the settlement of Wingham. The routeing and siting study area is illustrated on **Figure 1.3.1 Routeing and Siting Study Area**.

3.1.4 Landfall Areas of Search

Areas of Search

3.1.4.1 Six landfall areas of search were identified in Kent, which were split geographically across Pegwell Bay, Broadstairs, and the north Kent coast. These are illustrated on **Figure 1.3.3 Kent Landfall Areas of Search**. One area of search (K1) was identified within Pegwell Bay, which stretched from the settlement of Ramsgate to the settlement of Deal. One area (K1a) was identified at Broadstairs at North Foreland between the settlements of Margate and Broadstairs. Four areas of search (K2, K3, K4 and K5) were identified along the north Kent coast between the settlements of Herne Bay and Birchington.

Summary of Appraisal Outcomes

Terrestrial constraints

3.1.4.2 Landfall area of search K1 in Pegwell Bay is broadly split into two. The area to the north of the mouth of River Stour, where the intertidal area is wide (approximately 2km) and the area to the south of the mouth of the River Stour where the intertidal area gradually narrows towards the south.

3.1.4.3 The whole of the landfall area of search is designated as the Thanet Coast and Sandwich Bay Ramsar and SPA, Sandwich Bay SAC and Sandwich Bay to Hacklinge Marshes SSSI. These designations are unavoidable at this landfall area, albeit the width of the designations narrow towards the south due to the narrowing of the intertidal area. There would therefore potentially be more opportunity to avoid direct impacts on the designated sites through the use of trenchless installation methods (subject to confirmation through further studies and ground investigations). Sandwich Bay and Pegwell Bay National Nature Reserve (NNR) is located within this landfall area but could be avoided by landing the cable to the south of the River Stour.

3.1.4.4 Five Golf courses are present within this landfall area. From north to south these are Ebbsfleet, Stonelees, Princes, Royal St George's and Royal Cinque Ports.

3.1.4.5 To the south of the River Stour there are extensive areas of terrestrial flood zone which is not avoidable. Access to this same area is also limited.

3.1.4.6 Landfall K1a is located at North Foreland to the north of Broadstairs. The whole of the landfall area is designated as the Thanet Coast and Sandwich Bay Ramsar and SPA, Thanet Coast SAC, SSSI and Marine Conservation Zone. Whilst all these designated sites would be unavoidable trenchless installation methods could be used to avoid direct effects (subject to confirmation through further studies and ground investigations). Due to the width of both the SAC and MCZ designations, potential direct effects on these sites are unlikely to be avoidable with the use of trenchless installation methods (subject to confirmation through further studies and ground investigations).

3.1.4.7 North Foreland Golf Course is located at this landfall area of search and would be unavoidable.

3.1.4.8 Joss Bay which is a recreational beach location is located within this landfall area of search but could be avoided.

3.1.4.9 Landfalls K2 and K3 are located on the north Kent coast between the settlements of Birchington and Reculver. Thanet Coast and Sandwich Bay Ramsar and SPA and Thanet Coast SSSI and MCZ are unavoidable across both landfall areas of search, but Thanet Coast SAC is avoidable within K3.

3.1.4.10 Both areas are within extensive areas of Flood Zone and access to both landfall areas of search is limited and constrained by the presence of the railway line with no existing access across the railway.

3.1.4.11 Landfall areas of search K4 and K5 are located between the settlements of Reculver and Herne Bay. Thanet Coast and Sandwich Bay Ramsar and SPA and Thanet Coast SSSI are unavoidable across both areas of search. Thanet Coast MCZ is unavoidable within K4 but could be avoided within K5. Other than at the Thanet Coast MCZ, trenchless installation methods (subject to confirmation through further studies and ground investigations) could potentially be used to avoid directly impacting on these designated sites.

3.1.4.12 Reculver Country Park is unavoidable within K4 and K5 is significantly constrained by the settlement of Herne Bay.

Summary of Relevant Marine Alignments

3.1.4.13 It was considered likely that marine alignments to landfall area of search K1 would potentially need to route within Goodwin Sands SAC due to the requirement to cross other marine cables close to this location within sufficient water depth for navigational safety. A landfall to the north of the River Stour would result in direct impacts on the Pegwell Bay designated sites, however it was considered likely that this would be limited to a short term temporary impact and that the more sensitive saltmarsh habitats could be avoided by using trenchless installation methods (subject to confirmation through further studies and ground investigations).

3.1.4.14 The marine approach to landfall area K1a was considered to be relatively unconstrainted, although the landfall area of search overlapped with Joss Bay which is a recreational beach location, meaning there could be a greater temporary reactional impact during construction at this landfall location.

3.1.4.15 All marine approaches to landfall areas of search K2 to K5 would need to route through the Outer Thames Estuary SPA. Due to shipping and navigation constraints in conjunction with the bathymetry of the area it was also not possible to identify feasible marine corridors and subsequent alignments to the west of Margate Long Sands SAC. All marine alignments that approached the landfall areas of search K2 to K5 would need to cross Margate and Long Sands SAC. Due to the benthic interest features that support the designation of this site there is the potential for marine alignments to landfall areas of search K2 to K5 to result in permanent habitat loss within this site.

3.1.4.16 Significant constraints were also identified on the marine route alignments approaching landfalls on the north Kent coast from a physical environment perspective, as it was considered unlikely that an area of mobile sandbank could be avoided. This would present an exposure and engineering risk. It is also likely that routes through this area would interact with key anchorage areas offshore at Margate.

Overall Summary

3.1.4.17 Landfall area of search K1 is constrained by the marine approach associated with the potential interaction with Goodwin Sands MCZ, however it was considered likely that potential effects at the landfall on the designated sites for nature conservation would be limited to short term temporary impacts. Landfall areas to both the north and the south of the mouth of the Stour would be constrained by the golf courses. Construction access would be constrained for landfalls to the south of the river and there would also be more interaction with the Flood Zone.

3.1.4.18 The marine approach to landfall area of search K1a is relatively unconstrained, and it was also considered likely that any impacts on the designated sites for nature conservation would be temporary and short term. The North Foreland golf course would be unavoidable, whilst Joss Bay is avoidable within this search area, it is an important recreational receptor.

3.1.4.19 The marine approaches to the landfalls on the north Kent Coast (K2 to K5) were considered to be significantly constrained by the potential for permanent habitat loss within Margate and Long Sands SAC and the technical and engineering risks associated with potential cable exposure. Terrestrially K5 was significantly constrained by the settlement with Herne Bay and areas K2,K3 and K4 by access.

3.1.5 Converter Station Site Option Areas

Option Areas

3.1.5.1 Two converter site option areas were identified within the routeing and siting study area. Area A is located adjacent to and encompassed by Richborough Energy Park and Area B is located to the north and south of the A299 and adjacent to Manston Business Park. These are illustrated on **Figure 1.3.6 Kent Converter Site Option Areas**.

Summary of Appraisal Outcomes

3.1.5.2 Richborough Energy Park and Richborough Port are located within Area A which provides an opportunity to site the converter station within an area adjacent to similar infrastructure or industrial land uses. Part of the Sandwich Bay to Hacklinge Marshes SSSI extends into this area but converter station siting could avoid this designation. Part of this area is within the Flood Zones 2 and 3 but there are opportunities to site a converter station outside of these zones. The network connection point (Richborough substation) is located within this area therefore minimising the length of HVAC connection back to the network.

3.1.5.3 There is one designated site within Area B, an Anglo-Saxon cemetery and associated remains at Monkton Scheduled Monument; this is located immediately adjacent to the south of the A299, to the north of Monkton. The area contains Manston Business Park, Columbus Avenue Industrial Estate, and an area with larger scale agricultural buildings. Manston airport is located to the southeast. Whilst the existing development in this area is not related to energy there are opportunities to site a converter station adjacent to these other industries. Area B is located further from the network

connection point at Richborough substation and development of a converter station site in this area would require approximately 5km of HVAC connection.

3.1.6 Route Corridors

Route Corridors

3.1.6.1 Seven route corridors were identified, three corridors (green, red, and blue) from landfall area of search K1, one corridor (green) from landfall area of search K1a and three corridors from the landfall areas of search on the north Kent coast (blue corridor from K2, red corridor from K3 and a green corridor from K4). No corridor was identified from landfall area of search K5 due to the terrestrial constraints. These corridors are illustrated on **Figure 1.3.10 Kent Terrestrial Route Corridors**.

Summary of Appraisal Outcomes

3.1.6.2 Of the three corridors that connect with the Pegwell Bay K1 landfall area of search, the red and blue corridors are significantly constrained from a traffic and access perspective, with key issues including access to the east of the River Stour and weight restrictions on local roads around the Sandwich Bay Estate and Royal St George and Royal Cinque Ports golf courses.

3.1.6.3 All three of these corridors interact with several coastal nature conservation designations at the landfall as described in section 3.4.4 with the blue corridor having the potential for the smallest direct interaction.

3.1.6.4 Both the red and the blue corridors extend across a large area of Flood Zone and would require several watercourses associated with the River Stour to be crossed. The blue corridor would require crossing the River Stour at a point where is it designated as a Ramsar, SAC, SPA and SSSI; although, if feasible, the river could be crossed using trenchless techniques (subject to confirmation through further studies and ground investigations).

3.1.6.5 Both the green and red corridors intersect with golf courses; however it is proposed that a trenchless technique, if feasible (subject to confirmation through further studies and ground investigations), would be used at these locations to minimise disturbance.

3.1.6.6 The green corridor which connects to the landfall area of search K1a at Broadstairs crosses a linear belt of development between the settlements of Margate and Ramsgate. This would require routeing the cable along either Star Lane or Farley Road, both of which are heavily constrained by several connected planning allocations for housing as well as a proposed extension to the cemetery. These constraints span the entire corridor west of the Westwood Industrial Estate and these factors significantly constrain this corridor.

3.1.6.7 The three corridors connecting the landfall areas of search located on the north Kent coast (K2, K3 and K4) were all significantly constrained from a traffic and access perspective, due to a weight restricted bridge, sensitive receptors, and carriageway widths that are inadequate to allow two-way HGV movements. It is likely that extensive mitigation would be required, even during temporary construction work to facilitate safe access and to minimise other environmental effects (congestion, delays) that could

arise because of additional HGV construction traffic on poorly suited roads. Careful routeing of the cables could avoid access issues around the Minster Marshes.

3.1.6.8 The green and red corridors interact extensively with areas of Flood Zones 2 and 3 and both had a high number of watercourse crossings in comparison to the blue corridor.

3.1.6.9 There are several scheduled monuments located within each of these three corridors, however the blue corridor is the most constrained, with a combination of scheduled monuments and a proposed planning allocation in the south of Birchington, creating a pinch point that reduces the ability to route away from and around these sites.

3.1.7 Identification of the Preferred Option

3.1.7.1 The evolution of the Kent Onshore Scheme is illustrated on **Figure 3.1.1 Evolution of the Kent Onshore Scheme, Sheets 1 to 4**.

3.1.7.2 The landfall areas of search, converter site option areas, route corridors and nearshore marine alignments considered at the routeing and siting stage are shown on **Figure 3.1.1 Evolution of the Kent Onshore Scheme Sheet 1 of 4**.

3.1.7.3 The marine alignments to the north Kent coast are significantly constrained due to exposure risks to the cable and the potential for permanent habitat loss within Margate and Long Sands SAC. This is shown on **Figure 3.1.1 Evolution of the Kent Onshore Scheme Sheet 2 of 4**.

3.1.7.4 The terrestrial green corridor from landfall K1a was considered to be significantly constrained due to the linear belt of settlement which would require the cables to be installed within the public highway for a section and the planning allocations within this corridor. All three corridors from the landfalls along the north Kent coast (green, red and blue) were considered to be significantly constrained due to traffic and access and needing to cross the railway to obtain access to the landfall. This is shown on **Figure 3.1.1 Evolution of the Kent Onshore Scheme Sheet 3 of 4**.

3.1.7.5 All three corridors that connect with the Pegwell bay landfall area of search K1 interact with sites designated for their nature conservation value; whilst the blue corridor minimises that interaction, it is the longest corridor of the three and would require a crossing of the River Stour at a point where is it designated as a Ramsar, SAC, SPA and SSSI. Access to the red corridor is limited and this corridor would also require a crossing of the River Stour. Both the red and green corridors would require a crossing of a golf course. Whilst the green corridor interacts with a larger area of the designated sites for nature conservation this is likely to be temporary and short term and this corridor represents the most direct connection to either of the converter site option areas and has fewer river and road crossings. Converter site option Area A facilitates the siting of a converter station close to existing similar infrastructure and minimises the lengths of both HVDC cable from a landfall in Pegwell Bay and the HVAC connection back to the network at Richborough Substation compared to Area B. This is illustrated on **Figure 3.1.1 Evolution of the Kent Onshore Scheme Sheet 4 of 4**.

3.1.7.6 Landfall K1, Pegwell Bay green corridor to converter station area A was identified as the preferred solution for the Kent Onshore Scheme.

3.1.8 Stakeholder Feedback and Option Refinement

3.1.8.1 Following engagement with other developers who have subsequently submitted planning applications for other energy developments within Richborough Energy Park, a backcheck and review was undertaken, as the proposed developments significantly constrained the Project being able to connect into the existing network at Richborough substation. As a result, an alternative connection was identified that directly connected onto the existing Richborough to Canterbury 400kV overhead line. A backcheck and review was undertaken of the routeing and siting options in Kent based on this revised connection point and, following this review, the conclusions on the landfall option area, cable corridors and converter station site option area all remained unchanged.

3.1.9 Kent Onshore Scheme Description

3.1.9.1 The Kent Onshore Scheme is illustrated on **Figure 3.1.2 Kent Onshore Scheme** and comprises of:

- HVAC connection, either by overhead line or underground cable, from the existing Richborough to Canterbury 400kV overhead line to a converter station site;
- A new converter station; and
- A HVDC underground cable from the new converter station to a landfall in Pegwell Bay.

3.1.9.2 The graduated swathes shown on **Figure 3.1.2 Kent Onshore Scheme** illustrate the area within the preferred corridors, where, based on the current understanding of baseline conditions the HVAC connection, converter station site and underground HVDC cables are likely to be routed/sited. These will be refined further through both technical and environmental surveys and stakeholder and public feedback.

3.1.9.3 For the purpose of this Scoping Report, **Figure 1.1.1 Project Scoping Boundary** and **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** encompasses all elements shown on **Figure 3.1.2 Kent Onshore Scheme**. The proposed scope has been based off these scoping boundaries rather than the graduated swathes and the Project as described in **Part 1, Chapter 4, Description of the Project**.

3.2 Landscape and Visual

3.2.1 Introduction

3.2.1.1 This chapter presents how the landscape and visual impact assessment (LVIA) will consider the potentially significant effects on landscape and visual amenity that may arise from the construction and operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

3.2.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.2.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.2.1.4 This chapter is supported by the following figures:

- **Figure 3.2.1 Topography**;
- **Figure 3.2.2 Landscape Context and Designations**;
- **Figure 3.2.3 Landscape and Seascape Character – National and County**;
- **Figure 3.2.4 Landscape Character – District**;
- **Figure 3.2.5 Bare Earth Zone of Theoretical Visibility**; and
- **Figure 3.2.6 Representative Viewpoint Locations and Screened Zone of Theoretical Visibility**.

3.2.1.5 This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

3.2.1.6 Landscape and visual effects are interrelated with other environmental effects but will be assessed separately. Landscape effects associated with the Kent Onshore Scheme relate to the changes to the fabric, character and quality of the landscape and how it is experienced. Visual effects relate closely to changes to the landscape, but also

concern changes in people's views as a result of the introduction of the Kent Onshore Scheme.

3.2.2 Regulatory and Planning Context

3.2.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on landscape and visual amenity associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

3.2.2.2 At an International and National level, the following legislation is relevant to landscape and visual matters and will be referred to within the LVIA in the Environmental Statement (ES):

- The European Landscape Convention[1].

Planning Policy

National planning policy

3.2.2.3 At National level, the following policy is relevant to landscape and visual matters and will be referred to within the LVIA in the ES:

- Overarching National Policy Statement for Energy – EN-1[2];
- National Policy Statement for Electricity Networks Infrastructure – EN-5[3];
- National Planning Policy Framework[4]; and
- Planning Practice Guidance – Natural Environment[5].

3.2.2.4 The relevant sections of the Overarching National Policy Statement for Energy to landscape and visual matters include:

- 4.5: Criteria for “good design” for energy infrastructure;
- 5.3: Biodiversity and geological conservation;
- 5.7: Historic environment;

[1] Council of Europe (2020). Council of Europe Landscape Convention (ETS No. 176). [online] Available at: https://www.coe.int/en/web/conventions/full-list?module=treaty-detail&treatynum=176

[2] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[3] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[4] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

[5] Department for Levelling Up, House and Communities and Ministry of Housing, Communities and Local Government (2019). Planning Practice Guidance – Natural Environment. [online] Available at: https://www.gov.uk/guidance/natural-environment

- 5.9: Landscape and visual; and
- 5.10: Land use including open space, green infrastructure & Green Belt.
- The relevant sections of the National Policy Statement for Electricity Networks Infrastructure to landscape and visual matters include:
- 2.5: Consideration of good design;
- 2.7: Biodiversity and Geological Conservation; and
- 2.8: Landscape and Visual.

3.2.2.5 The draft Overarching National Policy Statement for Energy (EN-1) (September 2021) and draft National Policy Statement for Electricity Networks Infrastructure (EN-5) (September 2021) will be referred to if they become adopted during the lifespan of the Kent Onshore Scheme.

Local planning policy

3.2.2.6 The Kent Onshore Scheme lies within the jurisdiction of Kent County Council. County planning guidance which is relevant to a study of landscape and visual matters and will inform the LVIA in the ES are as follows:

- Kent Historic Landscape Characterisation[6];
- Kent Design Guide[7]; and
- Kent Environment Strategy[8].

3.2.2.7 The Kent Onshore Scheme Scoping Boundary (refer to **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**) lies within the jurisdiction of Thanet District Council and Dover District Council. Local planning policy for Thanet District Council consists of the Thanet Local Plan (adopted July 2020)[9]. Local Plan policies which are relevant to landscape and visual matters and will inform the LVIA in the ES include:

- SP24: Development in the Countryside;
- SP26: Landscape Character Areas;
- SP27: Green Infrastructure;
- SP28: Protection of the International and European Designated Sites;
- SP30: Biodiversity and Geodiversity Assets;
- Policy SP36: Conservation and Enhancement of Thanet's Historic Environment;

[6] Kent County Council (2001). Kent Historic Landscape Characterisation (volume 1). [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0014/56210/Kent-Historic-Landscape-Character-volume-1.pdf#:~:text=KENT%20HISTORIC%20LANDSCAPE%20CHARACTERISATION%20the%20landscape%20of%20this,the%20county%20until%20the%20spread%20of%20the%20railways.

[7] Kent County Council (2006). Kent Design Guide. [online] Available at: https://www.kent.gov.uk/about-the-council/strategies-and-policies/regeneration-policies/kent-design-guide

[8] Kent County Council (2018). Kent Environment Strategy. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0008/89351/Kent-environment-strategy-impact-report-2018.pdf#:~:text=The%20Kent%20Environment%20Strategy%20provides%20a%20strategic%20framework,activities%20that%20would%20most%20benefit%20from%20partnership%20working.

[9] Thanet District Council (2020). Thanet District Local Plan. [online] Available at: https://www.thanet.gov.uk/info-pages/local-plan-updates/

- Policy GI06: Landscaping and Green Infrastructure;
- Policy QD01: Sustainable Design;
- Policy QD02: General Design Principles; and
- Policy CC07: Richborough.

3.2.2.8 There are no additional planning guidance documents relevant to landscape and visual matters published by Thanet District Council.

3.2.2.9 Local planning policy for Dover District Council consists of the *Dover District Core Strategy* (adopted February 2010)[10]. Local Plan policies which are relevant to landscape and visual matters and will inform the LVIA in the ES include:

- Policy CP6: Infrastructure;
- Policy CP7: Green Infrastructure Network;
- Policy DM15: Protection of the Countryside;
- Policy DM16: Landscape Character; and
- Policy DM25: Open Space.

3.2.2.10 A number of saved policies from the *Dover District Local Plan* (adopted 2002)[11], are also relevant to landscape and visual matters:

- Policy CO8: Development which would adversely affect a hedgerow; and
- Policy AY7: Open Space and Landscaping.

3.2.2.11 Dover District Council are producing a new Local Plan and have consulted on the Regulation 18 stage *Draft Dover District Local Plan*. Once adopted, the new Local Plan will become the statutory development plan for the Dover District. The Regulation 19 (pre-submission) version is expected in Spring/Summer 2022, which will be relevant to the ES.

3.2.2.12 Additional planning guidance documents relevant to landscape and visual matters published by Dover District Council are set out as follows:

- Dover District Council Green Infrastructure Strategy[12]; and
- Thanet Coast SPA Mitigation Strategy[13].

3.2.1.1 Where relevant to landscape and visual matters, the following neighbourhood plans within the study area will inform the LVIA:

[10] Dover District Council (2010). Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/Adopted-Development-Plans/Core-Strategy.aspx

[11] Dover District Council (2002). Dover District Local Plan 2002. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/Adopted-Development-Plans/Dover-District-Local-Plan-2002.aspx

[12] Dover District Council (2014). Dover District Council Green Infrastructure Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Dover-District-Council-Green-Infrastructure-Strategy.pdf

[13] Dover District Council (2012). Thanet Coast SPA Mitigation Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Thanet-Coast-SPA-Mitigation-Strategy.pdf

- Ash Parish Council Neighbourhood Development Plan 2018-2037[14].

3.2.3 Study Area

3.2.3.1 An initial study area of 3km from the Kent Scoping Boundary has been identified for the landscape and visual assessment and will be referred to as the study area within this chapter from now on. It is judged that significant landscape or visual effects will be unlikely beyond this study area. The LVIA study area is shown on **Figures 3.2.1 – 3.2.6**.

3.2.3.2 The extent of the study area has been informed by a review of the maximum parameters of the Kent Onshore Scheme, desk-based research, the appraisal work undertaken to date to inform the routeing and siting phase of the Kent Onshore Scheme, knowledge of the area alongside a targeted site visit and professional judgement. The study area will be further refined at the detailed assessment stage to ensure a proportional approach, focused on potential significant effects.

3.2.4 Baseline Conditions

3.2.4.1 The following section provides a summary of the baseline environmental conditions within the Kent Scoping Boundary, using the sources of information outlined below.

Data Sources

3.2.4.2 The landscape and visual baseline environment described in this section has been informed by the following data sources:

- Ordnance Survey (OS) mapping, and aerial photography;
- OS Digital Terrain Model (DTM);
- Natural England;
- Historic England;
- National, and local planning policy; and
- Published landscape character assessments.

Baseline Environment

3.2.4.3 An initial study of the baseline environment has been undertaken through desk-based research and a targeted site visit to establish the existing conditions of the landscape and visual resources of the study area as defined in section 3, to inform the previous options appraisal process, and the ongoing design development of the Kent Onshore Scheme.

[14] Ash Parish Council (2021). Ash Parish Council Neighbourhood Development Plan 2018-2037. [online] Available at: https://ashparishcouncil.gov.uk/wp-content/uploads/2021/11/Ash-NDP-Plan-Final-Sept-2021.pdf

3.2.4.4 Desk-based research has involved a review of mapping and aerial photography, planning and policy documents, landscape character assessments, and other sources of information relevant to the baseline environment of the study area.

3.2.4.5 The description of the baseline environment within the LVIA in the ES will provide a description of the identified landscape and visual receptors, indicating their key characteristics and value, against which the potential change arising from the Kent Onshore Scheme will be assessed.

3.2.4.6 Consultation will be held with relevant LPAs and statutory consultees early in the LVIA process. This will help to inform detailed baseline survey and data collection; refinement of the location of representative viewpoints that will form the basis of the visual assessment; and, to agree the approach to mitigation measures and landscape reinstatement.

Relevant designations

3.2.4.7 There are no landscape specific designations within the study area other than Tree Preservation Orders (TPOs), which are not located within the Kent Scoping Boundary.

3.2.4.8 The emerging preference area for the converter station, landfall and HVDC and HVAC corridors fall within the following designations:

- Thanet Coast Special Area of Conservation (SAC);
- Thanet Coast & Sandwich Bay Special Protection Area (SPA);
- Thanet Coast & Sandwich Bay Ramsar Site;
- Sandwich Bay to Hacklinge Marshes Site of Special Scientific Interest (SSSI);
- Sandwich & Pegwell Bay National Nature Reserve (NNR);
- Pegwell Bay Country Park; and
- Coastal Margin Access Land (shown on Ordnance Survey mapping).

3.2.4.9 The study area also includes the following designations:

- Prince's Beachlands Local Nature Reserve (LNR);
- Countryside Rights of Way (CRoW) Section 15 Land;
- Listed buildings (refer to Chapter 3.4, Cultural Heritage); and
- Richborough Castle and Minster Abbey Scheduled Monuments.

3.2.4.10 Whilst effects on these designated areas will not be assessed in the LVIA as they will be considered in other discipline specific chapters, they will inform judgements of landscape value and in the case of Pegwell Bay Country Park, are also an important recreational resource, views from which will be considered as part of the visual assessment.

3.2.4.11 Local designations include Open Space immediately to the east of the emerging HVAC corridor area (designated within *Dover District Core Strategy*). Local Wildlife Sites fall within the emerging HVAC corridor area (designated within *Thanet District Local Plan*).

Landscape character

3.2.4.12 The National, County and District landscape character context of the study area is shown on **Figure 3.2.3 Landscape and Seascape Character – National and County** and **Figure 3.2.4 Landscape Character – District**. At the National level, the study area falls within part of the North Kent Plain National Character Area (NCA)[15], as identified by Natural England.

3.2.4.13 At a County level, landscape character is defined by *The Landscape Assessment of Kent*[16], published by Kent County Council. The study area comprises the following Kent Character Areas (KCAs):

- Thanet;
- The Wantsum and Lower Stour Marshes; and
- East Kent Horticultural Belt.
- At a District level, landscape character is partially defined by the *Thanet District Council Landscape Character Assessment* (TDLCA)[17]. The study area comprises the following Landscape Character Areas (LCAs) and Local Character Areas:
- LCA A: Chalk Plateau - Local Character Area A1: Manston Chalk Plateau;
- LCA B: Chalk Slopes - Local Character Area B1: Wantsum North Slopes;
- LCA C: Undulating Chalk Farmland - Local Character Area C1: St Nicholas at Wade Undulating Chalk Farmland and Local Character Area C2: Central Thanet Undulating Chalk Farmland;
- LCA E: Marshes - Local Character Area E1: Stour Marshes;
- LCA F: Undeveloped Coast – Local Character Area F1: Pegwell Bay; and
- LCA G: Developed Coast – Local Character Area G1: Ramsgate and Broadstairs Cliffs.

3.2.4.14 At a District level, landscape character is partially defined by the *Dover District Council* Landscape *Character Assessment* (DDLCA)[18]. The study area comprises the following Landscape Character Types (LCTs) and LCAs:

- LCT A: River Valleys and Marshes and LCA A2: Ash Levels;
- LCT B: Developed River Valley and LCA B1: Great Stour Sandwich Corridor;
- LCT C: Coastal Marshes and Dunes and LCA C1: Sandwich Bay;

[15] Natural England (2015). National Character Area Profile: 113. North Kent Plain (NE357). [online] Available at: http://publications.naturalengland.org.uk/publication/2900242

[16] Kent County Council (2004). The Landscape Assessment of Kent. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0014/12461/Landscape-Assessment-of-Kent-October-2004_Part1.pdf#:~:text=The%20Landscape%20Assessment%20of%20Kent%20is%20a%20landscape,sensitivity%20to%20promote%20a%20vision%20for%20each%20area.

[17] Thanet District Council (2017). Thanet District Council Landscape Character Assessment. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2020/05/Thanet-LCA-Final-Report-09.081.5-with-plans.pdf

[18] Dover District Council (2020). Dover District Council Landscape Character Assessment. [online] Available at: https://www.doverdistrictlocalplan.co.uk/uploads/pdfs/landscape-character-assessment-2020.pdf

- LCT D: Horticultural Belt and LCA D1: Preston; and
- LCT H: Defensive Hills and LCA H1: Richborough Bluff.

Seascape character

3.2.4.15 The National seascape character context of the study area is shown on **Figure 3.2.3 Landscape and Seascape Character – National and County**. At a National level, seascape character is defined by the Seascape Character Area Assessment East Inshore and East Offshore Marine Plan Areas[19], published by the Marine Management Organisation. The study area comprises the following South East Marine Character Areas (MCAs)[20]:

- 11: Goodwin Sands and North Dover Strait.

Visual receptors

3.2.4.16 Visual receptors that have potential to experience views of all or some of the Kent Onshore Scheme including the landfall, underground HVDC cable corridor, converter station and underground or overground HVAC connection include:

- Settlement (east to west) including south-western edge of Ramsgate, Cliffsend, Ebbsfleet, Richborough, Manston, Minster and Lower Goldstone;
- Isolated and small clusters of dwellings and farmsteads dispersed across the landscape;
- Recreational facilities including at Stoneless Golf Centre, St Augustine's Golf Centre, Prince's Golf Club and Pegwell Bay Country Park;
- Recreational routes and access land including Public Rights of Way (PRoW), the England Coast Path, several recreational routes such as the Thanet Coastal Path and Stour Valley Walk, Coastal Margin Access Land, National Cycle Network (NCN) routes including NCN 15 and NCN 1;
- Employers working at Richborough Energy Park;
- Occupiers of vehicles travelling on A-roads (A256, A299), B-roads and unclassified roads within the study area; and
- Passengers on the Kent Coast Line and Ashford-Ramsgate railway lines.

Representative viewpoint locations

3.2.4.17 The visual assessment will be based on a series of representative viewpoints. These viewpoints have been chosen to provide a representative cross section of receptor types and locations within the study area, focused on those with the potential for

[19] Marine Management Organisation (2012). Seascape character area assessment East Inshore and East Offshore marine plan areas. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312481/east_seascape.pdf.

[20] Marine Management Organisation (2012). Seascape Character Assessment for the South East Inshore marine plan area, Section 3.3.1, Profile for MCA 11: Goodwin Sands and North Dover Strait. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/750229/South_East_-_Seascape_character_assessment_report.pdf.

significant effects. The representative viewpoint locations have been informed by desk-based work and field work undertaken in May 2022.

3.2.4.18 The chosen representative viewpoint locations for the converter station have also been informed by a Screened Zone of Theoretical Visibility (ZTV) plan, as shown on **Figure 3.2.5 Bare Earth Zone of Theoretical Visibility** and **Figure 3.2.6: Representative Viewpoint Locations and Screened Zone of Theoretical Visibility**. The ZTV has been run for the converter station only, although as the design evolves it will be updated as the location and extent of permanent above ground infrastructure is finalised.

3.2.4.19 The ZTV has been generated using a 'bare ground' 5m OS digital terrain model (DTM) and is based on a maximum height of 30m, located in the centre of the emerging preference area for the converter station. The screening from woodland and buildings is based on the following factors:

- existing buildings have been incorporated into the DTM from OS MasterMap with assigned individual heights and OS Open Map Local (where OS MasterMap data was not available) with an assumed height of 7.5m.
- woodland from the National Forest Inventory (NFI) has also been incorporated into the DTM with an assumed height of 10m.

3.2.4.20 The ZTV indicates areas from where it may be possible to view part of or the entire converter station site. However, the use of the ZTV needs to be qualified by the following considerations:

- the ZTV is limited by the detail of the digital terrain model data used and does not take account of local topographic variations;
- some areas of theoretical visibility may comprise woodland or other vegetation (not accounted for in the NFI) or agricultural land, where there is effectively no public access and the likelihood of views being experienced is consequently low; and
- the ZTV does not take account of the likely orientation of a viewer, such as the direction of travel and there is no allowance for reduction of visibility with distance, weather or light.

3.2.4.21 These limitations mean that the ZTV tends to overestimate the extent of the visibility, both in terms of the area from which the Kent Onshore Scheme is visible and the extent of the converter station site, which is visible. Consequently, the ZTV should be considered as a tool to identify areas of potential visibility for further targeted survey and assessment, and not a measure of the visual effect.

3.2.4.22 Table 3.2.1 details the locations proposed for the representative viewpoints for the Kent Onshore Scheme and their reason for inclusion in the LVIA.

Table 3.2.1: Representative viewpoint locations for the Kent Onshore Scheme

Viewpoint number	Location description	Reason for inclusion
1	Public footpath (0173/TE39/1), north of Richborough Energy Park (approximate grid reference: TR329639)	Representative of recreational receptors including PRoW and users of the local road network, including along Brook Lane and the A256 corridor. Representative of users of the local railway network along the Kent Coast Line and Ashford-Ramsgate railway lines. Located within TDLCA Local Character Area E1: Stour Marshes, in close proximity to the boundary of Local Character Area B1: Wantsum North Slopes.
2	Ebbsfleet Lane, west of Stoneless Golf Centre (approximate grid reference: TR333629)	Representative of users of the local road network, including Ebbsfleet Lane and the A256 route. Representative of residential receptors in scattered properties and recreational users at Stonelees Golf Centre. Located within TDLCA Local Character Area E1: Stour Marshes, in close proximity to Local Character Area B1: Wantsum North Slopes.
3	Pegwell Bay Country Park along England Coast Path, north-east of Richborough Energy Park (approximate grid reference: TR343631)	Representative of recreational users within Pegwell Bay Country Park, users of England Coast Path and users along NCN route 15. Located within TDLCA Local Character Area F1: Pegwell Bay, close to the boundary of Local Character Area E1: Stour Marshes.
4	Saxon Shore Way, west of Richborough Energy Park (approximate grid reference: TR332617)	Representative of recreational users along Saxon Shore Way recreational route and receptors at work within Richborough Energy Park. Located on the boundary of DDLCA LCA A2: Ash Levels and LCA B1: Great Stour Sandwich Corridor.
5	Public footpath (0173/TE32/1), south of Minster (approximate grid reference: TR304639)	Representative of recreational receptors including PRoW and users of the local railway network along the Kent Coast Line and Ashford-Ramsgate railway lines. Representative of residential receptors on the southern edge of the settlement of Minster. Located within TDLCA Local Character Area E1: Stour Marshes, in close proximity to the boundary of Local Character Area B1: Wantsum North Slopes.
6	Saxon Shore Way, adjacent to the River Stour (approximate grid	Representative of recreational users along Saxon Shore Way recreational route. Located on the boundary of TDLCA Local Character Area E1: Stour Marshes and DDLCA LCA A2: Ash Levels.

Viewpoint number	Location description	Reason for inclusion
	reference: TR294631)	
7	Public bridleway (O173/TE29/1), north of Minster (approximate grid reference: TR306655)	Representative of recreational users including PRoW and users of the local road network, including the A299 route. Representative of residential receptors on the northern edge of the settlement of Minster. Located on the boundary of TDLCA Local Character Area B1: Wantsum North Slopes and Local Character Area A1: Manston Chalk Plateau.
8	Thorne Hill, just south of the A299 road corridor (approximate grid reference: TR327654)	Representative of scattered residential receptors to the east of the settlement of Minster and roads users including from Way Hill, Thorne Hill and the A299 corridor. Located within TDLCA Local Character Area A1: Manston Chalk Plateau, in close proximity to Local Character Area B1: Wantsum North Slopes.
9	Traffic free-cycle route along Chalk Hill (NCN route 15), west of Ramsgate (approximate grid reference: TR361646)	Representative of recreational users along Chalk Hill and NCN route 15. Representative of the south-western residential edge of the settlement of Ramsgate. Located within TDLCA Local Character Area B1: Wantsum North Slopes.
10	England Coast Path, West Cliff, Ramsgate (approximate grid reference: TR370641)	Representative of recreational users along the England Coast Path, at West Cliff, Ramsgate. Located on the edge of TDLCA LCA G1: Ramsgate and Broadstairs Cliffs.
11	Stour Valley Walk, east of Richborough Energy Park (approximate grid reference: TR351615)	Representative of recreational users along the Stour Valley Walk recreational route, within Coastal Margin Access Land and users of Prince's Golf Club. Located within DDLCA LCA C1: Sandwich Bay.
12	Public footpath (0009/EE43/1), north of Richborough Castle (approximate grid reference: TR324603)	Representative of recreational users including users of PRoW and CRoW Act Section 15 Land visiting Richborough Castle and road users along Castle Road. Representative of residential receptors within the settlement of Richborough and users of the local railway network along the Kent Coast Line railway line. Located within DDLCA LCA H1: Richborough Bluff, in close proximity to the boundaries of LCA A2: Ash Levels and LCA B1: Great Stour Sandwich Corridor.

Viewpoint number	Location description	Reason for inclusion
13	Richborough Road, between Lower Goldstone and Richborough (approximate grid reference: TR307609)	Representative of users of the local road network along Richborough Road and users of NCN route 1. Representative of scattered residential receptors between the settlements of Lower Goldstone and Richborough. Located within DDLCA LCA D1: Preston, in close proximity to LCA A2: Ash Levels.

Visualisations

3.2.4.23 Visualisations will be produced, using the maximum development parameters, to illustrate the converter station from all the representative viewpoint locations where it is visible, to assist an understanding of the potential visual effects.

3.2.4.24 No visualisations are proposed for the landfall or underground HVAC or HVDC cable corridors because of the temporary nature of impacts predicted to arise during the construction phase of the Kent Onshore Scheme.

3.2.4.25 If the HVAC connection is overground rather than underground, visualisations from the representative viewpoints will include these works to assist an understanding of the potential visual effects at operation.

3.2.4.26 The methodology for the preparation and presentation of the visualisations will follow the requirements set out in the Landscape Institute, 2019, Technical Guidance Note 06-19: Visual Representation of Development Proposals.

Planned surveys

3.2.4.27 Field surveys of the converter station site, HVAC connection and HVDC corridors and the landfall will be undertaken by Chartered Landscape Architects.

3.2.4.28 An initial field survey has been undertaken in May 2022 to identify the potential landscape and visual receptors and to establish a proportionate study area which is appropriate to identify potentially significant effects.

3.2.4.29 Subsequent field surveys will be completed after Scoping Opinion has been received and consultation has been conducted with relevant Local Planning Authorities (LPAs). These detailed surveys from publicly accessible areas will be used to undertake the landscape and visual assessments, and to capture photography from representative viewpoint locations used in the visual assessment and as supporting figures for the LVIA.

3.2.4.30 Field surveys will include site visits and photography during the winter season i.e., when vegetation cover is generally at its lowest (thus visibility is at its greatest), to enable an appreciation of the extent to which vegetation has a screening function within the landscape, particularly in relation to sensitive receptors, and to understand the likely mitigation requirements.

3.2.4.31 Surveys will be undertaken in line with UK Government guidelines relating to the Covid-19 pandemic and relevant Health and Safety procedures. At the time of writing there are no foreseeable limitations to the LVIA surveys because of Covid-19 restrictions.

Future Baseline

3.2.4.32 With regard to landscape baseline environment reporting, GLVIA3, states that: “The aim should be to describe the landscape as it is at the time but also to consider, if possible, what it may be like in the future, without the proposal.”

3.2.4.33 The LVIA within the ES will consider changes which may affect the future landscape in the absence of the development.

3.2.5 Embedded and Control & Management Measures

Embedded Measures

3.2.5.1 Embedded measures are steps taken during the design phase to help minimise potential effects, based on key sensitivities, constraints and opportunities identified through baseline study. Landscape and visual considerations have been important in informing the converter and landfall site selection process and in identifying potential cable route corridor options, and will continue to inform the form, location and routeing of the various elements throughout the design process.

3.2.5.2 Mitigation measures are those that seek to further reduce potential effects that could not be entirely designed out and are identified and informed by the detailed assessment stage. These include landscape reinstatement and landform and woodland screening and seek to help reduce the extent or significance of negative effects in the long term. In relation to the Kent Onshore Scheme, secondary mitigation measures are likely to include, reinstatement of hedgerows and other vegetation along the cable route and temporary access tracks, and landscape integration of the converter station through planting and landform design.

3.2.5.3 Landscape mitigation measures will be developed to support the landscape strategies and guidelines identified in published landscape character assessments. Details of landscape mitigation measures, such as planting types and species will be developed in consultation with LPAs. Opportunities will also be sought to integrate ecological, drainage and other mitigation measures into an overall landscape and environmental mitigation strategy and masterplan for the Kent Onshore Scheme.

Control and Management Measures

3.2.5.4 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the landscape and visual impact assessment are:

- LV01: The contractor(s) will retain vegetation where practicable. Where vegetation is lost and trees cannot be replaced in situ due to the restrictions associated with land rights required for operational safety, native shrub planting approved by National Grid will be used as a replacement, in accordance with the outline vegetation reinstatement plans included within the Landscape Ecological Management Plan (LEMP).
- LV02: The contractor(s) will apply the relevant protective principles set out in British Standard (BS) 5837:2012: Trees in relation to design, demolition and construction. This will be applied to trees within the Order Limits which will be preserved through the construction phase, and to trees outside of the Order Limits where such measures do not hinder or prevent the use of the relevant working width for construction. All works to high grade trees, including trees under Tree Preservation Orders and veteran trees, will be undertaken or supervised by a suitably qualified arboriculturist.
- LV03: A five-year aftercare period will be established for all reinstatement and mitigation planting.

- GG07: A full record of condition will be carried out (photographic and descriptive) of the working areas that may be affected by the construction activities. This record will be available for comparison following reinstatement after the works have been completed to ensure that the standard of reinstatement at least meets that recorded in the pre-condition survey.
- GG08: Land used temporarily will be reinstated where practicable to its pre-construction condition and use. Hedgerows, fences and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, with landowner agreement.
- GG09: Where sensitive features are to be retained within or immediately adjacent to the Order Limits, an appropriate protective area will be established using appropriate fencing and signage and will be inspected, repaired and replaced as necessary. The protective areas will be shown on the Retention and Reinstatement Plans contained within the LEMP.

3.2.5.5 Additional measures relating to landscape and visual would include the following:

- limiting the working width of the cable construction corridor and consideration of HDD construction techniques to maintain sensitive landscape features such as mature trees;
- separation and storage of subsoil and topsoil to ensure no degradation in quality and reinstatement undertaken as soon as possible after completion of construction of each section/area of works;
- placement of topsoil to one side of the trench and subsoil to the other, with the additional height of the subsoil storage used on whichever side requires greater screening benefit; and
- reinstatement of hedgerows/field boundaries crossed by the route, with native (and species-rich where appropriate) species planted to reduce or mitigate effects on landscape character and the visual awareness of the cable route within and across the landscape in the short to medium term.

3.2.6 Potential for Significant Effects

3.2.6.1 The LVIA will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.2.6.2 The proposed scope of the landscape and visual assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.2.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.2.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- construction compounds;
- temporary accommodation;
- access tracks;
- construction plant and vehicle movement;
- topsoil stripping and earthworks; and
- introduction of localised lighting.

Sources of operational impacts

- permanent overground infrastructure, including converter station and HVAC overhead line (to be decided);
- permanent underground infrastructure, including HVDC underground cable (and HVAC if decision to be underground); and
- operational lighting at the converter station.

Sources of maintenance impacts

- vehicle movement to carry workers in and out of the converter station site along with new materials and equipment to replace the old;
- occasional movement of vehicles along the overhead HVAC connection for an annual inspection (from the ground or helicopter) and for vegetation management, telecommunications and fibre optic maintenance;
- activity along the overhead HVAC connection should refurbishment be required; and
- access tracks with temporary vehicle movement for cable repairs.

Sources of decommissioning impacts

- decommissioning compounds and temporary office accommodation and welfare facilities;
- construction plant and vehicle movement associated with the removal of permanent above ground infrastructure including the converter station;
- redundant cables could be left in-situ, however where this is not possible construction plant and vehicle movement associated with the removal of cables to be disposed of; and
- reinstatement of converter station site.

Potential impacts

3.2.6.5 The siting of the landfall and converter station sites and the routeing of the underground HVDC and underground or overground HVAC cable corridors has reduced the potential for significant landscape and visual effects, through seeking to avoid the more sensitive landscape features such as protected trees (e.g., Tree Preservation Orders) and proximity to settlement. Where the removal of landscape features along the HVDC and HVAC cable corridors are unavoidable such as hedgerows and arable land, these will be fully reinstated to the pre-existing condition as far as reasonably practical (secured through a CoCP and DCO Requirements) once installation of the cables is complete.

3.2.6.6 As a result, the LVIA of the landfall and underground cable corridors will be focused on the construction phase as operational effects are not considered to be significant. This is underpinned by professional judgement and past experience of similar HVDC link projects. Effects on the landscape and visual resource as a result of the introduction of the converter station and if the HVAC corridor is an overhead connection, will be assessed both at construction and operation (at year 1 of operation (winter) and year 15 of operation (summer) once any mitigation planting has established). Decommissioning and maintenance effects are considered to be similar to and no worse than those assessed during the construction phase of works.

3.2.6.7 The following table lists all sources of potential impacts that could lead to potential significant effects on landscape character and visual amenity during each stage of the Kent Onshore Scheme and identifies those that have less potential to result in a significant effect with an explanation. The impacts relate to the LVIA methodology (detailed at section 7) and are split into landscape character and visual amenity for each source.

3.2.6.8 Table 3.2.2 identifies the potential impact that could result from the sources identified above.

Table 3.2.2: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, Maintenance and Decommissioning	Construction activity including construction compounds, temporary accommodation and access tracks, construction plant and vehicle	Temporary alteration to landscape character	Yes - Due to the short-term duration and temporary nature of activity, potential effects whilst have less potential to be significant will be considered within the LVIA.	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	movement, topsoil stripping and earthworks and introduction of localised lighting.	Temporary alteration to visual amenity	Yes - Due to the short-term duration and temporary nature of activity, potential effects whilst have less potential to be significant will be considered within the LVIA.	**Scoped in**
Operation	Operational converter station	Alteration to landscape character	Yes - Potential to result in a significant effect.	**Scoped in**
		Alteration to visual amenity	Yes - Potential to result in a significant effect.	**Scoped in**
Operation	Introduction of operational lighting at the converter station	Alteration to landscape character and visual amenity as a result of operational lighting	No - There is less potential that significant effects will result on landscape character or visual amenity as any additional lighting will be limited to maintaining site security and safety and would be within the context of existing lighting at Richborough Energy Park and adjacent development. Should the approach to lighting change, this aspect will be scoped into the landscape	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			and visual assessments.	
Operation	Operational HVAC overhead line (to be decided)	Alteration to landscape character	Yes - Whilst the introduction of an overhead line HVAC connection has less potential to result in significant effects on landscape character at operation given the existing context of overhead lines and vertical structures, it will be scoped into the landscape assessment to ensure that potential effects on wirescape are appropriately covered.	**Scoped in**
		Alteration to visual amenity	No - The introduction of an overhead line HVAC connection has less potential to result in significant effects on visual amenity at operation given the existing context of vertical structures, including a wind turbine, communication masts and	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			numerous overhead lines terminating at Richborough substation. However, in order to ensure that potential effects on the additional wirescape are adequately covered, it will be scoped into the visual assessment.	
Operation	Operational HVDC underground cable (and HVAC if decision to be underground)	Alteration to landscape character	No - Less potential to have significant effects on landscape character at operation. The landscape will be returned to previous land use and landscape components lost at construction will be reinstated as soon as reasonably practical after construction.	Scoped out
		Alteration to visual amenity	No - Less potential to have significant effects on visual amenity at operation. The landscape will be returned to previous land use and landscape	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			components lost at construction will be reinstated as soon as reasonably practical after construction.	

Impact Pathways with Receptors (Step 2)

3.2.6.9 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the study area.

3.2.6.10 Table 3.2.3 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme.**

Table 3.2.3: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in/out
Temporary alteration to landscape character from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil stripping and earthworks, storge of materials and lighting	TDLCA Local Character Areas A1, B1, E1, F1, G1 and DDLCA LCA A2, B1, C1, D1 and H1.	Yes - The Kent Scoping Boundary lies within and near to multiple published LCAs, of which there is the potential for temporary and short-term effects. Whilst less potential to result in significant effects at construction, they will be considered as part of the construction phase assessment.	**Scoped in for construction, maintenance and decommissioning**

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in/out
Temporary alteration to visual amenity from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil stripping and earthworks, storge of materials and lighting	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Yes - The Kent Scoping Boundary is potentially visible from a range of visual receptors, of which there is the potential for significant effects at construction from close range receptors. However, due to the short duration and temporary nature of the works there is potential that the majority of visual effects at construction will not be significant.	**Scoped in for construction, maintenance and decommissioning**
Permanent alteration to landscape character as a result of the operational converter station and HVAC connection if above ground	TDLCA Local Character Areas B1, E1, F1, G1 and DDLCA LCA A2 and C1.	Yes - The Kent Scoping Boundary lies within multiple published LCAs, of which there is the potential for significant effects at operation.	**Scoped in for operation**
Permanent alteration to landscape character and perceptual qualities as a result of the operational converter station	TDLCA Local Character Areas A1 and DDLCA LCAs B1, D1 and H1.	No - The Kent Scoping Boundary does not lie within these LCAs. Whilst there is the potential for indirect effects on the perceptual qualities of these LCAs there is less potential that the effects would be significant.	Scoped out for operation

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in/out
Temporary and permanent alteration to landscape character and perceptual qualities as a result of the construction and operation of the converter station, HVDC and HVAC.	TDLCA Local Character Areas C1 and C2	No - There is no theoretical visibility between any aspect of the Kent Scoping Boundary during construction and operation and consequently there are not considered to be any effects on this LCA.	Scoped out for construction, maintenance, operation and decommissioning
Alteration to visual amenity from the operational converter station and HVAC connection if above ground.	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Yes - The Kent Scoping Boundary will be potentially visible from a range of visual receptors, of which there is a potential significant effect at operation.	**Scoped in for operation**

3.2.7 Proposed Assessment Methodology

Proposed Data Sources

3.2.7.1 The following data sources are proposed to be used to inform the assessment:

- Ordnance Survey (OS) mapping, and aerial photography;
- OS Digital Terrain Model (DTM);
- Natural England;
- Historic England;
- National, and local planning policy; and
- Published landscape character assessments.

Guidance

3.2.7.2 The landscape and visual assessment will be carried out in accordance with the following good practice and guidance documents:

- Guidelines for Landscape and Visual Impact Assessment: Third edition (GLVIA3)[21];
- Assessing landscape value outside national designations - Technical Guidance Note 02/21[22];
- Design Principles for National Infrastructure[23];
- Infrastructure - Technical Guidance Note 04/20[24];
- Tranquillity – An overview – Technical Information Note 01/17[25]; and
- Visual Representation of Development Proposals – Technical Guidance Note 06/19[26] .

3.2.7.3 *GLVIA3* places a strong emphasis on the importance of professional judgement in identifying and defining the significance of landscape and visual effects. The LVIA will be undertaken by Chartered Landscape Architects with experience in the assessment of similar types of HVDC link project. Professional judgement will be used in combination with structured methods and criteria to evaluate landscape and visual value and susceptibility, the resulting sensitivity, magnitude and significance of effect.

Proposed Assessment Methodology

3.2.7.4 The following section summarises the methodology for the LVIA which builds on the general assessment methodology presented in **Part 1, Chapter 5, EIA Approach and Method**. For clarity and in accordance with good practice, the assessment of potential effects on landscape character and visual amenity, although closely related, are undertaken separately.

Sensitivity

Landscape receptors

3.2.7.5 Landscape receptors are described as components of the landscape that have the potential to be affected by the Kent Onshore Scheme. These can include overall character and key characteristics, individual elements or features and specific aesthetic or perceptual aspects. It is the interaction between the different components of the Project and these landscape receptors which has potential to result in landscape effects (both adverse and beneficial).

[21] Landscape Institute and Institute of Environmental Management and Assessment (2013). Guidelines for Landscape and Visual Impact Assessment, Third Edition. Landscapes Institute.

[22] Landscape Institute (2021). Technical Guidance Note 02/21 - Assessing landscape value outside national designations. [online] Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2021/05/tgn-02-21-assessing-landscape-value-outside-national-designations.pdf

[23] National Infrastructure Commission Design Group (2020). Design Principles for National Infrastructure. [online] Available at: https://nic.org.uk/app/uploads/NIC-Design-Principles.pdf

[24] Landscape Institute (2020). Infrastructure - Technical Guidance Note 04/2020. [online] Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2018/01/LI-Infrastructure-TGN-FINAL-200924.pdf

[25] Landscape Institute (2017). Tranquillity – An overview, Technical Information Note 01/17. [online] Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2017/02/Tranquillity-An-Overview-1-DH.pdf

[26] Landscape Institute (2019). Visual Representation of Development Proposals, Technical Guidance Note 06/19. [online] Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf

3.2.7.6 The sensitivity of the landscape receptor is a combination of the value of the landscape (undertaken as part of the baseline study) and the susceptibility to change of the receptor to the specific type of development being assessed.

3.2.7.7 Landscape value is frequently addressed by reference to international, national, regional and local designations, determined by statutory bodies and planning agencies. Absence of such a designation does not necessarily imply a lack of quality or value. Factors such as accessibility and local scarcity can render areas of nationally unremarkable quality, highly valuable as a local resource.

3.2.7.8 The evaluation of landscape value will be undertaken considering the following factors and classified as high, medium or low with evidence provided as to the basis of the evaluation. These are taken from the *Assessing landscape value outside national designations - Technical Guidance Note 02/21*.

- "Natural heritage – Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest which contribute positively to the landscape.
- Cultural heritage – Landscape with clear evidence of archaeological, historical or cultural interest which contribute positively to the landscape.
- Landscape condition – Landscape which is in a good physical state both with regard to individual elements and overall landscape structure.
- Associations – Landscape which is connected with notable people, events and the arts.
- Distinctiveness – Landscape that has a strong sense of identity.
- Recreational – Landscape offering recreational opportunities where experience of landscape is important.
- Perceptual (scenic) – Landscape that appeals to the senses, primarily the visual sense.
- Perceptual (wildness and tranquillity) – Landscape with a strong perceptual value notably wildness, tranquillity and/or dark skies.
- Functional - Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape."

3.2.7.9 Landscape susceptibility relates to the ability of a particular landscape to accommodate the Kent Onshore Scheme. It is appraised through consideration of the baseline characteristics of the landscape, and in particular, the scale or complexity of a given landscape. The evaluation of landscape susceptibility will be defined as high, medium or low and will be supported by a clear explanation based upon the analysis of the landscape receptor and the extent to which it is able to accommodate the type of change proposed, specific to the Kent Onshore Scheme.

3.2.7.10 The overall sensitivity assessment of the landscape receptor is made by employing professional judgement to combine and analyse the identified value and susceptibility with overall levels given from high, medium to low. Table 3.2.4 below outlines indicators that inform landscape value, susceptibility and sensitivity. The basis of the assessment will be made clear in the evaluation of each landscape receptor.

Table 3.2.4: Sensitivity of landscape receptors

	Higher sensitivity ⟷ Lower sensitivity	
Value	A designated landscape (National Park, Area of Outstanding National Beauty, National Scenic Area, World Heritage Site) or a landscape in very good condition, exceptional scenic quality and high recreational opportunities or a high degree of rarity.	Landscapes containing few if any notable elements/features, of poor condition or containing several detracting features and limited aesthetic qualities. Landscapes which are not formally designated.
Susceptibility	Attributes that make up the character of the landscape which offer very limited opportunities to accommodate change of the type proposed without fundamentally altering key characteristics.	Attributes that make up the character of the landscape which are tolerant of a large degree of the type of change proposed without fundamentally altering the key characteristics.

Visual receptors

3.2.7.11 Sensitivity of visual receptors is defined through appraisal of the viewing expectation, or value placed on the view as identified in the baseline study, and its susceptibility to change.

3.2.7.12 Value of the view is an appraisal of the value attached to views and is often informed by the appearance on Ordnance Survey or tourist maps and in guidebooks, literature or art or identified in policy. Value can also be indicated by the provision of parking or services and signage and interpretation. The nature and composition of the view and its scenic quality is also an indicator. The value of the view is classified as high, medium or low and will be supported by evidenced, professional judgements.

3.2.7.13 The susceptibility of visual receptors is a function of the occupation or activity of people experiencing the view and the extent to which their attention or interest is focused on the view and the visual amenity they experience at a particular location. For example, residents in their home, walkers whose interest may tend to be focused on the landscape or a particular view, or visitors at an attraction where views are an important part of the experience, may indicate a higher level of susceptibility. Whereas, receptors occupied in outdoor sport where views are not important or at their place of work could be considered less susceptible to change.

3.2.7.14 As with landscape susceptibility, judgements about the susceptibility of visual receptors are described as high, medium or low using consistent and reasoned judgements.

3.2.7.15 The overall sensitivity assessment of the visual receptor is determined by employing professional judgement to combine and analyse the identified value and susceptibility ratings. Overall visual sensitivity will be rates as high, medium or low. Table 3.2.5 below outlines indicators that inform value for the view, susceptibility and sensitivity of visual receptors. The basis of the assessment is made clear in the evaluation of each visual receptor.

Table 3.2.5: Sensitivity of visual receptors

	Higher sensitivity ⟷ Lower sensitivity	
Value	Views protected by designation, or nationally recognised, or recorded on maps/guidebooks or with cultural associations. Views that have high scenic qualities relating to the content and composition of the view.	Views which are not documented or protected with minimal or no cultural associations. Views that exhibit low scenic qualities relating to the content and composition of the view.
Susceptibility	Viewers whose attention or interest is focused on their surroundings.	People whose attention or interest is not focused on their surroundings and where the view is incidental to their enjoyment.

Magnitude of effect

Landscape

3.2.7.16 Landscape magnitude of effect refers to the extent to which the Kent Onshore Scheme will alter the existing characteristics of the landscape. It is an expression of the size or scale of change to the landscape, the geographical extent of the area influenced and its duration and reversibility. The variables involved are described below:

- the extent of existing landscape elements that will be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape;
- the extent to which aesthetic or perceptual aspects of the landscape are altered either by removal of existing components of the landscape or by addition of new ones;
- whether the change alters the key characteristics of the landscape, which are integral to its distinctive character;
- the geographic area over which the change will be felt (within the application boundary itself, the immediate setting, at the scale of the landscape character area, on a larger scale influencing several landscape character areas); and

- the duration of the change short term, medium term or long term (which is defined in **Part 1, Chapter 5, EIA Approach and Method**), and its reversibility (whether it is permanent, temporary or partially reversible).

3.2.7.17 An overall assessment of the magnitude of landscape effect resulting from the Kent Onshore Scheme on the landscape receptor is made combining the above judgements using evidence and professional judgement. The levels of magnitude of change are described as being very large, large, medium, small, negligible and are defined below in Table 3.2.6.

Table 3.2.6: Magnitude of effect – landscape receptors

Magnitude	Criteria
Very Large	Substantial alteration to the landscape receptor or may impact an extensive area or unique characteristics at a local level. May be longer term, permanent or reversible.
Large	Large alteration to the landscape receptor or may impact an extensive area or unique characteristics at a local level. May be longer term, permanent or reversible.
Medium	Partial alteration to the landscape receptor or may impact a wide area or characteristics at a local level. May be medium term, permanent or reversible.
Small	Slight alteration to the landscape receptor or may impact a restricted area and few key characteristics. May be short to medium term, permanent or reversible.
Negligible	Very slight alteration to the landscape receptor or may impact a limited area or no key characteristics. May be short term, permanent or reversible.
None	No change to the landscape receptor.

Visual

3.2.7.18 Visual magnitude of effect relates to the extent to which the Kent Onshore Scheme will alter the existing view and is an expression of the size or scale of change in the view, the geographical extent of the area influenced and its duration and reversibility. The variables involved are described below:

- the scale of the change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the Kent Onshore Scheme;
- the degree of contrast or integration of any new features or changes in the form, scale, composition and focal points of the view;
- the nature of the view of the Kent Onshore Scheme in relation to the amount of time over which it will be experienced and whether views will be full, partial or glimpsed;

- the angle of view in relation to the main activity of the receptor, distance of the viewpoint from the Kent Onshore Scheme and the extent of the area over which the changes will be visible; and
- the duration of the change short term, medium term or long term (which is defined in **Part 1, Chapter 5, EIA Approach and Method**) and its reversibility (whether it is permanent, temporary or partially reversible).

3.2.7.19 An overall assessment of the magnitude of visual effect resulting from the Kent Onshore Scheme on the visual receptor is made combining the above judgements using evidence and professional judgement. The levels of magnitude of change are described as being very large, large, medium, small, negligible and none are defined below.

Table 3.2.7:Magnitude of effect – visual receptors

Magnitude	Criteria
Very Large	A substantial change to the composition of the view or change that may be viewed in the foreground or directly. May be longer term, permanent or reversible.
Large	A pronounced change to the composition of the view or change that may be viewed in the foreground or directly. May be longer term, permanent or reversible.
Medium	A noticeable change to the composition of the view or change that may be viewed in the middle ground or indirectly. May be medium term, permanent or reversible.
Small	An unobtrusive change in the composition of the view or change that may be viewed in the background or obliquely. May be short to medium term, permanent or reversible.
Negligible	A barely perceptible change in the composition of the view or change that may be viewed in the background and/or very obliquely. May be short term, permanent or reversible.
None	No change to the view.

Significance of Effects

3.2.7.20 Determination of the significance of landscape and visual effects will be undertaken by employing professional judgement and experience to combine and analyse the magnitude of change against the identified sensitivity of the receptor. The assessments will take account of direct and indirect change on existing landscape elements, features, key characteristics and evaluates the extent to which these will be lost or modified, in the context of their importance in determining the existing baseline character. The visual assessment will take into account potential changes to the visual composition, including the extent to which new features will distract or screen existing elements in the view or disrupt the scale, structure or focus of the existing view.

3.2.7.21 The levels of landscape and visual effects will be described with reference to the criteria outlined below in Table 3.2.8. For the purposes of this assessment, effects of moderate or above are generally considered to be significant.

Table 3.2.8: Significance of effect

Significance of effect	Landscape	Visual
Major Beneficial	Alterations that result in a considerable improvement of the existing landscape resource. Valued characteristic features would be restored or reintroduced.	Alterations that typically result in a pronounced improvement in the existing view.
Moderate Beneficial	Alterations that result in a partial improvement of the existing landscape resource. Valued characteristic features would be largely restored or reintroduced.	Alterations that typically result in a noticeable improvement in the existing view.
Minor Beneficial	Alterations that result in a slight improvement of the existing landscape resource. Characteristic features would be partially restored.	Alterations that typically result in a limited improvement in the existing view.
Negligible Beneficial	Alterations that result in a very slight improvement to the existing landscape resource, not uncharacteristic within the receiving landscape.	Alterations that typically result in a barely perceptible improvement in the existing view.
Neutral	No alteration to any of the components that contribute to the existing landscape resource.	No change to the existing view.
Negligible Adverse	Alterations that result in a very slight deterioration to the existing landscape resource, not uncharacteristic within the receiving landscape.	Alterations that typically result in a barely perceptible deterioration in the existing view.
Minor Adverse	Alterations that result in a slight deterioration of the existing landscape resource. Characteristic features would be partially lost.	Alterations that typically result in a limited deterioration in the existing view.
Moderate Adverse	Alterations that result in a partial deterioration of the existing landscape resource. Valued characteristic features would be largely lost.	Alterations that typically result in a noticeable deterioration in the existing view.

Major Adverse	Alterations that result in a considerable deterioration of the existing landscape resource. Valued characteristic features would be wholly lost.	Alterations that typically result in a pronounced deterioration in the existing view.

3.2.8 Conclusion

3.2.8.1 The LVIA will be undertaken in accordance with GLVIA3 and current good practice guidance. The landscape assessment will consider potential effects on recognised National, County and Local landscape character areas and relevant designations. The visual assessment will be based on a series of representative viewpoint locations which will be informed by detailed baseline study and defined in consultation with statutory consultees.

3.2.8.2 The LVIA will also consider the potential for cumulative effects resulting from the addition of the Kent Onshore Scheme in relation to other similar developments. Mitigation measures will also be developed and informed by the detailed baseline and assessment stages and will seek to minimise potential adverse effects. This will focus on the reinstatement of the cable corridors and integrating and partially screening views of the converter station.

3.2.8.3 As there is the potential for long-term landscape and visual effects associated with the converter station the LVIA will be included within the main ES. However, given the temporary and reversible effects associated with the HVAC and HVDC cable corridors, it is proposed that operational phase effects associated with the HVAC and HVDC cable corridors will be scoped out of the LVIA. If the HVAC corridor requires an above ground solution, this will also be scoped into the operational phase assessment of the LVIA.

Proposed Scope of the Assessment

3.2.8.4 A summary of the proposed scope of the assessment is provided in Table 3.2.9.

Table 3.2.9: Proposed scope of the assessment

Receptors	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
TDLCA Local Character Areas A1, B1, E1, F1, G1 and DDLCA LCA A2, B1, C1, D1 and H1.	Temporary alteration to landscape character from construction activity and operations.	Construction Maintenance Decommissioning	**Scoped in**
TDLCA Local Character Areas	Alteration to landscape character from the	Operation	**Scoped in**

B1, E1, F1, G1 and DDLCA LCA A2 and B1.	operational converter station and HVAC if above ground connection.		
Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Alteration to visual amenity from the introduction of construction activity and operations.	Construction Maintenance Decommissioning	**Scoped in**
	Alteration to visual amenity from the operational converter station and HVAC if above ground connection.	Operation	**Scoped in**
TDLCA Local Character Area A1 and DDLCA LCAs D1 and H1.	Alteration to landscape character and perceptual qualities as a result of the operational converter station.	Operation	Scoped out
TDLCA Local Character Area C1 and C2.	Alteration to landscape character and perceptual qualities as a result of the construction and operation of the converter station, HVDC and HVAC.	Construction, Operation, Maintenance and Decommissioning	Scoped out

3.3 Ecology and Biodiversity

3.3.1 Introduction

3.3.1.1 This chapter presents how the Ecology and Biodiversity assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**) upon terrestrial ecology and biodiversity. T This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

3.3.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.3.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.3.1.4 This chapter is supported by the following figure:

- **Figure 3.3.1 Statutory Designated Ecological Features**.

3.3.2 Regulatory and Planning Context

3.3.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on protected nature conservation sites, significant habitats, protected and/or, notable species as well as invasive non-native species associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

3.3.2.2 The below legislation will be considered when identifying potential constraints to the Kent Onshore Scheme, design options and mitigation. Compliance with the above legislation may require obtaining relevant protected species licences prior to the implementation of the Project.

- The Conservation of Habitats and Species Regulations 2017[27] (as amended);
- The Natural Environment and Rural Communities (NERC) Act 2006[28];
- The Countryside and Rights of Way (CRoW) Act 2000[29];
- Wildlife and Countryside Act 1981 (as amended)[30]
- Environment Act 2021[31];
- Animal Welfare Act 2006[32];
- Protection of Badgers Act 1992[33];
- The Wild Mammals (Protection) Act 1996[34];
- The Hedgerow Regulations 1997[35]; and
- Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended)[36].

Planning Policy

National planning policy

3.3.2.3 The assessment will take account of the relevant National Policy Statements (NPSs) for energy: the Overarching National Policy Statement for Energy (EN-1) and the National Policy Statement for Electricity Networks (EN-5)[37]. These NPSs are in the process of being updated and therefore relevant sections of the draft NPSs are also included below, where relevant.

3.3.2.4 Paragraph 4.3.1 of the Overarching National Policy Statement for Energy (EN-1) (2011)[38], states what the Secretary of State must, under the Conservation of Habitats and Species Regulations 2017, consider when granting a development consent order with regard to effects on internationally important wildlife sites and the need for Habitats Regulations Assessment. It also clarifies that information to inform the assessment

[27] Conservation of Habitats & Species Regulations 2017 [online]. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents/made [Accessed 13/07/2022].

[28] Natural Environment and Rural Communities Act 2006 [online]. Available at: https://www.legislation.gov.uk/ukpga/2006/16/contents [Accessed 13/07/2022].

[29] Countryside and Rights of Way Act 2000 [online]. Available at: https://www.legislation.gov.uk/ukpga/2000/37/contents [Accessed 13/07/2022].

[30] Wildlife and Countryside Act 1981 (as amended) 1981 [online]. Available at: https://www.legislation.gov.uk/ukpga/1981/69/contents [Accessed 13/07/2022].

[31] Environment Act 2021 [online]. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted [Accessed 13/07/2022].

[32] Animal Welfare Act 2006 [online] Available at: https://www.legislation.gov.uk/ukpga/2006/45/contents [Accessed 13/07/2022].

[33] Protection of Badgers Act 1992 [online]. Available at: https://www.legislation.gov.uk/ukpga/1992/51/contents [Accessed 13/07/2022].

[34] Wild Mammals (Protection) Act 1996 [online]. Available at: https://www.legislation.gov.uk/ukpga/1996/3/contents [Accessed 13/07/2022].

[35] The Hedgerow Regulations 1997 [online]. Available at: https://www.legislation.gov.uk/uksi/1997/1160/contents/made [Accessed 13/07/2022].

[36] The Invasive Alien Species (Enforcement and Permitting) Order 2019 [online]. Available at: https://www.legislation.gov.uk/uksi/2019/527/2021-05-04 [Accessed 13/07/2022].

[37] Department of Energy & Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed 13/07/2022].

[38] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

must be provided by the applicant. Part 5 section 5.3 of EN-1 sets out guidance on generic impacts relating to biodiversity for the applicant's assessment and decision-making on the application. The Draft Overarching National Policy Statement for Energy (EN-1) (2021)[39] includes guidance for biodiversity net gains in paragraphs 4.5.1 to 4.5.3 and generic impacts on biodiversity in Part 5.4. This guidance has also been considered within this chapter. Section 2.7 of EN-5 provides general information on biodiversity considerations for electricity networks, including that the applicant will need to consider whether the proposed line will cause such problems at any point along its length and take this into consideration in the preparation of the Environmental Impact Assessment (EIA) and ES. Particular consideration should be given to feeding and hunting grounds, migration corridors and breeding grounds.

National planning policy framework

3.3.2.5 The National Planning Policy Framework[40] (NPPF) details the Government's planning policies for England and how these are expected to be applied. It states the commitment of the UK Government to minimising impacts on and providing net gains in biodiversity, contributing to the Government's commitment to halt the overall decline in biodiversity.

3.3.2.6 The NPPF specifies the obligations that Local Authorities and the UK Government have regarding statutory designated sites and protected species under UK and international legislation and how these are to be delivered in the planning system. Protected or notable habitats and species can be a material consideration in planning decisions and may therefore make some sites unsuitable for particular types of development, or if development is permitted, mitigation measures may be required to avoid or minimise impacts on certain habitats and species. Where impact is unavoidable, NPPF outlines that compensation may be required.

Biodiversity Net Gain BNG

3.3.2.7 It is Government policy that planning decisions should minimise impacts on and provide net gain for biodiversity (National Planning Policy Framework 2021)[41]. In addition, the Environment Act 2021 includes provisions to make BNG a mandatory requirement within the planning system in England requiring all relevant developments to achieve a minimum 10% net gain in biodiversity units relative to the Site baseline biodiversity value, it is anticipated the secondary legislation mandating the need for 10% net gain will be in place by November 2023.

3.3.2.8 National Grid has committed to 10% Net Gain in Environmental value including as a minimum 10% BNG across all its construction projects. This is described in **Part 1, Chapter 1, Introduction**.

[39] Department for Business, Energy & Industrial Strategy (2021). Draft Overarching National Policy Statement for Energy (EN-1). [online] Available at: Draft Overarching National Policy Statement for Energy (publishing.service.gov.uk) [Accessed 13/07/2022].

[40] Department for Levelling Up, Housing & Communities (2021). National Planning Policy Framework. London. [online] Available at: National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk) [Accessed 13/07/2022].

[41] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

Biodiversity 2020: A strategy for England's wildlife and ecosystem services

3.3.2.9 Biodiversity 2020[43] was published by DEFRA in 2011. The strategy builds on the Natural Environment White Paper: "The Natural Choice: securing the value of nature" (2011)[44], with an overall mission to "*halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people".*

3.3.2.10 The strategy includes consideration of planning and development including commitments to (i) retain protection and improvement of the natural environment as core objectives for local planning and development management, (ii) support biodiversity offsetting pilots through a two-year test phase, until spring 2014, and the government's expectation that the planning system contributes to achieving no net loss of biodiversity.

Regional planning policy

3.3.2.11 The planning policies that relate to the study area are shown below. The policies listed below are taken from the following documents;

- Kent Environment Strategy (2016)[45];
  - 4 – Monitoring and Evaluation

    4.1. Establish and monitor key performance indicators.

    4.2 Evaluate progress and identify future risks, opportunities and actions aligned to Kent Environmental Strategy priorities to inform current and future action.
  - 5 – Conserve and enhance the quality and supply of the county of Kent's natural and historical resources and assets.

    5.1 - Establish a coherent, landscape-led approach to decision making through identification of the natural and historic features that underpin landscape character and a strategic approach to assessment of character and trends in landscape condition.

    5.2 - Improve and increase functional habitat networks on land and in the sea, identifying opportunities and protecting and enhancing our natural and historic environment and landscape character through planning and decision making.

    5.3 - Identify and take forward opportunities for sustainable water management to improve quality and quantity of our water environment and resources
  - 8 - Influence future sustainable growth for the county of Kent.

[43] Department for Environment, Food & Rural Affairs (2011). Biodiversity 2020: A strategy for England's wildlife and ecosystem services. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf

[44] Department for Environment, Food & Rural Affairs (2011). The Natural Choice: securing the value of nature. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/228842/8082.pdf [Accessed 13/07/2022].

[45] Kent County Council (2016). Kent Environment Strategy. A Strategy for Environment, Health and Economy. [online] Available at: https://www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/environmental-policies/kent-environment-strategy [Accessed 13/07/2022].

8.2 - Mitigate the impacts and address the ambitions identified through the Growth and Infrastructure Framework and local plans, such as sustainable and alternative transport options, green infrastructure, energy, water and flooding.

- 9 – Improve the county of Kent's environmental, social and economic resilience to environmental change.

  9.3 - Improve water management and build flood resilience, maximising opportunities to deliver multiple benefits for our environment and residents into the future

- Kent Nature Partnership Biodiversity Strategy 2020 to 2045 (2020)[46]. Objectives for terrestrial ecosystems, habitats and species for 2045.
  - 20.84% high value semi-natural habitat (74,750 ha) well managed for nature (from the 2015 baseline of 14.6% and 54,640 ha).
  - An ecological network of semi-natural habitat (high and low value) covering 30% of Kent (112,000 ha) (from the 2015 baseline of 27% and 100,872 ha).
  - 75% Sites of Special Scientific Interest restored to favourable condition, securing their wildlife value for the long term (from the 2019 baseline of 68%).
  - Over half of Local Wildlife Sites in good management, securing their local wildlife value for the long term (from the 2019 baseline of 43%).
  - More, bigger and less fragmented areas of wildlife-rich habitat outside the protected sites network for wildlife, with an increase in the overall extent of all priority habitats to ensure greater connectivity and resilience to climate change.
  - New development to better provide for a greener urban environment, through increased urban tree planting, the inclusion of integral wildlife niches, and green building and landscape design.
  - Protect and restore existing trees, hedgerow and woodland, whilst increasing the county's tree cover with the right trees in the right places, which supports the recovery of wildlife, delivers natural climate solutions and enriches people's lives.
  - Kent-specific threatened and iconic species of terrestrial animals and plants are recovering, including those that support ecosystem services.

3.3.2.12 Additionally, the objectives of Kent's Plan Bee: Kent County Council's Pollinator Action Plan (2021)[47] are provided as planning guidance.

- Objective 1 - For Kent County Council to manage the land it owns or controls or can influence in a way which can benefit pollinators' forage and habitat.
  - putting in place, where it can, revised grass-cutting and pollinator-friendly planting regimes. It is reviewing how it reinstates land and manages it generally on road verges, in maintained schools and parks and all other parts of its estate.

[46] Kent Nature Partnership (2020). Kent Nature Partnership Biodiversity Strategy 2020 to 2045. [online] Available at: https://democracy.kent.gov.uk/documents/s96710/20-00025%20-%20Kent%20Biodiversity%20Strategy%20March%202020.pdf [Accessed 13/07/2022].

[47] Kent County Council (2021). Kent's Plan Bee. Kent County Council's Pollinator Action Plan. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0018/103905/Kents-Plan-Bee.pdf [Accessed 13/07/2022].

- reviewing the use of pesticides in its estate and seeking to end the use of the controversial neonicotinoid sprays.
- finding ways to create corridors for wildlife throughout the landscape within and adjacent to its estate.
- identifying, promoting and arranging where possible, appropriate training for staff involved in land management (including parks, highways, estate management and grounds maintenance) to better their understanding of the needs of pollinators and how they can help them in the course of their work (where they are not already doing that).
- looking for opportunities to 'green' its buildings and assets with pollinator friendly planting and such things as bee hotels (space people can make for solitary bees to nest).

- Objective 2 - For Kent County Council to use the planning system to protect pollinators and improve the habitats on which they rely.
  - looking to support the connection of landscapes to each other.
  - looking to develop approaches within KCC's planning services that will help to protect pollinator habitats.
  - using the Kent Design Guide, Kent Planning Officers Group and other appropriate
  - means to work with Kent's district planning authorities to encourage developments that improve pollinator habitats.
  - working with community groups, district and borough councils and through the Kent Association of Local Councils to map pollinator features at a community level in order to help people to take action.
  - looking to understand and better articulate the economic value of pollinators to Kent.
  - looking at how it might develop a pollinator impact assessment tool to inform planning decisions.

Local planning policy

3.3.2.13 The study area runs through both Thanet Borough Council at the north end of the Kent Onshore Scheme, and Dover Borough Council, in the south of the Kent Onshore Scheme, and as such the policies of both bodies regarding biodiversity and the protection of natural resources apply to the entire Site.

3.3.2.14 The planning policies that relate to the Kent Onshore Scheme are shown below for both policies set in place by Thanet Borough Council and by Dover Borough Council. The policies are taken from the following documents;

- Thanet Local Plan, Adopted 2020[48] and other policy documents;
  - Policy SP25 - Safeguarding the Identity of Thanet's Settlements - Within the Green Wedges new development (including changes of use) will only be

[48] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

permitted if it can be demonstrated that the development is 1) not detrimental or contrary to the following aims to:

a) Safeguard areas of open countryside in order to maintain physical separation and avoid coalescence of the towns, retaining their individual character and distinctiveness (for example by the expansion of isolated groups of houses or other development).

b) Conserve, protect and enhance the essentially rural and unspoilt character, and distinctive landscape qualities of the countryside that separates the urban areas, for the enjoyment and amenity of those living in, and visiting, Thanet.

c) Increase access and usability without compromising the integrity of the Green Wedges.

Or is

2) essential to be located within the Green Wedges. Open sports and recreational uses will be permitted subject to there being no overriding conflict with other policies, the wider objectives of this plan and the stated aims of this policy. If granted, any associated built development must be kept to a minimum, essential, small in scale and be necessary to support the open use. It should also be well related to adjacent urban edge and sensitively located to retain openness of the area. Proposals for policy compliant development that include measures that will create or enhance wildlife habitats and biodiversity within the Green Wedges or will improve the quality of the Green Wedges by providing high quality public amenity space will be supported.

Policy SP27 – Green Infrastructure network and enhance it by integrating new multifunctional Green Infrastructure provision in the design of developments. Opportunities to improve Thanet's Green Infrastructure network by protecting and enhancing existing Green Infrastructure assets and the connections between and providing new Green Infrastructure assets should be identified early in the design process for major developments, together with consideration of how they will be managed and maintained in the long term.

Development proposals will, where appropriate, be required to make a positive contribution to the conservation, enhancement and management of biodiversity and geodiversity assets resulting in a net gain for biodiversity assets through the following measures:

1) the restoration / enhancement of existing habitats,

2) the creation of wildlife habitats where appropriate, by including opportunities for increasing biodiversity in the design of new development

3) the creation of linkages between sites to create local and regional ecological networks,

4) the enhancement of significant features of nature conservation value on development sites,

5) protect and enhance valued soils,

6) mitigating against the loss of farmland bird habitats.

Sites should be assessed for the potential presence of biodiversity assets and protected species. For sites where important biodiversity assets, including protected species and habitats including SPA functional land, or other notable species, may be affected, an ecological assessment will be required to assess the impact of the Kent Onshore Scheme on the relevant species or habitats. Planning permission will not be granted for development if it results in significant harm to biodiversity and geodiversity assets, which cannot be adequately mitigated or as a last resort compensated for, to the satisfaction of the appropriate authority.

- Policy SP30 – Biodiversity and Geodiversity Assets - The Council will support proposals that enhance, maintain and protect the identified Biodiversity Opportunities Areas, particularly where proposals increase the biodiversity value of the site.
- SP31 – Biodiversity Opportunity Areas - Development which would have a detrimental impact on locally designated wildlife sites will not be permitted unless suitable mitigation can be provided either on or off site within Thanet. Exceptionally, where a strategic need for a project is identified which outweighs the importance of the locally designated sites and cannot be located elsewhere, an equivalent area of habitat will be created elsewhere at a suitable location well related to other existing habitats.

Wherever possible and appropriate, new developments will provide a net environmental gain in accordance with Policy SP30, and include measures to enhance and improve wildlife connectivity to designated wildlife sites.

- Dover District Council Core Strategy (2010)[49];
- Draft Dover District Local Plan (Reg 18) Sustainability Appraisal (2020)[50];
  - Strategic Policy 16: Protecting the District's Hierarchy of Designated Environment Sites - Development that will have an adverse effect on the integrity of European designated protected sites, including the Dover to Kingsdown Cliffs SAC, the Lydden and Temple Ewell Downs SAC, the Thanet Coast and Sandwich Bay SPA, the Thanet Coast and Sandwich Bay Ramsar Site and the Sandwich Bay SAC, alone or in combination with other plans or projects, will not be permitted. Any proposal capable of affecting the designated interest features of these European Sites will be required to be subject to Habitats Regulations Assessment screening. Development within 500m of the Thanet Coast and Sandwich Bay SPA and Ramsar sites will only be permitted where a project level assessment has demonstrated in accordance with the Habitat Regulations, that any proposal will not adversely affect the integrity of these sites with specific regard to non-physical disturbance.

    Wintering bird surveys will be required for sites with high and moderate suitability to support Thanet Coast and Sandwich Bay SPA qualifying bird species in order to determine their individual and cumulative importance for these species and

[49] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf [Accessed 13/07/2022].

[50] Land Use Consultants Ltd. On behalf of Dover District Council (2020). Draft Dover District Local Plan (Reg 18) Sustainability Appraisal. [online] Available at: https://www.doverdistrictlocalplan.co.uk/uploads/pdfs/sustainability-appraisal-of-the-draft-local-plan-2020.pdf [Accessed 13/07/2022].

inform mitigation proposals. In the unlikely but possible event that cumulative numbers of SPA birds affected are likely to exceed thresholds of significance (greater than 1% of the associated European Site), appropriate mitigation in the form of habitat creation and management in perpetuity, either on-site or through provision of strategic sites for these species elsewhere within Dover District, will be required.

Development that will have an adverse effect on nationally designated sites, including the Heritage Coasts, Marine Conservation Zones, Sites of Special Scientific Interest and National Nature Reserves of the District, will not be permitted unless the benefits, in terms of other objectives including overriding public interest, clearly outweigh the impacts on the special features of the site and broader nature conservation interests and there is no alternative acceptable solution.

Development should avoid significant harm to locally identified biodiversity assets, including Local Wildlife Sites and Local Nature Reserves as well as priority and locally important habitats and protected species.

Where harm to designated sites cannot be avoided, appropriate mitigation will be required in line with a timetable to be agreed with the Local Authority. Normally any mitigation measures will be required to be delivered on-site, unless special circumstances dictate that off-site compensation is more appropriate. A financial contribution - in lieu of on-site mitigation - will only be considered in very exceptional circumstances and where it is demonstrated that the proposed mitigation is deliverable and effective.

Proposals that conserve or enhance biodiversity will be supported. All development should take opportunities to help connect and improve the wider ecological networks. The integrity of the existing network of green infrastructure, including the hierarchy of protected sites and Biodiversity Opportunity Areas should be protected and enhanced. Opportunities for the management, restoration and creation of habitats in line with the targets set out in the Kent Biodiversity Strategy for the Biodiversity Opportunity Areas (BOAs) in the district and the Dover District Green Infrastructure Strategy will be supported.

Development which would result in the loss of deterioration of irreplaceable habitats, including ancient woodland and ancient or veteran trees, will only be permitted in exceptional circumstances where the public benefit would clearly outweigh the loss or deterioration and where a suitable compensation strategy exists.

Proposals should safeguard features of nature conservation interest and should include measures to retain, conserve and enhance habitats, including internationally, nationally and locally designated sites, priority habitats, networks of ecological interest, ancient woodland, water features, hedgerows, beaches, wetland pastures and foreshores, as corridors and stepping-stones for wildlife.

- Strategic Policy 17: Green Infrastructure and Biodiversity - Development proposals must provide a minimum of 10% biodiversity net gain. Proposals for biodiversity net gain must:

  a) be provided as part of the development within the development site boundary. Only if it can be demonstrated that ecologically meaningful biodiversity net gain

cannot be achieved within the site boundary will the Council consider off-site alternatives or financial contributions towards a biodiversity off-setting project within the District;

b) be provided above the agreed pre-development ecological baseline of the site, for both area and linear habitats;

c) focus on local priorities and be informed by the Local Nature Recovery Strategy, Dover District Green Infrastructure Strategy and the Kent Biodiversity Strategy;

d) be secured for a minimum of 30 years,

e) be informed by a comprehensive understanding of habitats and species associated with the site, to include survey and assessment work carried out by suitably qualified professionals and relevant information from the Kent and Medway Biological Records Centre; and

f) follow the mitigation hierarchy and demonstrate by appropriate project design, evidence of adequate avoidance and mitigation measures. Where harm to wildlife habitats cannot be avoided or adequately mitigated, appropriate compensation measures will be sought. Biodiversity net gain must be in addition to any form of compensation.

Planning applications must be supported by a Biodiversity Net Gain Plan and supporting reports with information to demonstrate how 10% biodiversity net gain will be achieved, including:

g) Use of the most up-to-date DEFRA metric calculation, including breakdown of stages;

h) an assessment of the likely effects of the development and changes to the ecological baseline;

i) details of the ecological assessments to include both qualitative and quantitative evidence;

j) details of the design and location of the proposals; and

k) details of how the net gain proposals will be implemented, managed and maintained.

Biodiversity net gain proposals will be secured by condition and/or legal agreement. This will include a requirement to cover the Council's costs associated with the long-term monitoring of the biodiversity net gain proposals.

Applications for change of use in order to create biodiversity sites in appropriate locations, including biodiversity off-setting sites and sites within Local Nature Recovery Strategies will be supported.

- All proposals for new residential development of greater than 10 dwellings will be required to:

  a) Comply with the Strategic Access Management and Monitoring (SAMM) Plan for the Thanet Coast and Sandwich Bay SPA in order to mitigate against the in-combination effects of new development, through the pathway of recreational pressure, on the Thanet Coast and Sandwich Bay SPA; and

b) make a financial contribution to provide such monitoring measures as will be set out in the SAMM Plan.

In addition, all proposals for new residential development within a 9km Zone of Influence radius of the SPA will also be required to make a financial contribution towards mitigation measures.

Such contributions will be set by a tariff system to be set out in the Local Plan and reviewed every 10 years, or sooner if monitoring reveals issues which are not being addressed by the mitigation measures. Contributions will be based on a tariff system and collected by the S106 agreement mechanism.

Developments for other uses that would increase recreational activity causing disturbance to qualifying species, including but not limited to holiday accommodation, hotels and leisure uses, will be assessed on a case by case basis under the Habitat Regulations and may be required to make full or partial contributions towards the SAMM Plan if appropriate.

- Draft Dover District Local Plan (Reg 18) Habitats Regulations Assessment (2021)[51];
- Dover District Council Green Infrastructure Strategy (2014)[52]; and
- Thanet Coast SPA Mitigation Strategy (2012)[53].

3.3.3 Study Area

3.3.3.1 The study area for ecological surveys includes the land within the Kent Onshore Scheme Scoping Boundary and appropriate Zones of Influence (ZoI), are described in the following sections.

3.3.3.2 The boundaries and zones for the ecology and biodiversity study area reflect standard industry good practice and the distances used in this scoping exercise that statutory consultees would typically expect to be considered for identification of features external to the Kent Onshore Scheme that could be affected. This is informed by published guidance and professional judgement.

3.3.3.3 The desk study included a search for:

- international statutory nature conservation sites (e.g. Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites) within 10km of the Kent Scoping Boundary or SACs designated for bats within 30km of the Kent Scoping Boundary. Note that there are no SACs designated for bats within 30km of the Kent Onshore Scheme.
- national statutory nature conservation designations (e.g. Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNRs) and Local Nature Reserves

[51] Land Use Consultants Ltd. On behalf of Dover District Council (2020). Draft Dover District Local Plan (Reg 18) Habitats Regulations. [online] Available at: https://www.doverdistrictlocalplan.co.uk/uploads/pdfs/habitat-regulation-assessment-of-the-draft-local-plan-2020.pdf

[52] Dover District Council (2014). Green Infrastructure Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Dover-District-Council-Green-Infrastructure-Strategy.pdf [Accessed 13/07/2022].

[53] Dover District Council (2012). Thanet Coast SPA Mitigation Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Thanet-Coast-SPA-Mitigation-Strategy.pdf [Accessed 13/07/2022].

(LNRs)) within 5km, also referencing Natural England Impact Risk Zones for SSSIs on MAGIC; and

- non-statutory nature conservation designations (e.g. Local Wildlife Sites and Roadside Nature Reserves) within 2km.

3.3.3.4 Records of protected and notable species and notable habitats (e.g. Habitats of Principal Importance Section 41 (41) of the Natural Environment and Rural Communities (NERC) Act) have also been identified up to 1km (for most species) 6km for bats and 500m (for habitats and great crested newts) from the Kent Onshore Scheme Scoping Boundary. For the purposes of **Figure 3.3.1 Statutory Designated Ecological Features** only statutory designated sites up to 5km (for SSSIs) and 10km (for European sites) from the Kent Onshore Scheme Scoping Boundary have been shown but this will be updated and expanded for the Preliminary Environmental Information Report (PEIR).

3.3.4 Baseline Conditions

Data Sources

3.3.4.1 The known or predicted current and future ecological baseline conditions described in this section has been informed by the following data sources:

- Multi-Agency Geographic Information for the Countryside (MAGIC)[54] website;
- Aerial photography of the Site (2021 image capture);
- Kent and Medway Biological Records Centre[55]; and
- Local wildlife group and landowner data sets (e.g. Kent Wildlife Trust, Kent bat group, Kent Ornithological Society).

3.3.4.2 Previous survey reports from the local area and adjacent applications (e.g. Nemo Link, Richborough Connection Project[56], Manston Airport[57] and Thanet Extension Offshore Windfarm[58]

[54] Department for Environment, Food and Rural Affairs (2022). Multi-Agency Geographic Information for the Countryside (MAGIC). [online] Aailable at: https://magic.defra.gov.uk/

[55] Kent & Medway Biological Records Centre (2022). Kent's Local Environment Records Centre. [online] Available at: https://www.kmbrc.org.uk/

[56] Planning Inspectorate (2018). Richborough Connection Project. Reports for Application Submission. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/projects/south-east/richborough-connection-project/?ipcsection=docs&stage=app&filter1=Environmental+Statement [Accessed 13/07/2022].

[57] Planning Inspectorate (2022). Manston Airport. Reports for Application Submission. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/projects/south-east/manston-airport/?ipcsection=docs&stage=app&filter1=Environmental+Statement [Accessed 13/07/2022].

[58] Planning Inspectorate (2020). Thanet Extension Offshore Wind Farm. Reports for Application Submission. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/projects/south-east/thanet-extension-offshore-wind-farm/?ipcsection=docs&stage=app&filter1=Environmental+Statement [Accessed 13/07/2022].

Expected Survey Requirements

3.3.4.3 Completion of initial Phase 1 Habitat Survey (following the established JNCC methodology[59]) and Protected Species Scoping Surveys, will confirm the requirements for further surveys to support the ecology, biodiversity and nature conservation impact assessment, but these are likely to include the following:

- Botanical surveys including National Vegetation Classification Surveys following established Rodwell (2006)[60] methodology, including invasive non-native plant species, hedgerows and river habitats and corridors;
- Terrestrial invertebrate surveys;
- Aquatic invertebrate surveys if required (potential to be scoped out by use of HDD to avoid direct watercourse impacts);
- Reptile presence / absence surveys utilising a combination of morning and afternoon survey visits;
- Habitat Suitability Index (HSI) assessment[61] and Great Crested Newt eDNA surveys at waterbodies identified on and within 250m of the Kent Onshore Scheme (if District Level Licensing approach not or only partially pursued with Natural England);
- Great crested newt population size surveys (where applicable);
- Intertidal bird surveys (focused at proposed landfall at Pegwell Bay) following a modified Wetland Bird Surveys (WeBS) Core and Low Tide Count methodology[6263]
- Wintering bird surveys (WeBS methodology as above);
- Breeding bird surveys following a modified CBC methodology[64] (including targeted surveys for barn owl). Targeted species surveys will follow individual methods within Gilbert *et al.* 1998[65];
- Preliminary bat roost feature assessment of buildings and structures and tree climbing surveys for bats (where applicable)
- Bat activity surveys;

[59] Joint Nature Conservation Committee (2016). Handbook for Phase 1 habitat survey. A technique for environmental audit. [online] Available at: https://data.jncc.gov.uk/data/9578d07b-e018-4c66-9c1b-47110f14df2a/Handbook-Phase1-HabitatSurvey-Revised-2016.pdf [Accessed 13/07/2022].

[60] Rodwell, J.S. on behalf of the Joint Nature Conservation Committee (2006). National Vegetation Classification: Users' Handbook. [online] Available at: https://data.jncc.gov.uk/data/a407ebfc-2859-49cf-9710-1bde9c8e28c7/JNCC-NVC-UsersHandbook-2006.pdf [Accessed 13/07/2022].

[61] Amphibian & Reptile Groups of the United Kingdom (2010). ARG UK Advice Note 5: Great Crested New Habitat Suitability Index. [online] Available at: https://www.arguk.org/info-advice/advice-notes/9-great-crested-newt-habitat-suitability-index-arg-advice-note-5/file [Accessed 13/07/2022].

[62] British Trust for Ornithology (2017). Wetland Bird Survey: Survey Methods, Analysis & Interpretation. [online] Available at: https://www.bto.org/sites/default/files/webs_methods.pdf [Accessed 13/07/2022].

[63] British Trust for Ornithology (n.d.). Wetland Bird Survey - Low Tide Count Methods. [online] Available at: https://www.bto.org/our-science/projects/wetland-bird-survey/taking-part/low-tide-counts-methods [Accessed 13/07/2022].

[64] Marchant, J. (1983). Common Bird Census Instructions. British Trust for Ornithology. Tring. [online] Available at: https://www.bto.org/sites/default/files/u31/downloads/details/CBC-instructions-g100.pdf [Accessed 13/07/2022].

[65] Gilbert, G., Gibbons, D., and Evans, J. (1998). Bird Monitoring Methods: A Manual of Techniques for Key UK Species. RSPB; Pelagic Publishing. ISBN: 9781907807220

- Dusk emergence and dawn return surveys of buildings, structures and trees (if applicable). All bat surveys will follow BCT Good Practice Guidelines 3rd Edition[66] and Interim Guidance Note[67] (and any updated editions: 4th Edition expected late 2022);
- Badger surveys in all suitable habitats within the Kent Onshore Scheme and up to 30m outside of the Kent Scoping Boundary; as well as dedicated winter surveys and
- Riparian mammal surveys (otter (*Lutra lutra*), water vole (*Arvicola amphibius*)) and beaver (*Castor fiber*), where watercourses are crossed by the Kent Onshore Scheme or are adjacent to the Kent Onshore Scheme and 100-200m upstream and downstream.

3.3.4.4 A Habitats Regulations Assessment (HRA), commencing with a Stage 1: Screening and including a Stage 2: Appropriate Assessment (if required) will also be produced in line with Planning Inspectorate Advice Note 10[68].

Summary of Ecological Receptors

3.3.4.5 The known or predicted ecological baseline conditions are summarised in the following sections by each receptor in turn.

Statutory designated sites

3.3.4.6 Thirteen statutory sites designated for nature conservation have been identified within the stated desk study areas (10km for international and 5km for national sites).

3.3.4.7 These sites are summarised in Table 3.3.1 and the closest sites (those within 2km) are shown on **Figure 3.3.1 Statutory Designated Ecological Features**.

[66] Collins, J. (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London. [online] Available at: https://cdn.bats.org.uk/uploads/pdf/Resources/Bat_Survey_Guidelines_2016_NON_PRINTABLE.pdf?v=1542281971 [Accessed 13/07/2022].

[67] Bat Conservation Trust (2022). Interim Guidance Note: Use of night vision aids for bat emergence surveys and further comment on dawn surveys. [online] Available at: https://cdn.bats.org.uk/uploads/pdf/Interim-guidance-note-on-NVAs-May-2022-FINAL.pdf?v=1653399882 [Accessed 13/07/2022].

[68] National Infrastructure Planning (2018). The Planning Inspectorate: Advice Note 10: Habitats Regulations Assessment relevant to nationally significant infrastructure projects. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-ten/ [Accessed 13/07/2022].

Table 3.3.1: Statutorily designated sites within 10km (international) and 5km (national) of the Kent Onshore Scheme

Table 3.3.1: Statutorily designated sites within 10km (international) and 5km (national) of the Kent Onshore Scheme

Site name	Designation	Description	Distance (km) and direction from closest point of the Kent Onshore Scheme
Thanet Coast & Sandwich Bay (2,169 hectares)	Ramsar	Designated for a range of habitats including salt marsh, sand dunes and arable fields. A significant assemblage of bird species including ringed plover (*Chadradius hiaticula*), golden plover (*Pluvialis apricaria*) and greenshank (*Tringa nebularia*) is present on site, as is a reintroduced population of sand lizard (*Lacerta agilis*).	Kent Scoping Boundary overlaps with the Designated Site
Thanet Coast & Sandwich Bay (1881.6 hectares)	Special Protection Area	Site is designated for the succession of sand dunes as well as the chalk coastline and salt marsh on Site. The overwintering assemblage of birds including grey plover (*Pluvialis squatarola*), sandling (*Calidris alba*) and ringed plover (*Chadradius hiaticula*) is also significant	Kent Scoping Boundary overlaps with the Designated Site
Sandwich Bay (1136.7 hectares)	Special Area of Conservation	Site is designated by the succession of sand dunes from embryonic sand dunes to willow dune slacks.	Kent Scoping Boundary overlaps with the Designated Site
Thanet Coast (2815.99 hectares)	Special Area of Conservation	Site is designated for the offshore chalk reefs and submerged or partially submerged caverns that support *Pseuendoclonium submarinum* (a green alga) and a number of *Lyngbya* species (a blue-green alga), both of which are only found in Thanet.	Designated Site is located 2.1km northeast of the Kent Scoping Boundary

Stodmarsh SAC (566.03 hectares)	Special Area of Conservation	Designated for a of Desmoulin's whorl snail (*Vertigo moulinsiana*) lives beside ditches within pasture on the floodplain of the River Stour.	Designated Site is located 5.8km to the west, and upstream, of the Kent Scoping Boundary
Margate and Long Sands (64876.9ha)	Special Area of Conservation	Site is designated for sandbanks which are slightly covered by seawater all the time. Located north of the Thanet coast of Kent and extends in a north-easterly direction to the outer reaches of the Thames Estuary.	Designated Site is located 7.4km to the north of the Kent Scoping Boundary. A marine site and therefore not likely to be any effect from the Kent Onshore Scheme.
Outer Thames Estuary (392,400ha)	Special Protection Area	The Outer Thames Estuary SPA is classified for the protection of the largest aggregation of wintering red-throated diver (Gavia stellata) in the UK, an estimated population of 6,466 individuals, which is 38% of the wintering population of Great Britain. It also protects foraging areas for common tern (Sterna hirundo) and little tern (Sternula albifrons) during the breeding season.	Designated Site is located 6km to the north of the Kent Scoping Boundary. A marine site and therefore not likely to be any effect from the Kent Onshore Scheme.
Stodmarsh SPA (483.59 hectares)	Special Protection Area	Wetland of international importance comprising open waterbodies, reedbeds, grazing marsh and alder carr. It is designated for non-breeding great bittern , non-breeding hen harrier, breeding and passage gadwall and non-breeding northern shoveler as well as breeding and wintering bird assemblages.	Designated Site is located 6.3km to the west, and upstream, of the Kent Scoping Boundary
Stodmarsh Ramsar (483.59 hectares)	Ramsar	Stodmarsh has a range of wetland habitats including open water, reedbeds, grazing marsh and alder (*Alnus glutinosa*) carr. The site supports a number of uncommon wetland invertebrates and plants and provides breeding and wintering habitats for important assemblages of	Designated Site is located 6.3km to the west, and upstream, of the Kent Scoping Boundary

		wetland bird species, particularly waterfowl. The flora of the site includes the rare sharp leaved pondweed (*Potamogeton acutifolius*), which is considered critically endangered by the GB Red Book, as well as the vulnerable whorled water-milfoil (*Myriophyllum verticillatum*), rootless duckweed (*Wolffia arrhiza*) and *Carex divisa*.	
Sandwich Bay to Hacklinge Marshes (1790.1ha)	Site of Special Scientific Interest	Site is designated for the succession of sand dunes as well as the chalk coastline and salt marsh on Site. A range of invertebrate species that are geographically restricted to sand dunes and salt marsh. The overwintering assemblage of birds including grey plover (*Pluvialis squatarola*), sandling (*Calidris alba*) and ringed plover (*Chadradius hiaticula*) are also significant	Kent Scoping Boundary overlaps with the Designated Site
Thanet Coast (31.5ha)	Site of Special Scientific Interest	This site, extending almost uninterrupted from Swalecliffe to Ramsgate, comprises mainly unstable cliff and foreshore (including shingle, sand and mudflats), with smaller areas of saltmarsh, coastal lagoons, coastal gill woodland and cliff-top grassland. There are a number of biological, geological and geomorphological features of interest within the site	The Designated Site is located 3.4km northwest of the Kent Scoping Boundary
Sandwich & Pegwell Bay (629.3ha)	National Nature Reserve	Sandwich and Pegwell Bay National Nature Reserve with chalk cliffs, mud flats, saltmarsh and sand dune habitats that is internationally important for waders and wildfowl both on migration and over-winter.	Kent Scoping Boundary overlaps with the Designated Site
Princes Beachlands (6ha)	Local Nature Reserve	Site is designated for its mosaic of habitats that have international importance for migrating birds.	Kent Scoping Boundary Site is located 1.2km to the

	south of the Designated Site

Non-statutory designated sites

3.3.4.8 One non-statutory site designated for nature conservation has been identified within 2km of the Kent Onshore Scheme Scoping Boundary: Ash Level and South Richborough Pasture. This site is a Local Wildlife Site (LWS) (Table 3.3.2) designated for biodiversity value at a local level and is known to have supporting value to a wide variety of protected and ecologically important species and, or habitats. A desk-study is currently ongoing with Kent and Medway Biological Records Centre and further non-statutory wildlife sites may be identified through that process.

Table 3.3.2: Non-statutory designated sites currently identified within 2km of the Kent Onshore Scheme

Site name	Designation	Description	Distance (km) and direction from closest point of the Site
Ash Level and South Richborough Pasture (1039.26ha)	Local Wildlife Site	The site comprises an extensive area of low-lying agricultural land with interconnecting dyke systems, mostly situated to the south of the River Stour. The area is crossed by old drove roads edged with well-established hedgerows of hawthorn and blackthorn and containing the occasional oak. Old counter walls with their unimproved grassland also form an important feature.	Designated Site is located within the Kent Scoping Boundary

Notable habitats

3.3.4.9 An extended Phase 1 Habitat Survey will be undertaken in order to establish the ecological value of the land within the Kent Scoping Boundary, and its potential to support notable and/or legally protected species.

3.3.4.10 The survey will be carried out in line with the Phase 1 Habitat Survey method as set out by the Joint Nature Conservation Committee (JNCC) (2016)[69]. This survey would record the types and distribution of habitats throughout the graduate swathe.

[69] Joint Nature Conservation Committee (2016). Handbook for Phase 1 habitat survey. A technique for environmental audit. [online] Available at: https://data.jncc.gov.uk/data/9578d07b-e018-4c66-9c1b-47110f14df2a/Handbook-Phase1-HabitatSurvey-Revised-2016.pdf [Accessed 13/07/2022].

Information gained from the extended Phase 1 Habitat Survey would be important in assessing the ecological value of the land within the Kent Scoping Boundary and identifying the need for any further survey work.

3.3.4.11 A biodiversity net gain (BNG) assessment will be undertaken using Biodiversity Metric 3.1 – Technical Supplement[70] in accordance with the accompanying guidance and best practice principles. The calculation will be based on baseline habitat distinctiveness scores determined by the Phase 1 habitat surveys. Habitat condition will be assigned retrospectively using the information in the Phase 1 habitat survey based on the condition assessment criteria outlined in the Biodiversity Metric 3.1 – Technical Supplement and applying professional judgement.

3.3.4.12 While extended Phase 1 Habitat Surveys have only recently commenced , review of online data sources, notably MAGIC[71] and survey reports from adjacent projects (the Thanet Windfarm Extension, Richborough Connection Project, Manston Airport or Nemo Link indicates that the following Habitats of Principal Importance (HoPI) are located either within or adjacent to (i.e. up to 500m from) the Kent Scoping Boundary as follows:

- Sand dunes / coastal saltmarsh / mudflats – present along the Pegwell Bay foreshore
- Coastal grazing marshes – distributed within and to the south of the graduated swathe, including both along the Pegwell Bay shore and also inland
- Reedbeds – situated along Pegwell Bay but also along the River Stour and likely smaller parcels present within the Kent Scoping Boundary
- Woodland - thirteen blocks of woodland listed as Priority Habitat by Section 41 of the Natural Environment within 500m of the Kent Scoping Boundary. Additionally, there are nine blocks of priority woodland habitat within the footprint of the Kent Scoping Boundary.
- Hedgerows / arable field margins – likely present throughout the Kent Scoping Boundary; the extent and distribution of such habitats meeting HoPI is to be determined.
- Standing water – ephemeral ponds with at least one pond present in Pegwell Bay Country Park and a network of ditches present throughout the Kent Scoping Boundary; and
- Running water – the River Stour is present within the western end of the Kent Scoping Boundary

3.3.4.13 There are no parcels of ancient woodland habitat within 500m of the Kent Scoping Boundary.

3.3.4.14 Note that while some of these habitats are located directly within designated sites (being a reason for designation), a number are distributed outside. The distribution of HoPI is to be confirmed by detailed survey (Habitat Condition Assessment and (where

[70] Natural England (2022). The Biodiversity Metric 3.1- Technical Supplement. [online] Available at: http://nepubprod.appspot.com/publication/6049804846366720 [Accessed 13/07/2022].

[71] Department for Environment, Food and Rural Affairs (2022). Multi-Agency Geographic Information for the Countryside (MAGIC). [online] Available at: https://magic.defra.gov.uk/

required) National Vegetation Classification and Hedgerow Surveys) which will confirm extent and condition and also inform future Biodiversity Net Gain assessment.

Other habitats

3.3.4.15 Review of MAGIC and previous survey reports from other recent or ongoing schemes (the Thanet Windfarm Extension , Richborough Connection Project, Manston Airport or Nemo Link) indicates that the Kent Onshore Scheme is located within a patchwork of arable, woodland, pasture and residential land uses. Away from the designated sites and notable habitats described above, the Kent Scoping Boundary is likely to include a mix of these habitat types.

Invertebrates

3.3.4.16 The designated sites and notable habitats present within the Kent Scoping Boundary have potential to support a significant assemblage of notable invertebrates. In particular, the Sandwich Bay and Hacklinge Marshes SSSI within the Kent Scoping Boundary is noted for its invertebrate interest.

3.3.4.17 The majority of these species, including Carthusian snail (*Monacha cartusiana*), restharrow moth (*Aplasta ononaria*) and grey bush cricket (*Platycleis albopunctata*) are only associated with warm, dry conditions (i.e. potentially sand dunes). The SSSI also contains the only population in the UK of the sandhill pigmy moth (*Stigmella zelleriella*) within the damp hollows of the SSSI.

3.3.4.18 The habitats most likely to support notable invertebrates include grazing marsh and semi-improved grasslands, as well as hedgerows, particularly for those moth larvae that rely on a limited number of larval food plants. The sandhill pigmy moth feeds only on creeping willow (*Salix repens*) which only grows on coastal heath or on well-developed dune slacks.

3.3.4.19 As part of the extended Phase 1 Habitat Survey, the distribution of habitats with potential to support a significant assemblage of notable invertebrates will be recorded and assessed to determine the need for specific invertebrate survey.

Invasive non-native species

3.3.4.20 Suitable habitat is present across the Kent Scoping Boundary for a range of non-native invasive plant species. Several watercourses are likely to be traversed during construction. The focus of invasive plant surveys to update the baseline will be on terrestrial and riparian species.

3.3.4.21 Waterbodies and watercourses are likely to be suitable for invasive fauna such as marsh frog (*Pelophylax ridibundus*) and American mink (*Neovison vison*) which may impact the distribution of native species.

Great crested newt

3.3.4.22 A review of MAGIC European Protected Species (EPS) mitigation licences and survey returns[72] has not returned any records of great crested newt presence within 500m of the Kent Scoping Boundary. No evidence of great crested newt presence was found during surveys to inform either the Thanet Windfarm Extension , Richborough Connection Project, Manston Airport or Nemo Link (Nemo Link, 2013). Distribution maps (Kent Reptile and Amphibian Group, undated) also indicate an absence of great crested newt from the study area.

3.3.4.23 Suitable aquatic habitat (e.g ponds and ditches) and terrestrial habitat (scrub, rough grassland, arable field margins etc) are present throughout the Kent Scoping Boundary. It is possible (though unlikely) that great crested newt have either colonised habitats in the intervening years or are present but unrecorded in the surrounding area.

Reptiles

3.3.4.24 Habitats present within the Kent Scoping Boundary are suitable for the four widespread species of reptile; slow worm (*Anguis fragilis*), common lizard (*Zootoca vivipara*), grass snake (*Natrix helvetica*) and adder (*Viper berus*). A reintroduction attempt of sand lizard (*Lacerta agilis*) within the Sandwich Bay area was carried out in 2004 (Vantenfall Windpower, 2018) and the population may still be present within the surrounding area.

3.3.4.25 The highest value habitats for reptiles (e.g. coastal dunes and heathland) will be avoided through routeing of the Kent Onshore Scheme. The remaining key habitats likely to support reptiles and present within the Kent Scoping Boundary include arable field margins, scrub and coastal grassing marsh. Sand lizards are restricted to sand dunes and heathland habitat and hence, there is unlikely to be suitable habitat within the graduated swathe for sand lizards.

Birds

3.3.4.26 There are a number of sites within and adjacent to the Kent Scoping Boundary designated for an extensive assemblage of notable wintering, breeding and passage bird species, especially those associated with intertidal habitats.

3.3.4.27 Designated sites within or adjacent to the Kent Scoping Boundary (primarily Thanet Coast and Sandwich Bay SPA, Thanet Coast and Sandwich Bay Ramsar, Sandwich Bay and Hacklinge Marshes SSSI) are designated for the following species or species assemblages:

- European golden plover (non-breeding);
- little tern (*Sterna albifrons*) (breeding);

[72] Specifically the layers 'GCN Pond Survey 2017-19 data', 'GCN Class Survey Licence Returns' and 'Granted European Protected Species Applications for GCN'

Natural England (2022). Great Crested Newt eDNA Habitat Suitability Index Pond Surveys for District Level Licensing 2017, 2018, 2019. [online] Available at: https://www.data.gov.uk/dataset/8643f1b9-b419-4ee8-8e9c-18200e0edc31/great-crested-newt-edna-habitat-suitability-index-pond-surveys-for-district-level-licensing-2017-2018-2019

Natural England (2022). Great Crested Newt Class Survey Licence Return. [online] Available at: https://www.data.gov.uk/dataset/5e3d32c2-200a-4ed2-982c-be0c5ea3bc0f/great-crested-newt-class-survey-licence-returns-england

Natural England (2022). Granted European Protected Species Applications. [online] Available at: https://www.data.gov.uk/dataset/6b517c86-5bc6-425a-b696-5a18c7d6e818/granted-european-protected-species-applications

- ruddy turnstone (*Arenaria interpres*) (non-breeding);
- grey plover (non-breeding);
- ringed plover (non-breeding);
- sanderling (non-breeding); and
- assemblages of breeding birds - lowland open waters and their margins.

3.3.4.28 While some of these species are likely to be primarily associated with the intertidal and saltmarsh habitats, it should be noted that some (especially golden plover) may utilise inland habitats such as arable fields for winter foraging. Conversely some of the species populations may no longer meet the criteria for the designated sites (e.g. little tern may not have bred at Pegwell Bay since 1996 (Vantenfall Windpower, 2018)).

3.3.4.29 The habitats within the Kent Scoping Boundary contain a wide variety of habitats to support an assemblage of other notable bird species, in particular those associated with coastal grazing marsh, scrub, woodland and arable habitats.

3.3.4.30 Along with a review of available bird record and reports relating to the area within 1km of the Kent Scoping Boundary (e.g. Wetland Bird Survey data, previous project reports, Kent bird reports, biological records and Kent Wildlife Trust data), an updated programme of bird surveys will be conducted to provide an updated baseline.

3.3.4.31 The baseline for birds will be sub-divided into the following assemblages (or an equivalents) for ease of reference, noting the baseline will overlap with that for designated sites;

- Non-breeding birds (intertidal);
- Non-breeding birds (terrestrial); and
- Breeding birds.

3.3.4.32 The project programme is such that two full non-breeding and breeding bird seasons of survey can be undertaken to inform the DCO.

Bats

3.3.4.33 A review of MAGIC EPS mitigation licences and survey returns has not returned any records of roosting bats, although roosts are likely to be present in the study area within any suitable buildings and trees.

3.3.4.34 The habitats across the Kent Scoping Boundary are suitable for an assemblage of foraging and commuting bats. Reports for previous projects within 1km of the Kent Scoping Boundary (Vattenfall Wind Power Ltd (2018) have recorded an assemblage of at least seven species including ‘rarer’ (Wray S, Wells D, Long E, & Mitchell-Jones T (2010)) species; Nathusius’s pipistrelle (*Pipistrellus nathusii*), serotine (*Eptescius serotinus*) and Leisler’s bat (*Nyctalus leisleri*).

Hazel dormouse

3.3.4.35 A review of MAGIC EPS mitigation licences and survey returns has not returned any records of hazel dormouse (*Muscardinus avellanarius*) presence. No evidence of hazel dormouse presence was found during surveys to inform both the Thanet Windfarm

Extension, or Nemo Link (Vantenfall Windpower, 2018, Nemo Link, 2013). Distribution data from the Kent mammal atlas (Young, et al 2015) also appears to show dormouse as absent.

3.3.4.36 Suitable habitat for hazel dormouse in the form of woodlands and a network of connected hedgerows is present within Kent Scoping Boundary (primarily at the western extent near the converter option area) and will be assessed as part of the extended Phase 1 Habitat Surveys.

Riparian mammals (otter, water vole and beaver)

3.3.4.37 Water voles (*Arvicola amphibius*) prefer habitat running alongside water, primarily rivers, brooks, drainage and irrigation ditches. Within the study area a number of ditches (including those within golf courses, from initial extended Phase 1 Habitat Survey results) had a suitable bank profile to support water voles, as well as a diverse riparian plant community that act as a foraging resource for this species. Water vole presence in the area (network of drainage and irrigation ditches) has been confirmed as part of previous schemes investigation (Vantenfall Windpower, 2018) and indicated through distribution data from the Kent mammal atlas (Young, et al 2015).

3.3.4.38 Suitable habitat for otter is less extensive within the Kent Scoping Boundary but includes the River Stour and suitable terrestrial habitats nearby (e.g woodlands).

3.3.4.39 It is anticipated that it will be necessary to investigate the status of both species through a review of existing records for these species and surveys of suitable watercourse and associated habitats. Otter have been seen in the River Stour (River Stour Drainage Board, 2015) though were not confirmed through within the Kent Scoping Boundary as part previous schemes (Vantenfall Windpower, 2018, Nemo Link, 2013).

3.3.4.40 As part of early consultation with the Environment Agency, survey for beaver (C*astor fiber*) has also been requested on the basis that they are present in parts of East Kent and in 2021 the government declared their intention to make beavers a native species that would classify from protection under the Wildlife & Countryside Act (1981) as amended.

Badger

3.3.4.41 Extensive suitable habitat for badger is present throughout the Kent Scoping Boundary, comprising woodland, arable fields and margins and scrub amongst others. Habitat is both suitable for foraging and for the excavation of setts, with sufficient habitat present to support a number of social groups.

3.3.4.42 The extended Phase 1 Habitat Surveys will provide initial information of the likely distribution of badger within the graduated swathe to be followed by detailed badger surveys to inform routeing.

Future baseline

3.3.4.43 Relative to the current baseline, the value of ecological features present are not expected to change significantly by the end of the construction period in 2030. Management of the habitats is unlikely to change over this period, and consequently no significant degradation or improvement of habitat condition is expected. Due to development pressure year on year within the wider landscape, protected and notable

species and habitats are likely to remain priorities for conservation within future baseline scenarios.

3.3.5 Embedded and Control & Management Measures

Embedded Measures

3.3.5.1 The Kent Onshore Scheme has been routed and sited to avoid designated sites and the most sensitive habitats as far as possible. Further refinement of the Kent Onshore Scheme will be informed by the results of ecology and biodiversity surveys to avoid or minimise impacts on ecological receptors.

Control and Management Measures

3.3.5.2 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the ecology and biodiversity assessment are:

- GG04 - The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans.
- GG21 - Construction lighting will be of the lowest luminosity necessary to safely perform each task. It will be designed, positioned and directed to reduce the intrusion into adjacent properties, protected species and habitats.
- GG17 - Wash down of vehicles and equipment will take place in designated areas within construction compounds. Wash water will be prevented from passing untreated into watercourses and groundwater. Appropriate measures will include use of sediment traps.
- GG18 - Wheel washing will be provided at each main compound access point on to the highway. An adequate supply of water will be made available at these locations at all times. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits.
- B02 - The assumption will be that vegetation with the potential to support breeding birds will not be removed during the breeding bird season (March to August inclusive). If any works become necessary during the breeding bird season, works will be supervised by an Environmental Clerk of Works. Appropriate protection measures will be put in place should active nests be found. These will include exclusion zones around active nests until chicks fledge or nests become inactive as determined by monitoring by the Environmental Clerk of Works.
- B03 - Where there will be a risk of animal entrapment, a means of escape will be installed into all excavations left open overnight.
- B04 - To control the spread of invasive weeds in accordance with the Wildlife and Countryside Act 1981, any plant or machinery that has been used in areas infested with invasive species (both terrestrial and aquatic), such as Japanese knotweed and Himalayan balsam, will be thoroughly cleaned. Water used to clean vehicles will be controlled to prevent the spread of the plant (through seeds,

rhizomes, fragments, etc.). The area will be cordoned off to prevent any inadvertent spreading.

- B05 - All habitats suitable for common reptiles will be subject to two-stage habitat manipulation that will take place between mid-March and mid-October. Firstly, vegetation will be cut to approximately 150mm (with the arisings removed) under the supervision of an Environmental Clerk of Works and the site left for a minimum of two days to allow reptiles to naturally disperse from the area. Secondly, vegetation will be cleared down to ground level under the supervision of an Environmental Clerk of Works. Vegetation will be cleared using appropriate equipment based on the type of vegetation to be removed, the area affected, and the risk of mortality or injuring reptiles. Construction works could commence immediately after completion of the second stage. Reptile hibernacula will be retained and protected during construction where practicable. If unavoidable, the removal of vegetation and groundworks at hibernacula will be timed to avoid the hibernation season (late October to early March). Replacement hibernacula and refugia will be provided.
- B06 - Alternative roost structures (bat boxes) will be provided (with landowner consent) on retained trees within the Order Limits or areas outside of the Order Limits agreed with landowners. Three boxes will be provided for each tree with moderate bat roost potential to be felled. Five boxes will be provided for each tree with high bat roost potential to be felled.
- B07 - Where the works require the crossing or removal of hedgerows, the gap will be reduced to a width required for safe working. Where hedge removals are necessary, ‘dead hedging’ should be used, where practicable, in the interim periods to retain connectivity during construction. Dead hedging can comprise vegetation arisings or artificial provision, such as willow screening panels or Heras fencing covered in camouflage netting. New hedgerow planting will contain native, woody species of local provenance.

Habitat Re-instatement, restoration and compensation

3.3.5.3 Where temporary habitat removal is required, this will be re-instated as soon as practically possible through use of techniques such as re-instatement of temporarily stored turfs and topsoil. Where habitat re-instatement is not possible, restoration or compensatory habitat will be explored.

3.3.5.4 Long term habitat re-instatement, restoration and compensation will be detailed within a Landscape and Ecology Management Plan or equivalent, which will accompany the BNG assessment.

3.3.6 Potential for Significant Effects

3.3.6.1 The ecology and biodiversity assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.3.6.2 The proposed scope of the ecology and biodiversity assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.3.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.3.6.4 The potential for the Kent Onshore Scheme to result in the likely significant effects identified in Table 3.3.3 and 3.3.4 below take into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- construction of converter station and underground cables/overhead line;
- construction of any temporary works areas; and
- construction traffic movements;

Sources of operational impacts

- presence of overhead line.

Sources of maintenance impacts

- potential pollution from maintenance crews;
- temporary works areas; and
- traffic movements during maintenance works.

Sources of decommissioning impacts

- removal of converter station and underground/overhead cables;
- temporary works areas; and
- decommissioning traffic movements.

Potential impacts

3.3.6.5 Table 3.3.3 below presents the potential impacts and whether they are proposed to be scoped in or scoped out.

3.3.6.6 The extent of unplanned maintenance and repairs is unknown; however, these works are likely to be similar to construction works albeit at a smaller scale. Therefore, for the purposes of this assessment maintenance works have been assessed as a worst case scenario within the construction impacts.

3.3.6.7 Table 3.3.3 identifies the potential impacts that could result from the sources identified above.

Table 3.3.3: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas Potential pollution from maintenance crews Traffic movements during maintenance works	Permanent habitat loss (terrestrial)	Yes - The converter station and associated infrastructure will result in an unavoidable permanent loss of habitat. Maintenance of the converter station, underground cables and overhead line may result in permanent or temporary loss of habitat but at a much smaller scale than construction.	**Scoped in**
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas Potential pollution from maintenance crews Traffic movements during maintenance works	Permanent habitat loss (intertidal)	No - permanent infrastructure is to be installed above ground level within the intertidal zone. No day to day maintenance of underground cables would be required in the intertidal zone.	Scoped out
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas	Temporary habitat loss/disturbance (terrestrial)	Yes - Cable installation within the Kent Scoping Boundary will result in a degree of temporary habitat loss/disturbance to terrestrial habitat. Maintenance of the converter station, underground cables	**Scoped in**

	Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works		and overhead line may result in temporary loss of habitat or disturbance but at a much smaller scale than construction.	
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works	Temporary habitat fragmentation / degradation (terrestrial)	Yes - Implementation of a construction working corridor may result in temporary fragmentation of habitat connectivity. Maintenance of the converter station, underground cables and overhead line may result in temporary fragmentation of habitat connectivity but at a much smaller scale than construction.	**Scoped in**
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works	Temporary habitat loss/ disturbance (intertidal)	Yes - Cable installation within the Kent Scoping Boundary will result in a degree of temporary habitat loss / disturbance to intertidal habitat No maintenance of underground cables will be required in the intertidal zone.	**Scoped in**
Construction and Maintenance	Construction of converter station and underground	Incidental mortality of protected or notable species	Yes - In the absence of mitigation, there is potential for construction and maintenance works to	**Scoped in**

	cables/overhead line Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works		result in the accidental killing or injuring of protected or notable species, although maintenance would be at a much smaller scale than construction.	
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works	Disturbance to protected or notable species (noise/ vibration, visual, lighting	Yes - In the absence of mitigation, there is potential for construction and maintenance works to result in the accidental disturbance of protected or notable species, although maintenance would be at a much smaller scale than construction.	**Scoped in**
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works	Pollution impacts (dust deposition, air quality, water)	Yes - In the absence of mitigation, there is potential for construction works and maintenance to result in pollution impact pathways upon habitats and species, although maintenance would be at a much smaller scale than construction.	**Scoped in**

Operation	Temporary works areas Traffic movements during maintenance works	Temporary habitat loss/ disturbance (terrestrial)	No - It is unlikely significant additional habitat loss would occur through operation, though periodic maintenance to either the converter or underground cables could require localised habitat removal (see construction and maintenance).	Scoped out
Operation	Temporary works areas Traffic movements during maintenance works	Temporary habitat loss/ disturbance (intertidal)	No - It is unlikely that the installed cable would result in disturbance to intertidal habitats during operation aside from that during periodic maintenance (see construction and maintenance).	Scoped out
Operation	Temporary works areas Traffic movements during maintenance works	Disturbance to protected or notable species (noise/ vibration, visual, lighting	Yes - The operational converter station could be a source of indirect disturbance impacts on adjacent habitats and species. It is unlikely that the installed cable would result in disturbance aside from that during periodic maintenance (see construction and maintenance).	**Scoped in**
Operation	Presence of overhead lines	Collision risk	Yes - The Kent Onshore Scheme may include a potential section of new overhead power line. As such, there is a potential risk of increased birdstrike, particularly for larger birds less able to navigate powerlines.	**Scoped in**

Operation	Presence pollution from maintenance crews	Pollution impacts (dust deposition, air quality, water)	Yes - The operational converter station is unlikely to be a source of pollution pathway impacts on adjacent habitats and species but will be confirmed by detailed assessment. It is unlikely that the installed cable would result in a pollution pathway risk aside from during periodic maintenance if unmitigated (see construction and maintenance).	**Scoped in**
Decommissioning	Decommissioning of converter station and underground cables/overhead line Any temporary works areas Decommissioning traffic movements	Temporary habitat loss/ disturbance (intertidal)	Yes - Cable installation within the graduated swathe will result in a degree of temporary habitat loss / disturbance to intertidal habitat	**Scoped in**
Decommissioning	Decommissioning of converter station and underground cables/overhead line Any temporary works areas Decommissioning traffic movements	Incidental mortality of protected or notable species	Yes - In the absence of mitigation, there is potential for construction works to result in the accidental killing or injuring of protected or notable species.	**Scoped in**
Decommissioning	Decommissioning of converter station and underground cables/overhead line	Disturbance to protected or notable species (noise/ vibration, visual, lighting	Yes - In the absence of mitigation, there is potential for construction works to result in the accidental disturbance of	**Scoped in**

	Any temporary works areas Decommissioning traffic movements		protected or notable species.	
Decommissioning	Decommissioning of converter station and underground cables/overhead line Any temporary works areas Decommissioning traffic movements	Pollution impacts (dust deposition, air quality, water)	Yes - In the absence of mitigation, there is potential for construction works to result in pollution impact pathways upon habitats and species	**Scoped in**

Impact Pathways with Receptors (Step 2)

3.3.6.8 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the Kent Onshore Scheme study areas.

3.3.6.9 The impact pathways have been split out for the two components of the Kent Onshore Scheme, the cable installation route, which will primarily result in temporary impacts during installation, and the operational phase with the converter station as a permanent structure.

3.3.6.10 Table 3.3.4 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme**.

Table 3.3.4: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Permanent habitat loss (terrestrial)	Designated Sites Thanet Coast & Sandwich Bay SPA, Thanet Coast & Sandwich Bay Ramsar, Sandwich Bay SAC,	Yes - The cable installation route has the potential for direct habitat loss within designated sites, all of which cover the same area. It is expected that any cable installation will result in only a temporary impact. However, until route and working methods are confirmed this	**Scoped in for Construction, Maintenance and Decommissioning** Margate and Long Sands SAC and Outer Thames Estuary SPA can be scoped out of this assessment as they are marine sites and the Kent

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Sandwich & Pegwell Bay NNR, Sandwich Bay to Hacklinge Marshes SSSI	impact pathway will be included as a possibility. No permanent habitat loss of a designated site will occur as a result of the converter station. It is however possible arable habitats utilised by birds associated with nearby designated sites (e.g. golden plover) could be lost. Bird surveys will investigate use of these habitats by such species and inform any requirement for mitigation.	Onshore Scheme does not present an impact pathway. These sites will be considered in the Offshore Scheme. Stodmarsh SAC and Thanet Coast SAC can also be screened out in the absence of an impact pathway. Stodmarsh is upstream of the Kent Onshore Scheme and is designated for sedentary species. Additionally, Thanet coast is designated for reefs and sea caves which will be outside of the Kent Onshore Scheme boundary and therefore no impact pathway.
	Notable Habitats	Hedgerows, arable field margins and other notable habitats could be impacted by cable installation. However, a combination of routeing, HDD where possible and habitat re-instatement and replacement will be employed as mitigation and reduce these impacts to temporary. These impacts will therefore be assessed as temporary rather than permanent. The converter station would be located within an arable field so will not result in permanent loss of notable habitats.	Scoped out for all phases
Temporary habitat loss disturbance (terrestrial)	Designated Sites Notable Habitats Thanet Coast & Sandwich Bay SPA,	Yes - It is expected that impacts upon designated sites, all of which cover the same area and notable habitats outside of these designations will be	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Thanet Coast & Sandwich Bay Ramsar, Sandwich Bay SAC, Sandwich & Pegwell Bay NNR, Sandwich Bay to Hacklinge Marshes SSSI	temporary once additional mitigation has been employed (e.g. HDD, re-instatement) to be confirmed by design.	
	Invertebrates Great Crest Newt Reptiles Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger	Yes - Habitats with potential to support protected and notable species to be potentially impacted by cable installation or converter station construction will be subject to mitigation measures including route assessment, possible HDD, reinstatement and compensation	**Scoped in for Construction, Maintenance and Decommissioning**
Temporary habitat loss (connectivity)	Invertebrates Great Crest Newt Reptiles Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger	Yes - Habitat connectivity may be impacted in the short term by cable installation but will be minimised through use of HDD where possible to avoid key habitats. Where unavoidable fragmentation or habitat degradation is unavoidable this will be a temporary effect until habitat re-instatement is established The converter station will likely be situated within arable fields, therefore minimising fragmentation and degradation of key habitats.	**Scoped in for Construction, Maintenance and Decommissioning**
Temporary habitat loss/ disturbance (intertidal)	Designated Sites Notable Habitats Thanet Coast & Sandwich Bay SPA, Thanet Coast & Sandwich Bay	Yes - Designated sites (shown to the left), all of which cover the same area may be impacted by the works. There is a commitment to undertake the cable installation within the intertidal zone and saltmarshes	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Ramsar, Sandwich Bay SAC, Sandwich & Pegwell Bay NNR, Sandwich Bay to Hacklinge Marshes SSSI	through HDD an assessment will need to take place to ensure that the HDD route includes all designated sites and notable habitats and therefore this is scoped in at present.	
	Non-breeding birds (Intertidal) Breeding Birds	Yes - While intertidal cable installation will be temporary works occurring in the most sensitive breeding and wintering periods, will require mitigation, due to an assemblage of notable bird species highly likely to be present within and adjacent to the intertidal works zone.	**Scoped in for Construction, Maintenance and Decommissioning**
Incidental mortality of protected or notable species	Invertebrates	No - It is unlikely that notable population assemblages will be significantly affected by direct mortality once mitigation measures are in place, as such populations will be linked to habitat.	Scoped out for all phases
	Great crested newt	Yes - While potential exists for great crested newt mortalities during construction, the overall favourable population status is to be maintained through either implementation of District Level or European Protected Species Mitigation licence.	**Scoped in for Construction, Maintenance and Decommissioning**
	Reptiles Breeding Birds Non-breeding Birds Bats Badger	Yes - Potential exists for unmitigated works to impact suitable protected and notable species habitat which may be relatively widespread along the cable corridor (i.e. arable field margins) and result in direct mortalities. If HDD or route selection cannot avoid suitable habitat, mitigation options include works Ecological Method	**Scoped in for all during Construction, Maintenance and Decommissioning** **Additionally scoped in for breeding and non-breeding birds during Operation due to potential bird strike on new overhead line.**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		Statement or Natural England mitigation licence to avoid direct mortalities. Potential also exists for the section of possible overhead powerline to affect breeding and non-breeding birds through collision risk.	
	Dormouse	Yes - Hedgerows within the Kent Onshore Scheme Scoping Boundary may be suitable for dormouse and may be impacted by works if HDD not feasible and require mitigation (i.e. under Natural England mitigation licence). Until further assessment can confirm likely absence of dormouse, effect will be scoped in.	**Scoped in for Construction, Maintenance and Decommissioning**
	Riparian Mammals (otter and water vole)	Yes - It is expected that direct impacts on watercourses (and therefore water vole and otter) can be avoided through HDD techniques. Until routing and feasibility of HDD can be confirmed, there is a potential requirement for mitigation and these receptors remain scoped in.	**Scoped in for Construction, Maintenance and Decommissioning**
Disturbance to protected or notable species (noise/ vibration, visual, lighting	Great crested newt Non-breeding Birds (Intertidal) Non-breeding Birds (Terrestrial) Breeding Birds Bats Dormouse Badge Otter	Yes - Trees, hedgerows and other habitats within the Kent Onshore Scheme Scoping Boundary may be suitable for protected or notable species. If route selection cannot avoid disturbance impacts then mitigation (i.e. works under Ecological Method Statement or Natural England mitigation licence) could be required	**Scoped in for Construction, Maintenance and Decommissioning**
Pollution impacts (dust deposition, air quality, water)	Designates Sites Notable Habitats Thanet Coast & Sandwich Bay	Yes - Potential for pollution or other indirect impacts during construction on adjacent habitats and species will be mitigated though	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	SPA, Thanet Coast & Sandwich Bay Ramsar, Sandwich Bay SAC, Sandwich & Pegwell Bay NNR, Sandwich Bay to Hacklinge Marshes SSSI	implementation of a Construction and Ecology Management Plan.	

3.3.7 Proposed Assessment Methodology

Proposed Data Sources

3.3.7.1 The following sources of information will be utilized to form the basis of the assessment of the likely significant effects on Ecology:

- Baseline data collected by site surveys for the Kent Onshore Scheme
- Baseline data collected and publicly published with regards to other schemes in the area
- Biodiversity record data searches undertaken to inform baseline data.

Assessment Methodology

3.3.7.2 The approach used for the ecological impact assessment (EcIA) will be undertaken in accordance with best practice guidance as published in the CIEEM Guidelines[73] and summarised below:

- ecological features that are both present and might be affected by the Kent Onshore Scheme are identified (both those likely to be present at the time works begin and those predicted to be present under a future baseline) through a combination of targeted desk-based study and field survey work to determine the relevant baseline conditions.
- the importance of the identified ecological features evaluated, placing their relative biodiversity and nature conservation value into geographic context. This is then used to define the relevant ecological features that need to be considered further within the assessment process.
- the changes or perturbations predicted to result as a consequence of the Kent Onshore Scheme (i.e. the potential impacts), and which could potentially affect relevant ecological features are identified and their nature described. Established

[73] Chartered Institute of Ecology and Environmental Management (2019). Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine. Version 1.1. [online] Available at: https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-Sept-2019.pdf [Accessed 13/07/2022].

good-practice, legislative requirements or other incorporated design measures to minimise or avoid impacts are also described and are taken into account.

- the likely effects (beneficial or adverse) on relevant ecological features are then assessed, and where possible quantified.
- measures to avoid or reduce any predicted significant effects, if possible, are then developed in conjunction with other elements of the design (including mitigation for other environmental disciplines). If necessary, measures to compensate for effects on features of nature conservation importance are also included.
- any residual effects of the Kent Onshore Scheme are reported; and
- scope for ecological enhancement is considered.

3.3.7.3 The valuation of sites used established value systems (e.g. SSSIs are all of national importance) and reflected the geographical context of the valuation. The categories shown in Table 3.3.5 were applied to give geographic context.

Table 3.3.5: Examples of criteria used to evaluate important ecological features in a defined geographical context

Geographical level at which ecological feature is important	Example of criteria
International (Very high)	An internationally important site, e.g. Special Protection Area (SPA), Special Area of Conservation (SAC) or Ramsar; a regularly occurring population of an internationally important species (listed on Annex IV of the Habitats Directive)
National (High)	A nationally designated site, e.g. SSSI, or a site considered worthy of such designation; a large regularly occurring population of a nationally important species
Regional (Medium)	An ecological feature identified in the local BAP. A smaller area of local BAP habitat which are essential to maintain the viability of a larger whole; non-statutory designated sites; a regularly occurring, locally significant number of a nationally important species. An ecological feature identified as of priority within Section 41 of the NERC Act 2006.
District (Low)	An ecological feature that is scarce within the district or borough or which appreciably enriches the district or borough habitat resource.
Local (Very low)	A good example of a common or widespread ecological feature in the local area.
Negligible	No or very limited ecological value.

3.3.7.4 The ecological surveys will confirm or identify the distribution and valuation of species and habitats.

3.3.7.5 The 'zone of influence' for the Kent Onshore Scheme is the area over which ecological features may be affected by changes as a result of the Kent Onshore Scheme and associated activities. The zone of influence will be different for each ecological receptor identified, dependent on each receptor's sensitivity to change and will be determined using the maximum extents for study areas of each identified receptor. Where necessary, these will be appropriately revised as the Project evolves.

3.3.7.6 The ES will include consideration of options to avoid, reduce, mitigate, or, if necessary, compensate for any identified potential significant adverse effects to the point where any residual effects are not considered to be significant. In addition, opportunities will be sought for the enhancement of biodiversity at both on and off-site locations as associated with the Kent Onshore Scheme.

3.3.7.7 In line with Section 1.2. in the CIEEM guidelines, the terminology used within the EcIA will draw a clear distinction between the terms 'impact' and 'effect'. For the purposes of this EcIA these terms are defined as follows:

- Impact – actions resulting in changes to an ecological feature. For example, construction activities of a development removing a hedgerow; and
- Effect – outcome resulting from impact acting upon the conservation status or structure and function of an ecological feature. For example, the effects on a population of bats as a result of the loss of a bat roost.

3.3.7.8 When describing potential impacts (and where relevant the resultant effects) consideration will be given to the following characteristics likely to influence this (Sections 5.11-5.18 in the CIEEM guidelines):

- Positive / Negative – i.e. is the change likely to be in accordance with nature conservation objectives and policy:
- Positive – a change that improves the quality of the environment, or halts or slows an existing decline in quality e.g. increasing the extent of a habitat of conservation value; or
- Negative – a change that reduces the quality of the environment, e.g. destruction of habitat.
- Extent – the spatial or geographical area or distance over which the impact/effect occurs;
- Magnitude – the 'size', 'amount' or 'intensity' and 'volume' of an impact - this is described on a quantitative basis where possible;
- Duration – the time over which an impact is expected to last prior to recovery or replacement of the resource or feature. Consideration has been given to how this duration relates to relevant ecological characteristics such as a species' lifecycle. However, it is not always appropriate to report the duration of impacts in these terms. The duration of an effect may be longer than the duration of an activity or impact;
- Timing and frequency – i.e. consideration of the point at which the impact occurs in relation to critical life-stages or seasons; and

- Reversibility – i.e. is the impact temporary or permanent. A temporary impact is one from which recovery is possible or for which effective mitigation is both possible and enforceable. A permanent effect is one from which recovery is either not possible or cannot be achieved within a reasonable timescale (in the context of the feature being assessed).

3.3.7.9 Cumulative effects will be assessed and are those occurring from several sources (also known as inter-relationships) and/or the combined effects of other developments in the area.

3.3.7.10 For each ecological feature only those characteristics relevant to understanding the ecological effect and determining the significance will be described. The determination of the significance of effects has been made based on the predicted effect on the structure and function, or conservation status, of relevant ecological features, as follows:

- Not significant - no effect on structure and function, or conservation status; and
- Significant - structure and function, or conservation status is affected.

3.3.7.11 Sections 5.24 to 5.28 in the CIEEM guidance states that effects should be determined as being significant when:

"an effect either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local. A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project".

3.3.7.12 In broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).

3.3.7.13 Using this information and judgment, it is determined whether the effects will be significant or not on the integrity (of site / ecosystems) or conservation status (of habitats / species) of each ecological feature and the impact significance is determined at the appropriate geographical scale.

3.3.7.14 There are a number of approaches for determining the significance of effects on ecological features. Whilst the CIEEM guidelines recommend the avoidance of the use of the matrix approach for categorisation (major, moderate and minor), in order to provide consistency of terminology, the CIEEM assessment will be translated into the classification of effects scale, as outlined in Table 3.3.6.

Proposed Significant Criteria

3.3.7.15 The potential effects that are proposed to be scoped into or out of the assessment are summarised in Table 3.3.6.

Table 3.3.6: Relating CIEEM assessment terms to those used in other EIA chapters

Effect classification terminology used in other EIA chapters	Equivalent CIEEM assessment
Major beneficial (positive)	1) Permanent addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Moderate beneficial (positive)	1) Temporary addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Minor beneficial (positive)	1) Permanent addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Negligible beneficial (positive)	1) Temporary addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Negligible adverse (negative)	1) Temporary/reversible damage to a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Minor adverse (negative)	1) Permanent/irreversible damage to a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Moderate adverse (negative)	1) Temporary/reversible damage to a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.
Major adverse (negative)	1) Permanent/irreversible damage to a biodiversity resource; and

	2) the extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.

3.3.8 Conclusion

3.3.8.1 The receptors and impact pathways identified in this report will be taken into account in the ecological impact assessment to accompany the ES, which will be undertaken in line with the methodology in section 7.

Proposed Scope of the Assessment

3.3.8.2 A summary of the proposed scope of the assessment is provided in Table 3.3.7.

Table 3.3.7: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
Designated Sites Thanet Coast & Sandwich Bay SPA, Thanet Coast & Sandwich Bay Ramsar, Sandwich Bay SAC, Sandwich & Pegwell Bay NNR, Sandwich Bay to Hacklinge Marshes SSSI, all of which cover the same area	Potential for permanent habitat loss, fragmentation / modification (including functionally linked habitat)	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance (including functionally-linked habitat)	Construction, Maintenance, Decommissioning	**Scoped in**
	Indirect Pollution impacts (dust deposition, air quality, water)	Construction, Maintenance, Decommissioning	**Scoped in**
Notable and Other Habitats	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Indirect pollution impacts (dust	Construction, Maintenance,	**Scoped in**

	deposition, air quality, water)	Decommissioning	
Invertebrates	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	All phases	Scoped out
Great Crested Newts	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction, Maintenance, Decommissioning	**Scoped in**
Reptiles	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction, Maintenance, Decommissioning	**Scoped in**
Non-breeding Birds (Intertidal)	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped In**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction, Maintenance, Decommissioning	Scoped out

	Incidental mortality of protected or notable species during operation due to presence of new powerlines	Operation	**Scoped in**
	Disturbance to protected or notable species (noise/ vibration, visual, lighting)	Construction, Maintenance, Decommissioning	**Scoped in**
Non-breeding Birds (Terrestrial)	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction/ Maintenance/ Decommissioning	Scoped out
	Disturbance to protected or notable species (noise/ vibration, visual, lighting)	Construction, Maintenance, Decommissioning	**Scoped in**
Breeding Birds	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction, Maintenance, Decommissioning	**Scoped in**
	Disturbance to protected or notable species (noise/ vibration, visual, lighting)	Construction, Maintenance, Decommissioning	**Scoped in**
Bats	Potential for permanent habitat	Construction, Maintenance, Decommissioning	**Scoped in**

	loss, fragmentation / modification		
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction, Maintenance, Decommissioning	**Scoped in**
	Disturbance to protected or notable species (noise/ vibration, visual, lighting)	Construction, Maintenance, Decommissioning	**Scoped in**
Dormouse	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance during construction	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species during construction	Construction, Maintenance, Decommissioning	**Scoped in**
	Disturbance to protected or notable species (noise/ vibration, visual, lighting)	Construction, Maintenance, Decommissioning	**Scoped in**
Badgers	Potential for permanent habitat loss, fragmentation / modification during construction	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance during construction	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species during construction	Construction, Maintenance, Decommissioning	**Scoped in**
	Disturbance to protected or notable species (noise/	Construction, Maintenance, Decommissioning	**Scoped in**

	vibration, visual, lighting)		
Riparian Mammals (Otter and Water Vole and Beaver)	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction, Maintenance, Decommissioning	Scoped out
	Disturbance to protected or notable species (noise/ vibration, visual, lighting)	Construction, Maintenance, Decommissioning	**Scoped in**

3.4 Cultural Heritage

3.4.1 Introduction

3.4.1.1 This chapter presents how the Cultural Heritage assessment will consider the potentially significant effects that may arise from the construction, operation maintenance and decommissioning of the Kent Onshore Scheme (as described **in Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

3.4.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.4.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Project Description**;
- **Part 1, Chapter 5, EIA Approach and Methodology**;
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**; and
- **Part 3, Chapter 5, Geology and Hydrogeology**.

3.4.1.4 This chapter is supported by the following figures:

- **Figure 3.4.1 Designated Cultural Heritage Assets within the Scoping Boundary and wider 1 km Study Area**; and
- **Figure 3.4.2 Non-designated Cultural Heritage Assets within the Scoping Boundary**

3.4.1.5 This chapter is supported by the following Appendicies:

- **Appendix 3.4.A: Non-designated assets recorded on the Kent HER within the Scoping Boundary**.

3.4.1.6 Cultural Heritage comprises above and below-ground archaeological assets, buildings or structures of historic interest, historic landscape features, and any other elements that are of cultural heritage interest.

3.4.2 Regulatory and Planning Context

3.4.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. The key legislation, policy, and guidance relevant to the assessment of the potential effects on the historic environment

associated with the construction, operation, maintenance and decommissioning phases of the Project are presented below.

Legislation

- Planning (Listed Buildings and Conservation Areas) Act 1990[74] and
- Ancient Monuments and Archaeological Areas Act 1979 [75] (amended by the National Heritage Act 1983[76] and 2002[77].

Planning Policy

National planning policy

- NPS EN-1[78] with particular reference to Section 5.8 in relation to the significance, impact and recording of the historic environment. The historic environment is also covered in the section 5.9 of the Draft NPS EN-1 which is currently under review.;
- NPS EN-5[79] with particular reference to Paragraph 2.8.9 in relation to the archaeological consequences of electricity line installation. Potential impacts are also mentioned in sections 2.2.5 and 2.11.14 of the Draft NPS EN-5 which is currently under review.; and
- NPPF[80] with particular reference to Section 16: Conserving and Enhancing the Historic Environment.

National guidance

3.4.2.2 The following guidance is of relevance for cultural heritage:

- Planning Practice Guidance, Section 16: Conserving and enhancing the historic environment[81] ;
- Historic Environment Good Practice Advice in Planning Note 2. Managing Significance in Decision Taking in the Historic Environment. Historic England[82] ;

[74] Planning (Listed Buildings and Conservation Areas) Act 1990 [online]. Available at: https://www.legislation.gov.uk/ukpga/1990/9/contents

[75] Ancient Monument and Archaeological Areas Act 1979 [online]. Available at: https://www.legislation.gov.uk/ukpga/1979/46/contents.

[76] National Heritage Act 1983 [online]. Available at: https://www.legislation.gov.uk/ukpga/1983/47/contents

[77] National Heritage Act 2002 [online]. Available at: https://www.legislation.gov.uk/ukpga/2002/14/contents

[78] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[79] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf

[80] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

[81] Ministry of Housing, Communities & Local Government (2019). Planning Practice Guidance: Historic Environment. [online] Available at: https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment#overview-historic-environment

[82] Historic England (2015). Historic Environment Good Practice Advice in Planning Note 2 – Managing Significance in Decision Taking. [online] Available at: https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2/

- Historic Environment Good Practice Advice in Planning Note 3. The Setting of Heritage Assets. Historic England (2nd edition, 2017)[83] ;
- Historic Environment Statement of Heritage Significance: Analysing Significance in Heritage Assets. Historic England Advice Note 12. Historic England (2019)[84] ;
- Commercial Renewable Energy Development and the Historic Environment. Historic England Advice Note 15 (2021)[85];
- Chartered Institute for Archaeologists (CIfA) Standard and Guidance for Historic Environment Desk-Based Assessment[86] ;
- CIfA Code of Conduct[87] ; and
- Institute of Environmental Management and Assessment (IEMA), the Institute of Historic Building Conservation (IHBC) and the Chartered Institute for Archaeologists (CIfA), Principles of Cultural Heritage Impact Assessment in the UK[88] .

Local planning policy

3.4.2.3 A search of Kent County Council website did not identify any County-wise policy or guidance associated with cultural heritage or the historic environment.

3.4.2.4 Thanet District Council Local Plan[89] was adopted in July 2020. The relevant key policies are:

- Policy SP36 - Conservation and Enhancement of Thanet's Historic Environment;
- Policy HE01 – Archaeology;
- Policy HE02 - Development in Conservation Areas;
- Policy HE03 - Heritage Assets;
- Policy HE04 - Historic Parks and Gardens; and
- Policy HE05 - Works to a Heritage Asset to Address Climate Change.

[83] Historic England (2017). Historic Environment Good Practice Advice in Planning Note 3 (second edition) - The Setting of Heritage Assets. [online] Available at: https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/heag180-gpa3-setting-heritage-assets/

[84] Historic England (2019). Historic England Advice Note 12. Statements of Heritage Significance: Analysing Significance in Heritage Assets. [online] Available at: https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/heag279-statements-heritage-significance/

[85] Historic England (2021). Historic Environment Good Practice Advice in Planning Note 15. Commercial Renewable Energy Development and the Historic Environment. [online] Available at: https://historicengland.org.uk/images-books/publications/commercial-renewable-energy-development-historic-environment-advice-note-15/heag302-commercial-renewable-energy-development-historic-environment/

[86] Chartered Institute for Archaeologists (2020). Standard and guidance for historic environment desk-based assessment. [online] Available at: https://www.archaeologists.net/sites/default/files/CIfAS%26GDBA_4.pdf#:~:text=STANDARD%20AND%20GUIDANCE%20for%20historic%20environment%20desk-based%20assessment,expand%20and%20explain%20general%20definitions%20in%20the%20Code.

[87] Chartered Institute of Archaeology (2019). Code of Conduct: Professional Ethics in Archaeology. [online] Available at: https://www.archaeologists.net/sites/default/files/Code%20of%20conduct.pdf

[88] Institute of Environmental Management & Assessment, in partnership with the Chartered Institute for Archaeologists and the Institute of Historic Building Conservation (2021). Principles of Cultural Heritage Impact Assessment in the UK.

[89] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

3.4.2.5 The Dover Adopted Core strategy[90] was adopted in 2010. It is due to be replaced by the Dover District Local Plan (details below) but remains in use until that is adopted. While the historic environment is considered, the only heritage policy is:

- Policy DM 19 Historic Parks and Gardens.

3.4.2.6 The Dover District Local Plan[91] is still to be adopted. However, the key policies are as follows:

- Strategic Policy 18: Protecting the District's Historic Environment;
- DM Policy 44: Designated and Non-designated Heritage Assets;
- DM Policy 45: Conservation Areas;
- DM Policy 46: Archaeology;
- DM Policy 47: Dover Western Heights; and
- DM Policy 48: Historic Parks and Gardens.

3.4.3 Study Area

3.4.3.1 The study area is the area within which cultural heritage assets may experience effects as a result of the Kent Onshore Scheme during construction, operation, maintenance, and decommissioning. Effects to heritage assets may arise as a result of physical impacts to their fabric or through changes to their setting.

3.4.3.2 For the purpose of this Scoping Report, the Kent Onshore Scheme Scoping Boundary has been used as the study area to capture information relating to archaeology and cultural heritage. The study area provides the necessary context for establishing the likely impacts arising from the Kent Onshore Scheme and the potential effects to cultural heritage assets. A second wider study area consisting of the Kent Scoping Boundary and a 1km buffer was used to identify designated assets within the surrounding landscape, in order to provide an initial assessment of potential impacts on designated assets.

3.4.4 Baseline Conditions

3.4.4.1 The following section provides a summary of the baseline environmental conditions within the Kent Scoping Boundary, using the sources of information outlined below.

Data Sources

3.4.4.2 The cultural heritage baseline described in this section has been informed by the following data sources:

[90] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf [Accessed 13/07/2022].

[91] Dover District Council (2002). Dover District Local Plan 2002. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/Adopted-Development-Plans/Dover-District-Local-Plan-2002.aspx

- The Cultural Heritage baseline described in this section has been informed by the following data sources: Historic England National Designated Assets dataset[92];
- Kent HER; and
- Other readily available online sources.

Baseline

3.4.4.3 There is only one designated asset within the Scoping Boundary, this being the Grade II listed St. Augustine's Cross near Cliffs End and St. Augustine's Golf Club (LB 1266551). Designated assets within the wider 1 km study area include one scheduled monument, 34 listed buildings, and one conservation areas.

3.4.4.4 The scheduled monument consists of the monastic grange and pre-Conquest nunnery at Minster Abbey (1016850).

3.4.4.5 There are two Grade I, and 32 Grade II listed buildings. The Grade I* buildings are Minster Abbey (1223807), and the Church of St Mary (1224116), both of which are located in the village to Minster. The Grade II listed buildings mostly comprise farms and houses, but structures such as cast-iron lamp standards are also listed. Many of the listed buildings are located in the settlement of Minster which is also a conservation area.

3.4.4.6 A total of 190 heritage assets were recorded within the Kent Scoping Boundary on the Kent HER (see **Appendix 3.4.A Non-designated assets recorded on the Kent HER within the Scoping Boundary).** The earliest dated site within the study area is the find spot of a Lower Palaeolithic (500,000 to 150,000 BC) stone tool. Changes in sea level, as well as the reclamation of the land, has altered the coastline in the study area meaning there is the potential for former coastal areas/palaeo-environmental remains to survive buried under the current land surface. The line of the Wantsum Channel falls within the Kent Scoping Boundary, and there is the potential for evidence dating from the prehistoric period onwards to survive along the course of this former navigable channel.

3.4.4.7 Other sites of early prehistoric date are also largely limited to find spots, although ditches and pits of Neolithic date (4000 to 2200 BC) have also been recorded. Features of Bronze Age date (2200 to 700 BC) include settlement activity, field systems and round barrows. Extensive evidence for activity has been identified during developer-lead excavations over the last 15 years including the East Kent Access Scheme, part of which included the construction of the A256 which crosses the Kent Scoping Boundary between Cliffs End and Richborough Port. A number of finds have also been made, including a hoard.

3.4.4.8 There is more evidence dating to the Iron Age (700 BC to AD 43), particularly in the later phase of the period leading into the transition into the Roman period (AD43 – AD410). Settlement evidence across the study area increased in these periods, with many enclosure ditches for settlements, containing individual buildings, and field systems recorded. A large number of finds of Iron Age coins are also present. Settlement continued into the Roman period, with settlement focussed around the

[92] Historic England (2022). National Heritage List. [Online] Available at: https://historicengland.org.uk/listing/the-list

Roman scheduled monuments. Other notable sites include Minster Roman villa and a Roman road.

3.4.4.9 Evidence from the early medieval period (AD410 to 1066) is much more limited. Apart from the scheduled nunnery, remains consist of funerary evidence, including a cemetery, a second possible cemetery and isolated burials. Settlement activity is limited to Anglo-Saxon activity within the scheduled Richborough Castle, sunken floored buildings excavated as part of the East Kent Access Route and a possible farmstead. Sites of medieval date (1066 to 1540) are largely related to agricultural activity, including evidence of farmsteads and ridge and furrow. Sea defences of medieval date are also recorded.

3.4.4.10 Post-medieval (1540 to 1900) sites are largely made up of built heritage assets, including farms, houses and churches, many of which are designated as listed buildings. Other evidence includes industrial sites, such as gravel pits, quarries, salt working, and chalk pits. Transport links were also enhanced in the post-medieval period, with the construction of the Stonar Cut canal, and railway lines, such as the Ashford and Margate railway line and the Deal Branch railway. Assets of modern date (1900 to present) are overwhelmingly related to the defence of the area during World War II, with home defences such as pillboxes, coastal batteries and anti-tank and anti-aircraft defences recorded in large numbers. Buildings, or the sites of buildings, from this period also include hospitals, stores and military depots. Evidence of aerial attack in the area includes bomb craters and an aircraft crash site. Sites not related to World War II include a light railway and other industrial sites.

Future Baseline

3.4.4.11 The cultural heritage chapter within the Environmental Statement (ES) will include an outline of the likely evolution of the baseline environment without the implementation of the development as far as natural changes from the baseline scenario can be assessed.

3.4.5 Embedded and Control & Management Measures

Embedded Measures

3.4.5.1 There is only a single asset within the Kent Scoping Boundary, this being the Grade II listed St. Augustine's Cross which is located near Cliffs End and St. Augustine's Golf Club (LB 1266551), which will be avoid by the Kent Onshore Scheme. As the design develops further and is better refined, additional mitigation measures could include further design intervention to avoid physical impacts on known heritage assets.

3.4.5.2 Impacts caused through change to the setting of heritage assets may be mitigated through detailed design and micro-siting of the converter station to avoid or minimise harm to heritage assets.

Control and Management Measures

3.4.5.3 If it is not possible to avoid heritage assets, mitigation will include (but not be limited to) detailed landscape/topographic survey, archaeological excavation of features being removed and archaeological monitoring/watching brief.

3.4.5.4 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the Cultural Heritage assessment are:

- GG03: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP) and a Construction Traffic Management Plan (CTMP) will be produced prior to construction.
- H01 Locations of known archaeological interest/value, or areas where archaeological work is planned, will be signposted/fenced off to avoid unintentional damage.
- H02 Where a previously unknown heritage asset is discovered, or a known heritage asset proves to be more significant than foreseen at the time of application, the project will inform the local planning authority and will agree a solution that protects the significance of the new discovery, so far as is practicable, within the project parameters.

3.4.6 Potential for Significant Effects

3.4.6.1 The cultural heritage assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.4.6.2 The proposed scope of the cultural heritage assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.4.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.4.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

3.4.6.5 Permanent construction impacts resulting from the construction phase are likely to include:

- construction activities such as the excavation of trenches for cable installation, and the establishment of construction compounds;
- the presence of construction compounds introducing potential light and noise; and
- impacts on the setting of heritage assets resulting from the converter station and sub-station, as well as the AC connector if an overhead option is progressed for this element of work.

Sources of operational impacts

- the presence of new above ground infrastructure including the new converter station; and
- the presence of potential light and noise.

Sources of maintenance impacts

- physical impacts resulting from intrusive maintenance works on the cable and converter station; and
- temporary impacts on setting resulting from plant/machinery linked to maintenance works.

Sources of decommissioning impacts

- the presence and movement of construction plant that may alter the setting of heritage assets, including change arising from aural intrusion; and
- the presence of construction compounds introducing potential light and noise.

Potential impacts

3.4.6.6 There is the potential for significant effects on a number of non-designated assets within the Scoping Boundary. A full list of non-designated assets can be seen in **Appendix 3.4.A,** although it should be noted that significant effects are not expected on 'find spots' as 'find spots' represent features that have been recovered and therefore are no longer surviving *in situ*. It is also possible that at least some of the features have been excavated as part of earlier schemes so also no longer survive *in situ*.

3.4.6.7 There will be no physical impacts on the single designated assets within the Scoping Boundary as it will be avoided by the construction works. There is, however, the potential for temporary impacts on the setting of designated assets resulting from the construction of the cable.

3.4.6.8 Table 3.4.1 below identifies the potential for impacts that could result from the sources identified above.

Table 3.4.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in / out
Construction	Construction works linked to Kent Onshore Scheme	Physical impacts on non-designated heritage assets.	Yes - The Kent Onshore Scheme has the potential to result in a physical impact on non-designated assets.	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in / out
Construction	Construction works linked to Kent Onshore Scheme	Temporary impacts on the setting of designated assets.	Yes - The Kent Onshore Scheme has the potential to result in temporary impacts on the setting of designated assets.	**Scoped in**
Construction	Construction compounds introducing light and noise pollution	Temporary impacts on the setting of designated assets.	Yes - The Kent Onshore Scheme has the potential to result in temporary impacts on the setting of designated assets.	**Scoped in**
Operation	Converter Station and OHL that might be required	Impacts on the setting of designated and non-designated assets.	Yes - The Kent Onshore Scheme has the potential to result in temporary impacts on the setting of designated assets	**Scoped in**
Maintenance	Physical impacts resulting from maintenance works	Physical impacts on non-designated assets	No – Limited potential as all remains will have been removed during construction	Scoped out
Maintenance	Temporary impacts on setting resulting from plant/machinery	Temporary impacts on the setting of heritage assets	No - Limited potential as the machinery/plant being used will be minor in size.	Scoped out
Decommissioning	Physical impacts resulting from decommissioning works	Physical impacts on non-designated assets	No - Limited as all remains will have been removed during construction	Scoped out
Decommissioning	Temporary impacts on setting resulting from plant/machinery	Temporary impacts on the setting of heritage assets	No - Limited potential for significant impacts as the machinery/plant being used will be minor in size.	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in / out
Decommissioning	Construction compounds introducing light and noise pollution	Temporary impacts on the setting of heritage assets.	No - Limited potential for significant impacts, and impacts will be temporary.	Scoped out

Impact Pathways with Receptors (Step 2)

3.4.6.9 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the Kent Onshore Scheme study area.

3.4.6.10 Table 3.4.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme.**

Table 3.4.2: Impact Pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary impacts on the setting of designated assets	Designated Heritage Assets	Yes - Moderate due to the number of designated assets in the area	**Scoped in**
Physical impacts on non-designated heritage assets	Non-Designated Heritage Assets	Yes - High due to the number and size of non-designated assets in the area, as well as the nature of the non-designated assets.	**Scoped in**
Impacts on the setting of heritage assets resulting from the converter station and above ground infrastructure	Designated and Non-Designated Heritage Assets	Yes - Moderate due to the number of designated and non-designated assets in the surrounding area	**Scoped in**

3.4.7 Proposed Assessment Methodology

3.4.7.1 An overview of the proposed assessment methodology is provided in **Part 1 Chapter 5, EIA Approach and Method.**

3.4.7.2 A cultural heritage Desk-Based Assessment (DBA) will be prepared in accordance with industry standards and best practice guidelines, namely the Chartered Institute for Archaeologists' Standard and Guidance for Historic Environment Desk-Based Assessment (2020), Historic England's Good Practice Advice in Planning Notes 2, 3 and 12 (2016; 2015; 2019 respectively), and any responses received as part of the Scoping Opinion and consultation on the Project. The DBA will form an appendix to the Project Environmental Statement and will inform the Kent Onshore Scheme Cultural Heritage chapter. It will confirm whether any additional survey work is required to better determine the nature, extent and significance of buried archaeological remains within the construction footprint of the Kent Onshore Scheme.

3.4.7.3 While a 1km study area has been used for the scoping stage, a refined study area of 0.5 km from the proposed Order Limits will be used to provide detailed baseline information for the assessment. A wider study area of 2 km from the proposed Order Limits will be used to identify assets which may have their setting affected. The study area for the assessment of setting will be limited to 2 km in the area of Above Ground Infrastructure, such as the Converter Station and the section of overhead line (if taken forwards), due to the below ground nature of the development. The scope of the setting assessment will be informed by the Zone of Theoretical Visibility (ZTV), although some

assets beyond this distance and outside the ZTV may also be considered where elements of their setting extend closer to, or include, the Kent Onshore Scheme.

Proposed Data Sources

3.4.7.4 Desk-based research will be undertaken as part of the EIA. Additional information will be gathered from the following sources:

- Kent Historic Environment Records (HER);
- The National Heritage List for England (NHLE), held by Historic England, for designated assets;
- local authority conservation area appraisal and management documents and their mapping;
- historic landscape characterisation (HLC) mapping undertaken by local planning authorities;
- aerial photographs held by Historic England, local authorities and other appropriate repositories and other readily available remote sensing results such as LiDAR data;
- geological mapping and borehole information as held by the British Geological Survey; and
- documentary, cartographic and other resources as deposited within local studies libraries, county libraries and archives, including historic Ordnance Survey maps, tithe, estate and other maps, and other relevant primary sources held at Kent Archives, together with local studies library information.

3.4.7.5 An archaeological walkover survey to assess known sites and to determine the potential for previously unrecorded heritage assets will also be undertaken. This will focus on the final alignment as well as any associated compounds, laydown areas, and Above Ground Infrastructure.

3.4.7.6 Information collected from these sources will be used to describe the known archaeology and built heritage of the 0.5km study area, and to assess the setting of heritage assets up to 2 km from the proposed Order Limits of the Kent Onshore Scheme.

Assigning Value

3.4.7.7 The value of a heritage asset (its heritage significance) is guided by its designated status but is derived also from its heritage interest which may be archaeological, architectural, artistic or historic (NPPF Annex 2, Glossary[93]). Each identified heritage asset can be assigned a value in accordance with the criteria set out in Table 3.4.3. Using professional judgement and the results of consultation, heritage assets are also assessed on an individual basis and regional variations and individual qualities are taken into account where applicable.

[93] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

Table 3.4.3: Criteria for assessing the value of heritage assets

Value (significance)	Asset categories
High	World Heritage Sites Scheduled Monuments Grade I and II* listed buildings Registered battlefields Grade I and II* registered parks and gardens Conservation areas of demonstrable high value Non-designated heritage assets (archaeological sites, historic buildings, monuments, parks, gardens or landscapes) that can be shown to have demonstrable national or international importance Well preserved historic landscape character areas, exhibiting considerable coherence, time-depth or other critical factor(s)
Medium	Grade II listed buildings Conservation areas Grade II registered parks and gardens Conservation areas Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable regional importance Averagely preserved historic landscape character areas, exhibiting reasonable coherence, time-depth or other critical factor(s) Historic townscapes with historic integrity in that the assets that constitute their make-up are clearly legible
Low	Locally listed buildings Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable local importance Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade Historic landscape character areas whose value is limited by poor preservation and/ or poor survival of contextual associations
Not significant	Assets identified on national or regional databases, but which have no archaeological, architectural, artistic or historic value Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade Landscape with no or little significant historical merit

Determining the Magnitude

3.4.7.8 Having identified the value of the heritage asset, the next stage in the assessment is to identify the level and degree of impact to an asset arising from the development. Impacts may arise during construction or operation and can be temporary or permanent. Impacts can occur to the physical fabric of the asset or affect its setting.

3.4.7.9 The level and degree of impact (magnitude of impact rating) is assigned with reference to a four-point scale as set out in Table 3.4.4. In respect of cultural heritage an assessment of the level and degree of impact is made in consideration of any mitigation measures (embedded, control and management and mitigation measures. If no impact on value is identified, no impact rating is given and no resulting effect reported.

Table 3.4.4: Factors influencing the assessment of magnitude of impacts.

Magnitude of impact rating	Description of impact
Large	Changes such that the heritage value of the asset is totally altered or destroyed. Comprehensive change to elements of setting that would result in harm to the asset and our ability to understand and appreciate its heritage significance.
Medium	Change such that the heritage value of the asset is significantly altered or modified. Changes such that the setting of the asset is noticeably different, affecting significance and resulting in changes in our ability to understand and appreciate the heritage value of the asset.
Small	Changes such that the heritage value of the asset is slightly affected. Changes to the setting that have a slight impact on significance resulting in changes in our ability to understand and appreciate the heritage value of the asset.
Negligible	Changes to the asset that hardly affect heritage value. Changes to the setting of an asset that have little effect on significance and no real change in our ability to understand and appreciate the heritage value of the asset

Assessing the Significance of Effect

3.4.7.10 An assessment to classify the effect, having taken into consideration mitigation, will be determined using the matrix at Table 3.4.5, which takes account of the value of the asset (Table 3.4.3) and the magnitude of impact (Table 3.4.4). Effects can be neutral, adverse or beneficial.

Table 3.4.5: Assessment of effect

Heritage value (significance)		Very High	High	Medium	Low	Negligible
Impact magnitude:	**Large**	Major	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Moderate	Minor	Negligible
	Small	Moderate	Moderate	Minor	Negligible	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible

3.4.7.11 The ES will report on the significance of effect in accordance with the proposed methodology described above. Major and moderate effects are considered to be significant. Within the NPPF, impacts affecting the value of heritage assets are considered in terms of harm and there is a requirement to determine whether the level of harm amounts to 'substantial harm' or 'less than substantial harm'. This is also supported by the Overarching National Policy Statement for Energy (EN-1) which also notes that there should always be a presumption in favour of conservation as once lost assets cannot be replaced[94]. There is no direct correlation between the significance of effect as reported in the final ES and the level of harm caused to heritage significance. A major (significant) effect on a heritage asset would, however, more often be the basis by which to determine that the level of harm to the significance of the asset would be substantial. A moderate (significant) effect is unlikely to meet the test of substantial harm and would therefore more often be the basis by which to determine that the level of harm to the significance of the asset would be less than substantial. A minor or negligible (not significant) effect would still amount to a less than substantial harm, which triggers the statutory presumptions against development within s.66 of the Listed Buildings Act 1990; however, a neutral effect is classified as no harm. In all cases determining the level of harm to the significance of the asset arising from development impact is one of professional judgement.

3.4.8 Conclusion

3.4.8.1 From the review of data undertaken as part of the scoping exercise, a number of designated and non-designated assets have been recorded within, and immediately adjacent, to the Kent Onshore Scheme and associated study area.

3.4.8.2 Previous developments in the area, including the East Kent Access Road scheme have also revealed previously unrecorded assets, while changes in land use, land reclamation, and silting of watercourses also means there is the potential for paleoenvironmental remains to survive in sections of the route.

3.4.8.3 While designated assets will be avoided as part of the development of the Kent Onshore Scheme, there is the potential for physical impacts on non-designated assets

[94] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

during the construction phase. Furthermore, there is the potential for impacts on the setting of designated and non-designated assets from the converter station.

3.4.8.4 As a result, an archaeology and cultural heritage chapter will be completed as part of the EIA. This will focus on assessing impacts to designated and non-designated assets, either through physical impacts from the Kent Onshore Scheme, or through change to their settings, during the construction and operational phases.

Proposed scope of the assessment

3.4.8.5 A summary of the proposed scope of the assessment is provided in Table 3.4.6.

Table 3.4.6: Proposed scope of the assessment

Receptor	Potential significant effect	Project phase(s)	Proposed to be scoped in/out
Designated assets	Potential for significant effect from impacts on setting resulting from the converter station and any above ground infrastructure	Operational	**Scoped in**
Non-designated assets	Potential for significant impacts resulting from construction works	Construction	**Scoped in**
	Potential for significant effect from impacts on setting resulting from the converter station and any above ground infrastructure	Operational	**Scoped in**

3.5 Water environment

3.5.1 Introduction

3.5.1.1 This chapter presents how the water environment assessment will consider the potentially significant effects on surface water receptors that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

3.5.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary, is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.5.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**;
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**; and
- **Part 3, Chapter 5, Geology and Hydrogeology**.

3.5.1.4 This chapter is supported by the following figure:

- **Figure 3.5.1 Water Environment Study Area and Existing Features**.

3.5.1.5 The assessment of potentially significant effects on groundwater receptors is presented in **Part 3, Chapter 5, Geology and Hydrogeology**.

3.5.1.6 The water environment Assessment will be supported by a Flood Risk Assessment (FRA) and Water Framework Directive (WFD) Screening Assessment. The scopes of these are not discussed in detail herein, but will be agreed with the relevant stakeholders.

3.5.2 Regulatory and Planning Context

3.5.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. The key legislation, policy, and guidance relevant to the assessment of the potential effects on the water environment associated with the construction, operation, maintenance and decommissioning phases of the Project are presented below.

Legislation

3.5.2.2 The Water Environment (Water Framework Directive [WFD]) (England and Wales) Regulations 2003 (Her Majesty's Stationery Office (HMSO), 2003) implemented the Water Framework Directive in England and Wales and were amended by the Floods and Water (Amendment etc.) (EU Exit) Regulations 2019[95]. The 2019 Regulations, specifically Regulation 20, stipulate that the substance of the WFD regime that applied pre-EU Exit will continue to apply with only relatively minor amendments.

3.5.2.3 Part 5 of the Environment Act 2021 (HMSO, 2021)[96], brings together measures to strengthen and update the existing regulatory and long-term planning framework for water, helping to reduce environmental risks, including to water quality and land drainage. It also strengthens the regulation of water and sewerage undertakers by the newly established Office for Environmental Protection.

3.5.2.4 The Land Drainage Act 1991 (HMSO, 1991)[97] together with the Water Resources Act 1991[98] provide for the Environment Agency to prevent the obstruction of any main river through the construction of flow control structures, culverts or any other structure in a main river. Where culverting or other works have a potential to affect the flow regime on ordinary watercourses, consent is required from the Lead Local Flood Authority (LLFA) under the Flood and Water Management Act 2010 (HMSO, 2010)[99], which provides a more comprehensive flood risk management framework for people, homes and businesses.

Planning Policy

National planning policy

3.5.2.5 National Policy Statement for Energy (EN-1)[100] states that energy projects have the potential to have adverse effects on the water environment, noting that where significant effects are likely an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and physical characteristics of the water environment should be undertaken. The potential for the Project to result in significant effects on all these aspects of the water environment has been considered herein.

3.5.2.6 Flood risk is also a consideration and paragraph 5.7.4 of EN-1 states 'applications for energy projects of 1 hectare or greater in Flood Zone 1 in England and all proposals for energy projects located in Flood Zones 2 and 3… should be accompanied by a flood risk assessment (FRA). This should identify and assess the risk of all forms of flooding to and from the project and demonstrate how these flood risks will be managed, taking climate change into account'. The Project will be subject to an FRA

[95] The Floods and Water (Amendments etc.) (EU Exit) Regulations 2019 [online]. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176283/contents

[96] The Environment Act 2021 [online]. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted

[97] The Land Drainage Act 1991 [online]. Available at: https://www.legislation.gov.uk/ukpga/1991/59/contents

[98] The Water Resources Act 1991 [online]. Available at: https://www.legislation.gov.uk/ukpga/1991/57/contents

[99] The Flood and Water Management Act 2010 [online]. Available at: https://www.legislation.gov.uk/ukpga/2010/29/contents

[100] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

that meets these criteria. EN-1 also sets out generic policy with respect to water quality and resources in section 5.16 and section 4.10 sets out policy on the pollution control framework.

3.5.2.7 National Policy Statement for Electricity Networks Infrastructure (EN-5)[101] contains paragraph 2.4.2 relating to the water environment, which has been considered within this chapter. This states that 'The resilience of the project to climate change should be assessed in the Environmental Statement (ES) accompanying an application. For example, future increased risk of flooding would be covered in any flood risk assessment'.

Local planning policy

3.5.2.8 Relevant policies from the Dover District Council Core Strategy, adopted February 2010[102]and the Dover District Local Plan (adopted 2002), will also be considered. These are listed below:

- WE8 – River and tidal flooding; and
- WE9 – Coastal defences

3.5.2.9 Several standards and non-statutory guidelines, which provide details of assessment methodologies and mitigation techniques, will also be referenced to inform the assessment, including:

- Planning Inspectorate Advice Note 18: Water Framework Directive[103],
- Construction Industry Research and Information Association (CIRIA) publications (various dates)[104]; and
- Guidance for Pollution Prevention series[105].

3.5.3 Study Area

3.5.3.1 The study area for the EIA is proposed to include all land within the Kent Onshore Scheme Scoping Boundary, together with an additional 500m buffer from this boundary. The study area for the EIA is illustrated in **Figure 3.5.1 Water Environment Study Area and Existing Features**.

3.5.3.2 The FRA that will be prepared to inform the EIA, may cover a larger study area where necessary, for example assessing the potential for changes to baseline flood risk at the local catchment scale or within a floodplain cell which may covers areas up to a several km^2. The Water Framework Directive Screening Assessment will include a

[101] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[102] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf [Accessed 13/07/2022].

[103] The Planning Inspectorate (2017). Advice Note 18: Water Framework Directive. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-18/

[104] Construction Industry Research and Information Association (2022). CIRIA Publications. [online] Available at: https://www.ciria.org/CIRIA/Bookshop/Free_Publications/Books/Free_CIRIA_Publications.aspx?hkey=ca8794b8-b1b3-4742-880d-6c7a27719afb

[105] NetRegs (2022). Guidance for Pollution Prevention (GPPs) – Full List. [online] Available at: https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/guidance-for-pollution-prevention-gpps-full-list/

study area that is set at the water body scale and include all those WFD waterbodies with the potential to be affected.

3.5.3.3 The study areas for assessing effects on geology and the groundwater environment are described in **Part 3, Chapter 6, Geology and Hydrogeology**.

3.5.4 Baseline Conditions

Data Sources

3.5.4.1 The water environment baseline described in this section has been informed by the following data sources:

- Environment Agency online flood maps;
- The South East River Basin Management Plan;
- The EA Catchment Data Explorer; and
- River Stour (Kent) IDB online mapping.

Baseline

3.5.4.2 The Kent Onshore Scheme is situated in the hydrological catchment of the River Stour. The River Stour is a designated main river that rises as the Great Stour in Lenham and flows towards and through Canterbury, where it becomes tidal, finally discharging to the sea at Pegwell Bay. The river has extensive areas of floodplain, designated as Environment Agency Flood Zone 3, with some areas mapped as benefitting from flood defences. The river is a designated WFD waterbody, with a current (2019) ecological status of Moderate and which is failing with regard to chemical status[106].

3.5.4.3 In addition to the River Stour, within the study area there are networks of watercourses that drain the Stour Marshes and which are managed by the River Stour (Kent) Internal Drainage Board (IDB). Key watercourses include the Minster Stream to the north and the Richborough Stream to the south of the Stour. The Stour Marshes constitute a WFD Operational management catchment, within which there are several monitored waterbodies, which are at Moderate ecological status.

3.5.4.4 Sites designated for their nature conservation interest, where surface waters play a key role in sustaining the designated interest features, are also important receptors. Details of these sites are provided in **Part 3, Chapter 3, Ecology and Biodiversity** of effects on such sites will be undertaken in collaboration with ecology and groundwater specialists.

3.5.4.5 Additional baseline data to characterise the water environment within the study area will be collected as part of a desk study, with reference to published data sources, supplemented by data sets collected in consultation with the Environment Agency, Kent County Council in their role as the LLFA and River Stour (Kent) IDB. Desk study data sources include the Environment Agency flood maps for rivers and the sea, surface water and reservoirs, the Environment Agency Catchment Data Explorer that

[106] Environment Agency (2022). Catchment Data Explorer – Suffolk Body Water. [online] Available at: https://environment.data.gov.uk/catchment-planning/WaterBody/GB650503520002

records WFD data and the South East River Basin Management Plan[107], the Environment Agency Water Quality Data Archive which provides records of water quality data for monitored main rivers, and Ordnance Survey maps and aerial imagery.

3.5.4.6 Field notes and photographs of water features, collected during ecological walkovers and surveys will also be referenced, in addition to the high-resolution aerial imagery.

3.5.4.7 Baseline data collection will be undertaken on a risk basis, focusing on collecting data for receptors where source-pathway linkages are identified. For example, locations accommodating any above ground infrastructure (AGI) and temporary crossings of watercourses for construction access. For watercourse receptors (where applicable) WFD status data will be collected to characterise existing qualities and status objectives, as well as any measures identified to achieve these measures, as recorded in the South East River Basin Management Plan. Existing surface water interests (abstractions and discharges) will be identified with reference to Environment Agency consent/permit registers. Areas of fluvial/coastal floodplain will be described using Environment Agency flood mapping and modelling data and existing flood defence assets will be identified with reference to Environment Agency asset records and the Coastal Management Strategy for Pegwell Bay[108]. Other sources of flood risk, such as from surface water, groundwater and artificial sources, will be characterised in consultation with the LLFA and River Stour (Kent) IDB and with reference to relevant Strategic Flood Risk Assessments and other published sources.

Future Baseline

3.5.4.8 With regard to flood risk and drainage, future baseline conditions will be forecasted, drawing on current best practice guidelines. These will take into account the likely impacts of climate change on river flows, rainfall intensities, and tidal flood levels/storm surge. These future conditions would be accounted for in the design of the Kent converter station and any above ground infrastructure required for the HVAC connection where required to ensure future resilience to flooding. The likely effects of implementation of future cycles of WFD management plans on the ecological and chemical quality of waterbodies would be considered when assigning value to water environment resources and receptors.

3.5.5 Embedded and Control & Management Measures

Embedded Measures

3.5.5.1 The assessment of effects will take account of mitigation, including measures embedded into the Project's design and good practice measures. Key measures are described below.

[107] Department for Environment, Food & Rural Affairs and Environment Agency (2018). Water for Life and Livelihoods – South East River Basin District, River Basin Management Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/718337/South_East_RBD_Part_1_river_basin_management_plan.pdf

[108] Environment Agency and Dover District Council (2014). Planning for the Future – Coastal Flood Risk Management Strategy Pegwell Bay to Kingsdown. [online] Available at: http://www.environmentdata.org/archive/ealit:502/OBJ/19001282.pdf

3.5.5.2 The Kent converter station would be situated to avoid areas of Flood Zone 2 and 3. This would ensure that Project infrastructure is safe from flooding and would also avoid permanent losses of floodplain storage or disruption to floodplain flow paths, so avoiding permanent impacts on offsite flood risk.

3.5.5.3 Sustainable Drainage System (SuDS) techniques would be utilised at the converter station to manage rainfall runoff in terms of both quantities and quality, as well as along the cable swathe during construction. Suitable techniques will be selected, influenced by ground conditions and with reference to the drainage hierarchy set out in the National Planning Practice Guidance[109]. The drainage hierarchy promotes the use of SuDS and encourages infiltration to ground as a preference, or where this is not practicable, discharges to surface water bodies.

3.5.5.4 SuDS Guidance[110], to achieve both attenuation and treatment of surface water runoff, avoiding increases in surface water flood risk and pollution of the receiving water environment.

3.5.5.5 Where the cable route crosses watercourses, appropriate construction techniques would be selected according to factors such as watercourse channel dimensions, flow conditions and environmental sensitivities. Main rivers may be crossed by trenchless techniques to avoid physical changes and impacts on flow and sediment transport regimes and hydromorphology. This technique would also reduce disturbance within the riparian corridor and the risks of the construction phase detrimental to water quality.

3.5.5.6 Where watercourses are crossed temporarily to provide for construction access, similarly suitable crossing designs would be selected with the aim of reducing impacts.

Control and Management Measures

3.5.5.7 Where effects cannot be avoided through design, commitments would be made, and secured through the Development Consent Order (DCO), to control and manage effects.

3.5.5.8 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice.** Measures relevant to the control and management of impacts that could affect flood risk and land drainage are:

- GG16: Commitments include controlling runoff for work site areas using a variety of methods including header drains, buffer zones around watercourses, on-site ditches, silt traps and bunding. There would be no intentional discharge of site runoff to ditches, watercourses, drains or sewers without appropriate treatment and agreement of the appropriate authority. Fuels, oils, chemicals and any other potentially hazardous materials would be stored responsibly in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001, and all refuelling, oiling and greasing of construction plant and equipment would take place above drip trays and also away from watercourses and drains as far as is reasonably practicable.

[109] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2021). Planning Practice Guidance. [online] Available at: https://www.gov.uk/government/collections/planning-practice-guidance

[110] Construction Industry Research and Information Association (2015). The SuDS Manual (C753). [online] Available at: https://www.susdrain.org/resources/SuDS_Manual.html

- GG15: Appropriate spill kits would be easily accessible for these activities.
- GG18: Wheel washing will be provided at each main compound access point.
- GG17: Wash down of vehicles and equipment will take place in designated areas within construction compounds, with appropriate treatment provided e.g., sediment traps (GG17) in order to prevent pollution of the water environment.
- GG23: An Emergency Action Plan will be developed for the construction phase which will outline procedures to be implemented in case of unplanned events, including but not limited to site flooding and pollution incidents.
- W03: At all watercourse crossings, widths of top soil stripping would be reduced whilst still providing safe working widths and riparian vegetation and natural channel bed materials would be re-instated on completion of the works.
- W06: To manage potential flood risk impacts associated with works in the floodplain, temporary stores of spoil along the cable route corridor would be configured to avoid forming continuous barriers to floodplain flow conveyance.
- W01: Risks of sedimentation would be reduced using silt fencing or similar measures. Secondary consents under the Environmental Permitting Regulations and the Land Drainage Byelaws for qualifying works would also be secured.

3.5.6 Potential for Significant Effects

3.5.6.1 The water environment assessment will consider the construction, operation, maintenance, and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4 Description of the Project**.

3.5.6.2 The proposed scope of the water environment assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.5.6.3 This section identifies the sources and impacts that could occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.5.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5

Sources of construction impacts

3.5.6.5 Good practice measures within the CoCP would reduce the risk of pollution of the water environment during construction by removing pathways between sources and receptors for many construction activities.

3.5.6.6 However, potential for construction work to cause localised and temporary pollution effects would remain.

3.5.6.7 At open cut watercourse crossings there would be temporary physical disturbance and temporary changes to watercourse flow regimes may also occur, for example, where over pumping is required during construction of the cable and access route watercourse crossings. Impacts would range in duration, but crossings may be in place in some locations for several months. Whilst crossing watercourses via trenchless techniques reduces physical disturbance and flow regime effects, the technique is not entirely without pollution risk, which is associated with the potential for break out of drilling muds. Trenchless techniques also have a water demand.

3.5.6.8 During construction there would be potential for impacts on land drainage regimes and associated surface water flood risk, due to changes in land surface permeabilities or local topography, e.g. where vegetation cover is stripped and earthworks are undertaken.

3.5.6.9 At work sites located in the floodplain there would be potential for localised impacts associated with storage of spoil reducing available floodplain storage or interrupting key floodplain flow paths.

3.5.6.10 These higher risk activities and associated receptors are proposed to be scoped into the Environmental Statement (ES), which will be informed by the findings of a supporting FRA. Effects on artesian water, springs and groundwater resources are addressed in **Part 2, Chapter 6: Geology and Hydrogeology**.

3.5.6.11 The sources of construction impacts are:

- Soil stripping earthworks and excavations;
- Watercourse crossings for access and cable crossings (trenched);
- Watercourse cable crossings (trenchless); and
- Spoil storage in the floodplain.

Sources of operational impacts

3.5.6.12 During operation of the Project, there would be no sources of pollution with the potential to impact on surface waterbodies. This is because land within the cable construction working width would be reinstated following completion of the construction works.

3.5.6.13 There would be no operational discharges to surface watercourses and rainfall runoff from Kent Converter Station or any potential AGI associated with the HVAC connection would be sustainably attenuated and treated prior to discharge to the receiving water environment. Physico-chemical elements supporting WFD waterbody status would therefore be safeguarded. No likely significant effects are therefore anticipated, and it is proposed that water quality effects during operation are scoped out of the assessment.

3.5.6.14 Given the nature of the Project, there would be no permanent impacts on watercourse flow regimes or floodplains. There would be no new consumptive water uses, and the water quality of water receptors would not be degraded. Therefore, the potential for likely significant effects on existing water interests (surface water abstractions and discharges) and hydromorphology is negligible.

3.5.6.15 Regarding flood risk and land drainage, situating the Kent converter station outside of the floodplain and incorporating appropriate post construction surface water

management and land drainage systems would result in negligible effects. All operational effects on water environment receptors are therefore proposed to be scoped out.

3.5.6.16 The sources of operational impacts are:

- operational runoff and discharges from above ground infrastructure (AGI); and
- loss of floodplain storage.

Sources of maintenance impacts

3.5.6.17 Maintenance activities would fall under the Applicant's operational management procedures and given the nature of the Project; maintenance activities are considered to pose a low risk of causing likely significant effects on water environment receptors. It is proposed that all maintenance effects are scoped out.

3.5.6.18 Sources of maintenance impacts are:

- Soil stripping, earthworks and excavations;
- Watercourse crossings for access; and
- Spoil storage in the floodplain.

Sources of decommissioning impacts

3.5.6.19 Decommissioning of the Project would consider all the relevant environmental legislation and technology available at the time and any necessary licences and permits would be acquired. The sources of decommissioning impacts are predicted to be the same as those described for the construction of the Project water environment.

3.5.6.20 Sources of decommissioning impacts are:

- Soil stripping, earthworks and excavations;
- Watercourse crossings for access; and
- Spoil storage in the floodplain.

Potential impacts

3.5.6.21 Table 3.5.1 identifies the potential impacts that could result from the sources identified above.

Table 3.5.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction & decommissioning	Soil stripping, earthworks and excavations	Pollution by silt, hydrocarbons and other	Yes	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		construction materials,		
Construction	Watercourse crossings for access and cable route – open cut	Physical disturbance, changes to flow regime	Yes	**Scoped in**
Construction	Watercourse crossings for cable route – trenchless	Pollution risks (bentonite breakout) and water consumption	Yes	**Scoped in**
Construction & decommissioning	Soil stripping, earthworks and excavations	Increased runoff rates and volumes, disruption to land drainage regimes	Yes	**Scoped in**
Construction & decommissioning	Spoil storage in floodplain	Increased flood risk	Yes	**Scoped in**
Operation	Operational discharges and runoff from AGI	Pollution of watercourses	No – no impact pathways given SuDS treatment provision	Scoped out
Operation	Operational discharges and runoff from AGI and loss of floodplain storage	Increased flood risk	No – no impact pathways given SuDS attenuation provision	Scoped out
Operation	Operational infrastructure – AGI and watercourse crossings	Physical disturbance, impact to flow regimes	No– no impact pathway as cables would be buried	Scoped out
Maintenance	Maintenance activities	Pollution of watercourses and physical disturbance	No– no impact pathway given nature of maintenance activities	Scoped out

Impact Pathways on Receptors (Step 2)

3.5.6.22 This section identifies whether there are any impact pathways from the impacts identified above that could give risk to potential significant effect on the receptors within the water environment study areas.

3.5.6.23 Table 3.5.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme.**

Table 3.5.2: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in / out
Pollution due to construction and decommissioning activities	River Stour and watercourses in the Stour Marshes including Minster Stream and Richborough Stream	Yes	**Scoped in**
Temporary physical disturbance and change to flow regimes at watercourse crossings for access and cable route	River Stour and watercourses in the Stour Marshes including Minster Stream and Richborough Stream	Yes	**Scoped in**
Impact on land drainage regime during construction and operation due to soil stripping, earthworks and excavation	Ordinary watercourses, land drains and existing land uses	Yes	**Scoped in**
Temporary loss of floodplain storage / impediment of floodplain flows due to spoil storage during construction and decommissioning	Fluvial floodplains, existing land uses and infrastructure	Yes	**Scoped in**

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in / out
Increased surface water runoff from converter station drainage during operation	Existing land uses and infrastructure	No – no impact pathway given SuDS attenuation provision	Scoped out
Increased flood risk due to permanent loss of floodplain storage / impediment of floodplain flows	Fluvial floodplains, existing land uses and infrastructure	No– no impact pathway, no above ground operational infrastructure in the floodplain	Scoped out
Permanent impact on land drainage regime during operation	Ordinary watercourses, land drains, existing land uses	No– no impact pathways, land drainage routes would be reinstated or re-provided	Scoped out

3.5.7 Proposed Assessment Methodology

3.5.7.1 An overview of the proposed assessment methodology is provided in **Part 1 Chapter 5 EIA Approach and Method**.

Proposed Data Sources

3.5.7.2 The assessment will be informed by several published data sets and reports, which will be referenced to describe the baseline qualities of surface water receptors. Key data sources include:

- Catchment data explorer database of Cycle 2 and 3 Water Framework Directive information (Environment Agency, 2020)
- River Basin Management Plan (Environment Agency, 2018)
- Long term flood risk map for England, the Flood Map for Planning and the Historic Flood Map (Environment Agency, 2022)
- Data from Environment Agency flood models
- Drainage and flood data from Local Authority Surface Water Management Plans and Strategic Flood Risk Assessments
- Water quality data from the Environment Agency archive (Environment Agency, 2018); and
- Data defining surface water catchment areas and hydrological properties (e.g. rainfall, slopes, and soil permeability) from the Flood Estimation Handbook webservice (CEH, 2008)

Proposed Assessment Methodology

3.5.7.3 The assessment will be based on guidance set out in Part 10 of Volume 11 of the Design Manual for Roads and Bridges (DMRB), LA113[111]. Whilst primarily intended for use in assessing the impacts of highways projects on the water environment, the methodology is widely accepted as suitable for assessing the effects of other types of linear infrastructure. This promotes assessment that is proportionate to the scale and nature of the proposals and that considers the sensitivity of the local water environment to change.

3.5.7.4 The method provides guidance on assigning value (sensitivity) to receptors (for example, watercourses, floodplains) as well as criteria for assigning impact magnitude. The criteria consider the scale/extent of the predicted change and the nature and duration of the impact. Tables 3.5.3 and 3.5.4 below present the receptor value and impact magnitude criteria.

Table 3.5.3: Criteria for assigned receptor value (sensitivity)

Value of resource or receptor	Criteria	Typical examples
Very high	Nationally significant attribute of high importance	Site protected/designated under European Commission (EC) or UK legislation (Special Area of Conservation, Special Protection Area, Site of Special Scientific Interest, Ramsar site) Watercourse having a Water Framework Directive (WFD) classification shown in a River Basin Management Plan (RBMP) and a Q95 > 1.0m^3/s. Watercourse in natural equilibrium exhibiting a range of morphological features (e.g. pools, riffles) that is free from any modification or human influence Essential infrastructure or highly vulnerable development
High	Locally significant attribute of high importance	Watercourse having a WFD classification shown in a RBMP and a Q95 <1.0m^3/s Very limited signs of modification or other human influences on morphology More vulnerable development
Medium	Of moderate quality and rarity	Watercourses not having a WFD classification shown in a RBMP and Q95 > 0.001m^3/s Watercourse showing signs of modifications and having a limited range of morphological features Less vulnerable development

[111] Highways England (2020). Design Manual for Roads and Bridges. LA 113 Road Drainage and the Water Environment. [online] Available at: https://www.standardsforhighways.co.uk/prod/attachments/d6388f5f-2694-4986-ac46-b17b62c21727?inline=true

Value of resource or receptor	Criteria	Typical examples
Low	Lower quality, common place	Watercourses not having a WFD classification in a RBMP and a Q95 flow <0.001m^3/s A highly modified watercourse, changed by human pressures. No morphological diversity Water compatible development

Table 3.5.4:Criteria for assigning impact magnitude

Magnitude of impact*	Criteria	Typical examples
Large adverse	Results in loss of attribute and/or quality and integrity of the attribute	Loss or extensive change to a fishery Loss or extensive change to a designated nature conservation site Reduction in waterbody WFD classification Pollution of a public water supply or loss of a major commercial/industrial/agricultural supply Extensive change to channel planform, replacement of large extent of natural bed/bans with artificial material Increase in peak flood level (1% annual exceedance probability) of > 100mm
Medium adverse	Results in effect on integrity of attribute, or loss of part of attribute	Partial loss in productivity if a fishery Pollution of a non-potential source of abstraction Contribution to reduction in waterbody WFD classification Degradation (quality or reliability) of a potable, commercial or agricultural water supply Replacement of natural bed material or banks with artificial material over more than 3% of the water body's total length Increase in peak flood level (1% annual exceedance probability) of > 50mm
Small adverse	Results in some measurable change in attribute quality or vulnerability	Minor effects on water supplies Slight change from baseline conditions of channel bed/banks Increase in peak flood level > 10mm
Negligible	Results in effect on attribute of insufficient	Negligible change in peak flood level (< 10mm) No measurable impact on WFD waterbodies or river channel planform

Magnitude of impact*	Criteria	Typical examples
	magnitude to affect the use or integrity	
Small beneficial	Results in some positive effect on an attribute or a reduced risk of negative effect occurring	Creation of flood storage and reduction in peak flood level (1% AEP) > 10mm
Medium beneficial	Results in moderate improvement of attribute quality	Contribution to improvement waterbody WFD classification Improvements to morphological diversity at the local scale Creation of flood storage and reduction in peak flood level (1% AEP) > 50mm
Large beneficial	Results in major improvement of attribute quality	Removal of existing polluting discharge or removing likelihood of polluting discharges to a watercourse Major improvement to morphological diversity at reach scale e.g. through culvert removal Improvement in waterbody WFD classification Creation of flood storage and reduction in peak flood level (1% AEP) > 100mm
No change	No change, either beneficial or detrimental, to attribute quality	

*terminology has been adapted from that used in LA113, DMRB (National Highways, 2020)

3.5.7.5 The significance of an effect is then derived using the matrix set out in **Part 1, Chapter 5, EIA Approach and Methodology.**

3.5.7.6 Given the size of the Project and the presence of areas of Flood Zone 3 within the study area, an FRA of the Project will be produced in accordance with the Energy National Policy Statement and local flood risk management guidelines published by the LLFA[112]. The FRA will consider flood risk from all relevant sources during both construction and operation, incorporating allowance for climate change in accordance with published guidance where applicable[113]. It will also include details of the measures proposed to adhere to local drainage and flood risk planning policies. A WFD Screening Assessment will also be produced for the Project guided by Planning Advice Note 18: The Water Framework Directive[9]. The effects of the Project on the South East Basin Management Plan[13] and the waterbodies therein will be described, and the assessment will set out how the Project design has been developed to align with the requirements of the Directive. A qualitative approach is proposed, and the assessment

[112] Lead Local Flood Authorities of the South East of England (2020). Water. People. Places. - A guide for master planning sustainable drainage into developments. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0008/23579/Masterplanning-for-SuDS-Part-1.pdf

[113] Environment Agency (2022). Flood risk assessments: climate change allowances. [online] Available at: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

will identify how the Project design will avoid waterbody deterioration, as well as any other mitigation necessary.

3.5.8 Conclusion

3.5.8.1 Water environment receptors within the Scoping Boundary include the River Stour and watercourses draining the Stour Marshes, including the Minster Stream, there are also extensive floodplains. Higher risk project activities include watercourse crossings for access and construction of AGIs. A suite of embedded and good practice measures, coupled with commitments secured through the DCO would prevent or reduce source pathway linkages and control and manage effects on water quality, hydromorphology and flood risk and drainage.

Proposed Scope of the Assessment

3.5.8.2 A summary of the proposed scope of the assessment is provided in Table 3.5.5.

Table 3.5.5:Proposed scope of the assessment

Receptor	Potential significant effect	Project phase(s)	Proposed to be scoped in/out
Watercourses and water bodies	Construction opening new pollution pathways and /or causing physical disturbance and degradation.	Construction and decommissioning	**Scoped in**
Floodplains, landowners & Infrastructure	Loss of floodplain storage and changes in floodplain flow conveyance routes.	Construction, Construction Operation and Decommissioning	Scoped out
Watercourses, landowners & infrastructure	Increases in rates and volumes of rainfall runoff and effects on existing land drainage systems (quality & quantity).	Construction and decommissioning	**Scoped in**
Watercourses, landowners & infrastructure	Increases in other forms of flood risk (e.g. groundwater, artificial sources)	Construction Operation and Decommissioning	**Scoped in**

3.6 Geology and Hydrogeology

3.6.1 Introduction

3.6.1.1 This chapter presents how the geology and hydrogeology assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance, and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

3.6.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary, hereafter referred to as the Kent Scoping Boundary, is illustrated on **Figure 1.1.3 Kent Onshore Scoping Boundary**.

3.6.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**;
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**; and
- **Part 3, Chapter 5, Water Environment**.

3.6.1.4 This chapter is supported by the following figures:

- **Figure 3.6.1: Superficial Geology**;
- **Figure 3.6.2 Bedrock Geology**;
- **Figure 3.6.3 Hydrogeology**; and
- **Figure 3.6.4 Potential Sources of Contamination**.

3.6.1.5 The Project has the potential for geology and hydrogeology effects through excavation/disturbance of potentially contaminated soil, creation of pathways for contamination during piling or foundation excavation, and changes to groundwater levels and flow.

3.6.1.6 For geology, the assessment will include potential effects relating to designated sites, mineral resources, and ground conditions (stability and contamination).

3.6.1.7 For hydrogeology the assessment will include potential effects relating to changes in groundwater levels or flow, or potential effects relating to contamination and changes in quality. It also includes potential effects on surface water from changes in groundwater quality, levels or flow (i.e. where there is hydraulic continuity).

3.6.1.8 Effects on surface water, groundwater flooding and groundwater in terms of the Water Framework Directive are considered in **Part 3 Chapter 5 Water Environment**.

3.6.1.9 Ecological aspects including potential significant effects on Groundwater Dependant Terrestrial Ecosystems are considered in **Part 3, Chapter 3, Ecology and Biodiversity**. However, this chapter will identify where the underlying geology and/or groundwater within these ecosystems may be affected by contamination, and potential impacts on groundwater levels and flow that support these ecosystems.

3.6.1.10 Effects on agricultural and soil quality are considered within **Part 3, Chapter 7, Agriculture and Soils**.

3.6.2 Regulatory and Planning Context

3.6.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on geology and hydrogeology associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

Environmental Protection Act (1990)[114]

3.6.2.2 Part 2A of the Environmental Protection Act 1990[114] and associated Statutory Guidance is the primary legislation on contaminated land. It provided a framework for the assessment and, where necessary, the remediation of contaminated land. Part 2A focuses on the identification and remediation of land which in its current use poses an unacceptable risk to people or the environment.

3.6.2.3 The Statutory Guidance that accompanies the Environmental Protection Act 1990, include the Contaminated Land Statutory Guidance, 2012[115] which provide a definition of what constitutes “contaminated land” and sets out the responsibilities of the Local Authority and the Environment Agency in the identification and management of contaminated land. The regulations also include a definition of 'risk', where a risk is said to be a combination of "(a) the likelihood that harm, or pollution of water, will occur as a result of contaminants in, on or under the land; and (b) the scale and seriousness of such harm or pollution if it did occur".

Environmental Damage (Prevention and Remediation) Regulations (2015)[116]

3.6.2.4 The Environmental Damage (Prevention and Remediation) Regulations 2015[116] aim to prevent new land contamination that will damage water or health. The Regulations also include enforcement procedures, including criminal sanctions, for breaches of the Regulations.

[114] Environmental Protection Act 1990 [online]. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents

[115] Department for Environment, Food and Rural Affairs (2012). Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/223705/pb13735cont-land-guidance.pdf

[116] The Environmental Damage (Prevention and Remediation) (England) Regulations 2015 [online]. Available at: https://www.legislation.gov.uk/uksi/2015/810/contents/made [Accessed 16 June 2022]

Environmental Permitting (England and Wales) Regulations (2016)[117]

3.6.2.5 The Environmental Permitting (England and Wales) Regulations (2016)[117] include transposition of the EU Landfill Directive[118] into UK law. These Regulations cover sites that are covered by environmental permits, such as landfills, and how these are regulated. The project may cross sites where there are permits currently held.

3.6.2.6 These Regulations also cover the licensing of surface waters and groundwater abstractions. They also protect water resources through Source Protection Zones (SPZs). The project may require abstractions or discharges during construction. Whilst the project is not indicated to pass through areas designated as SPZs, such areas are located in proximity.

Landfill Directive[118]

3.6.2.7 The Landfill Directive[118] was adopted by the European Community in 1999. Every Member State of the European Union (EU) was required to implement it from 16 July 2001. The Directive's overall objective is to prevent or reduce as far as possible the negative effects of landfilling on the environment, as well as any resulting risk to human health. It seeks to achieve this through specifying uniform technical standards at Community level. It also sets out requirements for the location, management, engineering, closure and monitoring for landfills. The Directive includes requirements relating to the characteristics of the waste to be landfilled. The Landfill Directive is currently implemented through the Environmental Permitting (England and Wales) Regulations 2016[117].

Water Resources Act (1991)[119]

3.6.2.8 The Water Resources Act (1991)[119] aims to maintain and improve the quality of controlled waters. Part II of the Act covers the licencing of surface water and groundwater abstractions.

The Water Environment (Water Framework Directive) Regulations (2017)[120]

3.6.2.9 The Water Framework Directive (WFD) (2017)[120] establish a framework for the protection of surface waters and groundwater and to prevent the deterioration of WFD water bodies.

3.6.2.10 A WFD assessment will be undertaken and this is described further in **Part 3 Chapter 5: Water Environment.**

[117] The Environmental Permitting (England and Wales) Regulations 2016 [online]. Available at: https://www.legislation.gov.uk/uksi/2016/1154/contents/made [Accessed 16 June 2022].

[118] The Landfill Directive Council Directive 1999/31/EC 1991 [online]. Available at: https://www.legislation.gov.uk/eudr/1999/31 [Accessed 16 June 2022].

[119] The Water Resources Act 1991 [online]. Available at: https://www.legislation.gov.uk/ukpga/1991/57/contents

[120] The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 [online]. Available at: https://www.legislation.gov.uk/uksi/2017/407/contents/made [Accessed 16 June 2022].

The Groundwater Regulations (2009)[121]

3.6.2.11 The Regulations cover potential groundwater contamination that could eventuate from spillages or disturbance of contaminated ground. The project has the potential to cross contaminated land or to create pollution risks during construction.

Environment Agency Groundwater Protection Position Statements (2018)[122]

3.6.2.12 The Environment Agency regulates activities that may impact groundwater resources, to prevent and limit pollution. This document is concerned with infrastructure schemes of national or regional significance, that pass through SPZs or are below the water table in Principal or Secondary aquifers.

3.6.2.13 Section A of the policy (general principles) includes the following

- A1: Wherever legislation allows, the Environment Agency will use a tiered, risk-based approach to regulate activities that may impact groundwater resources and to prevent and limit pollution;
- A2: Development must be appropriate to the sensitivity of the site. Where the potential consequences of a development or activity are serious or irreversible the Environment Agency will adopt the precautionary principle to manage and protect groundwater. The Environment Agency will also apply this principle in the absence of adequate information with which to conduct an assessment; and
- A3: The Environment Agency encourages everyone whose activities may impact upon groundwater to consider the groundwater protection hierarchy in their strategic plans when proposing new development or activities. The aim is to avoid potentially polluting activities being located in the most sensitive locations for groundwater.

3.6.2.14 Section C Infrastructure states the following:

- If national need for the provision and location of major developments overrides Environment Agency objections, the Environment Agency will raise its concerns and make every use of environmental impact assessment in addition to other measures to achieve environmental protection. Where developments receive approval against Environment Agency advice, it will apply section A - general protection position statements.

Planning Policy

National Planning Policy

National Policy Statements (NPS)

3.6.2.15 NPS EN-1[123], in paragraph 5.10.9 it states that “Applicants should safeguard any mineral resources on the proposed site as far as possible, taking into account the long-

[121] The Groundwater (England and Wales) Regulations 2009 [online]. Available at: https://www.legislation.gov.uk/ukdsi/2009/9780111480816/contents

[122] Environment Agency (2018). The Environment Agency’s approach to groundwater protection. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692989/Envirnment-Agency-approach-to-groundwater-protection.pdf

[123] Department of Energy & Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: Overarching National Policy Statement for Energy (publishing.service.gov.uk) [Accessed 13/07/2022].

term potential of the land use after any future decommissioning has taken place". Paragraph 5.10.22 also states "Where a proposed development has an impact upon a Mineral Safeguarding Area, the IPC should ensure that appropriate mitigation measures have been put in place to safeguard mineral resources".

3.6.2.16 NPS EN-1[123], in paragraph 5.3.7 it states that "development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives, where significant harm cannot be avoided, then appropriate compensation measures should be sought".

3.6.2.17 NPS EN-1[123], in paragraph 5.15.3, it states that the Environmental Statement should in particular describe "*any impacts of the proposed project on… source protection zones (SPZs) around potable groundwater abstractions*"

3.6.2.18 NPS EN-1[123] is supported by National Policy Statement for Electricity Networks (EN-5)[124]. EN-5 contains paragraph 2.8.9 relating to Geology and Hydrogeology, which indicates that the IPC should consider for each specific project '*the environmental and archaeological consequences (undergrounding a 400kV line may mean disturbing a swathe of ground up to 40 metres across, which can disturb sensitive habitats, have an impact on soils and geology, and damage heritage assets, in many cases more than an overhead line would)*'.

The national planning policy framework

3.6.2.19 The National Planning Policy Framework[125] (paragraphs 174, 183, 179, 210) relates to conserving and enhancing the natural and local environment and helping the sustainable use of minerals. The National Planning Policy is supported by the associated Planning Practice Guidance for the NPPF, including Land Affected by Contamination[126], June 2014 (updated July 2019); Land Stability[127], March 2014 (updated July 2019); Natural Environment[128], January 2016 (updated July 2019).

Local planning policy

3.6.2.20 The local planning policy relevant to the scope of potential impacts relating to geology and hydrogeology is as follows:

- Kent Minerals and Waste Local Plan and Safeguarding Supplementary Planning Document[129]
  - CSM 5 - Land-won Mineral Safeguarding; and
  - DM 7 - Safeguarding Mineral Resources.

[124] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed 16 June 2022].

[125] Department for Levelling Up, Housing & Communities (2021). National Planning Policy Framework. London. [online] Available at: National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk) [Accessed 16 June 2022].

[126] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2019). Planning Practice Guidance - Land Affected by Contamination. [online] Available at: https://www.gov.uk/guidance/land-affected-by-contamination

[127] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2019). Planning Practice Guidance – Land Stability. [online] Available at: https://www.gov.uk/guidance/land-stability [Accessed 16 June 2022].

[128] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2019). Planning Practice Guidance – Natural Environment. [online] Available at: https://www.gov.uk/guidance/natural-environment

[129] Kent County Council (2020). Kent Minerals and Waste Local Plan 2013-30, 2020. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0004/112585/Kent-Minerals-and-Waste-Local-Plan-2013-2030.pdf [Accessed 16 June 2022].

- Dover District Council Core Strategy[130];
  - DM 17 – Groundwater Source Protection.
- Emerging Dover District Local Plan; and
  - DM 42 - Water Supply and Quality.
- Thanet Local Plan[131].
  - SE03 – Land Affected by Contamination; and
  - SE04 – Groundwater Protection.

Guidance and Advice Notes

3.6.2.21 The following core guidance documents provide the technical framework for applying a risk management process when dealing with land affected by contamination in a way that is consistent with government policies and legislation within the UK:

- Land Contamination: Risk Management (LCRM) [132];
- CIRIA 552: Contaminated Land Risk Assessment, A guide to good practice [133];
- BS 10175:2011+A2:2017 Investigation of potentially contaminated sites. Code of Practice[134]; and
- The Environment Agency's Guiding Principles for Managing and Reducing Land Contamination (GPLC2)[135].

3.6.3 Study Area

3.6.3.1 For the purpose of establishing the baseline conditions and defining the scope of the EIA, the study area has been defined as the Kent Scoping Boundary plus a 250m buffer for geology and up to a 500m buffer for hydrogeology. Given the scale and nature of the Project, this is considered a robust yet proportionate approach, and although not directly relevant for this development type, accords with the study area recommended in Guidance for the Safe Development of Housing on Land Affected by Contamination[136] .

[130] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf [Accessed 16 June 2022].

[131] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 16 June 2022].

[132] Environment Agency (2021). Land Contamination Risk Management. [online] Available at: https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm

[133] Rudland D., Lancefield R. and Mayell P. (2001). Contaminated land risk assessment, a guide to good practice (C552). CIRIA. p. 1-159.

[134] British Standards Institution (2011). BS 10175:2011+A2;2017, Investigation of potentially contaminated sites – code of practice. BSI. P. 1-134.

[135] Environment Agency (2016). Managing and Reducing Land Contamination: Guiding Principles (GPLC). [online] Available at: https://www.gov.uk/government/publications/managing-and-reducing-land-contamination [Accessed 16 June 2022].

[136] The National House Building Council, The Environment Agency and The Chartered Institute of Environmental Health (2008). Guidance for the Safe Development of Housing on Land Affected by Contamination. [online] Available at: https://www.nhbc.co.uk/binaries/content/assets/nhbc/products-and-services/tech-advice-and-guidance/guidance-for-the-safe-development-of-housing-on-land-affected-by-contamination.pdf [Accessed 16 June 2022].

3.6.3.2 The study area will be refined throughout the development of the Project, it is proposed that the study area for the EIA will be the proposed Order Limits plus the same buffer zones as described above.

3.6.4 Baseline Conditions

3.6.4.1 The following section provides a summary of the baseline environmental conditions within the Kent Scoping Boundary, using the sources of information outlined below.

Data Sources

3.6.4.2 The geology and hydrogeology baseline described in this section has been informed by the following data sources:

- Britain from Above, historical aerial imagery archive[137] ;
- British Geological Survey (BGS) Sheets 274 Ramsgate[138], 1:50,000 scale solid and drift edition.;
- BGS GeoIndex Viewer[139];
- BGS Hydrogeological Map of the Chalk and Lower Greensand of Kent[140];
- Coal Authority Interactive Map[141];
- Environment Agency (EA), Catchment Data Explorer[142] ;
- Environment Agency Report, New Groundwater Vulnerability Mapping Methodology in England and Wales[143];
- Geo Conservation Kent map of Regionally Important Geological Sites in Kent[144],;
- Multi-Agency Geographic Information for the Countryside (MAGIC) interactive map[145];
- National Library of Scotland, georeferenced historical maps for the period 1885 - 1970[146], and

[137] Britain from Above (2022). [online] Available at: https://britainfromabove.org.uk/en [Accessed 16 June 2022]

[138] British Geological Survey (1996). Sheet 191, Saxmundham, 1:50,000 scale solid and drift, geological map, BGS, Keysworth.

[139] British Geological Survey (2022). Geoindex Onshore. [online] Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html [Accessed 16 June 2022].

[140] British Geological Survey (1970). Hydrogeological Maps of the United Kingdom - Hydrogeological map of the Chalk and Lower Greensand of Kent -Sheet 3b. Chalk regional hydrological characteristics and explanatory notes. BGS, Keysworth.

[141] The Coal Authority (2022). Interactive Map. [online] Available at: https://mapapps2.bgs.ac.uk/coalauthority/home.html

[142] Environment Agency (2022). Catchment Data Explorer – Stour (Essex) Water Body. [online] Available at: https://environment.data.gov.uk/catchment-planning/WaterBody/GB520503613602 [Accessed 16 June 2022].

[143] Environment Agency (2017). Groundwater vulnerability mapping methodology. [online] Available at: https://www.gov.uk/government/publications/updated-groundwater-vulnerability-maps-improvements-to-methodology-and-data [Accessed 16 June 2022].

[144] Geo Conservation Kent (2022). Geological Map of Kent. [online] Available at: https://www.geoconservationkent.org.uk/index.php?option=com_content&view=article&id=12:-geological-map-of-kent&catid=4:geology&Itemid=17 [Accessed 16 June 2022].

[145] Department for Environment, Food and Rural Affairs (2022). Multi-Agency Geographic Information for the Countryside (MAGIC). [online] Available at: https://magic.defra.gov.uk/ [Accessed 16 June 2022].

[146] National Library of Scotland (2022). Map Images. [online]. Available at: https://maps.nls.uk/geo/explore/side-by-side/#zoom=5.0&lat=56.00000&lon=-4.00000&layers=1&right=ESRIWorld [Access 16 June 2022].

- Zetica Ltd., Unexploded Ordnance Risk Maps[147].

Baseline

Geology

Superficial deposits

3.6.4.3 The superficial geology present beneath the Kent Scoping Boundary is shown on **Figure 3.6.1 Superficial Geology**.

3.6.4.4 The majority of the study area to the west of the A256 is shown to be underlain by Tidal Flat Deposits, described by the BGS[148] as typically comprising "*unconsolidated sediment, mainly mud and/or sand…. soft silty clay, with layers of sand, gravel and peat*". Further areas of Tidal Flat Deposits are present to the east of the A256 beneath St. Augustine's Golf Course.

3.6.4.5 To the east of the mapped areas of Tidal Flat Deposits, along the eastern boundary, the BGS record deposits of Beach and Tidal Flat Deposits (Undifferentiated) described[148] as a composite of Beach Deposits ("*Shingle, sand, silt and clay*") and the Tidal Flat Deposits described above.

3.6.4.6 Limited areas along the northern boundary are shown to be underlain by deposits of Head, described as a poorly sorted and poorly stratified deposit described by the BGS[148] as typically comprising "*sand and gravel, locally with lenses of silt, clay or peat and organic material*".

3.6.4.7 There are also some areas within the study area, predominantly immediately adjacent either side of the A256, where there are no superficial deposits recorded on the BGS mapping.

Bedrock geology

3.6.4.8 The bedrock geology present beneath the Kent Scoping Boundary is shown on **Figure 3.6.2 Bedrock Geology.**

3.6.4.9 The whole of the Kent Scoping Boundary is shown to be underlain by bedrock of the Thanet Formation, described by the BGS[148] as typically a "*silty fine-grained sand, with sandy silt, silt or sandy, silty clay especially in the lower part, forming a coarsening-upwards sequence*". BGS Sheet 274[138] indicates that the Thanet Formation is approximately 30m thick.

3.6.4.10 Beneath the Thanet Formation, the BGS mapping[138] and archive borehole logs record[139] chalk bedrock of the White Chalk Subgroup. The BGS map[138] indicates that the chalk is in excess of 200m thick. In the study area, to the north of the Kent Scoping Boundary the Thanet Formation is absent and the superficial deposits are directly underlain by the White Chalk Subgroup.

[147] Zetica UXO (2022). Unexploded Ordnance Risk Maps. [online] Available at: https://zeticauxo.com/downloads-and-resources/risk-maps/ [Accessed 16 June].

[148] British Geological Survey (2022). Lexicon of Named Rock Units. [online] Available at: https://webapps.bgs.ac.uk/lexicon/ [Accessed 16 June 2022].

Coal mining

3.6.4.11 The majority of the study area is shown to be within the Kent Coalfield and the geological mapping[138] indicates that the coal measures are likely to be at significant (>300m) depth beneath the chalk bedrock. In addition, the coal seams recorded by the BGS as present at depth within the study area are indicated to be of limited thickness (Kent Seam No 11 0.4m thick and Kent Seam No 14 0.7m thick).

3.6.4.12 A review of the Coal Authority's interactive map viewer[141] indicates that the southern part of the study area is in a Coal Mining Reporting Area. The interactive map shows that there are no recorded mine entries, fissures or breaklines, areas of historical recorded shallow mining, coal outcrops, coal mine abandonment plans, Surface Coal Resource Area or Development High Risk Areas within the study area.

Geo-conservation

3.6.4.13 A review of the Geo Conservation Kent interactive map[144] and DEFRA's MAGIC map[145] indicates that there are no Regionally Important Geological Sites (RIGS) or geological Sites of Special Scientific Interest (SSSI) present within the study area. However, the Sandwich Bay to Hacklinge Marshes SSSI is also designated as a Geological Conservation Review Site, which forms the eastern part of the study area and the wooded area between the former Richborough Power Station and Weatherlees Hill Water Treatment Works. These are discussed further within the Environmentally Sensitive Sites section.

Minerals

3.6.4.14 A review of the Kent County Council (KCC) Minerals and Waste Local Plan[129] (MWLP) indicates that there are no Mineral Safeguarding Areas (MSAs, as defined by Policy CSM 5 of the MWLP) within the Kent Scoping Boundary.

3.6.4.15 In addition, the MWLP and the KCC Mineral Sites Plan indicate that there are no proposed mineral extraction sites, safeguarded docks / wharves / jetties / rail depots within the Kent Scoping Boundary.

Radon

3.6.4.16 Based on the UK Radon maps[149] the study area is located within an area where less than 1% of homes are above the Action Level for Radon and therefore Radon protection measures in new homes would not be required. This is not considered to be entirely relevant to the Project, however it is a good indicator of whether Radon gas needs to be considered in the ES.

Hydrogeology

Aquifer designation – superficial

3.6.4.17 DEFRA's MAGIC map[145] indicates that the Undifferentiated Beach and Tidal Flat Deposits to the east of the study area are classified in parts as a Secondary A Aquifer and in parts as a Secondary Undifferentiated Aquifer. The Tidal Flat Deposits to the west of the study area and the Head Deposits to the north are classified as Unproductive Strata.

[149] UK Radon (2022). Radon Maps. [online] Available at: https://www.ukradon.org/radonmaps/ [Accessed on 16 June 2022].

3.6.4.18 Secondary A Aquifers are described by the Environment Agency (EA) as "*permeable layers that can support local water supplies, and may form an important source of base flow to rivers*". The Secondary Undifferentiated Aquifer classification is applied by the EA "*where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. These have only a minor value*[150]".

3.6.4.19 Unproductive Strata is described by the EA as "largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them"[150].

3.6.4.20 Groundwater flow within the shallow aquifer is likely to be generally to the east, towards the River Stour and the sea. Groundwater levels and movement may exhibit some tidal influence in the eastern part of the study area.

Aquifer designation – bedrock

3.6.4.21 The bedrock of the Thanet Formation, present beneath the whole of the study area, is classified by the EA as a Secondary A Aquifer[145]. The White Chalk Subgroup, which is present beneath the Thanet Formation and directly underlying the superficial deposits to the north, is classified as a Principal Aquifer[145].

3.6.4.22 Principal Aquifers are described by the EA as strata that "provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes and wetlands[150].

3.6.4.23 The contours of Estimated minimum level of the chalk water table or pressure surface as shown on BGS' hydrogeological map[140], indicate that the piezometric surface within the Kent Scoping Boundary is likely to be zero metres above Ordnance Datum (mAOD).

3.6.4.24 The groundwater in the different strata (superficial and bedrock) may therefore be in hydraulic continuity.

Groundwater vulnerability

3.6.4.25 DEFRA's MAGIC map[145] indicates that the groundwater beneath the eastern part of the study area, i.e., approximately beneath areas where Undifferentiated Beach and Tidal Flat Deposits are present overlying the Thanet Formation, is of Medium to High vulnerability.

3.6.4.26 Within areas where the Thanet Formation is exposed at the surface, and not covered by a layer of superficial deposits, the groundwater vulnerability is considered to be High. Within the remaining parts of the study area, where the Tidal Flat Deposits overly the Thanet Sand Formation the groundwater vulnerability is considered to be Medium to Low Vulnerability.

3.6.4.27 The EA define High vulnerability as "Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits", and areas of Low vulnerability as "Areas that provide the greatest protection to groundwater from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial

[150] Environment Agency (2017). Protect Groundwater and Prevent Groundwater Pollution. [online] Available at: https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution [Accessed 16 June 2022].

deposits characterised by a low permeability". Medium vulnerability is described as intermediate between Low and High vulnerability[143].

3.6.4.28 To the north of the Kent Scoping Boundary within the study area where the chalk bedrock is present directly beneath the superficial deposits the groundwater vulnerability is shown to be Medium to High.

Groundwater source protection zones

3.6.4.29 Source Protection Zones in relation to the Kent Onshore Scheme are shown on **Figure 3.6.3 Hydrogeology**.

3.6.4.30 DEFRA's MAGIC map[145] indicates that there are no groundwater Source Protection Zones (SPZs) within the Scoping Boundary.

3.6.4.31 Within the study area there are two SPZ 2s located approximately 300m northwest and 300m northeast of the Kent Scoping Boundary. The associated SPZ 1s are located approximately 900m northwest and 700m northeast of the Kent Scoping Boundary. It is anticipated that these abstractions are from within the White Chalk Subgroup.

3.6.4.32 A SPZ1 is defined as the inner zone which is a 50-day travel time of a pollutant to the source. A SPZ2 Outer Zone is defined as a 400-day travel time of a pollutant to a source. A SPZ3 is defined as the total catchment, which is the area around a source within which all the groundwater ends at the abstraction point[151].

3.6.4.33 The map also shows that the site is not located within a groundwater Drinking Water Safeguard Zone (DWSZ) or a groundwater Nitrate Issues Priority Zone (NIPZ). The nearest groundwater DWSZ and NIPZ are located approximately 450 m to the north of the Kent Scoping Boundary[145].

Groundwater body

3.6.4.34 The EA's Catchment Data Explorer[142] indicates that groundwater beneath the Kent Scoping Boundary and within the Study Area is part of the East Kent Tertiaries groundwater body (ref: GB40702G501600). This groundwater body received an overall Water Framework Directive (WFD) classification of "Poor" in 2019. This classification can be further broken down into classifications of "Good" for chemical quality and "Poor" for quantitative status.

Hydrology

3.6.4.35 The potential effects relating to hydrology are assessed within **Part 3, Chapter 5, Water Environment**, however where there is potential for groundwater to interact with and impact surface waters, those sensitive receptors are identified within this chapter in order to determine the potential effects from any contamination.

3.6.4.36 The Study Area is situated within the catchment of the River Stour, which is a designated main river, and flows generally to the south through the Scoping Boundary before turning to the north adjacent to the eastern Kent Scoping Boundary and out falling in Pegwell Bay. The Environment Agency Catchment Data Explorer[142] indicates that the catchment has been given a moderate Ecological Status and failing Chemical Status in 2019. The River Stour and Pegwell Bay are classified as a Drinking Water

[151] Environment Agency (2019). Groundwater Source Protection Zones (SPZs). [online] Available at: https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs [Accessed 15 July 2022].

Protected Area for Surface Water. In addition to the River Stour, there are a network of watercourses that drain into the Stour Marshes within the study area.

Environmentally sensitive sites

3.6.4.37 A review of DEFRA's MAGIC map[145] indicates the following environmentally sensitive sites present within the Kent Scoping Boundary and within the study area:

- Sandwich Bay to Hacklinge Marshes SSSI, located both within the Kent Scoping Boundary (wooded area between former Richborough Power Station and Weatherlees Hill WTW) and within the study area immediately east and south of the eastern Scoping Boundary;
- Sandwich Bay Special Area of Conservation (SAC) and Thanet Coast & Sandwich Bay Special Protection Area (SPA) both located immediately east of the Kent Scoping Boundary and within the study area to the east. Thanet Coast & Sandwich Bay is also a wetland of international importance as designated by the Ramsar Convention; and
- Sandwich and Pegwell Bay National Nature Reserve (NNR) located beneath the Pegwell Bay and Cliffsend landfill within the Scoping Boundary to the northeast.

3.6.4.38 There are no recorded Local Nature Reserves (LNR) or areas of Ancient Woodland within the Scoping Boundary.

Potentially contaminative land uses

3.6.4.39 Much of the Kent Scoping Boundary and study area appears to have remained as undeveloped agricultural land since the earliest available publicly available historical mapping dated 1885[146]. In these areas it is considered that there is a very low risk of significant sources of potential contamination.

3.6.4.40 There are however areas within the Kent Scoping Boundary and the study area that have a history of potentially contaminative land use or where the current land use is potentially contaminative. Where identified, readily available information relating to these Potential Sources of Contamination (PSC) has been gathered and is presented in Table 3.6.1 below with a corresponding Risk Rating for their potential for generation of significant contamination. The location of these, are presented on **Figure 3.6.4 Potential Sources of Contamination**.

Table 3.6.1: Potential sources of contamination

PSC number	Name	Location	Description	Risk ranking
PSC within Scoping Boundary				
1	Cliffsend landfill (ref: EAHLD19457, WRC ref: 2200/7253)	Located in the north-eastern corner of the Scoping Boundary, to the south-east of St. Augustine's Golf Course, between Sandwich Road and the coastal path	This landfill is indicated to have been operated by Thanet District Council and received household and inert waste between 1960 and 1972. Historical mapping and historical aerial imagery indicate that the waste appears to have been deposited directly onto an area of marshy coastal land.	High
2	Railways	The Scoping Boundary is crossed by a north-west south-east trending railway line and a further east-west trending railway line forms the Scoping Boundaries northern boundary.	These railway branch lines are recorded on the 1888 – 1913 historical map as the Deal Branch and the Ashford, Canterbury and Ramsgate Branch of the Southeast Railway. On the basis of the Ordnance Survey mapping and LIDAR data reviewed, these lines appear to have been constructed approximately 'at grade' with small embankments constructed for bridged crossings over waterways.	Low
3	Minster Wastewater Treatment Works	Located within the east of the Scoping Boundary to the south of Marsh Farm Road to the north of Western Monkton Stream (drain) and the River Stour.	Historical mapping indicates the site was undeveloped land. The earliest available aerial imagery, dated 1940, shows the water treatment works present in the northwest corner of the site. The imagery shows the expansion of the site over a number of years. A review of the North East Kent Drainage Strategy[152] shows that the site treats waste water which is then released into the River Stour. It is assumed that the site is regulated under an Environmental Permit which	Low

[152] Southern Water (2016). Drainage Strategy – North East Kent. [online] Available at: https://www.southernwater.co.uk/media/3271/drainagestrategyreport-nekent.pdf [Accessed 16 June 2022].

			would include controls on testing before discharge.	
4	Car breakers / maintenance	Between Ebbsfleet Lane and east of A256, located partially within the scoping boundary.	From the earliest available mapping dated 1885-1900, a property is indicated at the location. From historical aerial photography it can be seen the house is used for the storage of vehicles from approximately 2003 until the present day.	Moderate
PSCs within wider study area				
5	Weatherlees Hill Wastewater Treatment Works (WTW)	Located in the centre of the Scoping Boundary at approximate NGR 633035 E, 162770 N.	Historical aerial imagery indicates that the WTW was constructed in the early 1990s on an area of previously undeveloped land. A review of the North East Kent Drainage strategy[152] states the site was constructed in 1996 with the site extended in 2006. The WTW does not appear (based on historical mapping snapshot) to have utilised sludge beds / lagoons or sludge drying slabs.	Low to Moderate
6	Ebbsfleet Ovenden landfill (ref: EAHLD34024, WRC ref: 2200/7278).	Located in the north-east of the Scoping Boundary, at the western end of St. Augustine's Golf Course, the polygon provided by the EA for this landfill is a small circle centred at approximate NGR 633500 E, 162995 N.	This landfill is indicated to have been operated by Ovenden Earthmoving Company Ltd. and received inert waste between 1976 and 1991. The licence is indicated to have been surrendered in 1992. Note: Such polygons are typically provided when the EA is unsure of the extent of a landfill and should not be taken as an accurate description of the licenced area.	Moderate
7	Richborough Power Station landfill (ref: EAHLD19472, WRC ref: 2200/7251)	Located in the centre of the Scoping Boundary at approximate NGR 632572 E, 162506N.	This landfill is indicated to have been operated by the Central Electricity Generating Board and received inert waste between 1962 and 1987. The licence is indicated to have been surrendered in 1990.	Moderate

Future Baseline

3.6.4.41 There are no foreseeable significant changes anticipated in relation to geology, hydrogeology or land contamination either prior to, or during, the construction and operational phases. It is assumed that any man-made changes (i.e. new developments) would be appropriately permitted and operated to prevent the creation of potentially adverse ground conditions or impacts to controlled waters.

3.6.5 Embedded and Control & Measurement Measures

Embedded Measures

3.6.5.1 The Project has, wherever possible, avoided sensitive features, such as groundwater SPZ 1, through the options appraisal.

Control and Management Measures

3.6.5.2 For the purpose of assessing the effects of the Project, it has been assumed that routine health and safety and environmental controls will be in place during construction, in accordance with standard good practice across the construction industry.

3.6.5.3 The outline Code of Construction Practice (CoCP) contained within **Appendix 1.4.A Outline Code of Construction Practice** contains a list of relevant good practice measures which will be adopted, including the following key commitments relating to Geology and Hydrogeology:

- GH01: Intrusive ground investigations and assessment will be undertaken prior to construction which will inform appropriate geotechnical design in relation to the site/structure specific ground conditions including ground instability/adverse ground conditions.
- GH02: Construction methods such as appropriate piling techniques (if required) to minimise the risk of mixing of aquifer bodies through the creation of new. This includes the provision of a Foundation Works Risk Assessment (FWRA), which would be undertaken once the proposed foundation solutions are known, in accordance with EA guidance ‘Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination’ (EA, 2001).
- GH03: Use of appropriate occupational health and safety measures e.g. Personal Protective Equipment (PPE), and statutory health and safety compliance (e.g. compliance with the Confined Spaces Regulations, 1997 in relation to ground gas from working in confined spaces/trenches) to minimise the risks associated with anticipated/unexpected contamination. Based on risk assessment informed by site specific information.
- GH04: appropriate training of construction and maintenance workers in the handling and use of potentially hazardous substances and the associated risks.
- GH05: All use and storage of chemicals to be undertaken in accordance with EA Pollution Prevention Guideline (PGG) notes, and controlled and monitored under

the Construction and Environmental Management Plan (CEMP) and general construction site good environmental and waste management procedures

- GH06: The control of earthworks or materials movement (including any re-use of materials) under appropriate Environmental Permits, exemptions or CL:AIRE 'The definition of Waste: The development industry Code of Practice (2011).
- GH07: Any temporary dewatering activities during construction will be undertaken in accordance with EA guidance, and if required, an Abstraction Licence and Environmental Permit (for the discharge) and will be limited to the depth and time required to facilitate construction activities.
- GH08: A protocol for dealing within any unexpected contamination.

3.6.6 Potential for Significant Effects

3.6.6.1 The geology and hydrogeology assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4 Description of the Project**.

3.6.6.2 The proposed scope of the ecology and biodiversity assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.6.6.3 This section identifies the sources and impacts that could occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.6.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- existing contamination;
- excavation of trenchless crossings;
- dewatering activities;
- general construction activities such as foundations;
- discharge of groundwater from dewatering;
- damage to sensitive receptors from the built environment;
- introduction of new contamination;
- ground gas; and
- coal measure.

Sources of operational impacts

- introduction of new contamination;
- introduction of impermeable surfaces; and
- ground gas.

Source of maintenance impacts

- introduction of new contamination; and
- ground gas.

Sources of decommissioning impacts

3.6.6.5 It is considered that the sources of impacts during decommissioning would be of a similar nature to those considered during the construction phase. It would also be undertaken in accordance with relevant environmental legislation available at the time and in accordance with any required licences and permits. Decommissioning activities would be subject to an environmental management plan that would identify and mitigate the potential impacts of decommissioning activities which that could harm sensitive receptors.

Potential impacts

3.6.6.6 Table 3.6.2 identifies the potential impacts that could result from the sources identified above.

Table 3.6.2: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction and decommissioning	Existing contamination	Yes - Human health exposure to potential contamination through ground disturbance during construction and decommissioning	Has the potential to result in likely significant effects	**Scoped in**
Construction and decommissioning	Existing contamination	Yes - Mobilisation of existing contamination during general construction/decommissioning, impacting on land and/or groundwater quality	Has the potential to result in likely significant effects	**Scoped in**
Construction	Excavation of trenchless Crossings	No - Connection of two aquifer units at trenchless crossings	Not likely to result in a significant effect due to	Scoped out

			the incorporation of the mitigation by design.	
Construction	Dewatering activities	Yes - Changes to groundwater levels, quality and groundwater flow direction caused by dewatering	Potential to result in a significant effect	**Scoped in**
Construction, maintenance and decommissioning	Construction activities	No - Introduction of new potential contaminants to the environment from leaks, spills, fuels and oils	Not likely to result in a significant effect due to the incorporation of the mitigation by design.	Scoped out
Construction	Discharge of groundwater from dewatering	No - Physical and chemical effects on groundwater	Not likely to result in a significant effect due to the incorporation of the mitigation by design.	Scoped out
Construction, operation, maintenance and decommissioning	Ground gas	Yes - Ingress and accumulation of ground gas in buildings/confined spaces/trenches– resulting in explosion/asphyxiation/exposure	Potential to result in a likely significant effect.	**Scoped in**
Construction	General construction	No - Construction activities and the built development (operational phase) can be affected by natural geological hazards (dissolution features/soft ground/landslides/aggressive ground conditions etc).	Not likely to result in a significant effect due to the incorporation of the mitigation by design.	Scoped out
Construction	Built Environment	Yes - Damage to/destruction of designated sites of geological importance	Potential to result in a likely significant effect.	**Scoped in**

Construction and Operation	Built Environment	No - Sterilisation of safeguarded minerals	The Scoping Boundary is not within a mineral consultation area or a mineral safeguarded area therefore unlikely to result in significant effects.	Scoped out
Operation and maintenance	Existing contamination	No - Human health exposure to existing contamination	Not likely to result in a significant effect due to the nature of the project and the incorporation of the mitigation by design.	Scoped out
Operation and maintenance	Introduction of new contamination	No - Introduction of new potential contaminants to the environment from leaks, spills, fuels and oils during the operational phase	Not likely to result in a significant effect given the nature of the project and in consideration of best practice measures and maintenance.	Scoped out
Operation	Introduction of impermeable surfaces	No - Changes to groundwater levels and/or recharge rates	Not likely to result in significant effects due to the small surface area of the project. Any new areas of hardstanding would be designed to meet current drainage	Scoped out

			standards (see **Part 3 Chapter 5: Water Environment**).	
Construction, decommissioning, and Operation	Coal Measures	No - Ground instability effects relating to historical coal mining	Not likely to result in a significant effect as the scoping boundary is not within a development high risk area and the coal measures are anticipated to be relatively thin and at significant depth.	Scoped out

Impact Pathways on Receptors (Step 2)

3.6.6.7 Table 3.6.3 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme**.

Table 3.6.3: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in / out
Human health exposure to potential contamination through ground disturbance during construction and decommissioning	Site workers, neighbours	Yes - Potential for existing contamination within the study area to result in significant effects	**Scoped in for construction and decommissioning** Scoped out for operation and maintenance
Mobilisation of existing contamination during general construction, impacting on land and/or groundwater quality	Environmentally sensitive sites, groundwater, Groundwater Dependant	Yes - Potential for existing contamination within the study	**Scoped in for construction and decommissioning**

	Terrestrial Ecosystems (GWDTE), surface water	area to result in significant effects	Scoped out for operation and maintenance
Changes to groundwater levels, quality and groundwater flow direction caused by dewatering and discharge	Environmentally sensitive sites, groundwater, GWDTE, surface water	Yes - Potential for dewatering to be required within the study area which could result in significant effects	**Scoped in for construction** Scoped out for operation, maintenance and decommissioning
Ingress and accumulation of ground gas in buildings/confined spaces/trenches (construction and operation) – resulting in explosion/asphyxiation/exposure	Construction/ maintenance workers, future users, built environment	Yes - Potential for gas generating strata within study area which could result in significant effects	**Scoped in for construction, operation, maintenance and decommissioning**
Damage to/destruction of designated sites of geological importance	Designated sites of geological importance	Yes - Designated sites located within the study area which could be damaged and could result in significant effects	**Scoped in for construction** Scoped out for operation, maintenance and decommissioning

3.6.7 Proposed Assessment Methodology

3.6.7.1 The proposed generic project wide approach to the assessment methodologies are presented in **Part 1 Chapter 5 EIA Approach and Method**. However, whilst this has informed the approach used in this chapter, it is necessary to set out how this methodology will be applied and adapted as appropriate, to address the specific needs of the assessment in relation to Geology and Hydrogeology.

Proposed Data Sources

3.6.7.2 The geology and hydrogeology assessment will be carried out in accordance with the following good practice guidance:

- Historical borehole records held by the BGS;
- Groundwater abstraction details as available from the EA and LPAs;
- Any relevant information regarding historical ground contamination that the LPAs hold; and
- Any relevant information held by the LPAs regarding geological sites.

Proposed Assessment Methodology

3.6.7.3 The methodology which has been followed for the work undertaken to date, and which will be developed during the EIA process, builds on the guidance set out earlier in this chapter for environmental effects assessed as likely to be significant. Therefore, to inform the ES, additional data gathering will be undertaken, building on the initial appraisal of baseline conditions provided in this scoping report and incorporating any additional information received from the Environment Agency and Local Authority (in response to requests for information), together with stakeholder responses from the Scoping Opinion.

3.6.7.4 The baseline information will be used to identify potential source-pathway-receptor linkages and inform a risk-based assessment of the effects of the project in relation to Geology and Hydrogeology. The risk based assessment will be undertaken following a tiered approach as supported by guidance provided in land contamination risk management (LCRM)[132], with progression through the different Tiers (Tier 1 Preliminary Risk Assessment, Tier 2 Generic Quantitative Risk Assessment and Tier 3 Detailed Quantitative Risk Assessment) dependent on the outcome of each previous Tier (therefore proportionate).

3.6.7.5 In the context of the length and size of the Study Area, and to provide a comprehensive yet proportionate assessment, an additional Tier (Tier 0) is proposed for the ES relating to Geology and Hydrogeology.

3.6.7.6 A Tier 0 assessment will be undertaken as a first stage screening of the Scoping Boundary and wider study area to identify potential pollutant linkages and assign a risk rating based on potential for significant contamination to be present. Those sources which are assessed to have a moderate, high or very high potential risk of contamination will be taken forward for further assessment to ensure the assessment is targeted in areas where significant effects are most likely. Where a very low or low risk rating is assessed, these areas will not be taken forward for further assessment in the ES on the basis they have a low likelihood of significant effects. The potential risk of contamination will be identified based on the historical and current land use:

Table 3.6.4: Criteria for classifying potential for generating contamination

Classification score	Potential for generating contamination
Very Low	Land Use Examples: Residential, retail or office use, agriculture. Contamination Potential: Limited
Low	Land Use Examples: Recent small scale industrial and light industry Contamination Potential: Locally slightly elevated concentrations
Moderate	Land Use Examples: Railway yards, collieries, scrap yards, inert landfills Contamination Potential: Possible widespread slightly elevated concentrations and locally elevated
High	Land Use Examples: Heavy industry, non-hazardous landfills

	Contamination Potential: Possible widespread elevated concentrations
Very High	Land Use Examples: Hazardous waste landfills, gas works, chemical works Contamination Potential: Likely widespread elevated concentrations

3.6.7.7 Risks associated with unexpected contamination will be managed through the protocols and good practice measures identified within the CoCP.

3.6.7.8 In order to evaluate whether the presence of a source of contamination could potentially lead to harmful consequences, a source-pathway-receptor methodology is adopted, with the underlying principle that the identification of pollutant linkages consists of the following three elements

- a source/hazard (a substance or situation that has the potential to cause harm or pollution);
- a pathway (a means by which the hazard moves along / generates exposure); and
- a receptor/target (an entity that is vulnerable to the potential adverse effects of the hazard).

3.6.7.9 Whilst the contamination may be a hazard it would not constitute a risk unless a pathway and receptor are also present and a pollutant linkage can be determined. Therefore, in assessing the potential for contamination to cause a significant effect: the extent and nature of the potential source or sources of contamination must be assessed; any pathways present must be identified; and sensitive receptors or resources identified and appraised to determine their value and sensitivity to contamination related impacts.

3.6.7.10 The methodology adopted in this chapter is qualitative with a progression from factual information (stated with reasonable certainty) regarding the baseline conditions, to appraisal informed by professional judgement and expression of opinions on the relative significance.

3.6.7.11 The risk assessment approach proposed in this methodology will be transposed into EIA classification as follows;

- For each potential effect the receptor sensitivity and impact magnitude will be assigned using the Tables 3.6.5 and 3.6.6 below, which will then be combined to give a significance of effect using the matrix provided in Table 3.6.7.

3.6.7.12 There is no equivalent published assessment methodology that relates to impacts relating to geology (e.g. geo-conservation). For consistency, a similar approach will be adopted to assess these effects (i.e. combination of receptor identification and associated sensitivity and magnitude of potential impacts) as stated above.

3.6.7.13 A source-pathway-receptor linkage approach, as detailed above, will also be applied to assessing the potential effects on groundwater which relate to the geological/hydrogeological settings between the Order Limits and identified groundwater abstractions and receptors, in accordance with the policy guidance outlined at the start of this chapter. Further, localised Hydrogeological Risk Assessment may also be required where dewatering is likely and the receptors

present. Assessment of the impacts on groundwater receptors, will be undertaken based on the approach and methodology described in Environment Agency, Hydrogeological Impact Appraisal for dewatering guidance (2007).

3.6.7.14 The proposed assessment approach in the chapter is based on desk study information. 'Reasonable worst case' assumptions regarding the likely ground conditions will be made when assessing effects in the ES, determined from the desk study information.

Sensitivity of Receptors

3.6.7.15 The criteria used to determine the value and sensitivity of receptors specific to geology and hydrogeology are set out in Table 3.6.5. These criteria are based on the generic criteria presented in **Part 1 Chapter 5 EIA Approach and Method**.

Table 3.6.5: Value/sensitivity criteria

Value/sensitivity	General criteria
Very High	Very high importance and rarity. International scale and limited potential for substitution **Geology:** Very rare and of international importance with no potential for replacement (e.g. UNESCO World Heritage Sites, UNESCO Global Geoparks, Site of Special Scientific Interest (SSSI) and Geological Conservation Review (GCR) where citations indicate features of international importance). Geology meeting international designation citation criteria which is not designated as such. **Minerals:** Existing Mineral sites **Contamination:** 1) human health: very high sensitivity land use such as residential or allotments; 2) surface water: Watercourse having a Water Framework Directive (WFD) classification shown in a River Basin Management Plan (RBMP) and Q95 ≥ 1.0 m3/s. Site protected/designated under EC or UK legislation (Special Areas of Conservation (SAC), Special Protection Areas (SPA), Sites of Special Scientific Interest (SSSI), Ramsar site) 3) groundwater: Principal aquifer providing a regionally important resource and regionally important public water supplies, Source Protection Zone (SPZ) 1 **Hydrogeology:** Principal aquifer providing a regionally important source and regionally important public water supplies. Groundwater quality associated with SPZ 1 associated with licensed abstractions. Water feeding GWDTEs with a high groundwater dependence with a high environmental importance and international or national value, such as

	Ramsar sites, Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSIs).
High	High importance and rarity. National scale and limited potential for substitution **Geology:** Rare and of national importance with little potential for replacement (e.g. geological SSSI, Area of Special Scientific Interest (ASSI), National Nature Reserves (NNR)). Geology meeting national designation citation criteria which is not designated as such. **Minerals:** Mineral preferred areas **Contamination:** 1) human health: high sensitivity land use such as public open space; 2) surface water: Watercourse having a WFD classification shown in a RBMP and Q95 <1.0m^3/s. 3) groundwater: Principal aquifer providing locally important resource or supporting a river ecosystem, SPZ2. **Hydrogeology:** Principal aquifer providing a locally important source and locally important public water supplies, SPZ 2. Water feeding GWDTEs with a moderate groundwater dependence with high environmental importance and international or national value, such as Ramsar sites, SACs, SPAs and SSSIs; or water feeding highly groundwater dependent GWDTE with a national non-statutory UK Biodiversity Action Plan (BAP) priority
Medium	Medium or high importance and rarity, regional scale, limited potential for substitution **Geology:** Regional importance with limited potential for replacement (e.g. RIGS). Geology meeting regional designation citation criteria which is not designated as such. **Minerals:** Mineral Safeguarded Areas and Mineral Consultation Area **Contamination:** 1) human health: medium sensitivity land use such as commercial or industrial; 2) surface water: Watercourses not having a WFD classification shown in a RBMP and Q95 >0.001m3/s. 3) groundwater: Secondary A Aquifers. extensive non-licensed private water abstractions (i.e. feeding ten or more properties or supplying large farming / animal estates). SPZ2 (Outer Protection Zone) associated with licenced abstractions. **Hydrogeology:**

	Secondary A aquifer. Groundwater flow and yield and quality associated with extensive non-licensed private water abstractions (i.e. feeding ten or more properties or supplying large farming / animal estates). Groundwater quality associated with SPZ2 (Outer Protection Zone) associated with licensed abstractions. Residential and commercial properties. Water feeding GWDTEs of low groundwater dependence with a high environmental importance and international or national value, such as Ramsar sites, SACs, SPAs and SSSIs; or water feeding moderately groundwater dependent GWDTE with a national non-statutory UK Biodiversity Action Plan (BAP) priority
Low	Low or medium importance and rarity, local scale **Geology:** Local importance / interest with potential for replacement (e.g. non designated geological exposures, former quarry's / mining sites). **Minerals:** Mineral present but outside of any MPS/MSA/MCA **Contamination:** 1) human health: low sensitivity land use such as highways and rail; 2) surface water: Watercourses not having a WFD classification shown in a RBMP and Q95 ≤0.001m3/s. 3) groundwater: Secondary B or Secondary Undifferentiated aquifer. Small scale private water abstractions (i.e. feeding fewer than ten properties). SPZ3. **Hydrogeology:** Secondary B or Secondary Undifferentiated aquifer. Groundwater flow and yield and quality associated with small scale private water abstractions (i.e. feeding fewer than ten properties). Groundwater quality associated with SPZ3 (Source Catchment Protection Zone) associated with licensed abstractions and with licensed abstractions for which no SPZ is defined. Water feeding GWDTEs of low groundwater dependence with a national non-statutory UK BAP priority; or water feeding highly or moderately groundwater dependent GWDTE sites with no conservation designation.
Negligible	Very low importance and rarity, local scale **Geology:** No geological exposures, little / no local interest. **Mineral:** No mineral identified **Contamination:** 1) human health: undeveloped surplus land / no sensitive land use proposed; 2) surface water: not present 3) groundwater: Unproductive strata

	Hydrogeology: Very poor groundwater quality and/or very low permeability make exploitation of groundwater unfeasible. No active groundwater supply. Water feeding GWDTEs of low groundwater dependence with no designation or groundwater that supports a wetland not classified as a GWDTE, although may receive some minor contribution from groundwater

Impact Magnitude

Table 3.6.6: Magnitude criteria

Magnitude	General criteria
Large	**Geology Adverse**: Permanent loss of geological feature / designation and/or quality and integrity, severe damage to key characteristics, features or elements.
	Contamination Adverse: Significant contamination identified, and contamination level significantly exceed human health and environmental assessment criteria with the potential for significant harm to be caused. Contamination heavily restricts future use of land **Contamination Benefit**: Substantial betterment of ground or groundwater quality/contamination conditions through remediation and/or mitigation.
	Hydrogeology Adverse: Major or irreversible change to groundwater aquifer(s) flow, water level, quality or available yield which endangers the resources currently available. Groundwater resource use / abstraction is irreparably impacted upon, with a major or total loss of an existing supply or supplies. Changes to water table level or quality would result in a major or total change in, or loss of, a groundwater dependent area, where the value of a site would be severely affected. Changes to groundwater aquifer(s) flow, water level and quality would result in major changes to groundwater baseflow contributions to surface water and/ or alterations in surface water quality. **Hydrogeology Beneficial**: Major increase in groundwater resource availability. Results in the achievement of Good Status for a WFD groundwater body or GWDTE which is currently failing its WFD objectives. Removal of existing or potential polluting discharge to groundwater
Medium	**Geology Adverse**: partial loss of geological feature / designation, potentially adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.
	Contamination Adverse: Contamination levels marginally exceed human health and environment assessment criteria. Control / remediation

	measures are required to reduce risks to human health / make land suitable for intended use. **Contamination Benefit**: Moderate Betterment of ground or groundwater quality/contamination conditions through remediation and/or mitigation.
	Hydrogeology Adverse: Moderate long term or temporary significant changes to groundwater aquifer(s) flow, water level, quality or available yield which results in moderate long term or temporarily significant decrease in resource availability. Groundwater resource use / abstraction is impacted slightly, but existing supplies remain sustainable. Changes to water table level or groundwater quality would result in partial change in or loss of a groundwater dependent area, where the value of the site would be affected, but not to a major degree. Changes to groundwater aquifer(s) flow, water level and quality would result in moderate changes to groundwater baseflow contributions to surface water and/ or alterations in surface water quality, resulting in a moderate shift from baseline conditions **Hydrogeology Beneficial**: Moderate increase in groundwater resource availability. Contributes, in combination with other effects, to the achievement of Good Status for a WFD groundwater body or GWDTE which is currently failing its WFD objectives. Significant reduction of existing or potential polluting discharge to groundwater.
Small	**Geology Adverse**: minor measurable change in geological feature / designation attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Contamination Adverse: Contamination levels below human health and environment assessment criteria and remediation is not required. Significant contamination is unlikely with a low risk to human health. Best practice measures can be required to minimise risks to human health; **Contamination Benefit**: Slight betterment of ground or groundwater quality/contamination conditions through remediation and/or mitigation.
	Hydrogeology Adverse: Minor changes to groundwater aquifer(s) flow, water level, quality or available yield leading to a noticeable change, confined largely to the Project area. Changes to water table level, groundwater quality and yield result in little discernible change to existing resource use. Changes to water table level or groundwater quality would result in minor change to groundwater dependent areas, but where the value of the site would not be affected. Changes to groundwater aquifer(s) flow, water level and quality would result in minor changes to groundwater baseflow contributions to surface water and / or alterations in surface water quality, resulting in a minor shift from baseline conditions. **Hydrogeology Beneficial**: Minor increase in groundwater resource availability. Leads to improvement of a WFD groundwater body which is currently failing its WFD objectives but insufficient effect to achieve Good Status. Minor reduction of existing or potential polluting discharge to groundwater.

Negligible	**Geology Adverse**: Very minor loss or detrimental alteration to one or more characteristics, features or elements of geological feature / designation. Overall integrity of resource not affected.
	Contamination: Contamination levels substantially below human health and environment assessment criteria and remediation is not required. No requirement for control measures to reduce risks to human health / make land suitable for intended use.
	Hydrogeology Adverse: Very slight change from groundwater baseline conditions, approximating to 'no change' conditions. Dewatering effects create no or no noticeable effects.

Table 3.6.7: Significance matrix

		Value/Sensitivity of receptor				
		Very High	**High**	**Medium**	**Low**	**Negligible**
Magnitude	**Large**	Major	Major/Moderate	Major/Moderate /Minor	Moderate/Minor	Minor/Negligible
	Medium	Major/Moderate	Major/Moderate	Moderate/Minor	Minor/Negligible	Negligible
	Small	Major/Moderate	Moderate/Minor	Moderate/Minor	Minor/Negligible	Negligible
	Negligible	Minor/Negligible	Minor/Negligible	Minor/Negligible	Negligible	Negligible

3.6.8 Conclusion

3.6.8.1 The Geology and Hydrogeology receptors that have been identified within the Scoping Boundary include human health, groundwater, surface waters, designated sites of geological importance and land quality. The preliminary baseline assessment indicates that there is the potential for significant effects on these receptors, however with the implementation of both the embedded mitigation and good practice measures described, the significance of the potential effects can be reduced for certain impacts so that significant effects are unlikely. Where significant effects have been assessed as unlikely, those impacts are scoped out of further assessment. Where there is potential for significant effects, these impacts have been scoped into the ES and will be assessed further, in accordance with the methodology described. The impacts proposed to be scoped in and out of the assessment are summarised in Table 3.6.8.

Proposed Scope of the Assessment

3.6.8.2 A summary of the proposed scope of the assessment is provided in Table 3.6.8.

Table 3.6.8: Proposed Scope of the assessment

Receptor	Potential significant effect	Project phase(s)	Proposed to be scoped in/out
Geology			
Designated sites of geological importance	Damage to/destruction of designated sites of geological importance	Construction	**Scoped in**
		Operation, maintenance and decommissioning	Scoped out
Mineral Reserves	Sterilisation of safeguarded minerals	Construction, Operation, maintenance and decommissioning	Scoped out
Built development	Damage to/destruction of the built development (operational phase) due to natural geological hazards (dissolution features/soft ground/landslides/aggressive ground conditions etc)	Construction, Operation, maintenance and decommissioning	Scoped out
Built development	Ground instability effects relating to historical coal mining	Construction, Operation, maintenance and decommissioning	Scoped out
Contamination			
Site workers, neighbours	Human health exposure to existing potential contamination through ground disturbance during construction and decommissioning	Construction and decommissioning	**Scoped in**
Environmentally sensitive sites, groundwater, GWDTE, surface water, land quality	Mobilisation of existing contamination during general construction, impacting on land and/or groundwater quality	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
Environmentally sensitive sites, groundwater, GWDTE, surface	Introduction of new potential contaminants to the environment from leaks, spills, fuels and oils	Construction, operation, maintenance, and decommissioning	Scoped out

water, land quality.			
Construction/ maintenance workers, future users, built environment	Ingress and accumulation of ground gas in buildings/confined spaces/trenches (construction and operation) – resulting in explosion/asphyxiation/exposure	Construction, operation maintenance, and decommissioning	**Scoped in**
Site workers, maintenance workers, neighbours	Human health exposure to existing contamination during operation and maintenance	Operation and maintenance	Scoped out
Hydrogeology			
Environmentally sensitive sites, groundwater, GWDTE, surface water	Mixing of aquifer bodies due to the connection of aquifer units at trenchless crossings	Construction, operation, maintenance and decommissioning	Scoped out
Environmentally sensitive sites, groundwater, GWDTE, surface water	Changes to groundwater levels, quality and groundwater flow direction caused by dewatering	Construction Operation, maintenance and decommissioning	**Scoped in** Scoped out
Environmentally sensitive sites, groundwater, GWDTE, surface water	Physical and chemical changes to groundwater from the discharge of groundwater from dewatering	Construction, operation, maintenance and decommissioning	Scoped out
Environmentally sensitive sites, groundwater, GWDTE, surface water	Changes to groundwater levels and/or recharge rates from the introduction of impermeable surfaces	Construction, operation, maintenance and decommissioning	Scoped out

3.7 Agriculture and Soils

3.7.1 Introduction

3.7.1.1 This chapter presents of the Agriculture and Soils assessment which will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**) on agricultural and soil receptors. This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

3.7.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary, hereafter referred to as the Kent Scoping Boundary, is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.7.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.7.1.4 This chapter is supported by the following figures:

- **Figure 3.7.1 Soilscape Mapping**;
- **Figure 3.7.2 Provisional Agricultural Land Classification Mapping**;
- **Figure 3.7.3 Detailed Agricultural Land Classification Mapping**; and
- **Figure 3.7.4 Environmental Stewardship Agreements and Woodland Grant Schemes**.

3.7.1.5 The receptors included within this chapter comprise:

- the presence and potential impact on best and most versatile (BMV) land (as defined by the Agricultural Land Classification (ALC) system) and soil function, including land affected temporarily during construction and the land required permanently; and
- the nature and potential impacts on landholdings in agricultural use, including land affected temporarily during construction and the land required permanently. This will cover issues of potential fragmentation, biosecurity risks and impacts on any land under agri-environmental, woodland or forestry schemes.

3.7.1.6 The assessment of potentially significant effects on agricultural and soil receptors will be supported by information presented in other chapters: **Part 3, Chapter 3, Ecology**

and Biodiversity; **Part 3, Chapter 5 Water Environment**; and **Part 3, Chapter 6 Geology and Hydrogeology**.

3.7.2 Regulatory and Planning Context

3.7.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on agriculture and soils associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

3.7.2.2 There is no primary legislation relevant to this topic.

Planning Policy

National planning policy

3.7.2.3 National Policy Statement (NPS) for Energy (EN-1)[153] contains paragraphs relating to agriculture and soils which have been considered within this chapter.

3.7.2.4 Paragraph 5.10.8 states that 'Applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification) and preferably use land in areas of poorer quality (grades 3b, 4 and 5) except where this would be inconsistent with other sustainability considerations. Applicants should also identify any effects and seek to minimise impacts on soil quality taking into account any mitigation measures proposed'.

3.7.2.5 Paragraph 5.10.15 states that the Secretary of State (formerly the Infrastructure Planning Commission) should 'ensure that applicants do not site their scheme on the best and most versatile agricultural land without justification. It should give little weight to the loss of poorer quality agricultural land (in grades 3b, 4 and 5), except in areas (such as uplands) where particular agricultural practices may themselves contribute to the quality and character of the environment or the local economy'.

3.7.2.6 EN-1 is supported by the National Policy Statement for Electricity Networks Infrastructure (EN-5)[154] which contains paragraphs relating to agriculture and soils which have been considered within this chapter. Paragraph 1.7.5 states that, in relation to a presumption that electricity lines should be put underground, '*effects on soil, water, ecology and archaeology are likely to be negative, at least in the short term, requiring significant mitigation, but there is uncertainty around long term effects depending on the specific location and sensitivity of the receiving environment*'. This is reiterated in paragraph 2.8.9 (third bullet point).

[153] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[154] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

Local planning policy

3.7.2.7 Relevant policies from the Thanet Local Plan, Adopted July 2020[155] will be considered. These are listed below:

- SP24 – Development in the Countryside; and
- E16 – Best and Most Versatile Agricultural Land

3.7.2.8 Relevant policies from the Dover District Council Core Strategy, adopted February 2010[156] and the Dover District Local Plan, adopted 2002[157], will also be considered. These are listed below:

- DM15 – Protection of the Countryside.

Guidance

3.7.2.9 Several standards and non-statutory guidelines, which provide details of assessment methodologies and mitigation techniques, will also be referenced to inform the assessment, including:

- Construction Code of Practice for the sustainable re-use of soils on construction sites[158];
- Technical Information Note (TIN) 049[159]. Agricultural Land Classification: protecting the best and most versatile agricultural land;
- Good Practice Guide for Handling Soils[160]; and
- A new perspective on land and soil in Environmental Impact Assessment[161].

3.7.3 Study Area

3.7.3.1 The study area for agriculture and soils comprises the land which would be directly affected by the Kent Onshore Scheme (through disturbance or temporary covering of the soils). This will be based on the proposed Order Limits in the ES but for the purposes of this Scoping Report the study area includes the land within the Kent

[155] Thanet District Council (2020). Local Plan, Adopted July 2020. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf

[156] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf

[157] Dover District Council (2002). Dover District Local Plan 2002. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/Adopted-Development-Plans/Dover-District-Local-Plan-2002.aspx

[158] Department for Environment, Food and Rural Affairs (2009). Construction Code of Practice for the sustainable re-use of soils on construction sites. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716510/pb13298-code-of-practice-090910.pdf#:~:text=1.%20This%20Code%20of%20Practice%20for%20the%20sustainable,It%20is%20particularly%20intended%20for%20use%20in%20England.

[159] Natural England (2012). Technical Information Note TIN049. Agricultural Land Classification: protecting the best and most versatile agricultural land. [online] Available at: https://www.iow.gov.uk/azservices/documents/2782-FE14-Natural-England-TIN049-Agricultural-Land-Classification.pdf

[160] Ministry of Agriculture, Fisheries and Food (2000). Good Practice Guide for Handling Soils. [online] Available at: https://webarchive.nationalarchives.gov.uk/ukgwa/20090317221756/http://www.defra.gov.uk/farm/environment/land-use/soilguid/index.htm

[161] Institute of Environmental Management & Assessment (2022). A new perspective on land and soil in Environmental Impact Assessment.

Scoping Boundary. This is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.7.4 Baseline Conditions

Data Sources

3.7.4.1 The agriculture and soils baseline assessment has been informed by a desk study which has drawn on the following key information sources:

- Ordnance Survey mapping and aerial photography to establish land use and settlement patterns;
- Soilscape mapping showing the distribution of main soil types was assessed on the Land Information System website[162];
- ALC mapping, including provisional and (where available) detailed ALC mapping from the MAGIC website[163]; and
- Extent of agri-environmental and woodland schemes from the MAGIC website.

Baseline

Soils

3.7.4.2 The solid geology underlying the study area is described as comprising the Thanet Formation. This comprises sand, silt and clay sedimentary rocks formed approximately 56 to 59 million years ago in the Palaeogene Period. This solid geology is in the main overlain by tidal flat deposits within the study area. This material comprises clay and silt and was deposited around 2 million years ago in the Quaternary Period. Along the alignment of Richborough Way these superficial deposits are absent.

3.7.4.3 The soil types present within the study area are predominantly described as loamy and clayey soils of coastal flats with naturally high groundwater (**Figure 3.7.1 Soilscape Mapping**). These soils are formed in the tidal flat deposits. Where these drift deposits are absent (along the alignment of Richborough Way) the soils are described as freely draining slightly acid loamy soils formed directly on the solid geology.

Agricultural land classification

3.7.4.4 Provisional ALC mapping (**Figure 3.7.2 Provisional Agricultural Land Classification Mapping**) shows that the study area comprises Grade 2 land. This mapping, at a scale of 1:250,000, does not distinguish between Grades 3a and 3b (and cannot be used to inform site-specific assessments) but provides an indication of the likely land classification.

[162] Cranfield University (2021). LandIS : The Land Information System. [online] Available at: https://www.cranfield.ac.uk/themes/environment-and-agrifood/landis

[163] Department for Environment, Food and Rural Affairs (2022). Multi-Agency Geographic Information for the Countryside (MAGIC). [online] Available at: https://magic.defra.gov.uk/

3.7.4.5 There is some detailed ALC mapping available for the study area, based on surveys undertaken in 1993. The land east of Ebbsfleet Lane and to the west of Ebbsfleet Farmhouse/Great Oaks Small School has been mapped as a mix of Grade 2 and Grade 3a (as shown in **Figure 3.7.3 Detailed Agricultural Land Classification Mapping**).

3.7.4.6 Climate is unlikely to pose an overall limitation on ALC grade in relation to the criteria set out in the ALC Guidelines[164] (MAFF, 1988). Climate does, however, have an important influence on the interactive limitations of soil wetness and soil droughtiness, which is the balance between rainfall and water losses from the soil. The site has both relatively low rainfall and a long growing season, acting to decrease the severity of any potential soil wetness limitation, but increasing the severity of any potential soil droughtiness limitation.

Land use

3.7.4.7 A desk-based study using aerial photographs, along with information from other survey visits, has shown that the land use appears to be principally arable, with small areas of pasture on either side of the River Stour, and St Augustine's golf course east of Richborough Way.

3.7.4.8 There are areas of land within the study area under Countryside Stewardship (Higher Tier) Agreements and areas south of the River Stour under Entry Level plus Higher Level Environmental Stewardship agreements. Small areas of land east of Richborough Way (associated with the golf course) are also under Woodland Grant schemes (see **Figure 3.7.4 Environmental Stewardship Agreements and Woodland Grant Schemes**).

Future Baseline

3.7.4.9 It is considered that the baseline in relation to soils and ALC grades will not change from that described within the timeframe for the construction of this project. Whilst there may be potential changes in relation to climate change, including greater rainfall intensity and droughts, that could affect soil conditions, land grade and farming practices, it is likely that these would only be visible over longer time frames.

3.7.4.10 There could potentially be changes to land management practices and business approaches across the landowners/land managers.

3.7.5 Embedded and Control & Management Measures

Embedded Measures

3.7.5.1 The assessment of effects will take account of mitigation, including measures embedded into the Project's design and good practice measures. Key measures are described below.

[164] Ministry of Agriculture, Fisheries and Food (1988). Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.

3.7.5.2 The temporary nature of many construction activities and the subsequent restoration of the land and its return to the preconstruction use is likely to result in the avoidance of long-term impacts on agricultural and soil receptors.

Control and Management Measures

3.7.5.3 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the assessment relating to agriculture and soils are:

- GG03: A CEMP, a LEMP and an CTMP will be produced prior to construction. The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans.
- GG19: Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression where appropriate.
- AS01: Soil management measures will be included within the CEMP. Measures would include but not be limited to the following:
  - details of the soil resources present;
  - how the topsoil and subsoil will be stripped and stockpiled;
  - suitable conditions for when soil handling will be undertaken, for example avoiding handling of waterlogged soil;
  - indicative soil storage locations;
  - how soil stockpiles will be designed taking into consideration site conditions and the nature/composition of the soil;
  - specific measures for managing sensitive soils;
  - suitable protective surfacing where soil stripping can be avoided, based on sensitivity of the environment and proposed works;
  - approach to reinstating soil that has been compacted, where required; and
  - details of measures required for soil restoration.
- AS02: Where land is being returned to agricultural use, the appropriate soil conditions (for example through the replacement of stripped layers and the removal of any compaction) will be recreated. This will be achieved to a depth of 1.2m (or the maximum natural soil depth if this is shallower) except over the buried cables where the reinstated soil depth will be approximately 0.9m.
- AS03: Access to and from residential, commercial, community and agricultural land uses will be maintained throughout the construction period or as agreed through landowner discussions. This may require signed diversions or temporary restrictions to access. The means of access to affected properties, facilities and land parcels will be communicated to affected parties at the start of the project, with any changes communicated in advance of the change being implemented. Where field-to-field access points require alteration as a result of construction,

alternative field access will be provided in consultation with the landowner/occupier.

- AS04: Existing water supplies for livestock will be identified pre-construction. Where supplies will be lost or access compromised by construction works, temporary alternative supplies will be provided. Water supplies will be reinstated following construction.
- AS05: Consultation with affected landowners will be carried out to investigate the current extent of land drainage. A scheme of pre-construction land drainage will be designed with the intent of maintaining the efficiency of the existing land drainage system and to assist in maintaining the integrity of the working area during construction. The project may include a system of 'cut-off' drains which feed into a new header drain and the project will also take into account surface water runoff measures.
- AS06: Should animal bones be discovered during construction, which may indicate a potential burial site, works will cease, and advice will be sought from the Animal Health Regional Office on how to proceed, relevant to the origin and age of the materials found.
- AS07: All movement of plant and vehicles between fields will cease in the event of a notification by Defra of a disease outbreak in the vicinity of the site that requires the cessation of activities. Advice will be sought from Defra in order to develop suitable working methods required to reduce the biosecurity risk associated with the continuation of works.
- AS08: Clay bungs or other vertical barriers will be constructed within trench excavations where deemed necessary by a suitably experienced person, to prevent the creation of preferential drainage pathways.

3.7.6 Potential for Significant Effects

3.7.6.1 The agriculture and soils assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.7.6.2 The proposed scope of the agriculture and soils assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.7.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.7.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- temporary removal of land from agricultural production;
- disruption and disturbance to agricultural operations (from noise, fragmentation by fencing and disruption to water supplies or land drainage); and
- temporary disturbance to soils (potentially resulting in long-term changes to one or more soil functions).

Sources of operational impacts

- permanent removal of land from agricultural production;
- permanent loss of soils; and
- electric and magnetic fields (EMFs).

Sources of maintenance impacts

- temporary removal of land from agricultural production;
- temporary disruption and disturbance to agricultural operations (from noise, fragmentation by fencing and disruption to water supplies or land drainage); and
- temporary disturbance to soils (potentially resulting in long-term changes to one or more soil functions)

Sources of decommissioning impacts

- temporary removal of land from agricultural production;
- temporary disruption and disturbance to agricultural operations (from noise, fragmentation by fencing and disruption to water supplies or land drainage); and
- temporary disturbance to soils (potentially resulting in long-term changes to one or more soil functions).

Potential impacts

Soils and ALC

Soils and ALC during construction

3.7.6.5 During construction there would be a potential loss of BMV land (ALC Grades 1, 2 and 3a) from agricultural productivity. There would also be disturbance to soils, either from access for overhead line installation/removal or due to the excavation and soil stripping working areas for the underground cable trenches, pylon footings, converter station footprint and areas required temporarily (such as construction compounds). There would also be the potential for impacts on the ecosystem services the soils provide. The good practice measures set out within the Outline CoCP and the good practice soil management measures set out within the CEMP for soil handling, storage and reinstatement, would reduce the effects on soils.

3.7.6.6 By the end of construction, all land required temporarily would be reinstated minimising the risk of long-term effects on soils or ALC. However, until soil surveys have been undertaken to understand the sensitivity of the soils to handling, storage and reinstatement the construction effects on soils and ALC will be scoped into the ES.

Soils and ALC during operation

3.7.6.7 During operation, there would be a permanent loss of areas of agricultural land and associated soils for the permanent infrastructure. It is unlikely that this would give rise to a significant effect; however, the land grades and soil types affected would be confirmed through the assessment process and as such permanent impacts on soils and ALC will initially be scoped into the assessment. This would be informed by a survey following published guidelines[165]. However, if the site survey confirms that the permanent land affected is not BMV land or that the cumulative loss is below the magnitude threshold for a likely significant effect, then permanent loss of agricultural land during operation would be scoped out of the ES.

3.7.6.8 Any maintenance or repair works required which would result in disturbance to soils during operation of the project would be undertaken in accordance with good practice soil handling methods. No likely significant effects on soils or ALC during operational maintenance or repair activities are therefore concluded and this aspect is scoped out of the ES.

Land use

Land use during construction

3.7.6.9 During construction there would be potential impacts on agricultural operations due to disturbance (in particular where livestock are present), fragmentation, access restrictions or disruption to water supplies or land drainage. The measures set out within the Outline CoCP, including AS03, to maintain access throughout construction, would reduce the effects to agricultural land use. Effects on land drainage are covered in **Part 3 Chapter 5: Water Environment**.

3.7.6.10 By the end of the construction phase, all land required temporarily would be reinstated. As the footprint of the permanent infrastructure is limited and as impacts on agricultural operations will be dealt with through compensation agreements (which lies outside of the EIA process) it is considered that, on completion of the reinstatement of land required temporarily, there would be no significant effects on agricultural landholdings. Therefore, construction effects on land use are scoped out of the ES.

Land use during operation

3.7.6.11 During operation, there would be limited effects on agricultural operations. Limited areas of agricultural land would be lost permanently and there is the potential for restrictions to activities immediately over or adjacent to buried cables or under overhead lines; however, these will be dealt with through compensation agreements (which lies outside of the EIA process). Any maintenance or repair works required which would result in disturbance to agricultural operations would be undertaken in

[165] Ministry of Agriculture, Fisheries and Food (1988). Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.

accordance with good practice soil handling methods. Therefore, there are no likely significant effects on agricultural landholdings during operation and this aspect is scoped out of the ES.

3.7.6.12 The majority of any financial consequences on individual landowners and farmers will be temporary, as most of the land will be reinstated by the end of the construction phase and any claims regarding compensation will be addressed outside of the EIA process. As such, potential economic effects on individual landowners and farmers are scoped out of the ES.

3.7.6.13 During operation, there can be landowner concerns that (EMFs) can affect land use. However, paragraph 2.10.8 of EN-5 states that, in relation to EMFs, '*there is little evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs has any agriculturally significant consequences*'. National Grid will be undertaking a walkover of the Indicative Alignment to identify land use and activities that may require additional clearance of the conductors. Land uses include intensive activities involving horses, such as riding schools, stud farms and areas habitually used for loading or unloading horse boxes. With these measures in place, there would be no likely significant effects during operation on land use from EMF or microshocks, and this is therefore scoped out of the ES.

3.7.6.14 National Grid will provide the relevant information on EMFs in a separate document submitted as part of the application for development consent. This document will demonstrate compliance in accordance with the ICNIRP guidelines and paragraph 2.10.9 of EN-5.

Soils, ALC and land use during decommissioning

3.7.6.15 Decommissioning of the Project would consider all the relevant environmental legislation and technology available at the time. Decommissioning activities would be subject to an environmental management plan that would identify and mitigate the potential impacts of decommissioning activities that could harm sensitive receptors.

3.7.6.16 It is considered likely that the impacts associated with decommissioning would be similar to those identified during the construction phase, with land taken permanently returned to agricultural use where practicable.

3.7.6.17 Table 3.7.1 identifies the potential impacts that could result from the sources identified above.

Table 3.7.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction	Temporary removal of land from agricultural production	Reduction in agricultural productivity	No - potential for a significant effect due to the restoration of land required temporarily and	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			compensation agreements with individual landowners.	
		Temporary loss of BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Construction	Temporary disruption and disturbance to agricultural operations (from noise, fragmentation and disruption to water supplies and land drainage	Reduction in agricultural productivity	No - potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Construction	Temporary disturbance to soils	Changes to one or more soil functions	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Operation	Permanent removal of land from agricultural production	Reduction in agricultural productivity	No - potential for a significant effect due to the restoration of land required temporarily and	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			compensation agreements with individual landowners.	
		Permanent loss of BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Operation	Permanent loss of soils	Changes to one or more soil functions	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Operation	EMFs	EMFs impacting crops and livestock	No - Little evidence to indicate EMFs have a significant effect.	Scoped out
Maintenance	Temporary removal of land from agricultural production	Reduction in agricultural productivity	No - potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		Temporary loss of BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Maintenance	Temporary disruption and disturbance to agricultural operations (from noise, fragmentation and disruption to water supplies and land drainage	Reduction in agricultural productivity	No - potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Maintenance	Temporary disturbance to soils	Changes to one or more soil functions	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Decommissioning	Temporary removal of land from agricultural production	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		Temporary loss of BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Decommissioning	Temporary disruption and disturbance to agricultural operations (from noise, fragmentation and disruption to water supplies and land drainage	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Decommissioning	Temporary disturbance to soils	Changes to one or more soil functions	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**

Impact Pathways with Receptors (Step 2)

3.7.6.18 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the agricultural and soils study area or area.

3.7.6.19 Table 3.7.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown

on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme.**

Table 3.7.2: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effect	Proposed to be Scoped in/out
Temporary removal of land from agricultural production during construction	BMV land	Yes - Land required temporarily to be returned to preconstruction condition through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once extent of BMV land and soil characteristics understood from surveys.	**Scoped in**
	Agricultural landholdings	No - No potential for a significant effect relating to land area or disturbance/ disruption due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Permanent removal of land from agricultural production during operation	BMV land	Yes - Soil handling and re-use to be undertaken through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once extent of BMV land and soil characteristics understood from surveys.	**Scoped in**
	Agricultural landholdings	No - No potential for a significant effect relating to land area or disturbance/ disruption due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Temporary disturbance to soils during construction	Soil quality and associated ecosystem services	Yes - Land required temporarily to be returned to preconstruction condition through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once soil characteristics and resilience understood from surveys.	**Scoped in**

Permanent loss of soils during operation	Soil quality and associated ecosystem services	Yes - Soil handling and re-use to be undertaken through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once soil characteristics and resilience understood from surveys.	**Scoped in**
EMFs during operation	Agricultural operations	No - Little evidence to indicate EMFs have a significant effect.	Scoped out
Temporary removal of land from agricultural production due to maintenance activities	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
	BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in**
Temporary disruption and disturbance due to maintenance activities	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Temporary disturbance to soils during decommissioning activities	Soil quality and associated ecosystem services	Yes - Land required temporarily to be returned to preconstruction condition through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once soil characteristics and resilience understood from surveys.	**Scoped in**
Temporary removal of land from agricultural production due to decommissioning activities	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Temporary disruption and disturbance due to decommissioning activities	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out

3.7.7 Proposed Assessment Methodology

3.7.7.1 An overview of the proposed assessment methodology is provided in **Part 1 Chapter 5 EIA Approach and Method**.

Proposed Data Sources

3.7.7.2 The following data sources are proposed to be used to inform the assessment:

- Soil surveys (as required);
- Ordnance Survey mapping and aerial photography to establish land use and settlement patterns;
- Soilscape mapping showing the distribution of main soil types was assessed on the Land Information System website; ALC mapping, including provisional and (where available) detailed ALC mapping from the MAGIC website; and
- Extent of agri-environmental and woodland schemes from the MAGIC website.

Proposed Assessment Methodology

3.7.7.3 The assessment will be based on guidance set out by the Institute of Environmental Management and Assessment on how land and soil should be assessed in Environmental Impact Assessment[166]. This recently published guidance and the sensitivity and magnitude tables have been based on guidance set out in LA109[167] Geology and Soils of the Design Manual for Roads and Bridges (DMRB) which has traditionally been used to assess the impacts of both highway projects and other linear infrastructure projects on agriculture and soil receptors.

3.7.7.4 The IEMA guidance seeks to move practice away from a narrow focus on quantifying and financially compensating impacts on agricultural land and advocates a new and wider approach to assessing the soil functions, ecosystem services and natural capital provided by land and soils.

3.7.7.5 The sensitivity of receptors will be assessed based on the criteria set out in Table 3.7.3 below.

Table 3.7.3: Sensitivity of receptor criteria

Receptor sensitivity (in-situ soils)	Soil resource and soil functions
Very High	***Biomass production***: ALC Grades 1 & 2

[166] Institute of Environmental Management and Assessment (2022). A new perspective on land and soil in Environmental Impact Assessment.

[167] Highways England (2020). Design Manual for Roads and Bridges. LA 109 Geology and Soils. [online] Available at: https://www.standardsforhighways.co.uk/prod/attachments/adca4c7d-4037-4907-b633-76eaed30b9c0?inline=true

	Ecological habitat, soil biodiversity and platform for landscape: Soils supporting protected features within a European site (e.g., SAC, SPA, Ramsar); Peat soils; Soils supporting a National Park, or Ancient Woodland ***Soil carbon***: Peat soils Soils with potential for ecological/landscape restoration ***Soil hydrology***: Very important catchment pathway for water flows and flood risk management ***Archaeology, Cultural heritage, Community benefits and Geodiversity***: SAMs and adjacent areas; World Heritage and European designated sites; Soils with known archaeological interest; Soils supporting community/recreational/educational access to land covered by National Park designation ***Source of materials***: Important surface mineral reserves that would be sterilised (i.e., without future access)
High	***Biomass production***: ALC Grade 3a ***Ecological habitat, soil biodiversity and platform for landscape***: Soils supporting protected features within a UK designated site (e.g., UNESCO Geoparks, SSSI or AONB, Special Landscape Area and Geological Conservation Review sites); Native Forest and woodland soils; Unaltered soils supporting semi-natural vegetation ***Soil carbon***: Organo-mineral soils (e.g. peaty soils) ***Soil hydrology***: Important catchment pathway for water flows and flood risk management ***Archaeology, Cultural heritage, Community benefits and Geodiversity***: Soils with probable but as yet unproven (prior to being revealed by construction) archaeological interest; Historic parks and gardens; RIGS; Soils supporting community/recreational/educational access to RIGS and AONBs; ***Source of materials***: Surface mineral reserves that would be sterilised (i.e., without future access)
Medium	***Biomass production***: ALC Grade 3b ***Ecological habitat, soil biodiversity and platform for landscape***: Soils supporting protected or valued features within non-statutory designated sites (e.g. Local Nature Reserves (LNR), Local Geological Sites (LGSs), Sites of Nature Conservation Importance (SNCIs), Special Landscape Areas; Non-Native Forest and woodland soils ***Soil carbon***: Mineral soils ***Soil hydrology***: Important minor catchment pathway for water flows and flood risk management ***Archaeology, Cultural heritage, Community benefits and Geodiversity***: Soils with possible but as yet unproven (prior to being revealed by construction) archaeological interest; Soils supporting community/recreational/educational access to land ***Source of materials***: Surface mineral reserves that would remain accessible for extraction

Low	***Biomass production***: ALC Grade 4 and 5 ***Ecological habitat, soil biodiversity and platform for landscape***: Soils supporting valued features within non-designated notable or priority habitats/landscapes. Agricultural soils ***Soil carbon***: Mineral soils ***Soil hydrology***: Pathway for local water flows and flood risk management ***Archaeology, Cultural heritage, Community benefits and Geodiversity***: Soils supporting no notable cultural heritage, geodiversity nor community benefits; Soils supporting limited community/recreational/educational access to land ***Source of materials***: Surface mineral reserves that would remain accessible for extraction
Negligible	As for low sensitivity, but with only indirect, tenuous, and unproven links between sources of impact and soil functions

3.7.7.6 The magnitude of impacts will be assessed based on the criteria set out in Table 3.7.4 below.

Table 3.7.4: Magnitude criteria

Magnitude of impact (change))	Description of impacts restricting proposed land use
Large	Permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading), over an area of more than 20ha or loss of soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team (including effects from 'temporary developments'*) or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of more than 20ha, or gain in soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team (including effects from 'temporary developments'*)
Medium	Permanent, irreversible loss of one or more soil functions or soil volumes, over an area of between 5 and 20ha or loss of soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team (including effects from 'Temporary Developments'*) or Potential for improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of between 5 and 20ha, or gain in soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team

Small	Permanent, irreversible loss over less than 5ha or a temporary, reversible loss of one or more soil functions or soil volumes), or temporary, reversible loss of soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of less than 5ha or a temporary improvement in one or more soil functions due to remediation or restoration or off-site improvement, or temporary gain in soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team
Negligible	No discernible loss or reduction or improvement of soil functions or soil volumes that restrict current or proposed land use

*Temporary developments can result in a permanent impact if resulting disturbance or land use change causes permanent damage to soils

3.7.7.7 The significance of an effect is then derived using the matrix set out in **Part 1, Chapter 5 EIA Approach and Method.**

3.7.8 Conclusion

3.7.8.1 The Kent Onshore Scheme has the potential to affect agriculture and soil receptors as a result of the temporary and permanent removal of land from agricultural production including BMV land), disturbance to soils and disruption to agricultural operations. A suite of measures is set out in the Outline CoCP which seek to minimise the potential impacts on these receptors. Soil and ALC surveys will be undertaken in key areas where there would be permanent loss of land and sections of undergrounded cable to further inform the assessment.

Proposed Scope of the Assessment

3.7.8.2 A summary of the proposed scope of the assessment is provided in Table 3.7.5.

Table 3.7.5: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
Temporary loss of BMV land	No likely significant effect; extent to be confirmed through ALC surveys	Construction, Maintenance, Decommissioning	**Scoped in**
Permanent loss of BMV land	Potential for permanent loss of BMV land; extent to be confirmed through ALC surveys	Operation	**Scoped in**

Soil quality and associated ecosystem services	No likely significant effect; to be confirmed through ALC surveys	Construction, Maintenance, Decommissioning	**Scoped in**
Temporary loss of BMV land; Soil quality and associated ecosystem services	No likely significant effect	Operation	**Scoped in**
Agricultural landholdings and effects of EMFs	No likely significant effect	Operation	Scoped out
Removal of land from agricultural use	No likely significant effect	Construction, Operation, Maintenance, Decommissioning	Scoped out
Disruption to agricultural operations	No likely significant effect	Construction, Maintenance, Decommissioning	Scoped out
Economic effects on landowners	No likely significant effect	Construction, Operation, Maintenance, Decommissioning	Scoped out

3.8 Traffic and Transport

3.8.1 Introduction

3.8.1.1 This chapter presents how the traffic and transport assessment which will consider the potentially significant effects on transport and access that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

3.8.1.2 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.8.1.3 This chapter is supported by the following figure:

- **Figure 3.8.1 Proposed Study Area in Kent (Traffic and Transport).**

3.8.1.4 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary, hereafter referred to as the Kent Scoping Boundary, is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.8.2 Regulatory and Planning Context

3.8.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on traffic and transport associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

3.8.2.2 There is no transport specific legislation relevant to the proposed assessment.

Planning Policy

National planning policy

National Policy Statement for Energy (NPS EN-1, 2011)

3.8.2.3 The NPS for Energy (EN-1) was published in 2011 and provides the basis for decisions regarding nationally significant energy infrastructure. Section 5.14 outlines the planning policy for traffic and transport, including guidance on undertaking relevant parts of the EIA. The most relevant paragraphs for this purpose are 5.13.3 to 5.13.5 which are set out as follows:

- Paragraph 5.13.3, which states that if a project is likely to have significant transport implications a Transport Assessment should be included with the ES;
- Paragraph 5.13.4, which states that where appropriate, a Travel Plan to include demand management measures to mitigate transport impacts should be prepared; and
- Paragraph 5.13.5, which states that where additional transport infrastructure is proposed, this should be discussed with the relevant network providers (in terms of the possibility of co-funding by Government for any third-party benefits).

3.8.2.4 In addition, Section 3.1 relates to Infrastructure Planning Commission (IPC) decision making which includes the following:

- Paragraph 3.1.1, the UK needs all the types of energy infrastructure covered by this NPS in order to achieve energy security at the same time as dramatically reducing greenhouse gas emissions;
- Paragraph 3.1.2, it is for industry to propose new energy infrastructure projects within the strategic framework set by Government. The Government does not consider it appropriate for planning policy to set targets for or limits on different technologies;
- Paragraph 3.1.3, the IPC should therefore assess all applications for development consent for the types of infrastructure covered by the energy NPSs on the basis that the Government has demonstrated that there is a need for those types of infrastructure and that the scale and urgency of that need is as described for each of them in this Part; and
- Paragraph 3.1.4, the IPC should give substantial weight to the contribution which projects would make towards satisfying this need when considering applications for development consent under the Planning Act 2008.

3.8.2.5 The NPS EN-1 is currently under review and an updated draft was published for consultation in September 2021, where the above paragraphs are proposed to be relocated to Section 5.14, supported by the following proposed updates:

- Paragraph 5.14.4, which also states that the assessment should consider any possible disruption to services and infrastructure (such as road, rail and airports); and
- Paragraph 5.14.8, which states that the Secretary of State (SoS) should only consider preventing or refusing development on highways grounds if there would be an unacceptable impact on highway safety, or residual cumulative impacts on the road network would be severe.

National Policy Statement for Electricity Networks Infrastructure (NPS EN-5, 2011)

3.8.2.6 The NPS for Electricity Networks Infrastructure (EN-5) was published in 2011 and sets out the policies relating to electricity networks infrastructure for consideration in conjunction with NPS EN-1.

3.8.2.7 The NPS EN-5 is currently under review and an updated draft was published for consultation in September 2021. While the adopted document does not refer to transport or highways requirements, the most relevant paragraphs are set out as follows:

- Paragraph 2.2.2, which discusses the factors that inform site selection for the proposed infrastructure; and
- Paragraph 2.2.3 and 2.2.4, which considers the land requirements to gain access for the purposes of installation and maintenance of networks.

National planning policy framework (July 2021)

3.8.2.8 The Government's National Planning Policy Framework (NPPF) was originally published in March 2012 and later revised in July 2021, outlining the Government's planning policies and how they are expected to be applied. The TA will set out the key guidance points of relevance to this application.

3.8.2.9 The most relevant paragraphs in the context of transport are set out below:

- Paragraph 104 outlines that 'transport issues should be considered from the earliest of stages of plan-making and development proposals'; this is to ensure that:
  - The potential impacts of development on transport networks can be addressed;
  - Opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;
  - Opportunities to promote walking, cycling and public transport use are identified and pursued;
  - The environmental impacts of traffic and transport infrastructure can be identified, assessed and considered – including appropriate opportunities for mitigation and for net gains in environmental quality; and
  - Patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places.
- Paragraph 110 outlines the key considerations when assessing sites to be allocated for development in plans or specific development applications. These are:
  - Appropriate opportunities to promote sustainable transport modes can be (or have been) taken up, given the type of development and its location;
  - Safe and suitable access to the Order limits can be achieved for all users;
  - The design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance; and

- Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

- Paragraph 111 states that development should only be prevented or refused on highways grounds where there would be an unacceptable impact on highway safety, or the residual cumulative impacts of development on the road network would be severe.
- Within this context, paragraph 112 states that applications for development should:
  - Give priority first to pedestrian and cycle movements and then, as far as possible, facilitate access to high quality public transport;
  - Address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
  - Create places that are safe, secure and attractive, which minimise the scope for conflicts between pedestrians, cyclists and vehicles;
  - Allow for the efficient delivery of goods, and access by service and emergency vehicles; and
  - Be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.
- As outlined in Paragraph 113, all developments that generate significant amounts of movement should be required to provide a Travel Plan, and the application should be supported by a Transport Statement or TA so that the likely impacts of the proposal can be assessed.

National planning practice guidance (2014)

3.8.2.10 The Government's Planning Practice Guidance; Travel Plans, TAs and Transport Statements in Decision Taking (2014) provides advice on when TAs and Transport Statements are required, and what they should contain. The most relevant paragraphs are summarised below:

- Paragraph 002 states that Travel Plans, TAs and Transport Statements are all ways of assessing and mitigating the negative transport impacts of development in order to promote sustainable development. They are required for all developments which generate significant amounts of movements;
- Paragraphs 004 and 005 state that TAs should primarily focus on evaluating the potential transport impacts of a development proposal and may propose mitigation measures to promote sustainable development in order to avoid unacceptable or "severe" impacts where necessary;
- Paragraph 006 states that TAs support national planning policy and can positively contribute to encouraging sustainable travel, reducing traffic generation and detrimental impacts, reducing carbon emissions and climate impacts, creating accessible, connected and inclusive communities, improving health outcomes and quality of life, improving road safety and reducing the need for new development to increase existing road capacity of provide new roads;

- Paragraph 007 states that TAs should be established at an early stage and be tailored to local circumstances, as well as proportionate to the size and scope of the proposed development. In addition, they should be brought forward through collaborative ongoing working between the local planning authority/transport authority, transport operators, rail network operators, as well as National Highways where there may be implications for the strategic road network and other relevant bodies; and
- Paragraphs 013 to 015 provide further details of when TAs are required, how the need and scope of a TA should be established and what information should be included.

Guidelines for the environmental assessment of road traffic (1993)

3.8.2.11 Institute of Environmental Management and Assessment (IEMA) Guidelines for the Environmental Assessment of Road Traffic (1993) provides guidance on examining the environmental impacts of developments in terms of traffic and transportation.

Local planning policy

3.8.2.12 Local planning policy relating to transport and pertinent to the Kent Onshore Scheme is set out below.

Local Transport Plan 4: Delivering Growth without Gridlock (2016-2031)

3.8.2.13 The Local Transport Plan 4 has been updated by Kent County Council (KCC) with an aim to provide a clear vision for the future of transport across the county up to 2031. The document outlines polices and provides a delivery plan to manage and enhance the local transport network; the key aims and strategy include:

- Delivery of resilient transport infrastructure which reduces congestion and improves journey time reliability to enable economic growth;
- Promote affordable, accessible and connected transport to enable access for all;
- Provide a safer road, footway and cycleway network to reduce the likelihood of casualties and encourage other transport providers to improve safety on their networks;
- Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment; and
- Provide and promote active travel choices for all members of the community to encourage good health and wellbeing and implement measures to improve local air quality.

3.8.2.14 The Local Plan recognises the NPPF stance on promoting transport systems in favour of sustainable transport modes, however, it also recognises that different policies and solutions will be necessary in different areas.

Freight Action Plan Kent (2017)

3.8.2.15 KCC developed this document with the aim of effectively addressing concerns related to the movement of freight both through and within Kent. The document highlights a

number of actions that KCC are looking to achieve in relation to freight movement across the county, these include;

- tackling the problem of overnight lorry parking in Kent;
- finding a long-term solution to Operational Stack;
- effectively managing the routeing of HGV traffic to ensure that such movements remain on the strategic road network for as much of the journey as possible;
- taking steps to address problems caused by freight traffic to communities; and
- ensuring that KCC continues to make effective use of planning and development control powers to reduce the impact of freight traffic.

Draft Thanet Local Plan (2031)

3.8.2.16 The Thanet Council is working with KCC to prepare a Transport Strategy for the district which supports the development proposed through the draft Local Plan. The document seeks to address key transport issues, including those related to the development identified in this Plan:

- Policy SP41 - Safe and Sustainable Travel - The Council will work with developers, transport service providers, and the local community to manage travel demand, by promoting and facilitating walking, cycling and use of public transport as safe and convenient means of transport. Development applications will be expected to take account of the need to promote safe and sustainable travel. New developments must provide safe and attractive cycling and walking opportunities to reduce the need to travel by car; and
- Policy TP10 - Traffic Management - Development required to implement traffic management measures designed to realise the best use of the highway network in terms of safety, traffic capacity and environmental conditions will be approved.

Thanet District Transport Strategy (2015-2031)

3.8.2.17 The Strategy replaces the former Thanet Transport Plan (2005). Its purpose is to provide a framework of transport policy to the year 2031 to support planned growth within the Thanet District. The main objectives of this Transport Strategy are to;

- Provide a policy framework for the district which is consistent with existing National and Regional policy;
- Support delivery managed growth identified within Thanet District Council's emerging local plan;
- Identify a package of robust transport improvements and interventions to enable the highway network to effectively accommodate the likely increase in travel demand across the plan period; and
- Propose a funding and delivery mechanism for identified interventions and actions.

Dover District Local Plan (2018)

3.8.2.18 The Local Plan sets out a vision and a framework for the future development of the area, addressing needs and opportunities for housing, the economy, community

facilities and infrastructure, as well as the basis for conserving and enhancing the natural and historic environment, mitigating and adapting to climate change, and achieving well designed places. Chapter 9 of the document sets out the Council's strategy for transport and infrastructure provision in the District and the relevant policies.

Dover Transport Strategy (2017)

3.8.2.19 The Dover Transport Strategy has been prepared in support of, National, Regional and Local transport policies, with the aims to;

- Manage the demand of travel rather than simply accommodate it;
- Provide new and improved infrastructure to facilitate growth;
- Improve local accessibility and travel choice to join to the town; and
- Support economic development and quality of life objectives.

3.8.3 Study Area

3.8.3.1 At this stage the proposed study area in Kent is defined by **Figure 1.1.3 Kent Scoping Boundary** and also includes additional parts of the highway network and the pedestrian/ cycle network including Public Rights of Way (PRoW) which may potentially be affected by the Kent Onshore Scheme. The proposed study area for traffic and transport is shown in **Figure 3.8.1 Proposed Study Area in Kent (Traffic and Transport)**.

3.8.3.2 The extent of the proposed study area for assessment in terms of highway impact will be subject to discussion, and agreement of this study area will be sought, with Kent County Council (KCC) as the local highway authority. Therefore, the proposed study area will be updated as required when the ES is prepared.

3.8.3.3 The proposed study area includes the following parts of the highway network for consideration:

- Sandwich Road;
- A256 Richborough Way;
- A299 Hengist Way;
- Cottington Road and Cottington Lane;
- Ebbsfleet Lane and Ebbsfleet Lane North;
- Brook Lane;
- Jutes Lane; and
- Marsh Farm Road.

3.8.3.4 The following junctions will also be considered:

- A256/Sandwich Road/Jutes Lane roundabout (“Ebbsfleet Roundabout”);
- A256/A299/Cottington Link Road roundabout (“Sevenscore Roundabout”); and

- A299/ A256/ Sandwich Road roundabout (“Lord of the Manor Roundabout”).

3.8.3.5 The proposed study area also includes the following walking and cycling routes (including PRoW) which will be considered:

- TE26 (public footpath);
- TE32 (public footpath);
- TE35 (restricted byway);
- TE36 (restricted byway);
- TE37 (public footpath);
- TE39 (public footpath);
- TE40 (public footpath);
- TR11 (public footpath);
- TR32 (public footpath);
- EE42 (public footpath);
- National Cycle Network (NCN) Route 15 – Sandwich to Whitstable;
- Promoted Route: England Coast Path – Camber to Ramsgate;
- Promoted Route: Contra Trail – Ramsgate to Pegwell Bay;
- Promoted Route: Saxon Shore Way; and
- Promoted Route: Viking Coastal Trail – Sandwich to Reculver.

3.8.4 Baseline Conditions

Data Sources

3.8.4.1 The traffic and transport baseline environment conditions described in this section have been informed by a review of the following data sources:

- Publicly available mapping and aerial imagery from Google Maps;
- Publicly available information on websites for public transport operators and online resources for promoted recreational routes; and
- Data held within the AECOM WebGIS platform, with transport infrastructure information, including routes and labelling for PRoW routes.

Baseline

Highway network

3.8.4.2 The proposed study area includes a number of roads including the A256 Richborough Way, A299 Hengist Way, Sandwich Road, Jutes Lane, Ebbsfleet Lane/Ebbsfleet Lane North, Marsh Farm Road, Cottington Road/Cottington Lane and Brook Lane.

3.8.4.3 The A256 runs in a north-south alignment between Dover in the south where it joins the A2 and Cliffsend in the north where it joins the A299 at Sevenscore Roundabout. As it passes through the proposed study area, the A256 is a dual carriageway with two lanes in each direction and is subject to the national speed limit, reducing to 50mph south of the Ebbsfleet roundabout (where it joins Sandwich Road and Jutes Lane). Access to Richborough sub-station is taken from a roundabout on the A256, approximately 400m south of Ebbsfleet roundabout.

3.8.4.4 The A299 runs in an east-west alignment between Faversham in the west where it joins the M2 and Ramsgate in the west. In vicinity of the proposed study area, the A299 is a dual carriageway with two lanes in each direction and is subject to the national speed limit.

3.8.4.5 Sandwich Road is a single carriageway road that connects the A256 at Ebbsfleet Roundabout in the south and the A299 at the Lord of the Manor Roundabout in the north and passes through Cliffsend. The speed limit varies along its length but is generally 40mph with a section of national speed limit adjacent to the Pegwell Bay Country Park and a section of 30mph through Cliffsend. There is also a restriction on vehicles over 7.5t (except for access) along the length of Sandwich Road.

3.8.4.6 Approximately 200m north of the Ebbsfleet Roundabout is Ebbsfleet Lane with access taken from Sandwich Road via a signalised junction. It is a no-through road which provides access to residential properties and the Stonelees Golf Centre. It is a single carriageway road and has a 7.5t vehicle weight restriction (except for access).

3.8.4.7 Jutes Lane can be accessed via the Ebbsfleet Roundabout and runs parallel to the A256 for approximately 800m before reaching Ebbsfleet Farmhouse. It is a single carriageway road with a 40mph speed limit and provides access to the Weatherlees Hill Wastewater Treatment Works.

3.8.4.8 Cottington Link Road connects the Sevenscore Roundabout to Cottington Road. Cottington Road runs in an east-west road direction connecting Minster in the east and Cliffsend in the west. It is approximately 5m wide and is subject to the national speed limit.

3.8.4.9 Ebbsfleet Lane North and Brook Lane also pass through the proposed study area; whilst they are no-through roads, they do provide local access to some residential properties and farmland. Ebbsfleet Lane North forms the southern arm of the crossroad junction with Thorne Hill, Cottington Road and Grinsell Hill. It is a single carriageway road with a 7.5t vehicle weight restriction (except for access). Approximately 500m south of the junction, there is an at-grade railway crossing, immediately south of which is Brook Lane. Marsh Farm Road also features an at-grade railway crossing a short distance to the west of Minster railway station.

Public transport network

3.8.4.10 Bus services can be accessed from bus stops at the Ebbsfleet Roundabout. These serve bus route 45/45A which runs between Ramsgate and Sandwich once per hour Monday – Saturday. The first bus service is around 07:00 and last service is around 18:00.

3.8.4.11 The closest railway station to the proposed study area is Minster, located approximately 2km northwest, however there is limited walking/cycling infrastructure

to make this journey possible without taking a substantial detour. It is typically served by one train per hour to Ramsgate and one train per hour to London Victoria (via Maidstone East). During the peak hours, there are additional services to London Charing Cross (via Tonbridge).

3.8.4.12 Sandwich train station is located approximately 4.5km south of the proposed study area and can be accessed via walking or cycling along the England Coast Path or by bus route 45/45A. The station is typically served by one train per hour to London St Pancras International and one train per hour to Ramsgate, with additional services to London Charing Cross (via Tonbridge).

3.8.4.13 Construction of a new rail station, Thanet Parkway, is underway and due to open in December 2022. It is located approximately 2km northeast of the proposed study area on the western periphery of Cliffsend. It is located between Minster and Ramsgate stations and will be served by both mainline and high-speed trains. The station will include a car park, pick-up/drop-off area, cycle storage and bus stops with forecourt.

Active travel network

3.8.4.14 National Cycle Network (NCN) Route 15 runs along the coastline between Sandwich and Whitstable. In the proximity of the proposed study area, it is a traffic-free route running alongside the A256 to the south of Ebbsfleet Roundabout and parallel to Sandwich Road to the north of the Ebbsfleet Roundabout.

3.8.4.15 There are a number of Public Rights of Way (PRoW) which could be impacted by the Kent Onshore Scheme including the following:

- TE26 – public footpath (approx. 3300m in length) that runs along the northern bank of the River Stour;
- TE32 – public footpath (approx. 1900m in length) that runs between Minster and TE26;
- TE35 – restricted byway (approx. 400m in length) that runs between Marsh Farm and TE26 (situated to the west of TE36);
- TE36 – restricted byway (approx. 400m in length) that runs between Marsh Farm and TE26 (situated to the east of TE35);
- TE37 – public footpath (approx. 2900m in length) that follows the Minster to Ramsgate rail line;
- TE39 – public footpath (approx. 1000m in length) that runs along Brooks Lane and across a field to Ebbsfleet Lane;
- TE40 – public footpath (approx. 900m in length) that runs between Minster and TE37;
- TR11 – public footpath (approx. 200m in length) that runs between Foads Lane and Cliffs End Road;
- TR32 – public footpath (approx. 1500m in length) that runs between Cottington Road and Canterbury Road west; and

- EE42 – public footpath (approx. 7300m in length) that runs along the southern bank of the River Stour. This also forms part of the long-distance walking route, known as the Saxon Shore Way.

3.8.4.16 Other recreational/promoted routes include:

- England Coast Path – a long-distance footpath between Camber, East Sussex and Ramsgate, Kent. It follows the coastline in the proximity of the proposed study area.
- Contra Trail – a short-distance route between Ramsgate and Pegwell Bay. In the proximity of the proposed study area, it follows a circular route around Pegwell Bay Country Park.
- Saxon Shore Way – a long-distance footpath between Gravesend and Hastings. In the proximity of the proposed study area, it follows the River Stour.
- Viking Coastal Trail – a 50km circular route on the Isle of Thanet passing along Cottington Road in proximity of the proposed study area.

3.8.4.17 There are no formal equestrian facilities (i.e. bridleways) in the vicinity of the proposed study area.

Future Baseline

3.8.4.18 The ES will consider future baseline conditions for the land within the proposed study area for the relevant assessment year. For example, base traffic flows will be factored up to the future base year using growth factors derived from TEMPro v7.2 for the relevant areas impacted by the Kent Onshore Scheme. In addition, consideration will be given to any committed developments or highway schemes that are due to be under construction or operational during the future baseline year; see **Part 3, Chapter 13 Cumulative Effects** for further details.

3.8.1 Embedded and Control & Management Measures

Embedded Measures

3.8.1.1 The Project will be designed in accordance with National Grid design standards. The Project will also need to comply with design safety standards including NETS SQSS and the suite of National Grid policies and processes which contains details on design standards required to be met when designing, constructing and operating its projects.

3.8.1.2 The proposed High Voltage Direct Cable (HVDC) cable route will typically be installed within a 40m wide working width. The exception to this is where environmental or engineering constraints mean additional land is required such as where the proposed HVDC route is required to cross obstacles such as roads, watercourses or railway lines using a non-open cut technique. In these locations working width may be required to be larger in order to accommodate the larger construction equipment required to undertake installation works.

3.8.1.3 Trenchless methods will typically be utilised where obstacles (watercourses, roads, railway lines, flood defences or other utilities) require to be crossed. This would involve the installation of ducts below the obstacle. The cables would then be pulled through

the ducts. This method is designed to avoid any potential impacts on the railway network.

3.8.1.4 In addition to the above, a trenchless crossing is proposed beneath the sensitive saltmarsh habitat at the landfall.

Control and Management Measures

3.8.1.5 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice.** Measures relevant to the control and management of impacts that could affect the traffic and transport assessment are:

- GG03: A Construction Traffic Management Plan (CTMP) will be produced prior to construction.
- GG12: Appropriate site layout and housekeeping measures will be implemented by the contractor(s) at all construction sites. This will include but not be limited to:
  - Managing staff/vehicles entering or leaving site, especially at the beginning and end of the working day; and
  - Managing potential off-site contractor and visitor parking.
- GG13: Vehicles will be correctly maintained and operated in accordance with the manufacturers recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so. In addition, plant and vehicles will conform to relevant applicable standards for the vehicle type.
- TT01: The CTMP will set out measures to reduce route and journey mileage to and from, as well as around site, and prevent nuisance to the residents, businesses and the wider community caused by parking, vehicle movements and access restrictions. It will also provide suitable control for the means of access and egress to the public highway and set out measures for the maintenance and upkeep of the public highway. The plan will also identify access for emergency vehicles. It will also set out measures to reduce safety risks through construction vehicle and driver quality standards.
- TT02: The contractor(s) will implement a monitoring and reporting system to check compliance with the measures set out within the CTMP. This will include the need for a GPS tracking system to be fitted to Heavy Goods Vehicles to check for compliance with authorised construction routes. The contractor(s) will also be expected to monitor the number of construction vehicles between the site and the strategic road network. Deviations from the authorised routes or changes to traffic levels that are higher than the CTMP assumptions will require discussion of the need for additional mitigation measures with highways authorities.
- TT03: All designated Public Rights of Way (PRoW) will be identified, and any potential temporary closures applied for/detailed in the DCO. All designated PRoW crossing the working area will be managed with access only closed for short periods while construction activities occur. Any required temporary diversions will be clearly marked at both ends with signage explaining the diversion, the duration of the diversion and a contact number for any concerns.

3.8.1.6 In addition to the above, construction vehicles will be managed at any road/rail/pedestrian/cycle crossing points such as by implementing manned controls (marshals/banksmen) at each crossing point, with a default priority that construction traffic will give-way to other users. Further details will be provided within the Framework CTMP.

3.8.2 Potential for Significant Effects

3.8.2.1 The traffic and transport assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.8.2.2 The proposed scope of the traffic and transport assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.8.2.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.8.2.4 The nature of the Kent Onshore Scheme is such that the greatest impact is likely to occur during the construction phase and this will be the focus of the assessment of transport effects presented in the ES.

3.8.2.5 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

3.8.2.6 During the operational and maintenance phase, the Kent Onshore Scheme will be manned by a limited number of operatives across the site, with additional infrequent trips associated with maintenance/inspections or repairs when required. Staff vehicles and those used for maintenance are primarily expected to be pickup trucks and vans, with HGVs rarely accessing the site. Therefore, due to the low level of trips likely to be generated, it is proposed to exclude operational phase transport effects from the EIA. Further detail of the operational phase transport arrangements will be set out in the ES and Transport Assessment to support this approach.

3.8.2.7 In the event that the Project is decommissioned, there is expected to be fewer HGV, LGV and construction worker arrivals and departures associated with the decommissioning phase of the Kent Onshore Scheme than during the construction phase. It is therefore considered reasonable to assume that the impacts will be the same as, or not greater than, the construction phase. Therefore, and given that the exact timing of this scenario is unknown, it is proposed to adopt the assessment of the construction phase to determine the anticipated impact of the Kent Onshore Scheme during its decommissioning phase. Further detail of the decommissioning stage transport arrangements will be set out in the ES and Transport Assessment to support this approach.

3.8.2.8 It is recognised that a potential source of impacts arises from hazardous loads. These include the transport of explosives, gases, flammable liquid/solids, oxidising/toxic

substances, radioactive material or corrosive substances. SF6 Gas will be required for the circuit breakers, oil for the transformers, and other mixed, non-SF6 gases will be used in the Gas Insulated Switchgear. These inputs are expected to be predominantly required during the construction and decommissioning phases and the transport of hazardous loads will be considered accordingly within the ES and Transport Assessment.

3.8.2.9 Although the Kent Onshore Scheme is located near to a number of settlements including Ramsgate, Cliffsend, Minster, Ebbsfleet and Sandwich, the majority of staff and/or visitors (associated with each phase) are expected to travel by vehicle as opposed to on foot, by bicycle or by public transport for logistical reasons e.g. due to travel distance or the requirement to carry equipment. Therefore, this has not been detailed in this Scoping Report although for completeness these modes will be reviewed within the Transport Assessment.

3.8.2.10 Vehicular access during each phase is anticipated to be taken from the A256 and Sandwich Road. Further details on proposed access to the Kent Onshore Scheme will be included within the ES and the Transport Assessment which will be submitted with the DCO application.

3.8.2.11 The ES and Transport Assessment will assess the peak construction period, which will include Heavy Goods Vehicle (HGV) movements, Light Goods Vehicle (LGV) movements and vehicle movements associated with construction worker arrivals and departures. Construction traffic forecasts will be confirmed in the ES and Transport Assessment.

Sources of construction impacts

- Construction works e.g. where these require temporary traffic management, or result in temporary diversions or closures to the highway network or pedestrian/cycle routes, including PRoW;
- Construction routes e.g. where these interact with the existing transport networks (road/rail/pedestrian/cycle) such as at vehicle crossing points; and
- Construction vehicles:
  - HGVs;
  - LGVs;
  - Construction staff vehicles; and
  - Abnormal loads.

Sources of operational impacts

- Operational staff vehicles.

Sources of maintenance impacts

- Maintenance staff vehicles relating to monthly visual inspections, and rolling three year maintenance cycle; and

- Repair staff vehicles (including LGVs) relating to refurbishment and repair works, including the transportation of materials for such works.

Sources of decommissioning impacts

3.8.2.12 The potential sources of decommissioning impacts (traffic and transport) are considered to be the same as those set out above for the construction phase, albeit these would relate to the decommissioning phase.

Potential impacts

3.8.2.13 Table 3.8.1 identifies the potential impacts that could result from the sources identified above.

Table 3.8.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction	Construction works, routes and vehicles	Yes - Additional severance to pedestrians and cyclists	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Yes - Additional delay to drivers	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Yes - Additional delay to pedestrians	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Yes - Decline in pedestrian and cyclist amenity	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Yes - Additional fear and intimidation to pedestrians and cyclists	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Decline in road safety	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Results in PRoW Diversions and/or Closures	Yes	**Scoped in**
Construction	Construction vehicles	Additional hazardous loads	Yes	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Operation	Operational staff vehicles	Additional severance to pedestrians and cyclists	No (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Additional delay to drivers	No (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Additional delay to pedestrians	No (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Decline in pedestrian and cyclist amenity	No (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Decline in road safety	No (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Results in PRoW Diversions and/or Closures	No (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Additional hazardous loads	No (few expected)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Additional severance to pedestrians and cyclists	No (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Additional delay to drivers	No (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Additional delay to pedestrians	No (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Decline in pedestrian and cyclist amenity	No (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Decline in road safety	No (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Results in PRoW Diversions and/or Closures	No (limited traffic movements)	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Maintenance	Maintenance and repair staff vehicles	Additional hazardous loads	No (few expected)	Scoped out
Decommissioning	Decommissioning works, routes and vehicles	Additional severance to pedestrians and cyclists	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Additional delay to drivers	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Additional delay to pedestrians	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Decline in pedestrian and cyclist amenity	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Additional fear and intimidation to pedestrians and cyclists	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Decline in road safety	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Results in PRoW Diversions and/or Closures	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning vehicles	Additional hazardous loads	Yes	**Scoped in** (to be inferred by assessment of construction)

Impact Pathways with Receptors (Step 2)

3.8.2.14 This section identifies whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the proposed study area. Further details of the road links, junctions, PRoW and

national/regional walking and cycling routes relevant to the study area are set out within section 3.8.4.

3.8.2.15 Table 3.8.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme.**

Table 3.8.2: Impact pathways with receptors

Impact pathway	Receptors	Potential for a significant effect	Proposed to be scoped in/out
Construction and decommissioning Additional severance to pedestrians and cyclists	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Additional delay to drivers	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not utilised by drivers so no impact	Scoped out
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by drivers so no impact	Scoped out
Construction and decommissioning Additional delay to pedestrians	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking routes	Yes	**Scoped in**
Construction and decommissioning Decline in pedestrian and cyclist amenity	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**

Impact pathway	Receptors	Potential for a significant effect	Proposed to be scoped in/out
Additional fear and intimidation to pedestrians and cyclists	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Decline in road safety	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – no collision data available for footpaths and bridleways (not utilised by vehicles so no impact)	Scoped out
	National/regional walking and cycling routes	No – no collision data available for walking and cycling routes (not utilised by vehicles so no impact)	Scoped out
Construction and decommissioning Results in PRoW Diversions and/or Closures	Road links	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
	Road junctions	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
Construction and decommissioning Additional hazardous loads	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not utilised by vehicles or hazardous loads so no impact	Scoped out

Impact pathway	Receptors	Potential for a significant effect	Proposed to be scoped in/out
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by vehicles or hazardous loads so no impact	Scoped out

3.8.3 Proposed Assessment Methodology

Proposed Data Sources

3.8.3.1 To inform the assessment of the Kent Onshore Scheme, information from a number of sources will be collected. The sources which will be used are set out below:

- Local travel and network information from various sources including KCC and local rail and bus operators;
- Personal Injury Accident (PIA) data from KCC;
- OS/Architectural Base Mapping to ascertain an accurate geographical representation of the areas in the vicinity of the Kent Onshore Scheme;
- Highway boundary information from KCC;
- Mode share data from the 2011 Census (or 2021 data if available and considered appropriate given the context of COVID-19); and
- Various traffic count and speed survey data where required (see below).

3.8.3.2 Peak hour traffic flows will be identified from historic data held by KCC with respect to A259 and Sandwich Road or traffic survey company databases if available. If suitable data is not available traffic counts will be undertaken at locations in the vicinity of the Kent Onshore Scheme to determine the baseline traffic conditions on the surrounding highway network. The extent of the traffic data and scope for any traffic surveys that may be required will be agreed with the Highway Authority (Kent County Council), as a statutory consultee, where possible.

3.8.3.3 To determine the impact of the Kent Onshore Scheme, a number of scenarios will be assessed using the information collated above. The scenarios considered appropriate for assessment are:

- Baseline (2022) – AM, PM and Daily; and
- Peak Construction Year (to be confirmed) With and Without Development – AM, PM and Daily.

3.8.3.4 The proposed construction period for the Kent Onshore Scheme is 2026 to 2030, and the peak construction year will be identified when the ES is prepared as this is not currently known.

3.8.3.5 The Transport Assessment Scoping Report will be formally presented to KCC as a statutory consultee in order to seek to agree the scope of the Transport Assessment.

In the event that junction capacity analysis is required, this will be discussed and agreed with KCC where necessary.

Proposed Assessment Methodology

3.8.3.6 In accordance with the Institute of Environmental Management and Assessment (IEMA) Guidelines for the Environmental Assessment of Road Traffic (1993) for assessing the environmental impacts of road traffic, the following criteria will be considered in this assessment.

- Severance;
- Pedestrian delay;
- Pedestrian and cyclist amenity;
- Fear and intimidation;
- Driver delay;
- Highway safety;
- PRoW diversions and/or closures; and
- Hazardous and dangerous loads.

3.8.3.7 The IEMA guidelines set out two rules in identifying potential links for analysis:

- Rule 1: include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); and
- Rule 2: include any other specifically sensitive areas (e.g. accident black spots, conservation areas, hospitals, links with high pedestrian flows etc) where traffic flows have increased by 10% or more.

3.8.3.8 Based on this, it is proposed to assess links where traffic flows are expected to increase by 30% or more. However, it is not proposed to assess links where there is expected to be a less than a 30% increase in traffic flows as a result of the Kent Onshore Scheme, unless any specifically sensitive areas are identified. In addition, it is proposed to assign a very low magnitude of change as there is expected to be fewer than 30 additional vehicle trips per hour during each of the development peak hours as a result of the Kent Onshore Scheme, irrespective of the proportional increase in traffic flows.

3.8.3.9 In addition to the above, potential traffic-related effects will also be considered by other topics, including (and not limited to) the following examples:

- Potential effects of construction traffic on sites of ecological and nature conservation value are considered in **Part 3, Chapter 3 Ecology and Biodiversity**;
- Potential effects of construction traffic on air quality are considered in **Part 3, Chapter 9 Air Quality**;
- Potential effects of construction traffic on noise and vibration are considered **in Part 3, Chapter 10 Noise and Vibration**; and

- Potential effects of construction traffic on tourists, visitor attractions and other businesses are considered in **Part 3, Chapter 11 Socio Recreation and Tourism**.

3.8.3.10 The type of traffic which is anticipated to be generated by the Kent Onshore Scheme will be categorised as follows; primarily general traffic, LGVs, HGVs and Abnormal Indivisible Loads (AILs). The vehicle routeing and movement associated with the Project's construction will be considered in detail and will be discussed through consultation with the relevant Highway Authority (Kent County Council).

3.8.3.11 Once the locations and volumes of the proposed traffic have been identified it will be necessary to identify those receptors that may be impacted upon, due to the increase in vehicle movements. This will be done by identifying the percentage increase in vehicular activity along the identified construction routes following the collection of traffic data. The Automatic Traffic Counts (ATCs) will be used to derive baseline Annual Average Daily Traffic (AADT) for individual links, subdivided into 24 hour and 18 hour counts for total traffic and HGVs.

3.8.3.12 Typically, when assessing the impacts of traffic effects, there are a range of particular groups and locations which may be sensitive to changes in traffic conditions compliant with the criteria previously outlined.

3.8.3.13 These are outlined in the IEMA Guidance as 'Affected Parties', as follows:

- People at home;
- People in workplaces;
- Sensitive groups including children, elderly and disabled;
- Sensitive locations, e.g. hospitals, churches, schools, historic buildings;
- People walking;
- People cycling;
- Open spaces, recreational sites, shopping areas;
- Sites of ecological/nature conservation value; and
- Sites of tourist/visitor attraction.

3.8.3.14 The IEMA guidance states that this list of affected parties is not exhaustive. One affected party that is not on the list but will nevertheless be considered in this assessment is 'other road users'. All of the affected parties have one thing in common which is that their potential exposure to changes in traffic volumes comes about through their proximity to a construction traffic route.

3.8.3.15 It is important to note that the IEMA methodology does not consider the duration of effect, especially whether it is temporary (construction and decommissioning) or permanent (operational traffic). As such, effects that, using this methodology, may appear to be significant, may be considered not significant if the effect is temporary or infrequent (occurring only occasionally during construction for example).

3.8.3.16 To calculate the trip distribution of workers travelling to and from the proposed construction compounds each day, a simple gravity model will be developed (based on 2011 Census data, given that relevant 2021 Census data is not currently available).

Construction traffic associated with the Kent Onshore Scheme will be distributed onto the local highway network to calculate the resultant percentage increase on each link.

3.8.3.17 Assessments will be undertaken at the peak of construction, and this may cover more than one year as the peak year for traffic volumes can vary along various routes depending on which section of the Kent Onshore Scheme they serve.

3.8.3.18 Currently, it is anticipated that construction may take approximately two years. If historical data is utilised, base traffic flows will be factored up to the future base year in order to establish baseline flows and then factored up further to the identified peak year of construction. Growth factors will be derived from TEMPro v7.2 for the relevant areas impacted by the Kent Onshore Scheme. Meanwhile, the peak construction traffic flows will be derived by analysing construction traffic data and construction programmes provided by Design Engineers.

Transport Assessment

3.8.3.19 The ability of the highway network to accommodate the development traffic will be assessed and reported in a Transport Assessment (TA) which will form a technical annex to the ES Chapter. The TA will include information on:

- A review of relevant national, regional and local policies;
- Description of the existing baseline conditions – a description of the roads, railway lines, footpaths, bridleways and cycle paths crossed by the route and/or impacted by the works. The requirement to carry out any surveys on these routes will be agreed with the relevant planning authority;
- A review of the road safety data for the most recent five-year period within the proposed study area;
- Description of the Project and Kent Onshore Scheme setting out timescales for construction, identification of route sections, typical working width layout, compound locations, access routes to compounds, construction methods for individual railway and road crossings (where required);
- Traffic generation of compounds and any other relevant sites for construction staff with a profile of arrivals and departures for the day and HGV traffic with a profile of arrivals and departures for the day;
- Distribution and assignment of trips to the network with construction traffic distributed based on a simple gravity model of worker catchment area and HGVs assigned from the A road network;
- Mitigation measures; and
- Summary and conclusions.

Defining Significance

3.8.3.20 The significance of effect is determined through consideration of two elements; the magnitude of the impact and the sensitivity of the receptor. The following sections outline the approach that would be used to determine these factors.

Sensitivity, value, or importance

3.8.3.21 The general criteria for defining the importance or sensitivity of receptors are set out in Table 3.8.3. Key factors influencing this include:

- The value of the receptor or resource based upon empirical and/or intrinsic factors, for example considering any legal or policy protection afforded which is indicative of the receptor or resources' value internationally, nationally or locally; and
- The sensitivity of the receptor or resource to change, for example is the receptor likely to acclimatise to the change. This will consider legal and policy thresholds which are indicative of the ability of the resources to absorb change.

Table 3.8.3:Categorising the overall sensitivity of receptors

Receptor sensitivity	Receptor examples
Very High	Highway Links and Junctions: More than two sensitive users present (e.g. schools, play areas, care/retirement homes, disabled parking bays, hospitals, places of worship, historic buildings) Walk/Cycle Links including PRoW: Heavily trafficked highway with on-road pedestrian/cycle route
High	Highway Links and Junctions: Two sensitive users present (e.g. schools, play areas, care/retirement homes, disabled parking bays, hospitals, places of worship, historic buildings) Walk/Cycle Links including PRoW: Lightly trafficked highway with on-road pedestrian/cycle route
Medium	Highway Links and Junctions (at least one of the following): - One sensitive user present (e.g. schools, play areas, care/retirement homes, disabled parking bays, hospitals, places of worship, historic buildings) - Many residential properties with direct frontage to highway link being used as construction route - Pedestrians using footways, PRoW and/ or crossings on highway link - Cyclists using on-road designated cycle routes along highway link Walk/Cycle Links including PRoW: Heavily trafficked highway with off-road pedestrian/cycle route
Low	Highway Links and Junctions (at least one of the following): - Few residential properties with direct frontage to the highway link being used as a construction traffic route - Workplaces with direct frontage to highway link being used as construction route

Receptor sensitivity	Receptor examples
	- Cyclists using off-road designated cycle routes along highway link Walk/Cycle Links including PRoW: Lightly trafficked highway with off-road pedestrian/cycle route
Neutral	Highway Links and Junctions: No receptors along link Walk/Cycle Links including PRoW: Pedestrian/cycle route not running alongside highway

3.8.3.22 An assessment of the railway network is proposed to be scoped out from the Traffic and Transport chapter given that trenchless methods will be employed when installing cables to avoid any potential impacts on the railway, and that any vehicle crossing points of the railway (if required) will be managed to ensure operational rail safety.

Magnitude

3.8.3.23 The IEMA guidelines state that the magnitude of each impact should be determined as the predicted deviation from the baseline conditions.

3.8.3.24 This assessment will consider a range of potential effects that could be experienced during the construction stage of the Kent Onshore Scheme and this section identifies how magnitude will be considered for each.

3.8.3.25 **Severance** is defined in the IEMA guidelines as the *"perceived division that can occur with a community when it becomes separated by a major traffic artery"*. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by the road itself. It can also relate to quite minor traffic flows if they impede pedestrian access to essential facilities. The assessment will consider both total traffic and the proportion of HGVs. The guidance for thresholds of magnitude is taken from DMRB Volume 11, Section 3, Part 8.

3.8.3.26 **Pedestrian Delay** is considered to be affected by the changes in volume, composition or speed of traffic, in terms of their respective impacts on the ability of pedestrians to cross roads. In general, increases in traffic levels and/or traffic speeds are likely to lead to greater increases in pedestrian delay. Effects are only likely to be realised when the total two-way traffic on the carriageway exceeds 1,400 vehicles per hour (IEMA Guidelines).

3.8.3.27 **Pedestrian and Cyclist Amenity** is broadly defined as "the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic". The guidance suggests that a tentative threshold for judging the significance of changes in pedestrian and cycle amenity would be where the traffic flow is halved or doubled.

3.8.3.28 **Fear and Intimidation** occurs through a combination of traffic flow, speed, proportion of HGVs and the proximity of the above to people or receptors on highway links. These indicators are often heightened by a perceived lack of protection or buffers from the

highway or through narrow or non-existent footways. The assessment will consider each road on a case by case basis, however there are indicative thresholds provided in the IEMA guidelines which are presented in Table 3.8.4.

3.8.3.29 **Driver Delay** is an effect cited in the IEMA guidance and relates to incremental increases in traffic (as outlined in Table 3.8.4). As a further consideration, where any temporary road closures or traffic management is likely to be in place to enable the construction of the Kent Onshore Scheme, any additional potential delay caused by these resultant diversion routes will be reported.

3.8.3.30 **Highway Safety** considers Personal Injury Collision (PIC) data obtained for the most recent five-year period available at junctions and links along the proposed construction traffic routes. These will be used to assess whether the additional traffic during construction of the Kent Onshore Scheme would be likely to have a detrimental effect of road safety.

3.8.3.31 **PRoW Diversions and Closures** will be considered on the basis of the type of impact i.e. whether a temporary PRoW closure or diversion is proposed, as well as any increases in pedestrian journey length following a closure/ diversion and how long any potential disruption to an existing route would occur for. The assessment will consider the indicative thresholds presented in Table 3.8.5 below which have been derived based on professional judgement.

3.8.3.32 With regard to **Hazardous and Dangerous Loads**, the guidance indicates that "the Statement should include a risk or catastrophe analysis to illustrate the potential for an accident to happen and the likely effect of such an event". Analysis of the road network within the proposed study area and understanding of the Kent Onshore Scheme works indicates that there are no particular features, such as a significant vertical drop immediately beyond the carriageway, which would suggest that the transfer of materials poses a particular risk beyond that which would be expected on the general highway network. However, there will be a requirement to transport gas and oil during the Project (particularly during the construction and decommissioning phases) which are categorised as Hazardous and Dangerous Loads (see Section 3.8.6).

3.8.3.33 In view of the above, the impacts of Hazardous and Dangerous Loads will be considered within the ES, in the form of a qualitative risk assessment to establish the likelihood and extent of such effects. The projected impacts of the Kent Onshore Scheme will be measured separately, dependent upon the receptor, for the construction and decommissioning periods. The Framework CTMP and the ES will include details of measures that will be employed to ensure the safe vehicular transport of components to and from the Kent Onshore Scheme.

3.8.3.34 Tables 3.8.4 and 3.8.5 summarise the criteria that will be used to assess the magnitude of effect (based on increases i.e. 'adverse' effects), along with the thresholds that will be used to determine whether effects are considered large, medium, small and negligible. Depending on the baseline information available, the various thresholds identified for the proportional increases in traffic flow relate to peak hour flows and daily flows (whichever is highest). Within these tables, neither the sensitivity of receptors, nor the duration of effects, is taken into consideration. These tables are formed using IEMA Guidelines and professional judgement.

Table 3.8.4:Categorising the overall magnitude of effect of a highway link

Impact	Negligible	Small	Medium	Large
Severance	Increase in total traffic flows of 29% or under (or increase in HGV flows under 10%).	Increase in total traffic flows of 30-59% (or increase in HGV flows of between 20%-39%).	Increase in total traffic flows of 60%-89% (or increase in HGV flows between 40%-89%).	Increase in total traffic flows or HGV flows of 90% and above.
Pedestrian Delay	Total traffic flows under 1,400 per hour	Where traffic flows exceed 1,400 vehicles per hour the severity of the impact will be determined based on the thresholds identified above for severance.		
Pedestrian and Cycle Amenity	Increase in total traffic flows of 49% or under.	Increase in total traffic flows of 50-69%.	Increase in total traffic flows of 70%-99%.	Increase in total traffic flows of 100% or above.
Fear and Intimidation	Increase in total traffic flows or HGV flows of 29% or under (or increase in HGV flows under 10%).	Increase in total traffic flows of 30-59% (or increase in HGV flows of between 10%-39%).	Increase in total traffic flows of 60%-89% (or increase in HGV flows between 40%-89%).	Increase in total traffic flows or HGV flows of 90% and above.
Driver Delay	Increase in total traffic flow of less than 29%.	Increase in total traffic flow of between 30% and 59%.	Increase in total traffic flow of between 60% and 89%.	Increase in traffic flow of 90% and above.
Highway Safety	Increase in total traffic flows of 30% or under (or increase in HGV flows under 10%).	All links estimated to experience increases in total traffic flows above 30% or increases in HGV flows above 10% are analysed further on a case by case basis.		
Hazardous Loads	Based on the probability of a personal injury collision, categorised as fatal or serious, involving a hazardous load occurring.			

3.8.3.35 An assessment of national/regional walking and cycling routes, as well as PRoW will also be carried out where these are directly affected by construction works or intersected by a construction route (for example), including in terms of severance, pedestrian delay, pedestrian and cycle amenity and for fear and intimidation, by reviewing the thresholds as identified in Table 3.8.4 above where relevant. In terms of

PRoW diversions and/or closures, the following thresholds are proposed to identify magnitude of effect based on professional judgement.

Table 3.8.5:Categorising the overall magnitude of effect of a PRoW diversion and/or closure

Impact	Negligible	Small	Medium	Large
PRoW Diversions and/or Closures	A temporary PRoW diversion (no closure) with either no increase in pedestrian journey length or an increase in pedestrian journey length for one to five days.	A temporary PRoW diversion (no closure) with an increase in pedestrian journey length for one to four weeks.	A short term PRoW closure (for less than four weeks in any 12 month period) without a diversion route; OR A temporary PRoW diversion (no closure) with an increase in pedestrian journey length for more than four weeks.	A short term PRoW closure (for more than four weeks in any 12 month period) without a diversion route.

3.8.3.36 Tables 3.8.4 and 3.8.5 above set out the proposed magnitude thresholds for the respective environmental effects that will be considered in the ES. With the exception of PRoW Diversion and Closure effects, all effects have a proposed magnitude that does not, initially, consider the duration over which an effect is likely to be experienced.

3.8.3.37 Duration is considered when assessing the overall significance of residual effects, noting that the DMRB Volume 11 Section 2 Part 5 states in Paragraph 1.47:

"*Recognition should be made that permanent impacts will be more significant than those of a temporary nature. For example, the impact may only occur during a single phase of the project construction and may be temporary. Alternatively, the impact may be long-term or irreversible and hence permanent. It is, therefore, important that the assessment distinguishes between permanent and temporary impacts*".

3.8.3.38 All of the traffic and transport effects associated with the construction and decommissioning of the Kent Onshore Scheme would be temporary effects. Some temporary effects would be likely to last longer than others, and these will be clearly reported in the ES. Following the quantified assessment, residual effects will be reported taking into account professional judgement on the duration over which effects are likely to be experienced.

Significance

3.8.3.39 In order to determine the effect on specific receptors, both the sensitivity of receptors and the magnitude of impact, as outlined above, are considered. Table 3.8.6 below shows the matrix that has been used to determine the effect category. Effects which are classified as **major** or **moderate** are considered to be significant (shown in **bold**).

Table 3.8.6: Significance matrix

Magnitude of effect	Receptor sensitivity				
	Very High	**High**	**Medium**	**Low**	**Neutral**
Large	**Major**	**Major/ Moderate**	**Major/ Moderate/ Minor**	**Moderate**/ Minor	Minor/ Negligible
Medium	**Major/ Moderate**	**Major/ Moderate**	**Moderate**/ Minor	Minor/ Negligible	Negligible
Small	**Major/ Moderate/ Minor**	**Moderate**/ Minor	**Moderate**/ Minor	Minor/ Negligible	Negligible
Negligible	Minor/ Negligible	Minor/ Negligible	Minor/ Negligible	Negligible	Negligible

3.8.4 Conclusion

3.8.4.1 This scoping chapter presents the potential for effects in respect of traffic and transport that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

Proposed Scope of the Assessment

3.8.4.2 A summary of the proposed scope of the assessment is provided in Table 3.8.7.

Table 3.8.7: Proposed scope of the assessment

Receptor	Potential significant effect	Project Phase(s)	Proposed to be scoped in/out
Road links	Severance Pedestrian Delay	Construction and decommissioning	**Scoped in**
	Pedestrian and Cycle Amenity Fear and Intimidation Driver Delay Highway Safety Hazardous Loads	Operation and maintenance	Scoped out

Road junctions	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation Driver Delay Highway Safety Hazardous Loads	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
PRoW	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation PRoW Diversions and/or Closures	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
National/regional walking and cycle routes	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out

3.9 Air Quality

3.9.1 Introduction

3.9.1.1 This chapter presents how the air quality assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in Part 1, Chapter 4, Description of the Project). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

3.9.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.9.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Project Description**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.9.2 Regulatory and Planning Context

3.9.2.1 **Part 1, Chapter 2, Regulatory and Planning Contex**t describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on air quality associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

- EU Framework Directive 96/62/EC[168];
- Directive 2008/50/EC on ambient air quality and cleaner air for Europe[169];
- Part IV of the Environment Act (1995, amended 2021)[170]; and

[168] Council Directive 96/62/EC (1996). Ambient Air Quality Assessment and Management. [online] Available at: https://www.legislation.gov.uk/eudr/1996/62

[169] Directive 2008/50/EC of the European Parliament and of the Council (2008). Ambient Air Quality and Cleaner Air for Europe. [online] Available at: https://www.legislation.gov.uk/eudr/2008/50/introduction

[170] Environment Act 1995 (amended 2021) [online]. Available at: https://www.legislation.gov.uk/ukpga/2021/30/part/4/enacted

- Air Quality Standards Regulations[171];
- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)[172]; and
- The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018[173].

Planning Policy

National planning policy

- Overarching National Policy Statement for Energy (EN-1)174 - Section 5.2 of EN-1 suggests that if a project is likely to have adverse effects on air quality an assessment of the impacts should be included in the Environmental Statement (ES). Paragraph 5.2.7 puts forth a number of aspects associated with the assessment of air quality that should be included in the ES, for example, “existing air quality levels and the relative change in air quality from existing levels”; and
- National Planning Policy Framework (Revised) (NPPF)[175].

Local planning policy

- Kent and Medway Energy and Low Emissions Strategy[176];
- Dover District Council Core Strategy[177]; and
- Thanet District Council Local Plan[178].

Guidance

- National Planning Policy Guidance (update) (NPPG)[179];

[171] The Air Quality Standards Regulations 2010 [online]. Available at: https://www.legislation.gov.uk/uksi/2010/1001/contents

[172] Department for Environment, Food and Rural Affairs (2007). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf

[173] The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018. [online] Available at: https://www.legislation.gov.uk/uksi/2018/764/made

[174] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[175] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

[176] Kent County Council and Medway Council (2020). Kent and Medway Energy and Low Emissions Strategy. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0009/112401/Kent-and-Medway-Energy-and-Low-Emissions-Strategy.pdf

[177] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf

[178] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

[179] Department for Levelling Up, Housing and Communities, and Ministry of Housing, Communities & Local Government (2019). Planning Practice Guidance – Air Quality. [online] Available at: https://www.gov.uk/guidance/air-quality--3

- Institute of Air Quality Management Guidance on the assessment of dust from demolition and construction, 2014[180];
- Institute of Air Quality Management and Environmental Protection UK: Land-use Planning & Development Control: Planning for Air Quality. v1.2. Institute of Air Quality Management, London[181]; and
- Local Air Quality Management Technical Guidance (LAQM.TG(16))[182].

3.9.3 Study Area

3.9.3.1 The Institute of Air Quality Management (IAQM) construction dust guidance[180] requires that construction dust impacts are assessed up to 350m from the locations of demolition, construction and earthworks activities for human receptors and up to 50m for ecological receptors. Construction activities are assumed to take place anywhere within the Kent Scoping Boundary, therefore as a worst-case approach, the construction dust study area will include up to 350m from the edge of the scoping boundary. The construction phase Study Area also includes the first 50m of any road within 500m from the main site entrance(s) used by the site construction vehicles, as per IAQM construction dust guidance[180].

3.9.3.2 The number of vehicles associated with the construction phase of the Kent Onshore Scheme is not yet confirmed; however, it is anticipated that detailed assessment of construction vehicle emissions will be scoped out as traffic flows are expected to be below the IAQM screening criteria[181]. This will be confirmed upon receipt and screening of construction traffic data. If construction Heavy Duty Vehicle (HDV) flows are expected to be greater than 100 Annual Average Daily Traffic (AADT) flows on a road during the construction phase or 25 AADT within an Air Quality Management Area (AQMA), then exhaust emissions from construction vehicles will be modelled at receptors within 200m of these roads.

3.9.3.3 The IAQM development control guidance[181] details its own indicative criteria with respect to change as a result of a project's operational phase that, if met, highlight the need for an assessment, rather than necessarily defining the boundaries of a Study Area. The criteria are:

- A change in Light Duty Vehicle (LDV) flows of >100 AADT within or adjacent to an AQMA, or >500 AADT elsewhere;
- A change in HDV flows of >25 AADT within or adjacent to an AQMA, or >100 AADT elsewhere;
- Where a road is realigned by 5m or more and is within an AQMA;
- Where a junction is added or removed close to existing receptors; and

[180] Institute of Air Quality Management (2014). Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management, London. V.1.1.

[181] Institute of Air Quality Management and Environmental Protection UK (2017). Land-use Planning & Development Control: Planning for Air Quality. Institute of Air Quality Management, London. V.1.2.

[182] Department for Environment, Food and Rural Affairs (2018). Local Air Quality Management Technical Guidance (TG16). [online] Available at: https://www.scottishairquality.scot/sites/default/files/publications/2022-08/LAQM-TG16-April-21-v1.pdf

- Where there are one or more substantial combustion processes where there is a risk of impacts at relevant receptors.

3.9.3.4 The same screening criteria will be used to define the Study Area should the operational phase be scoped in for assessment. However, operational phase traffic flows are expected to be below these screening criteria and therefore it is proposed to scope out the assessment of operational vehicle emissions as air quality impacts will be negligible.

3.9.4 Baseline Conditions

Data Sources

3.9.4.1 The air quality environment baseline described in this section has been informed by the following data sources:

- Defra UK Air website[183] – to establish predicted background concentrations for Nitrogen Dioxide (NO_2), Particulate Matter less than 10 microns in diameter (PM_{10}) and Particulate Matter less than 2.5 microns in diameter ($PM_{2.5}$).
- Local authority websites and annual Air Quality Status Reports – to determine existing AQMAs and local air quality monitoring results:
  - KentAir website[184];
  - LondonAir website[185];
  - Kent and Medway Air Quality Monitoring Network Annual Report 2019[186];
  - Dover District Council Annual Status Report 2021[187]; and
  - Thanet District Council Annual Status Report 2021[188].
- MAGIC website[189] – to identify ecological sites within the air quality Study Area.

Baseline

3.9.4.2 Baseline data has been collated to determine the existing air quality conditions in the area that is likely to be affected by the Project. A review of the existing baseline will be undertaken to establish an understanding of the baseline air quality environment, to

[183] Department of Environment, Food and Rural Affairs (2022). UK Air – An Information Resource. [online] Available at: https://uk-air.defra.gov.uk/

[184] KentAir (2022). Reporting Air Quality in Kent and Medway. [online] Available at: https://kentair.org.uk/

[185] LondonAir (2022). [online] Available at: https://londonair.org.uk/LondonAir/Default.aspx

[186] Air Quality Data Management (2020). Kent and Medway Air Quality Monitoring Network (KMAQMN) Annual Report 2019. [online] Available at: https://kentair.org.uk/report/kent-medway-air-quality-monitoring-network-annual-report-2019

[187] Dover District Council (2021). Annual Status Report 2021. Bureau Veritas. [online] Available at: https://www.dover.gov.uk/Environment/Environmental-Protection/Air-Quality/Dover-District-Council-2021-ASR-v5.pdf

[188] Thanet District Council (2021). Annual Status Report 2021. Bureau Veritas. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/Thanet-ASR_England_2021_Final_v1.0.pdf

[189] Department for Environment, Food and Rural Affairs (2022). Multi-Agency Geographic Information for the Countryside (MAGIC). [online] Aailable at: https://magic.defra.gov.uk/

identify areas that are likely to be sensitive to changes in emissions as a result of the Project.

3.9.4.3 As required by Part IV of the Environment Act (1995), all local authorities produce Annual Status Reports (ASRs) each year. The most recently available reports for Dover District Council and Thanet District Council is the 2021 ASRs[187] [188] which summarises air quality within their areas during 2020.

3.9.4.4 A review of the most recently published ASRs[187] [188] confirmed that exceedances of the NO_2 annual mean objective set in the AQS have been identified in Dover and Thanet, resulting in the current declaration of the following s AQMAs:

- Thanet Urban AQMA – declared in 2011;
- A20 AQMA – declared 2004, amended 2009; and
- High Street/ Ladywell AQMA – declared 2007.

3.9.4.5 The Kent Scoping Boundary area is located close to the Thanet Urban AQMA, which encompasses a number of urban areas within Thanet.

3.9.4.6 The closest monitoring location to the Kent Scoping Boundary is diffusion tube site TH16 which is a background site monitored by Thanet District Council. The annual average NO_2 concentration at this site is well below the AQS objective for all monitored years.

3.9.4.7 A review of the available modelled background concentrations for the Site and surrounding area has been carried out using Defra predicted annual mean background concentrations provided in 1km x 1km grid squares. Background concentrations for 2022 are well below the relevant objective values for all pollutants.

Future Baseline

3.9.4.8 Background pollutant concentrations and are predicted to decrease in future years, along with air pollutant concentrations from vehicle emissions sources due to improvements in technologies and increased emissions standards. This is supported by trends observed from local authority monitoring data and future predicted Defra background map concentrations.

3.9.5 Embedded and Control & Management Measures

Embedded Measures

3.9.5.1 The routeing and siting of the Kent Onshore Scheme has been evolved to avoid settlement areas as far as possible.

Control and Management Measures

3.9.5.2 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. The Outline CoCP contains a list of relevant good practice measures, including the following key commitments relating to air quality:

- GG04: The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans.
- GG10: Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.
- GG13: Plant and vehicles will conform to relevant applicable standards for the vehicle type as follows:
- Euro 4 (NOx) for petrol cars, vans and minibuses;
- Euro 6 (NOx and PM) for diesel cars, vans and minibuses; and
- Euro VI (NOx and PM) for lorries, buses, coaches and Heavy Goods Vehicles (excluding specialist abnormal indivisible loads).
- Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so.
- GG14: Materials and equipment will not be moved or handled unnecessarily. When loading and unloading materials from vehicles, including cable drums and excavated materials, drop heights will be limited.
- GG18: Wheel washing will be provided at each main compound access point on to the highway. An adequate supply of water will be made available at these locations at all times. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits.
- GG19: Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression where appropriate.
- GG20: Bonfires and the burning of waste material will be prohibited.
- TT01: The CTMP will set out measures to reduce route and journey mileage to and from and around site, and prevent nuisance to the residents, businesses and the wider community caused by parking, vehicle movements and access restrictions. It will also provide suitable control for the means of access and egress to the public highway and set out measures for the maintenance and upkeep of the public highway. The plan will also identify access for emergency vehicles. It will also set out measures to reduce safety risks through construction vehicle and driver quality standards and measures to manage abnormal loads.

3.9.5.3 During construction, mitigation measures will be employed to ensure that dust emissions are minimised to a negligible impact, such as:

- Site management (logging of incidents/complaints);
- Monitoring (site inspections, soiling checks, compliance with Dust Management plan, etc);

- Preparing and maintaining the site (locate dust causing activities away from receptors, barriers, cleaning, enclosed specific operations with high potential for dust production, cover stockpiles, etc);
- Operating vehicle/machinery and sustainable travel (comply with NRMM standards, no idling, use mains electricity, travel plan etc);
- Operations (employ dust suppression, use enclosed chutes, minimise drop heights, etc);
- Demolition measures (damp down, avoid explosive blasting, soft strip interiors before demolition, etc);
- Earthworks measures (revegetate promptly, use hessian mulches and cover with topsoil, etc);
- Construction measures (avoid scabbling, keep aggregates damp, ensure fine powder materials are delivered enclosed and stored in silos, ensure bags are sealed after use); and
- Trackout measures (wash access and local roads, avid dry sweeping of large areas, ensure vehicle-borne materials are covered, install hard surface haul routes, wheel washing, etc).

3.9.5.4 Construction dust mitigation measures are considered tertiary mitigation i.e., actions that are standard best practices used to manage commonly occurring environmental effects.

3.9.5.5 Construction phase mitigation measures will be proposed as a function of the dust soiling and human health risk ratings allocated by following the IAQM construction dust guidance[180]. The IAQM construction dust guidance[180] also details an extensive list of potential mitigation measures by construction activity. Appropriate mitigation measures identified from the construction dust risk assessment will be secured through a draft Construction Environmental Management Plan (CEMP), that will be secured as a requirement in the draft Development Consent Order (DCO).

3.9.6 Potential for Significant Effects

3.9.6.1 The air quality assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.9.6.2 The proposed scope of the air quality assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.9.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.9.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- construction activities such as earthworks and trackout resulting in emissions of dust;
- emissions from NRMM; and
- emissions from construction traffic.

Sources of operational impacts

3.9.6.5 There are no other operational phase emissions sources or air quality impacts associated with the Project anticipated for inclusion in the air quality assessment.

Sources of maintenance impacts

3.9.6.6 Traffic trips associated with the maintenance of the Project are anticipated to be below the IAQM indicative criteria[181] for potential significant effects. Therefore, air quality impacts associated with operational phase vehicle emissions will be negligible and are proposed to be scoped out of further assessment.

3.9.6.7 Any potential NRMM emissions or dust generating activities associated with maintenance would be transient and temporary in nature, therefore there are no other maintenance emissions sources or air quality impacts associated with the Project anticipated for inclusion in the air quality assessment.

Sources of decommissioning impacts

3.9.6.8 The decommissioning phase of the Project will be assessed following the same approach as construction to consider any dust impacts associated with demolition and potential impacts from vehicle emissions. Therefore the potential sources of decommissioning impacts are:

- decommissioning activities such as earthworks and trackout resulting in emissions of dust;
- emissions from NRMM; and
- emissions from decommissioning traffic.

Potential impacts

3.9.6.9 The most common air quality impacts that may arise during demolition and construction activities are:

- dust deposition, resulting in the soiling of surfaces and reduction in amenity; and
- elevated PM_{10} concentrations, as a result of dust generating activities on site.

3.9.6.10 These impacts may affect human and ecological receptors. The IAQM construction dust guidance[180] defines a human receptor as:

3.9.6.11 “any location where a person or property may experience the adverse effects of airborne dust or dust soiling, or exposure to PM_{10} over a time period relevant to the Air Quality Objectives. In terms of annoyance effects, this will most commonly relate to dwellings, but may also refer to other premises such as buildings housing cultural heritage collections (e.g. museums and galleries), vehicle showrooms, food manufacturers, electronics manufacturers, amenity areas and horticultural operations (e.g. salad or soft-fruit production).”

3.9.6.12 An ecological receptor is defined as:

3.9.6.13 “any sensitive habitat affected by dust soiling. This includes the direct impacts on vegetation or aquatic ecosystems of dust deposition, and the indirect impacts on fauna (e.g. on foraging habitats)”.

3.9.6.14 The potential for dust emissions will be assessed for each activity that is likely to take place and considers three separate dust effects:

- Annoyance due to dust soiling;
- Harm to ecological receptors; and
- The risk of health effects due to a significant increase in exposure to PM_{10}.

3.9.6.15 Table 3.9.1 identifies the potential impacts that could result from the sources identified above

Table 3.9.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction	Construction activities such as earthworks and trackout resulting in emissions of dust	Dust deposition and human health impacts	Yes - Negligible	**Scoped in**
	Emissions from NRMM	Change in local air pollutant concentrations	No - Not significant– due to temporary and transient nature and incorporation of best practice measures (CoCP)	Scoped out
	Emissions from construction traffic	Change in local air pollutant concentrations	No - Not significant– due to traffic numbers	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			anticipated to be below IAQM screening criteria	
Operation	Operational traffic vehicle emissions	Change in local air pollutant concentrations	No - Not significant– due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out
Maintenance	Maintenance traffic vehicle emissions	Change in local air pollutant concentrations	No - Not significant– due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out
Decommissioning	Decommissioning activities such as earthworks and trackout resulting in emissions of dust	Dust deposition and human health impacts	Yes - Negligible	**Scoped in**
	Emissions from NRMM	Change in local air pollutant concentrations	No - Not significant– due to temporary and transient nature and incorporation of best practice measures (CoCP)	Scoped out
	Emissions from decommissioning traffic	Change in local air pollutant concentrations	No - Not significant– due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out

Impact Pathways with Receptors (Step 2)

3.9.6.16 Table 3.9.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the air quality assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme**.

Table 3.9.2: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in / out
Construction activities	Nearby Air Quality Sensitive Receptors	Yes - Negligible	**Scoped in**
Construction traffic	Nearby Air Quality Sensitive Receptors	Negligible - due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out
Operational traffic	Nearby Air Quality Sensitive Receptors	Negligible - due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out

3.9.7 Proposed Assessment Methodology

3.9.7.1 Detailed technical assessment methodologies are presented in **Part 1 Chapter 5 EIA Approach and Method**. This section provides on overview of the methodologies used in the assessment of air quality from the Project.

Proposed Data Sources

3.9.7.2 No additional data sources are proposed other than those outlined in section 3. Should detailed dispersion modelling of vehicle emissions be required following the screening of construction traffic data then one year of meteorological data would be obtained from a nearby met station for the base year.

Proposed Assessment Methodology

Construction dust assessment

3.9.7.3 There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These will be assessed in accordance with the methodology outlined in the IAQM construction dust guidance[180].

3.9.7.4 If there are no ecological receptors within 50m or human receptors within 350m of the Kent Onshore Scheme boundary, or within 50m of the haul routes (up to 500m from the site entrance(s)) then the need for a construction dust assessment is to be screened out. However, if there are receptors within in these distances then an assessment should be carried out. Initial review of the study area has identified that receptors are present and therefore a construction dust risk assessment is required.

3.9.7.5 A site is allocated a risk category based on two factors:

- The scale and nature of the works, which determines the magnitude of dust arising as: small, medium or large; and
- The sensitivity of the area to dust impacts, which can be defined as low, medium or high sensitivity.

3.9.7.6 The two factors are combined to determine the risk of dust impacts without mitigation applied.

3.9.7.7 The relevant criteria to define the potential magnitude of dust emission includes the following factors detailed in Table 3.9.3.

Table 3.9.3: Dust emission magnitude criteria

Magnitude	Criteria
Small	Demolition volume under 20,000m^3 less than 10m above ground level, total site area less than 2,500m^2, soil type with large grain size, total material moved less than 20,000 tonnes, construction material with low potential for dust release, less than 10 HDV trips per day, unpaved road length less than 50m etc.
Medium	Demolition activities 10m-20m above ground level, moderately dusty soil type, potentially dusty construction material, total material moved 20,000-100,000 tonnes, 10 to 50 HDV trips per day, unpaved road length 50-100m etc.
Large	On-site crushing and screening demolition, demolition activities greater than 20m above ground level, total site area greater than 10,000m^2, more than 10 heavy earth moving vehicles active at any one time, more than 10,000 tonnes of material moved, on site concrete batching, sandblasting, more than 50 HDV trips per day, unpaved road length greater than 100m etc.

3.9.7.8 The influencing factors to define receptor sensitivity to dust impacts are detailed in Table 3.9.4.

Table 3.9.4:Receptor sensitivity criteria

Sensitivity	Criteria

High	Where human receptors expected to be present continuously for extended periods of time e.g. residential properties, hospitals, schools and care homes. Internationally or nationally designated ecological sites.
Medium	Where users would expect to enjoy a reasonable level of amenity and value could be diminished by dust soiling e.g. parks and places of work. Nationally designated ecological sites.
Low	Where enjoyment of amenity would not reasonably be expected and exposure would be for limited periods e.g. footpaths, shopping streets and car parks. Locally designated ecological sites.

3.9.7.9 The IAQM construction dust guidance[180] categorises the unmitigated risk of dust impacts on human health and amenity (rather than ascribe a significance of effect) as a means of identifying the level of dust emissions mitigation required to ensure that residual impacts are 'not significant'. A higher dust risk rating requires more stringent mitigation measures in order to limit residual effects.

Vehicle emissions assessment

3.9.7.10 Assessment of vehicle emissions will be undertaken should the screening of traffic data meet the criteria set out by IAQM development control guidance[181] as detailed in paragraph 3.9.3.3.

3.9.7.11 If these criteria are not exceeded, then the IAQM development control guidance[181] considers air quality impacts associated with a scheme in terms of traffic emissions to be negligible and no further assessment is required.

3.9.7.12 Should screening of the relevant data indicate that any of the above criteria are met, then potential impacts at sensitive receptor locations can be assessed by calculating the change in NO_2 and particulate matter concentrations as a result of the Project. Detailed dispersion modelling would be undertaken using Atmospheric Dispersion Modelling Software (ADMS) to predict pollutant concentrations at worst case receptor locations within 200m of affected vehicle routes and compared against relevant AQS objectives. The significance of predicted impacts can then be determined in accordance with the methodology outlined in the IAQM development control guidance[181].

3.9.7.13 The significance of impacts would be assessed dependent upon the percentage change in concentration between the without and with Project scenarios, relative to the relevant air quality objectives, as presented in Table 3.9.5.

Table 3.9.5: IAQM impact descriptors for individual receptors

Long term average concentration at receptor in assessment year	% change in concentration relative to air quality assessment level (AQAL)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76 - 94% of AQAL	Negligible	Slight	Moderate	Moderate
95 - 102% of AQAL	Slight	Moderate	Moderate	Substantial
103 - 109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

3.9.8 Conclusion

3.9.8.1 With regards to air quality impacts associated with the Kent Onshore Scheme, the assessment of construction dust is scoped into the assessment. It is proposed that construction traffic vehicle emissions are scoped out of the assessment due to the number of vehicles anticipated to be below the IAQM screening criteria[181], subject to confirmation upon receipt of construction traffic data.

Proposed Scope of the Assessment

3.9.8.2 A summary of the proposed scope of the assessment is provided in Table 3.9.6.

Table 3.9.6: Proposed scope of the assessment

Receptor	Potential significant effect	Project phase(s)	Proposed to be scoped in/out and for which option
Nearby Air Quality Sensitive Receptors	Dust deposition	Construction and Decommissioning	**Scoped in**

Receptor	Potential significant effect	Project phase(s)	Proposed to be scoped in/out and for which option
Nearby Air Quality Sensitive Receptors	Human health dust impacts	Construction and Decommissioning	**Scoped in**
Nearby Air Quality Sensitive Receptors	Increase in vehicle emissions	Construction, Operational, Maintenance and Decommissioning	Scoped out
Nearby Air Quality Sensitive Receptors	Emissions from NRMM	Construction and Decommissioning	Scoped out

3.10 Noise and Vibration

3.10.1 Introduction

3.10.1.1 This chapter presents how the noise and vibration assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter4, Description of Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

3.10.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.10.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.10.1.4 This chapter is supported by the following figure:

- **Figure 3.10.1 Noise and Vibration Baseline Kent**.

3.10.1.5 The potential effects of noise and vibration on ecological receptors and heritage assets are considered in **Part 3, Chapter 3, Ecology and Biodiversity**, and **Part 3, Chapter 4, Cultural Heritage**, respectively.

3.10.2 Regulatory and Planning Context

3.10.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on noise and vibration associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

3.10.2.2 The below legislation will be considered when identifying potential constraints to the Kent Onshore Scheme and wider Project, design options and mitigation.

- The Control of Pollution Act 1974[190]; and
- Environmental Protection Act 1990[191].

Planning Policy

National planning policy

3.10.2.3 The assessment will take account of the relevant National Policy Statements (NPSs) for energy: the Overarching National Policy Statement for Energy (EN-1) [192] and the National Policy Statement for Electricity Networks (EN-5) [193]. These NPSs are, in the process of being updated and therefore relevant sections of the draft NPSs are also included below, where relevant.

3.10.2.4 EN-1 states that 'where noise impacts are likely to arise from the proposed development, the applicant should include the following in the noise assessment' including a description of the noise generating aspects leading to noise impacts, noise sensitive properties that may be affected, an assessment of the effect of predicted changes in the noise environment at noise sensitive properties and measures to be employed in mitigating noise.

3.10.2.5 EN-5 contains the following guidance relating to noise, specifically from overhead lines, which has been considered within this chapter:

'The IPC should ensure that relevant assessment methodologies have been used in the evidence presented to them, and that the appropriate mitigation options have been considered and adopted. Where the applicant can demonstrate that appropriate mitigation measures will be put in place, the residual noise impacts are unlikely to be significant.'

3.10.2.6 The National Planning Policy Framework (NPPF) (2012; revised in 2021)[194] details the Government's planning policies for England and how these are expected to be applied. The NPPF includes statements relating to noise and the requirement to take it into account in the planning process. Section 174 indicates that the planning system should contribute to and enhance the natural and local environment by:

'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.'

3.10.2.7 Section 185 is specifically related to noise, requiring, planning policy decisions to:

[190] Control of Pollution Act 1974 [online]. Available at: https://www.legislation.gov.uk/ukpga/1974/40 [Accessed July 2022].

[191] Environmental Protection Act 1990 [online]. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents [Accessed July 2022].

[192] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[193] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf

[194] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

- Mitigate and reduce to a minimum, potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life; and
- identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason

3.10.2.8 The terms 'significant adverse effect' and 'adverse effect' reflect the terminology used in the Noise Policy Statement for England, 2010 (NPSE) [195] which sets out the long-term vision of Government noise policy:

'to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.'

3.10.2.9 The NPSE outlines three aims for the effective management and control of environmental, neighbour and neighbourhood noise:

- avoid significant adverse impacts on health and quality of life;
- mitigate and minimise adverse impacts on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life.

3.10.2.10 In its aims, the NPSE uses the key phrases "significant adverse" and "adverse". The NPSE states in its explanatory note that there are two established concepts that are currently being applied to noise impacts, which are:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected.
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected.

3.10.2.11 The NPSE then extends this concept to include:

- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

3.10.2.12 The NPSE notes that it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to vary for different noise sources, receptors and times. It is for the project to identify relevant SOAELs taking account of the sources of exposure and receptors.

3.10.2.13 The NPPF and NPSE do not, therefore, provide absolute limits on noise that are acceptable or unacceptable in a given situation. It does however, set out the need to use planning decisions, including through the use of conditions, to avoid or mitigate adverse impacts on health and quality of life resulting from noise. The Planning Practice Guidance for Noise (PPGN)[196] advises on how planning can manage potential noise impacts. In this guidance it advises that local planning authorities' plan making

[195] Department for Environment, food and Rural Affairs (2010). Noise Policy Statement for England. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69533/pb13750-noise-policy.pdf

[196] Department for Levelling Up, Housing and Communities, and Ministry of Housing, Communities and Local Government (2019). Planning Practice Guidance – Noise. [online] Available at: https://www.gov.uk/guidance/noise--2 [Accessed July 2022].

and decision taking should take account of the acoustic environment and in doing so consider:

- whether or not a significant adverse effect is occurring or likely to occur;
- whether or not an adverse effect is occurring or likely to occur; and
- whether or not a good standard of amenity can be achieved.

3.10.2.14 PPGN provides a noise exposure hierarchy explaining how effects of noise can be categorised, as reproduced in Table 3.10.1.

Table 3.10.1: PPGN noise exposure hierarchy

Response	Example of outcomes	Increasing effect level	Action
Not present	No effect	No Observed Effect	No specific measures required
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response.		
	Lowest Observed Effect Level (LOAEL)		
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
	Significant Observed Effect Level (SOAEL)		
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite,	Unacceptable Adverse Effect	Prevent

Response	Example of outcomes	Increasing effect level	Action
	significant, medically definable harm, e.g. auditory and non-auditory.		

Local planning policy

3.10.2.15 The study area runs through both Thanet Borough Council at the north end of the Kent Onshore Scheme, and Dover Borough Council, in the south of the Kent Onshore Scheme, and as such the policies of both bodies regarding biodiversity and the protection of natural resources apply to the Kent Onshore Scheme.

3.10.2.16 The planning policies that relate to the footprint of the Kent Onshore Scheme are shown in Table 3.10.2 for policies set in place by both Thanet Borough Council[197] and by Dover Borough Council[198][199].

Table 3.10.2: Planning policies that relate to the Kent Onshore Scheme

Document	Planning policy	Purpose
Thanet Local Plan, Adopted July 2020	SE01 – Potentially Polluting Development	Development with potential to pollute will be permitted only where: 1) Applicable statutory pollution controls and siting will effectively and adequately minimise the impact upon existing and proposed land uses and the environment including the effects, including cumulative effects, on health, the natural environment such as significant natural and heritage assets, or general amenity resulting from the release of pollutants to water, land or air or from noise, dust, vibration, light, odour or heat; and In determining individual proposals, regard will be paid to: 2) The economic and wider social need for the development; and 3) The visual impact of measure needed to comply with any statutory environmental quality standards or objectives. 4) where there is an impact and the development is acceptable, a suitable mitigation is proposed to the satisfaction of the pollution control regimes. Permission for development which is sensitive to pollution will be permitted only if it is sufficiently separated from any existing or potential source of pollution as to reduce pollution impact upon health, the natural environment or general amenity to an

[197] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

[198] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf [Accessed 13/07/2022].

[199] Dover District Council (2002). Dover District Local Plan 2002. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/Adopted-Development-Plans/Dover-District-Local-Plan-2002.aspx

		acceptable level, and adequate safeguarding and mitigation on residential amenity.
	SE06 – Noise Pollution	In areas where noise levels are relatively high, permission will be granted for noise sensitive development only where adequate mitigation is provided, and the impact of the noise can be reduced to acceptable levels. Development proposals that generate significant levels of noise must be accompanied by a scheme to mitigate such effects, bearing in mind the nature of surrounding uses. Proposals that would have an unacceptable impact on noise-sensitive areas or uses will not be permitted.
Dover District Local Development Framework Core Strategy Adopted February 2010	No specific policies	
Dover District Local Plan Regulation 18 Draft	No specific policies	

3.10.3 Study Area

3.10.3.1 This section describes the study areas for each aspect of the noise and vibration assessment. The study areas for each aspect of the noise and vibration assessment are shown in **Figure 3.10.1 Noise and Vibration Baseline - Kent.**

Construction Noise Study Area

3.10.3.2 The study area for construction noise impacts within the ES will consider noise sensitive receptors (NSRs) within 300m of the Kent Scoping Boundary, excluding construction traffic on the public highway which is assessed separately. This is based on guidance in British Standard 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise' (BS 5228-1) [200], which states that caution is needed when making construction noise predictions beyond 300m due to meteorological effects, particularly when a soft ground correction factor has been applied. A 300m construction noise study area is also advocated by DMRB LA 111[201]. This will be refined as the Kent Onshore Scheme develops.

[200] British Standards Institute (2008). BS 5228-1:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites: Noise.

[201] Highways England (2020). Design Manual for Roads and Bridges - LA 111 Noise and Vibration. [online] Available at: https://www.standardsforhighways.co.uk/prod/attachments/cc8cfcf7-c235-4052-8d32-d5398796b364?inline=true

Construction Traffic Noise Study Area

3.10.3.3 The construction traffic routes are not currently defined at this stage. However, noise from construction traffic on the existing road network will be assessed for each applicable road based on guidance from DMRB LA 111. The assessment principally considers the change in Basic Noise Level (BNL) of each road, calculated in line with the methodology described in technical memorandum Calculation of Road Traffic Noise (CRTN) [202], with a subsequent assessment of the impacts on NSRs within 50m of routes where a change in BNL of at least 1dB is identified due to construction traffic.

Construction Vibration Study Area

3.10.3.4 The proposed study area for construction vibration impacts, based on guidance from BS 5228-2:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration' (BS 5228-2) [203] and DMRB LA 111 (Highways England, 2020), will consider NSRs within 300m of the Kent Scoping Boundary. This will be refined as the Kent Onshore Scheme develops.

Operational Noise Study Area

3.10.3.5 The study area for operational noise impacts from the proposed converter station is 1000m from the Kent converter station Site Option Area, based on guidance from ISO 9613:1996 'Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of calculation' (ISO 9613) [204]. There will be particular emphasis on the NSRs closest to the converter station. This will be refined as the Kent Onshore Scheme develops.

3.10.3.6 The AC connection between the proposed converter station the National Grid connection point at Richborough substation will be via either an overhead line or underground cables. The selection has not been made at this stage. Depending on the proposed overhead line conductor and pylon types, the study area for operational noise impacts from any proposed overhead lines would extend 200m from the proposed route centre line. This is based on at least 60 years of experience operating the UK transmission network at 400kV. There is no significant audible noise effect beyond this distance, even in the most sensitive of locations.

3.10.3.7 Noise from underground cables are proposed to be scoped out since their operation does not generate material levels of noise.

Operational Vibration Study Area

3.10.3.8 There are no material sources of operational vibration proposed as part of the Kent Onshore Scheme. Operational vibration is therefore proposed to be scoped out of further assessment.

[202] Department of Transport and Welsh Office (1988). Calculation of Road Traffic Noise. London. HMSO

[203] British Standards Institute (2008). BS 5228-1:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites: Vibration.

[204] International Standards Organisation (1996). ISO 9613:1996 Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of calculation.

3.10.4 Baseline Conditions

Data sources

3.10.4.1 An initial baseline assessment has been informed by a desk study which has drawn on the following information sources:

- Defra strategic noise mapping (2017) [205];
- Ordinance Survey mapping; and
- Nemo Link Environmental Statement Volume 1, Chapter 12 – Noise and Vibration (2013).

3.10.4.2 Pertinent baseline information is provided in **Figure 3.10.1 Noise and Vibration Baseline – Kent.**

Baseline

3.10.4.3 The study area includes a mix of residential, rural, industrial, and commercial environments. The noise climate is therefore expected to vary throughout the study area.

3.10.4.4 The main sources of noise are likely to include road traffic from the A256 which runs between Ramsgate to the north and Dover to the south. There are potential railway noise sources from train services on the Ashford to Ramsgate Line and the Kent Coast Line. There are also potential industrial sources of noise, particularly in the vicinity of the A256. Away from these sources of noise into more rural areas, ambient sound levels would be expected to be lower.

3.10.4.5 Relative to the proposed converter station study area, there are isolated NSRs within the study area:

- to the south on Richborough Road, Whitehouse Drove, Castle Road and the A256;
- to the east on Ebbsfleet Lane and Sandwich Road;
- to the north on Ebbsleet Lane North and Grinsell Hill; and
- to the west on Marsh Farm Road.

3.10.4.6 There are also built-up residential areas to the northeast at Cliffsend, and to the northwest at Minster.

3.10.4.7 Defra strategic noise mapping indicates that ambient noise levels are moderate to high in the vicinity of the A256, but reduce to relatively low levels beyond approximately 300m from the road. This is concordant with existing noise survey data from the Nemo Link Environmental Statement (2013), taken during 2013.

3.10.4.8 There are a number of Noise Important Areas (NIA) on the existing public highway along routes which may be used for construction traffic associated with the Kent Onshore Scheme. NIAs are determined via strategic noise maps and highlight the

[205] Department for Environment, Food and Rural Affairs (2019). Strategic noise mapping: explaining which noise sources were included in the 2017 noise maps. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/902825/strategic-noise-mapping-round3.pdf

residential areas experiencing the highest 1% of noise levels from road and rail sources in England. These are generally away from the construction noise study area but may be applicable when identifying potential construction traffic noise impacts on the wider road network. The NIAs within the construction noise study area are as follows:

- NI_12135 – Ebbsfleet Lane, adjacent to Ramsgate Road; and
- NI_4487 – Sandwich Road at Foads Lane.

3.10.4.9 There are additional NIAs in the wider area on main transport routes (e.g. Island Road, and the A299) which are not likely to be significantly affected by the Kent Onshore Scheme.

3.10.4.10 With regards to background sound levels, which are applicable to the assessment of operational noise, the 2013 noise survey data indicates that background sound levels at the nearest NSRs are in the order of 40 to 61 dB $L_{A90,T}$ during daytime periods, and 27 to 33 dB $L_{A90,T}$ during night-time periods (further noise surveys will be conducted as part of this Kent Onshore Scheme).

3.10.4.11 With regards to the vibration baseline, it is assumed that existing vibration levels are negligible in the study area.

Future Baseline

3.10.4.12 The future baseline is not expected to materially change in the reasonably foreseeable future with regards to noise and vibration.

3.10.5 Embedded and Control & Management Measures

Embedded Measures

Construction noise and vibration

3.10.5.1 Where feasible, the Kent Onshore Scheme has avoided NSRs, such as settlements, through routeing and siting.

Operational noise

3.10.5.2 At this stage, the proposed converter station has not yet been designed. However, it will be designed to meet applicable noise limits at nearby NSRs using readily available techniques. This will include consideration of plant selection, site layout, screening, and enclosures, as may be considered appropriate. Additionally, the converter station siting has avoided NSR, such as settlements, through the optioneering process.

3.10.5.3 Similarly, the AC connection between the proposed converter station and the National Grid connection point at Richborough substation will be via either an overhead line or underground cables. Underground cables do not generate material levels of noise and the potential overhead line route has avoided NSRs, such as settlements, through routeing and siting.

3.10.5.4 There are no material sources of vibration from the operation of the converter station. There are, however, sources of low levels of vibration including transformers and

cooling plant. Such plant would be installed on anti-vibration mountings and levels of vibration would not be expected to be perceptible, even in close proximity to the equipment.

Control and Management Measures

Construction noise control and management measures

3.10.5.5 In developing the noise control measures to be used, the following hierarchy will be followed:

- Control at source – for example the selection of quieter equipment;
- The choice of location for equipment on site;
- Control of working hours; and
- The provision of acoustic enclosures around equipment or barriers around work sites.

3.10.5.6 As per the hierarchy above, the first source of control for noise pollution is to control at the source. To this end, where reasonably practicable, efforts will be made to use equipment that reduces the noise produced where located in close proximity to NSRs.

3.10.5.7 Where works may be required to be undertaken outside of the core hours, the local planning authority will be notified in advance along with any neighbouring receptors.

3.10.5.8 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the noise and vibration assessment are:

- GG04 - The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans.
- GG06 - Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the project. Topics will include but are not limited to:
  - working hours and noise and vibration reducing measures; and
  - agreed traffic routes, access points, etc.
- GG11 - Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.
- GG26 - Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use to raise any concerns or complaints about the project. All construction-related complaints will be logged by the contractor(s) in a complaints register, together with a record of the responses given and actions taken.

- NV01 - Construction working will be undertaken within the agreed working hours set out within the Development Consent Order (DCO). Best practicable means to reduce construction noise will be set out within the CEMP.

Operational noise control and management measures

3.10.5.9 It is anticipated that further detailed assessment of operational noise from the proposed converter station, once the design has been finalised, detailing specific mitigation measures, would be secured via DCO Requirement.

Operational vibration control and management measures

3.10.5.10 There are no material sources of operational vibration proposed as part of the Project. Some converter station plant would include rotating and moving parts, such as the fans of cooling equipment. However, levels of vibration generated by such plant is low and all plant, including transformers, would be expected to be mounted on suitable anti-vibration mounts. These are primarily to protect the plant itself from potential vibration impacts but also serve to attenuate vibration generated by the plant. Vibration would therefore not be expected to be perceptible even in very close proximity to plant.

3.10.6 Potential for Significant Effects

3.10.6.1 The noise and vibration assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.10.6.2 The proposed scope of the noise and vibration assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.10.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.10.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Source of construction impacts

- noise effects from construction activities;
- vibration effects from construction activities; and
- noise effects from construction traffic.

Sources of operational impacts

- noise effects from the converter station.

Sources of maintenance impacts

- noise and vibration effects from maintenance activities.

Sources of decommissioning impacts

- noise and vibration effects from decommissioning activities.

Potential impacts

3.10.6.5 Table 3.10.3 below presents the potential impacts and noise and vibration and whether they are proposed to be scoped in or scoped out.

Table 3.10.3: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction	Construction activities	Construction noise at NSRs	Yes - There will be potential significant effects due to construction noise at NSRs within the study area. However, this depends on the nature and the duration of activities, the distance between the noise source and the NSR, and the good practice measures employed to reduce noise.	**Scoped in**
		Construction vibration at NSRs	Yes - There will be potential significant effects on human receptors (i.e. nuisance) due to construction vibration at NSRs within the study area. The level of significance will depend on the nature and the duration of activities, the distance between the source of vibration and the NSR, and the good practice measures employed to reduce vibration. However, the duration	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			of such activities would be expected to be relatively short at any one location, and, together with the implementation of good practice measures, significant effects from such works are not expected. Construction vibration would not be expected to cause damage to buildings or structures unless very high levels of vibration are generated. Such levels would only be expected to occur where vibration generating activities occur very close to structures, within several meters, and specific control measures would be in place in such instances.	
	Construction traffic	Construction traffic noise at NSRs	Yes - There is the potential for significant effects at NSRs close to construction traffic routes depending on the number of construction vehicle movements and existing traffic flows along proposed routes.	**Scoped in**
		Construction traffic vibration at NSRs	Vibration from traffic on the public highway is caused by irregularities in the road surface. Where the road surface is free from irregulates, such as potholes, significant vibration effects would not be expected, even at	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			relatively short distances. This is confirmed by the Design Manual for Roads and Bridges LA 111 Noise and Vibration (2020) (DRMB).	
Operation	converter station	Operational noise at NSRs	Yes - There are a number of potential sources of audible noise from converter stations. Each of these has its own characteristic frequency spectrum and pattern of occurrence due to the nature of the noise-generating mechanisms involved. The primary sources of noise are likely to be transformers, cooling equipment, alternating current (AC) and direct current (DC) switch gear, and AC filters and voltage smoothing equipment. Transformer noise is almost constant, with a hum occurring at exact harmonics of the supply frequency; 100Hz and 200Hz components are usually dominant. Transformers generally run continuously except for occasional maintenance and fault outages. Transformer coolers typically emit a broadband noise; however, their operation depends on temperature and loading.	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			No - Switchgear noise is generated, in the main, by the operation of circuit breakers, for which the noise emissions are 'impulsive' in character (i.e. of short duration). Switchgear operations would be very infrequent. Modern switchgear of the Sulphur Hexafluoride (SF6) type operates with a dull 'thud'. Switchgear would operate infrequently and is therefore proposed to be scoped out.	Scoped out
			Auxiliary plant may comprise standby diesel generators and air compressors to provide emergency back-up power to cooling plant. When present and operating, these may contribute to the broadband noise climate. They do not run continuously, and in any case, would be housed in a building or outdoor acoustic enclosure. Noise from such assets is therefore not considered significant, given its emergency function and as such is proposed to be scoped out.	
		Operational vibration at NSRs	No - There are no material sources of operational vibration proposed as part of the	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			Project. Some converter station plant would include rotating and moving parts, such as the fans of cooling equipment. However, levels of vibration generated by such plant is low and all plant, including transformers, would be expected to be mounted on suitable anti-vibration mounts. These are primarily to protect the plant itself from potential vibration impacts but also serve to attenuate vibration generated by the plant. Vibration would therefore not be expected to be perceptible even in very close proximity to plant.	
	Overhead lines	Operational noise at NSRs	No - Overhead lines can generate audible noise due to corona discharge from the conductors. A portion of the energy associated with the corona process is released as acoustic energy which radiates into the air as sound pressure waves. The level of noise generated is affected by a number of factors, including the type of conductor, conductor bundle and pylon design, weather conditions (typically more noise is generated during wet conditions), and contamination on the	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			conductors. The nearest NSR are approximately 500m away from the closest potential proposed overhead line. This is outside the study area for operational noise from overhead lines, defined as 200m from the proposed overhead line. There is no significant audible noise effect beyond this distance, even in the most sensitive of locations and as such is proposed to be scoped out. Additional information will be provided as part of the ES to justify scoping out.	
	Maintenance activities	Operational noise and vibration at NSRs	Yes - Maintenance of the underground cables, overhead lines and the converter station would be infrequent, localised, and would follow good practice measures for the reduction of noise and vibration where required. Noise and vibration effects from maintenance activities would be expected to be no worse, and typically less than, the effects of during the construction phase.	**Scoped in**
	Underground cables	Operational noise and vibration at NSRs	No - Underground cables are practically quiet. Operational noise from underground cables is scoped out of the ES	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	Operational road traffic	Operational road traffic noise and vibration at NSRs	No - The Kent Onshore Scheme is not likely to generate significant levels of additional road traffic during operation, with a low level of manned activity at the converter station site and occasional maintenance activities.	Scoped out
Maintenance	Decommissioning activities	Decommissioning noise and vibration at NSRs	Yes - Decommissioning of the underground cables, overhead lines and the converter station would follow good practice measures for the reduction of noise and vibration where required. Noise and vibration effects from decommissioning activities would be expected to be similar to the effects of during the construction phase.	**Scoped in**

Impact Pathways with Receptors (Step 2)

3.10.6.6 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the noise and vibration study areas. The potential impact pathways are described in Table 3.10.4.

Table 3.10.4: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be Scoped in/out
Disturbance from construction noise	Residential and non-residential NSR	Yes - There will be potential significant effects due to construction noise at NSRs within the study area. However, this depends on the nature and the duration of activities, the distance between the noise source and the NSR, and the good	**Scoped in**

Impact pathway	Receptors	Potential for significant effects	Proposed to be Scoped in/out
		practice measures employed to reduce noise.	
Disturbance from construction vibration	Residential and non-residential NSR	Yes - There will be potential significant effects on human receptors (i.e. nuisance) due to construction vibration at NSRs within the study area. The level of significance will depend on the nature and the duration of activities, the distance between the source of vibration and the NSR, and the good practice measures employed to reduce vibration. However, the duration of such activities would be expected to be relatively short at any one location, and, together with the implementation of good practice measures, significant effects from such works are not expected.	**Scoped in**
Structural damage from construction vibration	Structures	Yes - Construction vibration would not be expected to cause damage to buildings or structures unless very high levels of vibration are generated. Such levels would only be expected to occur where vibration generating activities occur very close to structures, within several meters, and specific control measures would be in place in such instances.	**Scoped in**
Disturbance from construction traffic noise	Residential and non-residential NSR	Yes - There is the potential for significant effects at NSRs close to construction traffic routes depending on the number of construction vehicle movements and existing traffic flows along proposed routes.	**Scoped in**
Disturbance from construction traffic vibration	Residential and non-residential NSR	No - Vibration from traffic on the public highway is caused by irregularities in the road surface. Where the road surface is free from irregulates, such as potholes, significant vibration effects would not be expected, even at relatively short distances. This is confirmed by the Design Manual for Roads and Bridges LA 111 Noise and Vibration (2020) (DRMB).	Scoped out
Disturbance from operational noise	Residential and non-	Yes - There are a number of potential sources of audible noise from converter stations. Each of these has its own	**Scoped in**

Impact pathway	Receptors	Potential for significant effects	Proposed to be Scoped in/out
from Proposed converter station	residential NSR	characteristic frequency spectrum and pattern of occurrence due to the nature of the noise-generating mechanisms involved. The primary sources of noise are likely to be transformers, cooling equipment, alternating current (AC) and direct current (DC) switch gear, and AC filters and voltage smoothing equipment. Transformer noise is almost constant, with a hum occurring at exact harmonics of the supply frequency; 100Hz and 200Hz components are usually dominant. Transformers generally run continuously except for occasional maintenance and fault outages. Transformer coolers typically emit a broadband noise; however, their operation depends on temperature and loading.	
		No - Switchgear noise is generated, in the main, by the operation of circuit breakers, for which the noise emissions are 'impulsive' in character (i.e. of short duration). Switchgear operations would be very infrequent. Modern switchgear of the Sulphur Hexafluoride (SF6) type operates with a dull 'thud'. Switchgear would operate infrequently and is therefore proposed to be scoped out. Auxiliary plant may comprise standby diesel generators and air compressors to provide emergency back-up power to cooling plant. When present and operating, these may contribute to the broadband noise climate. They do not run continuously, and in any case, would be housed in a building or outdoor acoustic enclosure. Noise from such assets is therefore not considered significant, given its emergency function and as such is proposed to be scoped out.	Scoped out
Disturbance from operational noise from overhead lines	Residential and non-residential NSR	No - Overhead lines can generate audible noise due to corona discharge from the conductors. A portion of the energy associated with the corona process is released as acoustic energy which	Scoped out

Impact pathway	Receptors	Potential for significant effects	Proposed to be Scoped in/out
		radiates into the air as sound pressure waves. The level of noise generated is affected by a number of factors, including the type of conductor, conductor bundle and pylon design, weather conditions (typically more noise is generated during wet conditions), and contamination on the conductors. The nearest NSR are approximately 500m away from the closest potential proposed overhead line. This is outside the study area for operational noise from overhead lines, defined as 200m from the proposed overhead line. There is no significant audible noise effect beyond this distance, even in the most sensitive of locations and as such is proposed to be scoped out. Additional information will be provided as part of the ES to justify scoping out.	
Disturbance from operational vibration	Residential and non-residential NSR	No - There are no material sources of operational vibration proposed as part of the Project. Some converter station plant would include rotating and moving parts, such as the fans of cooling equipment. However, levels of vibration generated by such plant is low and all plant, including transformers, would be expected to be mounted on suitable anti-vibration mounts. These are primarily to protect the plant itself from potential vibration impacts but also serve to attenuate vibration generated by the plant. Vibration would therefore not be expected to be perceptible even in very close proximity to plant.	Scoped out
Disturbance from operational traffic noise	Residential and non-residential NSR	No - The Kent Onshore Scheme is not likely to generate significant levels of additional road traffic during operation, with a low level of manned activity at the converter station site and occasional maintenance activities.	Scoped out
Disturbance from noise and vibration from	Residential and non-	Yes - Maintenance of the underground cables, overhead lines and the converter station would be infrequent, localised, and	**Scoped in**

Impact pathway	Receptors	Potential for significant effects	Proposed to be Scoped in/out
maintenance activities	residential NSR	would follow good practice measures for the reduction of noise and vibration where required. Noise and vibration effects from maintenance activities would be expected to be no worse, and typically less than, the effects of during the construction phase.	
Disturbance from decommissioning noise and vibration	Residential and non-residential NSR	Yes - Decommissioning of the underground cables, overhead lines and the converter station would follow good practice measures for the reduction of noise and vibration where required. Noise and vibration effects from decommissioning activities would be expected to be similar to the effects of during the construction phase.	**Scoped in**

3.10.7 Assessment Methodology

3.10.7.1 The assessment methodology for the EIA is outlined in **Part 1, Chapter 5 EIA Approach and Method**. This section provides on overview of the methodologies proposed to be used in the assessment of noise and vibration from the Kent Onshore Scheme.

Proposed Data Sources

3.10.7.2 The following data sources would be used in the noise and vibration assessment:

- AddressBase Plus data;
- Noise survey data;
- Project design information;
- Construction programme, schedule, and plant data (if available);
- Baseline and construction traffic data;
- Topography data;
- Substation plant noise and/or specification data;
- Converter station plant and/or specification data (if available).

3.10.7.3 Where detailed data is not available at the time of the ES, suitable assumptions will be made and documented. In terms of construction data, information would be based on the methodologies used in similar projects. With regards to the converter station, it is unlikely that a full design will be available at the time of the ES. As such, the ES will

serve to determine noise limits for the proposed converter station via the noise survey data. It is anticipated that further detailed assessment of operational noise from the proposed converter station, once the design has been finalised, detailing specific mitigation measures, would be secured via DCO Requirement to meet the determined noise criteria.

Ascribing Sensitivity

3.10.7.4 NSRs are determined partly on property type, for example residential properties are of a higher sensitivity than factories and offices.

3.10.7.5 Although all residential NSRs are sensitive to noise and vibration, there are also cases where the sensitivity of an NSR may depend on the pre-existing noise climate. For example, NSRs falling with NIAs (existing high noise areas) may be more sensitive to increases in noise than those outside NIAs. Consideration will be given to such instances as part of the assessment of construction impacts.

3.10.7.6 The sensitivity of residential NSRs is factored into the assessment criteria for noise and vibration impacts through the various guidance documents. The significance of effects at residential NSR is therefore directly related to magnitude of effect. However, additional consideration of sensitivity may be required in certain cases for non-residential NSRs. The criteria used to determine the value and sensitivity of non-residential NSRs specific to noise and vibration are set out in Table 3.10.5. These values are based on standard practice.

Table 3.10.5: Criteria for determining value/sensitivity (Non-Residential NSRs)

Sensitivity/value	Criteria
Very High	Schools and education premises, hospitals, clinics.
High	Care homes, places of worship, community centres, libraries.
Medium	Areas primarily used for leisure activities including PRoWs, sports facilities, and sites of historic or cultural importance, camp sites, hotels, gardens, parks.
Low	Offices, cafes/bars with external areas.
Negligible	Industrial or retail premises

Ascribing Impact Magnitude

Construction noise

3.10.7.7 Construction noise impacts will be assessed in accordance with BS 5228-1 and will take account of the guidance of DMRB.

3.10.7.8 Construction noise levels will be calculated at NSRs within the study area in accordance with the methodology described in Annex F of BS 5228-1. The predicted construction noise levels at NSRs will be compared against applicable noise thresholds

as detailed in Section E.3.2 of BS 5228-1 (the 'ABC' method) together with temporal criteria as detailed in DMRB. Given the rural area of the majority of the Kent Onshore Scheme area, the lower threshold values (Category 'A') would be applied as a worst-case assessment to all residential NSR in lieu of baseline noise monitoring for construction impacts.

3.10.7.9 The lowest observed adverse effect level (LOAEL) and the significant adverse effect level (SOAEL) will be established in accordance with Table 3.10.6.

Table 3.10.6: Criteria for determining value/sensitivity (Non-Residential NSRs)

Time period	LOAEL	SOAEL
Weekdays 7:00am to 7:00pm, and Saturdays 7:00am to 1:00pm	50dB $L_{Aeq,T}$	65dB $L_{Aeq,T}$
Weekdays 7:00pm to 11:00pm, Saturdays 1:00pm to 11:00pm, and Sundays 7:00am to 11:00pm	50dB $L_{Aeq,T}$	55dB $L_{Aeq,T}$
Night-time 11:00pm to 7:00am	40dB $L_{Aeq,T}$	45dB $L_{Aeq,T}$

Construction vibration

3.10.7.10 Construction vibration levels will be calculated and assessed in accordance with the methodologies described in BS 5228-2 and will take account of the guidance of DMRB. No vibration baseline study is proposed.

3.10.7.11 Vibration levels from construction activities will be calculated in accordance with the methodology described in Annex E of BS 5228-2. Predicted vibration levels will be compared against applicable guidance values for both potential annoyance to human receptors together with temporal criteria detailed in DMRB.

3.10.7.12 Construction vibration effect threshold levels, including applicable LOAEL and SOAEL, are shown Table 3.10.7.

Table 3.10.7: Construction vibration effect magnitudes at residential receptors

Magnitude	Vibration Level mm/s PPV*	Effect
Negligible	0.14	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration
Small	0.3	Vibration might be just perceptible in residential environments (LOAEL)

Medium	1.0	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents (SOAEL)
Large	10	Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments
	* Peak Particle Velocity	

Construction traffic noise

3.10.7.13 Noise from construction traffic on the public highway will be calculated in accordance with CRTN and assessed against the criteria detailed in DMRB. The BNL from roads within the construction traffic study area will be calculated in accordance with CRTN for the do-nothing and do-something scenarios in the construction year. The calculated BNL values will be compared to determine the magnitude of the impact as detailed in Table 3.10.8.

Table 3.10.8: Magnitude of impact from construction traffic at residential receptors

Magnitude	Increase in BNL of closest public road used for construction traffic (dB)
Large	Greater than or equal to 5.0
Medium	Greater than or equal to 3.0 and less than 5.0
Small	Greater than or equal to 1.0 and less than 3.0
Negligible	Less than 1.0

Operational converter station noise

3.10.7.14 The assessment of operational noise will follow the methodology stated in BS 4142:2014+A1:2019 ‘Methods for rating and assessing industrial and commercial sound’ (BS 4142)[206].

3.10.7.15 Noise limits will be determined based on background sound level surveys at locations representative of nearby NSR. Surveys will be conducted in accordance with the requirements of BS 4142 and in general accordance with the methodology detailed in BS 7445-1:2003 ‘Description and measurement of environmental noise. Guide to quantities and procedures’ (BS 7445)[207].

3.10.7.16 BS 4142 assesses the potential significance of effects by comparing the 'rating sound level' of an industrial source to the typically representative ‘background sound level’ at the location of nearby receptors. The sound rating is a combination of the specific

[206] British Standards Institute (2019). BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound. BSI

[207] British Standards Institute (2003). BS 7445-1:2003 Description and measurement of environmental noise. Guide to quantities and procedures. BSI

sound level at the NSR and any applicable penalties that may be required for acoustic character, such as tonality or impulsivity.

3.10.7.17 The specific sound level at nearby NSR will be predicted by incorporating the available converter station design information in a computer noise model, based on the methodology detailed in from ISO 9613.

3.10.7.18 The predicted sound rating levels will be compared against the relevant noise limits determined from the baseline sound level survey data. The lower the rating level is relative to the measured background sound level, the less likely it is that there will be an adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

3.10.7.19 When considering context, BS 4142 references BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings' (BS 8233)[208] as providing context where background and rating noise levels are low. BS 8233 recommends internal sound levels in habitable spaces such as living rooms and bedrooms.

3.10.7.20 As noted above, it is anticipated that further detailed assessment of operational noise from the proposed converter station, once the design has been finalised, detailing specific mitigation measures would be secured via a condition attached to the outline planning permission, if granted. The assessment will therefore focus on setting of noise limits such that adverse impacts are avoided. It is standard practice to set the limit for operational noise such that the sound rating level does not exceed the background sound level, such that the impact is 'low'. The magnitude impacts for operational noise are detailed in Table 3.10.9.

Table 3.10.9: Magnitude of impact from operational converter station noise

Magnitude	Comparison of sound rating level and background sound level
Large	Rating level > 10dB above the background sound level
Medium	Rating level between 5 and 9 dB above background sound level
Small	Rating level between 0 and 4 dB above background sound level
Negligible	Rating level below background sound level

Maintenance noise and vibration

3.10.7.21 Noise and vibration effects from maintenance activities during operation will be assessed as per construction noise and vibration impacts, as described above.

Decommissioning noise and vibration

3.10.7.22 Noise and vibration effects from decommissioning activities during operation will be assessed as per construction noise and vibration impacts, as described above.

[208] British Standards Institute (2014). BS 8233:2014 Guidance on sound insulation and noise reduction for buildings. BSI

Ascribing Significance of Effect

Construction, maintenance, and decommissioning noise and vibration – residential receptors

3.10.7.23 Noise and vibration from construction, maintenance, and decommissioning activities, and construction traffic noise will constitute a significant adverse effect where it is determined that a Large or Medium magnitude of impact will occur at a residential NSR for a duration exceeding:

- 10 or more days or nights in any 15 consecutive days or nights; or
- a total number of days exceeding 40 in any six consecutive months.

Operational noise and vibration – residential receptors

3.10.7.24 Operational noise impacts will constitute a significant adverse effect where it is determined that a major magnitude of impact will occur at residential NSRs.

Significance of effect at non-residential NSR

3.10.7.25 With regards to non-residential receptors, the significance of effect will be determined via the matrix shown in Table 3.10.10, taking account of the sensitivity of the NSR and the impact magnitude. For construction impacts, the duration of impact will also be taken into account, as above.

Table 3.10.10: Significance matrix at Non-Residential NSR

		NSR sensitivity				
		Very High	**High**	**Medium**	**Low**	**Negligible**
Impact magnitude	**Large**	Major	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Moderate	Minor	Negligible
	Small	Moderate	Moderate	Minor	Negligible	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible

3.10.7.26 Major and moderate effects are typically considered to be significant, whilst minor and negligible effects are considered to be not significant. However, professional judgement will also be applied in reaching conclusions as to the significance of effects.

3.10.8 Conclusion

3.10.8.1 This chapter has considered the scoping of noise and vibration impacts during the construction, operation, and decommissioning of the Kent Onshore Scheme and describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential

significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

Proposed Scope of the Assessment

3.10.8.2 A summary of the proposed scope of the assessment is provided in Table 3.10.11.

Table 3.10.11: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
Nearby NSRs	Construction noise	Construction	**Scoped in**
Nearby NSRs and structures	Construction vibration	Construction	**Scoped in**
Nearby NSRs	Construction traffic noise	Construction	**Scoped in**
Nearby NSRs	Operational converter station noise	Operation	**Scoped in**
Nearby NSRs	Operational overhead line noise	Operation	Scoped out
Nearby NSRs	Operational vibration	Operation	Scoped out
Nearby NSRs	Operational road traffic	Operation	Scoped out
Nearby NSRs	Operational maintenance noise and vibration	Operation	**Scoped in**
Nearby NSRs	Decommissioning noise and vibration	Decommissioning	**Scoped in**

3.11 Socio-economics, Recreation & Tourism

3.11.1 Introduction

3.11.1.1 This chapter presents how the socio-economics, recreation and tourism assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in Part 1, Chapter 4, Description of the Project). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

3.11.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary, hereafter referred to as the Kent Scoping Boundary, is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.11.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.11.1.4 This chapter is supported by the following figure:

- **Figure 3.11.1 Socio-economic, Recreation and Tourism Study Areas and Receptors**.

3.11.1.5 The assessment will consider potentially significant socio-economic, recreation and tourism effects on the following receptors:

- Employment (including training and apprenticeship opportunities);
- Users of recreational routes and Public Rights of Way (PRoW);
- Local communities that could be affected by community severance; and
- Residential properties, local businesses, visitor attractions, community facilities, open space and development land.

3.11.2 Regulatory and Planning Context

3.11.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on socio-economics, recreation and

tourism associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

3.11.2.2 Detailed below is a summary of planning policy of relevance to socio-economics, recreation and tourism. It includes relevant paragraphs of the Overarching National Policy Statement for Energy (EN1)[209]; the National Policy Statement for Electricity Networks Infrastructure (EN-5)[210]; the National Planning Policy Framework (NPPF)[211]; and National Planning Practice Guidance (NPPG)[212], as well as relevant local planning policy.

Legislation

3.11.2.3 No legislation of relevance to socio-economic, recreation and tourism effects.

Planning Policy

National planning policy

National Policy Statement for Energy (EN-1)

3.11.2.4 Paragraphs 5.12.2 – 5.12.5 of the Overarching National Policy Statement for Energy (EN-1)[209] details requirements for NSIP applications to consider all relevant socio-economic impacts, and to highlight that socio-economic impacts may be linked to other impacts (for example links between visual impacts and tourism and local businesses). Socio-economic impacts may include:

- "the creation of jobs and training opportunities;
- the provision of additional local services;
- effects on tourism;
- the impact of a changing influx of workers during the different construction, operation and decommissioning phases…There could also be effects on social cohesion depending on how populations and service provision change as a result of the development; and
- cumulative effects."

National Policy Statement for Energy (EN-5)

3.11.2.5 The National Policy Statement for Electricity Networks Infrastructure (EN-5)[210] supplements EN-1, with additional guidance specific to the development of electricity

[209] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

[210] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf

[211] Department for Levelling Up, Housing & Communities, (2021). National Planning Policy Framework. London. [online] Available at: National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk) [Accessed 16 June 2022].

[212] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2021). Planning Practice Guidance. [online] Available at: https://www.gov.uk/government/collections/planning-practice-guidance

networks infrastructure. This document makes no reference to socio-economics, recreation or tourism.

National planning policy framework

3.11.2.6 The National Planning Policy Framework (NPPF)[211] sets out various policies with respect to the social and economic objectives of the planning system.

- Paragraph 8 outlines the economic objective of the planning system 'to help build a strong, responsive, and competitive economy by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity'.
- Paragraph 100 states 'decisions should protect and enhance public rights of way'.

National planning practice guidance

3.11.2.7 The National Planning Practice Guidance (NPPG)[212] provides guidance on which includes planning and the economy and to consider the existing and potential future needs of the population in terms of economic development, jobs and employment opportunities; and on open space, sports and recreation facilities, public rights of way and local green space. The contents of the NPPG are not materially relevant to the assessment of socio-economic, recreation and tourism effects as the content does not influence the undertaking of the assessment of effects.

Local planning policy

3.11.2.8 Local planning policy and guidance of relevance to the socio-economic, recreation and tourism assessment includes:

- South East Local Enterprise Partnership (SELEP) Economic Renewal Strategy, 2021[213];
- SELEP, Coast to Capital LEP, Enterprise M3 LEP, Local Energy Strategy[214];
- Kent County Council (KCC), Kent and Medway Growth and Infrastructure Framework (GIF), 2018 Update[215];
- KCC A 2050 Picture of Kent and Medway 2018[216];
- KCC Rights of Way Improvement Plan 2018-2028[217];

[213] South East Local Enterprise Partnership (2021). Economic Recovery and Renewal Strategy. [online] Available at: https://www.southeastlep.com/our-strategy/economic-recovery-and-renewal-strategy/

[214] Coast to Capital, Enterprise M3, and South East Local Enterprise Partnerships (2019). Local Energy Strategy. [online] Available at: https://www.southeastlep.com/app/uploads/2019/03/Local-Energy-Strategy-FINAL.pdf

[215] Kent County Council (2018). Kent and Medway Growth and Infrastructure Framework (2018 Update). [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0018/80145/GIF-Framework-full-document.pdf

[216] Kent County Council (2018). A 2050 Picture of Kent and Medway. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0009/79920/GIF-2050-Picture.pdf

[217] Kent County Council (2018). Rights of way Improvement Plan. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0005/90491/Rights-of-Way-Improvement-Plan-2018-2028.pdf

- Dover District Council Core Strategy 2010[218], including:
  - ‘Policy CP 2 – Provision for Jobs and Homes between 2006-2026’
  - ‘Policy CP 7 – Green Infrastructure Network’
  - ‘Policy DM 25 – Open Space’;
- Draft Dover New District Local Plan 2022 (Regulation 18 Draft)[219], including:
  - ‘Strategic Policy 8 – Economic Growth’
  - ‘Strategic Policy 9 – Employment Allocations’ (including draft designation - Sandwich Industrial Estate strategic employment area);
  - ‘DM Policy 18 New Employment Development’;
- Dover District Economic Growth Strategy, 2021[220];
- Thanet Local Plan, 2020[221], including:
  - ‘SPO4 – Economic Growth’
  - ‘SP13 – Housing Provision’
  - ‘SP38 – Healthy and Inclusive Communities’;
  - ‘HO14 – Land south of Cottington Road’;
  - ‘HO15 – Land north of Cottington Road’; and
  - ‘SP46 – New Railway Station’.
- Economic Growth Strategy for Thanet, 2016; and
- Ash Neighbourhood Development Plan 2021, including:
  - Objective 1: Environmental (landscape, open spaces, biodiversity and climate change);
  - Objective 2: Housing, requirements, design, built environment, site allocations, sustainability and climate change resilience;
  - Objective 3: Leisure, Well-being, Education and Healthcare; and
  - Objective 4: Employment in the local economy.

[218] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf [Accessed 13/07/2022].

[219] Land Use Consultants Ltd. On behalf of Dover District Council (2020). Draft Dover District Local Plan (Reg 18) Habitats Regulations. [online] Available at: https://www.doverdistrictlocalplan.co.uk/uploads/pdfs/habitat-regulation-assessment-of-the-draft-local-plan-2020.pdf

[220] Dover District Council (2021). Dover District Economic Growth Strategy. [online] Available at: https://moderngov.dover.gov.uk/documents/s44639/Economic%20Growth%20Strategy%20-%20Appendix%201.pdf#:~:text=This%20Economic%20Growth%20Strategy%20sets%20out%20Dover%20District,local%20communities%20to%20prosper%20in%20a%20fast-changing%20world.

[221] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

3.11.3 Study Area

3.11.3.1 The study area for socio-economic, recreation and tourism varies depending on the likely spatial extent of the effect under consideration.

3.11.3.2 This chapter of the Scoping Report sets out potential effects with respect to the Kent Scoping Boundary (as illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**).

3.11.3.3 Effects on employment will be considered within the local authorities of Dover and Thanet, the two local authorities that the Kent Scoping Boundary falls within.

3.11.3.4 Effects on users of recreational routes and PRoW will consider impacts on routes and PRoW likely to be affected by alterations in their use. This will include all routes located within 500 m of the Kent Scoping Boundary, this study area is illustrated on **Figure 3.11.1 Socio-economic, recreation and Tourism Study Areas and Receptors**.

3.11.3.5 The study area for local communities that could be affected by community severance will consider communities that may potentially be directly and indirectly affected by the Kent Onshore Scheme. These will include communities directly connected by recreational routes and PRoW. The communities that could be impacted are within 1km of the Kent Scoping Boundary and which is illustrated on **Figure 3.11.1 Socio-economic, Recreation and Tourism Study Areas and Receptors.**

3.11.3.6 The study area for residential properties, local businesses, visitor attractions relevant for tourism, community facilities, open space and development land will consider receptors that could be directly or indirectly affected by the Kent Onshore Scheme. The receptors that could be impacted are within 500 m of the Kent Scoping Boundary as illustrated on **Figure 3.11.1 Socio-economic, Recreation and Tourism Study Areas and Receptors.** Potential significant effects included within the Landscape and Visual chapter will also be reviewed and receptors beyond 500m will be considered should significant amenity impacts be identified.

3.11.4 Baseline Conditions

Data Sources

3.11.4.1 The socio-economic, recreation and tourism assessment baseline environment described in this section has been informed by the following data sources:

- Office of National Statistics (ONS), (2021), Mid-Year Population Estimates[222];
- ONS, (2021), Claimant count by sex and age (February 2022)[223];

[222] Office for National Statistics (2021). Population estimates for the UK, England and Wales, Scotland and Northern Ireland: mid-2020. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/latest

[223] ON Office for National Statistics (2022). CLA02: Claimant Count by age group (Experimental Statistics). [online] Available at: https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/outofworkbenefits/datasets/cla02claimantcountbyagegroup

- ONS, (2020), Annual Population Survey (January 2020 to December 2020)[224]; and
- Ministry of Housing, Community and Local Government (MHCLG), (2020), English Indices of Deprivation (2019)[225].

3.11.4.2 The baseline for recreational routes and PRoW is based on:

- KCC PRoW map[226]; and
- Sustrans National Cycle Network route map[227].

3.11.4.3 The baseline for private assets is based on AECOM desk research with reference to:

- Dover District Local Plan Adopted Policies Map[228]; and
- Thanet District Local Plan Policies Map[229].

3.11.4.4 The baseline for development land is based on:

- Dover District Land Allocations Local Plan[230];
- Thanet District Local Plan[231]; and
- Planning applications portals for Dover and Thanet Districts.

Baseline

3.11.4.5 The Kent Scoping Boundary straddles the local authorities of Dover District (hereafter 'Dover') and Thanet District (hereafter 'Thanet'). Dover had an estimated population of approximately 118,500 and Thanet an estimated population of 141,500 in 2020.

3.11.4.6 The Kent Scoping Boundary comprises predominantly agricultural land. A number of small towns and villages lie outside of, but close to the Kent Scoping Boundary of the. These include: Minster, approximately 250m to the north west, Cliffsend adjacent to the north east of the Kent Scoping Boundary. The larger town of Ramsgate lies 2km away to the northeast. Port Richborough business park and The Discovery Park business park are approximately 600m and 3km to the south respectively.

3.11.4.7 Approximately 7.5% and 21.4% of Lower Layer Super Output Areas (LSOAs) located in Dover and Thanet respectively are ranked within the most deprived decile of LSOAs

[224] Office for National Statistics (2021). Annual Population Survey (January 2020 to December 2020). [online] Available at: https://www.nomisweb.co.uk/datasets/apsnew

[225] Ministry of Housing, Communities & Local Government (2019). English Indices of Deprivation 2019. [online] Available at: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019

[226] Kent County Council (2017). Public Rights of Way Map. [online] Available at: https://webapps.kent.gov.uk/countrysideaccesscams/standardmap.aspx

[227] Ordnance Survey Maps (2022). Map of the National Cycle Network. [online] Available at: https://explore.osmaps.com/?lat=52.229585&lon=1.342731&style=Standard&zoom=7.5461&overlays=os-ncn-layer&type=2d&placesCategory= [Accessed April 2022].

[228] Dover District Council (2010). Adopted Policies Map. [online] Available at: https://maps.dover.gov.uk/webapps/Adopted_Policies_Map/

[229] Thanet District Council (2020). Thanet Local Plan Map. [online] Available at: https://thanet.opus4.co.uk/planning/localplan/maps/thanetlocalplan#

[230] Dover District Council (2015). Land Allocations Local Plan. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Land-Allocations-Local-Plan.pdf

[231] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

in England. Out of the 317 local authorities in England, Dover and Thanet ranked as the 107th and 34th most deprived respectively.

Employment and labour market

3.11.4.8 In 2020, the proportion of the population that was of working-age (16-64 years) in Dover (58.7%) and Thanet (57.1%) was slightly lower than the proportion for the South East region (61.1%) and England and Wales (62.2%).

3.11.4.9 In 2021, the economic activity rate in Dover (79.2%) was lower than the South East average (81.1%), but slightly higher than England and Wales (78.9%). The economic activity rate in Thanet of 69.9% was lower than both the regional and national averages.

3.11.4.10 The unemployment rate in 2021 in Dover (6.4%) and Thanet (6.6%) were higher than the South East average (4.2%) and England and Wales (5.0%). The claimant count (as a proportion of residents aged 16-64 years), recorded in February 2022, was 4.5% in Dover and 7.2% in Thanet. The count in Dover is broadly in line with England and Wales (4.4%) but higher than the South East average (3.4%). The claimant count in Thanet is higher than both these comparative averages.

3.11.4.11 In 2020, the proportion of the population that held a higher level NVQ Level 4+ qualification in Dover (39.4%) and Thanet (26.5%) was lower than the proportion across the South East (45.1%) and England and Wales (42.6%). The proportion of the population with no formal qualifications in Dover (4.3%) was lower than the South East (4.8%) and England and Wales (6.3%). By contrast, the proportion of the population with no formal qualifications in Thanet (9.2%) was higher than both the regional and national comparative geographies.

Recreational routes and PRoW

3.11.4.12 The study area for recreational routes and PROW is intersected by a number of recreational routes and PRoW, including National Cycle Network Route 15 (NCR 15), the England Coast Path, Viking Coastal Trail, the Saxon Shore Way, the Contra Trail and a number of footpaths and bridleways.

Residential properties

3.11.4.13 Residential areas in the communities of Cliffs End and Minster are within the study area to the north-east and north-west, respectively. The remainder of the study area for residential properties comprises a sparsely populated rural area and contains some dispersed private properties and farm buildings.

Business premises

3.11.4.14 There are a large number of businesses in Cliffs End within the study area. There are also five further business located within the study area in Minster including a garage, a private tutor, a farm and two holiday rental properties. These is also a farm located in the small settlement of Sevenscore to the north of the Kent Scoping Boundary. St Augustine's Golf Course, Stonelees Golf Club and Pegwell Bay Country Park are also within the study area as illustrated on **Figure 3.11.1 Kent Onshore Scheme Socio-economic, Recreation and Tourism Study Areas and Receptors.**

Visitor attractions

3.11.4.15 St Augustine's Cross Memorial site lies within the study area, to the northeast.

Community facilities

3.11.4.16 There are two community facilities located with the study area. Great Oaks Small School is located in the south of the Kent Scoping Boundary, while Cliffsend Village Hall is located to the northeast of the Kent Scoping Boundary, within the study area as illustrated on **Figure 3.11.1 Kent Onshore Scheme Socio-economic, Recreation and Tourism Study Areas and Receptors.**

Open space

3.11.4.17 Pegwell Bay Country Park falls within the study area.

Development land

3.11.4.18 Within the north-east of study area, adjacent to Cliffsend, there are two residential site allocations in the Thanet Local Plan. The allocations are for: up to 40 dwellings on land north of Cottington Road (Policy HO14); up to 23 dwellings on the land south of Cottington Road (Policy HO15). To the south of the Kent Scoping Boundary, within the study area, a Planning Application F/TH/20/0648 to construct 20 holiday homes at Stonelees Golf Course was submitted in May 2020. The application is awaiting a planning decision as illustrated on **Figure 3.11.1 Kent Onshore Scheme Socio-economic, Recreation and Tourism Study Areas and Receptors**.

Future Baseline

3.11.4.19 ONS population projections232 show over the 10-year period from 2022 to 2032 the population across Dover and Thanet is expected to grow by 8.5% and 4.5% respectively (to approximately 132,600 people in Dover and 151,400 in Thanet). The increase in both local authorities is greater than the projected rate of increase in the South East (3.5%) and across England as a whole (4.0%) over the same period.

3.11.4.20 The future baseline for residential properties, businesses, community facilities, open spaces, visitor attractions and development land over the medium-term is highly uncertain. Due to this uncertainty, for the purposes of this assessment, it is assumed the future baseline for the Kent Onshore Scheme study area would be unchanged from the current baseline to the completion of the Kent Onshore Scheme, except where new development is expected to be delivered in line with allocated and planned development sites as set out in section 3.

[232] Office for National Statistics (2018). Population Projections. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections

3.11.5 Embedded and Control & Management Measures

Embedded Measures

3.11.5.1 Mitigation measures will be included in the design where practicable to help avoid, prevent or reduce effects on the environment. The Kent Onshore Scheme has been routed and sited to avoid residential areas where possible.

Control and Management Measures

3.11.5.2 An outline Code of Construction Practice (CoCP) is provided **in Appendix 1.4.A Outline Code of Construction Practice.** Measures relevant to the control and management of impacts that could affect the socio-economics, recreation and tourism assessment are:

- GG03: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP) and a Construction Traffic Management Plan (CTMP) will be produced prior to construction;
- GG05: A suitably experienced Environmental Manager will be appointed for the duration of the construction phase. In addition, a qualified and experienced Environmental Clerk of Works will be available during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the CEMP. The Environmental Clerk of Works will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required good practice and mitigation measures;
- GG08: Land used temporarily will be reinstated where practicable to its pre-construction condition and use. Hedgerows, fences and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, with landowner agreement; and
- GG26: Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use to raise any concerns or complaints about the project. All construction-related complaints will be logged by the contractor(s) in a complaints register, together with a record of the responses given and actions taken.

3.11.6 Potential for Significant Effects

3.11.6.1 The socio-economics, recreation and tourism assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.11.6.2 The proposed scope of the socio-economics, recreation and tourism assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.11.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.11.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- generation of construction-related employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain;
- generation of Gross value added (GVA);
- potential temporary closure or diversions to PRoW and recreational routes;
- potential temporary severance of access to community facilities for residents leading to deterioration of social cohesion and affecting mental health; and
- potential temporary adverse land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land.

Sources of operational impacts

- potential permanent closure or diversions to PRoW and recreational routes;
- potential permanent severance of access to community facilities for residents leading to deterioration of social cohesion and affecting mental health;
- potential permanent adverse land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land;
- potential creation of permanent operational phase employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain; and
- potential generation of Gross value added (GVA) in Dover and Thanet during the operational phase.

Sources of maintenance impacts

- The sources of maintenance impacts are assessed to be the same as those listed as sources of construction impacts.

Sources of decommissioning impacts

- The sources of decommissioning impacts are assessed to be the same as those listed as sources of construction impacts.

Potential impacts

3.11.6.5 Table 3.11.1 below identifies the potential impacts that could result from the sources identified above.

Table 3.11.1:Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance and decommissioning	Generation of construction-related employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain.	Generation of construction-related employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain in Dover and Thanet.	Yes - The Kent Onshore Scheme will generate direct and indirect temporary employment, training and apprenticeship opportunities both on Site and in the supply chain during the construction, maintenance and decommissioning phases.	**Scoped in**
	Generation of Gross value added (GVA)	Generation of Gross value added (GVA) in Dover and Thanet.	Yes - The employment and wider economic activity created during the construction maintenance and decommissioning phases will generate GVA within the local Dover and Thanet economies.	**Scoped in**
	Potential temporary closure or diversions to PRoW and recreational routes.	Potential temporary closure or diversions to PRoW and recreational routes within 500m of the Kent Scoping Boundary causing disruption to users.	Yes - Disruption to PRoW or other recreational routes during the construction maintenance and decommissioning phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	Potential temporary severance of access to community facilities	Potential temporary severance of access to community facilities within 1km of the Kent Scoping Boundary for local residents, leading to deterioration of social cohesion and affecting mental health.	Yes - As above, disruption to PRoW or other recreational routes would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**
	Potential temporary land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land.	Potential temporary land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land within 500m of the Kent Scoping Boundary.	Yes - A number of residential properties, local businesses, visitor attractions, community facilities, open spaces and development land allocations have been identified within the study area.	**Scoped in**
Operation	Potential permanent closure or diversions to PRoW and recreational routes.	Potential permanent closure or diversions to PRoW and recreational routes within 500 m of the Kent Scoping Boundary.	No - Disruption to PRoW or other recreational routes during the operation phase would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	Scoped in
	Potential permanent severance of access to	Potential permanent severance of access to community facilities within 1km of the	Yes - As above, disruption to PRoW or other recreational routes would be avoided as far as possible. Where	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	community facilities.	Kent Scoping Boundary for local residents, leading to deterioration of social cohesion and affecting mental health.	necessary, suitable diversions would be agreed with KCC.	
	Potential permanent adverse land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land.	Potential permanent land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land within 500m of the Kent Scoping Boundary.	Yes - A number of residential properties, local businesses, visitor attractions, community facilities, open spaces and development land allocations have been identified within the study area.	**Scoped in**
	Creation of permanent operational phase employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain.	Creation of permanent operational phase employment, training and apprenticeship opportunities, both directly at work sites and indirectly in Dover and Thanet.	The scale of operational employment generated is likely to be very limited.	Scoped out
	Generation of Gross value added (GVA) during the operational phase.	Generation of Gross value added (GVA) in Dover and Thanet during the operational phase.	No - The scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small.	Scoped out

Impact Pathways with Receptors (Step 2)

3.11.6.6 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the Kent Onshore Scheme study area.

3.11.6.7 Table 3.11.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme.**

Table 3.11.2: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Generation of employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain in Dover and Thanet.	Employment levels within Dover and Thanet.	Yes - The Kent Onshore Scheme will generate direct and indirect temporary employment, training and apprenticeship opportunities both on Site and in the supply chain during the construction, maintenance and decommissioning phases. No - The scale of operational employment generated is likely to be very limited.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Generation of Gross value added (GVA) in Dover and Thanet.	Local economy within Dover and Thanet.	Yes - The employment and wider economic activity created during the construction maintenance and decommissioning phases will generate GVA within the local Dover and Thanet economies. No - The scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Potential temporary or permanent closure or diversions to PRoW and recreational routes within 500m	Users of PRoW and recreational routes within 500m of Kent Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Proposed to be scoped in for all project phases**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
of the Kent Scoping Boundary.			
Potential temporary or permanent severance of access to community facilities within 1km of the Kent Scoping Boundary.	Local communities within 1km of the Kent Scoping Boundary including Cliffsend and Minster.	Yes - As above, disruption to PRoW or other recreational routes would be avoided as far as possible at all phases. Where necessary, suitable diversions would be agreed with KCC.	**Proposed to be scoped in for all project phases**
Potential temporary or permanent adverse land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land within 500m of the Kent Scoping Boundary.	Residential properties within 500m of the Kent Scoping Boundary including those in Cliffsend, Minster and dispersed individual properties.	Yes - A number of residential properties, local businesses, visitor attractions, community facilities, open spaces and development land allocations have been identified within the study area.	**Proposed to be scoped in for all project phases**
	Businesses within 500m of the Kent Scoping Boundary including those located in Cliffsend and Minster as well as St Augustine Golf Club and Stonelees Golf Centre.		
	Visitor attractions within 500m of the Kent Scoping Boundary including St Augustine's Memorial Cross.		
	Community facilities within 500m of the Kent Scoping Boundary including, Great		

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Oaks Small School and Cliffsend Village Hall.		
	Development land within 500m of the Kent Scoping Boundary including, Land North of Cottington Road, Land South of Cottington Road and planning application F/TH/20/0648.		
	Open space within 500m of the Kent Scoping Boundary including Pegwell Bay Country Park.		

3.11.7 Proposed Assessment Methodology

3.11.7.1 The assessment methodology for the EIA is outlined in **Volume 1 Chapter 5 EIA Approach and Method.**

Proposed Data Sources

3.11.7.2 A desk-based baseline assessment will be undertaken using a rage of sources to provide a description of the socio-economic conditions within the socio -economic and land use study areas set out above. This will be done using established statistical sources, and in consultation with stakeholders, where relevant. Relevant policy will be reviewed at the local regional and national levels to identify the key issues of relevance to the Project.

Proposed Assessment Methodology

3.11.7.3 An assessment of potential impacts will be undertaken to determine the effect of the Kent Onshore Scheme on the baseline socio-economic conditions. The methodology for assessing socio-economic impacts will follow standard EIA guidance and will entail:

- assessment of the likely scale, permanence and significance of effects associated with socio-economics, recreation & tourism receptors; and

- an assessment of the potential cumulative impacts with other projects within the surrounding area.

3.11.7.4 The assessment of potential socio-economic impacts will use policy thresholds and expert judgment to assess the scale and nature of the impacts of the Project against baseline conditions. For socio-economics, recreation and tourism there is no accepted definition of what constitutes a significant (or not significant) socio-economic effect. It is however recognised that effects are categorised based upon the relationship between the scale (or magnitude) of effect and the sensitivity (or value) of the affected resource or receptor.

3.11.7.5 As such, the socio-economics, recreation and tourism effects will be assessed on the basis of:

- *Consideration of sensitivity to impact*: specific values in terms of sensitivity are not attributed to socio-economic resources/receptors due to their diverse nature and scale, however the assessment takes account of the qualitative (rather than quantitative) 'sensitivity' of each receptor and, in particular, their ability to respond to change based on recent rates of change and turnover (if appropriate); and
- *Scale of impact*: this entails consideration of the size of the impact on people or business in the context of the area in which effects will be experienced.

3.11.7.6 The assessment aims to be objective and quantify effects as far as possible. However, some effects can only be evaluated on a qualitative basis. Effects are proposed to be defined as follows:

- *Beneficial classifications of effect*: indicate an advantageous or beneficial effect on an area, which may be minor, moderate, or major in effect;
- *Negligible classifications of effect*: indicate imperceptible effects on an area;
- *Adverse classifications of effect*: indicate a disadvantageous or adverse effect on an area, which may be minor, moderate or major in effect; and
- *No effect classifications*: indicate that there are no effects on an area.

3.11.7.7 Based on consideration of the above, where an effect is assessed as being beneficial or adverse, the scale of the effect are proposed to be assigned using the below criteria:

- *Minor*: a small number of receptors are beneficially or adversely affected. The effect will make a small measurable positive or negative difference on receptors at the relevant area(s) of effect;
- *Moderate*: a noticeable number of receptors are beneficially or adversely affected. The effect will make a measurable positive or negative difference on receptors at the relevant area(s) of effect; and
- *Major*: all or a large number of receptors are beneficially or adversely affected. The effect will make a measurable positive or negative difference on receptors at the relevant area(s) of effect.

3.11.7.8 Those effects which are found to be moderate or major are considered to be 'significant' and those which are minor or negligible are 'not significant'.

3.11.7.9 Duration of impact will also be considered, with more weight given to reversible long-term or permanent changes than to temporary ones. Temporary impacts are

considered to be those associated with the construction works. Long-term reversible impacts are generally those associated with the completed and operational development.

Assumptions and Limitations

3.11.7.10 The commercial agreement for land, including productive land, between the proponent and land owners is beyond the scope of this assessment and the future Environmental Statement (ES) documentation.

3.11.7.11 The approximately four year construction period is expected to require a peak workforce across the Suffolk Onshore, Kent Onshore and Offshore Schemes of between 300-400 workers. A proportion of these workers are likely to live locally to the site, while a proportion will travel to the site to work. More detail on the average and peak number of workers expected to work on each of the Offshore and Onshore Schemes across the construction period, and the proportion of workers who will be expected to live locally to the site will be set out in the Preliminary Environmental Information Report.

3.11.8 Conclusion

3.11.8.1 This chapter of the Scoping Report has set out the proposed scope and methodology for the ES assessment of socio-economic effects arising from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. The socio-economic, recreation and tourism receptors that have been identified within the respective study areas surrounding the Kent Onshore Scheme include local communities, the local economy within Dover and Thanet, users of PRoW and open space, residential and business properties, visitor attractions, development land, and community facilities within the respective study areas. The preliminary baseline assessment indicates that there is the potential for significant effects on these receptors.

Proposed Scope of the Assessment

3.11.8.2 A summary of the proposed scope of the assessment is provided in Table 3.11.3

Table 3.11.3: Proposed scope of the assessment

Receptor	Potential significant effect	Project phase(s)	Proposed to be scoped in/out
Employment levels within Dover and Thanet	The Kent Onshore Scheme will generate direct and indirect temporary employment, training and apprenticeship opportunities both on Site and in the supply chain during the construction, maintenance and	Construction, maintenance and decommissioning	**Scoped in**
		Operation	Scoped out

	decommissioning phases. The scale of operational employment generated is likely to be very limited.		
Local economy within Dover and Thanet	The employment and wider economic activity created during the construction maintenance and decommissioning phases will generate GVA within the local Dover and Thanet economies. The scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	Scoped out
Users of PRoW and recreational routes within 500 m of the Kent Scoping Boundary	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Local communities within 1 km of Kent Scoping Boundary	As above, disruption to PRoW or other recreational routes would be avoided as far as possible at all phases. Where necessary, suitable diversions would be agreed with KCC.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Residential properties within 500 m of the Kent Scoping Boundary	A number of residential properties, local businesses, visitor attractions, community facilities, open spaces and development land allocations have been identified within the study area.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Businesses within 500 m of the Kent Scoping Boundary			
Visitor attractions within 500 m of the Kent Scoping Boundary			
Community facilities within 500 m of the Kent Scoping Boundary			
Development land within 500m of the Kent Scoping Boundary			

Open Space within 500m of the Kent Scoping Boundary

3.12 Health and Wellbeing

3.12.1 Introduction

3.12.1.1 This chapter presents how the Health and Wellbeing assessment will consider the potential effects that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential effects to be considered within the assessment, and how the potential effects will be assessed for the purpose of an EIA).

3.12.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.12.1.3 The assessment will consider potential health and wellbeing effects on the following receptors:

- Quality of life and safety of local residents, workers and visitors;
- Users of recreational routes and Public Rights of Way (PRoW);
- Users of open space;
- Users of local community services and social infrastructure; and
- Local communities that could be affected by community severance.

3.12.1.4 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**;
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**;
- **Part 3, Chapter 2, Landscape and Visual**;
- **Part 3, Chapter 6, Geology and Hydrogeology**;
- **Part 3, Chapter 8, Traffic and Transport**;
- **Part 3, Chapter 9, Air Quality**;
- **Part 3, Chapter 10, Noise and Vibration**; and
- **Part 3, Chapter 11: Socio-economics, Recreation and Tourism**.

3.12.1.5 This chapter is supported by the following figure:

- **Figure 3.12.1 Kent Onshore Scheme Health and Wellbeing Study Areas and Receptors**.

3.12.2 Regulatory and Planning Context

3.12.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on health and wellbeing associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

3.12.2.2 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017; and The Marine Works (Environmental Impact Assessment) Regulations 2007[233] also require the EIA for infrastructure projects to consider potential impacts on health and wellbeing.

Planning Policy

National planning policy

National Policy Statement for Energy (EN-1)

3.12.2.3 Paragraphs 4.3.1 – 4.3.5 of the Overarching National Policy Statement for Energy (NPS EN-1)[209] details requirements for National Policy Statement (NSIP) applications to consider all relevant impacts to health and wellbeing.

National Policy Statement for Energy (EN-5)

3.12.2.4 The NPS for Electricity Networks Infrastructure (NPS EN-5)[210] supplements EN-1, with additional guidance specific to the development for electricity networks infrastructure. This document provides guidance on the effects of electro-magnetic fields (EMFs) and their impact on health.

National planning policy framework (NPPF)

3.12.2.5 The National Planning Policy Framework (NPPF)[234] sets out various policies with respect to the health and wellbeing objectives of the planning system. Chapter 8 on 'Promoting healthy and safe communities' outlines the health and community objectives of the NPPF, including the management of PRoW, access to open spaces and access to community amenities.

[233] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf

[234] Department for Levelling Up, Housing & Communities (2021). National Planning Policy Framework. London. [online] Available at: National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk) [Accessed 16 June 2022].

National planning practice guidance

3.12.2.6 The National Planning Practice Guidance (NPPG)[235] provides additional guidance to the NPPF. Guidance of particular relevance to health includes Paragraphs 92 to 103 which set out how the design and use of the built and natural environment are major determinants of health and wellbeing, and how in turn, positive planning can contribute to healthier communities.

Additional national guidance

3.12.2.7 Additional national guidance relevant to health and wellbeing includes:

- Design Manual for Roads and Bridges (DMRB) Document LA112[236];
- NHS Healthy Urban Development Unit (HUDU)[237] Rapid Health Impact Assessment (HIA) Tool;
- Public Health England (PHE) Guidance 'Spatial Planning for Health: An evidence resource for designing healthier places'[238];
- PHE Strategy 2020 to 2025[239];
- The Marmot Review: Fair Society Healthy Lives (2010)[240];
- Health Equity in England 10 Years On (2020)[241]; and
- Build Back Fairer – The Covid-19 Marmot Review (2020)[242].

Local planning policy

- Kent County Council (KCC) A 2050 Picture of Kent and Medway 2018[243];
- KCC Rights of Way Improvement Plan 2018-2028[244];

[235] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2021). Planning Practice Guidance. [online] Available at: https://www.gov.uk/government/collections/planning-practice-guidance

[236] Highways England, Transport Scotland, Welsh Government and the Department for Infrastructure (2020). Design Manual for Roads and Bridges – LA112 – Population and Human Health. [online] Available at:https://www.standardsforhighways.co.uk/prod/attachments/1e13d6ac-755e-4d60-9735-f976bf64580a?inline=true

[237] NHS London Healthy Urban Development Unit (2019). Rapid Health Impact Assessment Tool. [online] Available at: https://www.healthyurbandevelopment.nhs.uk/wp-content/uploads/2019/10/HUDU-Rapid-HIA-Tool-October-2019.pdf#:~:text=The%20Rapid%20HIA%20tool%20The%20tool%20is%20designed,renewal%20programmes%20and%20outline%20and%20detailed%20planning%20applications.

[238] Public Health England (2017). Spatial Planning for Health: An evidence resource for designing healthier places. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729727/spatial_planning_for_health.pdf

[239] Public Health England (2019). PHE Strategy 2020 to 2025. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831562/PHE_Strategy_2020-25.pdf

[240] Marmot, M. (2010). Fair Society, Healthy Lives: The Marmot Review. Strategic Review of Health Inequalities in England Post 2010. [online] Available at: https://www.parliament.uk/globalassets/documents/fair-society-healthy-lives-full-report.pdf

[241] Marmot, M., Allen, J., Boyce, T., Goldblatt, P., and Morrison, J. (2020). Health Equity in England: The Marmot Review 10 Years On. [online] Available at: https://www.health.org.uk/publications/reports/the-marmot-review-10-years-on

[242] Marmot, M., Allen, J., Goldblatt, P., Morrison, J., and Herd, E. (2020). Build Back Fairer: The COVID-19 Marmot Review. [online] Available at: https://www.health.org.uk/publications/build-back-fairer-the-covid-19-marmot-review

[243] Kent County Council (2018). A 2050 Picture of Kent and Medway. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0009/79920/GIF-2050-Picture.pdf

[244] Kent County Council (2018). Rights of way Improvement Plan. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0005/90491/Rights-of-Way-Improvement-Plan-2018-2028.pdf

- Dover District Council (DDC) Core Strategy 2010[245] including:
  - ‘Policy CP 7 – Green Infrastructure Network’; and
  - ‘Policy DM 25 – Open Space’.
- Draft Dover New District Local Plan 2022[246] (Regulation 18 Draft);
  - Includes a commitment to improving the health and wellbeing of residents, improving quality of life for all and reducing health inequalities;
- Thanet District Council Local Plan, 2020[247] including:
  - ‘SP27 – Green Infrastructure’;
  - ‘SP32 - Protection of Open Space and Allotments’;
  - ‘SP33 – Local Green Space’;
  - ‘SP34 – Provision of Accessible Natural and Semi-Natural Green Space, Parks, Gardens and Recreation Grounds’;
  - ‘SP38 – Healthy and Inclusive Communities’; and
  - ‘SP41 – Community Infrastructure’.
- Ash Neighbourhood Development Plan 2021[248] including:
  - Objective 1: Environmental (landscape, open spaces, biodiversity and climate change); and
  - Objective 3: Leisure, Well-being, Education and Healthcare.

3.12.3 Study Area

3.12.3.1 The study area for the health and wellbeing assessment will vary by the type of impact being assessed, these include:

- The human health profile baseline study area will comprise a local ward area comprising the wards in which the Kent Onshore Scheme is located, within which there is a high likelihood that effects arising from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme could be experienced: Thanet Villages ward and Cliffsend and Pegwell ward. Where data is not available at the ward level, local authority level data will be provided for Dover and Thanet districts.

[245] Dover District Council (2010). Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/Adopted-Development-Plans/Core-Strategy.aspx

[246] Land Use Consultants Ltd. On behalf of Dover District Council (2020). Draft Dover District Local Plan (Reg 18) Sustainability Appraisal. [online] Available at: https://www.doverdistrictlocalplan.co.uk/uploads/pdfs/sustainability-appraisal-of-the-draft-local-plan-2020.pdf

[247] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

[248] Ash Parish Council (2021). ASH PARISH COUNCIL NEIGHBOURHOOD DEVELOPMENT PLAN 2018-2037. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Ash-NDP-Plan-Final-Sept-2021.pdf

- The study areas for assessing the health and wellbeing impacts of the Kent Onshore Scheme will be influenced by the geographic extent of the relevant technical assessments, these include:
  - Part 3 Chapter 2, Landscape and Visual;
  - Part 3, Chapter 6: Geology and Hydrogeology;
  - Part, Chapter 8: Transport and Transport;
  - Part 3, Chapter 9: Air Quality;
  - Part 3, Chapter 10: Noise and Vibration; and
  - Part 3, Chapter 11: Socio-economics, Recreation and Tourism.

3.12.3.2 The assessment will refer to the study areas identified by the relevant EIA chapters.

3.12.4 Baseline Conditions

3.12.4.1 This section provides a high-level summary of key health and wellbeing indicators for the defined study areas detailed in section 3 above. Information gathered and presented has been identified through a desktop study.

Data Sources

3.12.4.2 This overview of community health indicators is based on the following public data sources:

- Office for National Statistics (ONS). Mid-year sub-national population estimate data (2020)[249];
- ONS 2011 Census Data[250];
- PHE Local Health Data[251]; and
- ONS Claimant Count Data[252].

Community Health Baseline Overview

3.12.4.3 Table 3.12.1 sets out a summary of key health indicators across the local ward and local authority study areas, compared to regional (South East) and national (England) averages.

[249] Office for National Statistics (2020). Subnational population projections for England. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2018based

[250] Office for National Statistics (2012). Census 2011. [online] Available at: https://www.ons.gov.uk/census/2011census

[251] Office for Health Improvement and Disparities (2019). Local Health. [online] Available at: https://www.gov.uk/government/collections/local-health-public-health-data-and-mapping-tool-for-small-areas

[252] Office for National Statistics (2022). CLA02: Claimant Count by age group (Experimental Statistics). [online] Available at: https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/outofworkbenefits/datasets/cla02claimantcountbyagegroup

Table 3.12.1 Community health profile

	Local wards	Dover	Thanet	South East England	England
Population (2020)	12,398	118,514	141,458	9,217,265	56,550,138
Population aged under 16 (%) (2020)	15.6%	17.6%	18.9%	19.3%	19.2%
Population aged over 65 (%) (2020)	29.0%	23.8%	24.1%	19.7%	18.5%
Unemployment rate	4.6%	6.6%	8.7%	4.8%	6.3%
Unemployment (% working age population claiming out of work benefits)	3.4%	3.6%	6.0%	2.9%	3.8%
General Health – bad or very bad (%)	6.1%	6.3%	7.5%	4.3%	5.5%
Long term health problem or disability (%)	19.4%	20.8%	23.4%	15.7%	17.6%
Life Expectancy at Birth (males) (2018-2020)	n/a	79.5	77.6	80.2	79.4
Life Expectancy at Birth (females) (2018-2020)	n/a	82.8	82.1	83.8	83.1
Inequality in Life Expectancy at Birth (males 2018-2020)	n/a	7.3	8.5	7.9	9.7
Inequality in Life Expectancy at Birth (females 2018-2020)	n/a	6.1	9.7	6.2	7.9
Obese children (Year 6) (%)	n/a	20.8	23.3	19.1	21.0%
Under 75 mortality rate from all causes	n/a	338.4	391.8	303.5	336.5

	Local wards	Dover	Thanet	South East England	England
(2018-2020) (per 100,000 people)					

Future Baseline

3.12.4.4 ONS population projections[253] show over the 10-year period from 2022 to 2032 the population across Dover and Thanet is expected to grow by 8.5% and 4.5% respectively (to approximately 132,600 people in Dover and 151,400 in Thanet). The increase in both local authorities is greater than the projected rate of increase in the South East (3.5%) and across England as a whole (4.0%) over the same period.

3.12.4.5 Due to the broad range of individual and environmental determinants that can influence physical and mental health outcomes, the future community health baseline over the medium-term is highly uncertain. Due to this uncertainty, for the purposes of this assessment, it is assumed the future baseline for the Kent Onshore Scheme study area would be unchanged from the current baseline to the completion of the Kent Onshore Scheme.

3.12.5 Embedded and Control & Management Measures

Embedded Measures

3.12.5.1 Mitigation measures will be included in the design where practicable to help avoid, prevent or reduce effects on the environment and local communities. The Kent Onshore Scheme has been routed and sited to avoid residential areas where possible.

3.12.5.2 The design of the Kent Onshore Scheme will be compliant with the guidelines and policies relating to electromagnetic fields stated in NPS EN-5, including the International Commission on Non-Ionizing Radiation Protection guidelines (1998).

Control and Management Measures

3.12.5.3 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect health and wellbeing are:

- GG03: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP) and a Construction Traffic Management Plan (CTMP) will be produced prior to construction;
- GG05: A suitably experienced Environmental Manager will be appointed for the duration of the construction phase. In addition, a qualified and experienced Environmental Clerk of Works (ECoW) will be available during the construction

[253] Office for National Statistics (2018). Population Projections. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections

phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the CEMP. The ECoW will monitor the works to ensure these proceed in accordance with the relevant environmental measures as set out in the DCI application and its Environmental Statement (ES) and adhere to the required best practice and mitigation measures as set out in the relevant applicable guidlines;

- GG06: Construction workers will undergo specific training to increase their awareness of environmentally sensitive sites across the Project as applicable to their role. Topics will include, will but not be limited to, the following:
  - pollution prevention and pollution incident response;
  - dust management and control measures;
  - working hours and noise and vibration reduction measures;
  - working with potentially contaminated materials;
  - waste management and storage; and
  - flood risk response actions;
- GG11: Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites as far as practicable;
- GG13: Plant and vehicles will conform to relevant applicable standards for the vehicle type as follows:
  - Euro 4 (NOx) for petrol cars, vans and minibuses;
  - Euro 6 (NOx and PM) for diesel cars, vans and minibuses; and
  - Euro VI (NOx and PM) for lorries, buses, coaches and Heavy Goods Vehicles (excluding specialist abnormal indivisible loads).
  - Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so;
- GG20: Bonfires and the burning of waste material on-site will be prohibited;
- GG21: Construction lighting will be of the lowest luminosity necessary to safely perform each task. It will be designed, positioned and directed to reduce the intrusion into adjacent properties, protected species and habitats;
- GG23: An Emergency Action Plan will be developed for the construction phase which will outline procedures to be implemented in case of unplanned emergency events, including but not limited to site flooding and pollution incidents; and
- GG26: Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use

to raise any concerns or complaints about the Project. All construction-related complaints will be logged by the appointed contractor(s) in the form of a complaints register, together with a record of the responses given and actions taken.

3.12.6 Potential for Significant Effects

3.12.6.1 The health and wellbeing assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project.**

3.12.6.2 The proposed scope of the health and wellbeing assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.12.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.12.6.4 The potential for the Kent Onshore Scheme to result in potential effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- Potential temporary and permanent impacts on the quality of life and safety of local residents, visitors and workers arising from construction of the Kent Onshore Scheme related to air quality, noise, landscape amenity and traffic and transport;
- Potential temporary and permanent impacts related to accessibility impacts of PRoW, recreational routes and open space, impacting local residents, visitor and worker accessibility to these active travel routes;
- Potential temporary and permanent accessibility impacts on PRoW and recreational routes impacting local resident access to local community services and social infrastructure; and
- Potential temporary and permanent impacts on community cohesion arising from impacts to accessibility and community engagement work impacting local residents.

Sources of operational impacts

- Potential permanent accessibility impacts on PRoW and recreational routes and open space, impacting local residents, visitor and worker accessibility to active travel routes and open space;
- Potential permanent accessibility impacts on PRoW and recreational routes impacting local resident access to local community services and social infrastructure;

- Potential permanent impacts on community cohesion arising from permanent accessibility impacts; and
- Potential permanent quality of life impacts on residents and visitors arising from noise disturbance; and
- Potential permanent impacts on local residents arising from the generation of electro-magnetic fields (EMFs).

Sources of maintenance impacts

3.12.6.5 The sources of maintenance impacts are assessed to be the same as those listed as sources of construction impacts.

Sources of decommissioning impacts

3.12.6.6 The sources of decommissioning impacts are assessed to be the same as those listed as sources of construction impacts.

Potential impacts

3.12.6.7 Table 3.12.2 below identifies the potential impacts that could result from the sources identified above.

Table 3.12.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance and decommissioning	Potential temporary and permanent impacts of construction, maintenance and decommissioning on air quality, noise, landscape amenity and traffic and transport.	Potential temporary quality of life and safety impacts on local residents, workers and visitors within the relevant technical assessment study areas.	Yes - Potential health related effects experienced during construction, maintenance and decommissioning of the Kent Onshore Scheme would be determined through the topic specific assessments, but are expected to include air quality, noise and vibration, landscape amenity and	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			traffic and transport effects.	
	Potential temporary and permanent closure or diversions to PRoW and recreational routes.	Potential temporary closure or diversions to PRoW and recreational routes within 500m of the Kent Scoping Boundary causing disruption to users.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**
	Potential temporary and permanent severance of access to open space.	Potential temporary severance of access to open space within 500m of the Kent Scoping Boundary for local residents, workers and visitors affecting mental health.	Yes - As above, disruption to PRoW or other recreational routes and access to open space during all phases of the would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**
	Potential temporary and permanent severance of access to community services and social infrastructure.	Potential temporary closure or diversions to PRoW and recreational routes within 500m of the Kent Scoping Boundary impacting on local residents' access to	Yes - As above, disruption to PRoW, other recreational routes or roads offering access to community services and social infrastructure during all phases would be avoided as far as possible. Where	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		local community services and social infrastructure.	necessary, suitable diversions would be agreed with KCC.	
	Potential temporary and permanent severance of access to local communities.	Potential temporary severance of access to local communities within 1km of the Kent Scoping Boundary for local residents, leading to deterioration of community cohesion and affecting mental health.	Yes - As above, disruption to PRoW or other recreational routes which facilitate community cohesion during construction, maintenance and decommissioning phases of the Kent Onshore Scheme would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**
Operation	Potential permanent closure or diversions to PRoW and recreational routes.	Potential permanent closure or diversions to PRoW and recreational routes within 500 m of the Kent Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes affecting access to facilities would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**
	Potential permanent severance of	Potential permanent severance of access to	Yes - Disruption to PRoW or other recreational routes affecting	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	access to open space.	open space within 500m of the Kent Scoping Boundary for local residents, workers and visitors affecting mental health.	access to facilities would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	
	Potential permanent severance of access to community services and social infrastructure.	Potential permanent severance of access to community services and social infrastructure within 1km of the Kent Scoping Boundary for local residents, leading to deterioration of social cohesion and affecting mental health.	Yes - Disruption to PRoW or other recreational routes affecting access to facilities would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**
	Potential permanent severance of access to local communities.	Potential permanent severance of access to local communities within 1km of the Kent Scoping Boundary for local residents, leading to	Yes - Disruption to PRoW or other recreational routes affecting access to facilities would be avoided as far as possible. Where necessary, suitable diversions would	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		deterioration of community cohesion and affecting mental health.	be agreed with KCC.	
	Potential permanent impacts of operational noise.	Potential permanent quality of life impacts on residents and visitors within 1km of the Kent Scoping Boundary.	Yes - Potential health related effects experienced during the operation of the Kent Onshore Scheme would be determined through the topic specific assessments but are expected to include noise effects.	**Scoped in**
	Potential permanent impacts of operation associated with the generation of EMFs.	Potential permanent impacts on local residents and workers associated with the generation of EMFs.	No - The Applicant will ensure that policies and procedures are in place at the design phase to ensure that all equipment will comply with public EMF exposure limits.	Scoped out

Impact Pathways with Receptors (Step 2)

3.12.6.8 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potential effects on the receptors within the health and wellbeing study areas.

3.12.6.9 Table 3.12.3 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment of health and wellbeing for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme**.

Table 3.12.2: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Potential temporary and permanent quality of life and safety impacts on local residents, workers and visitors within the relevant technical assessment study areas.	Local residents, workers and visitors within the relevant technical assessment study areas. This may include receptors within Cliffsend and Minster.	Yes - Potential health related effects experienced as a result of the Kent Onshore Scheme would be determined through the topic specific assessments, but are expected to include air quality, noise and vibration, landscape amenity and traffic and transport effects during the construction, maintenance and decommissioning phase, and noise and vibration during the operational phase.	**Proposed to be scoped in for all phases**
Potential temporary and permanent closure or diversions to PRoW and recreational routes within 500m of the Kent Scoping Boundary.	Users of PRoW and recreational routes within 500m of Kent Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent severance of access to open space within 500m of the Kent Scoping Boundary for local residents, workers and visitors.	Users of open space within 500m of Kent Scoping Boundary including Pegwell Bay Country Park.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent closure or	Community facilities within 500m of the Kent	Yes - Disruption to PRoW or other recreational routes	**Proposed to be scoped in for all phases**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
diversions to PRoW and recreational routes within 500m of the Kent Scoping Boundary impacting on local residents' access to local community services and social infrastructure.	Scoping Boundary including, Great Oaks Small School and Cliffsend Village Hall.	during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	
Potential temporary and permanent severance of access to local communities within 1km of the Kent Scoping Boundary for local resident.	Local communities within 1km of the Kent Scoping Boundary, including Cliffsend and Minster.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Proposed to be scoped in for all phases**

3.12.7 Proposed Assessment Methodology

3.12.7.1 There is no consolidated methodology or practice for the assessment of effects on human health and wellbeing. Best practice principles are provided in the NHS England's Healthy Urban Development Unit's Rapid Health Impact Assessment (HIA) Toolkit 2019 and this toolkit will form the basis of the approach to assessing the impacts on health arising from the Kent Onshore Scheme.

3.12.7.2 The World Health Organisation (WHO) Europe defines health as: 'a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity'[254]. Public health therefore encompasses general wellbeing, not just the absence of illness.

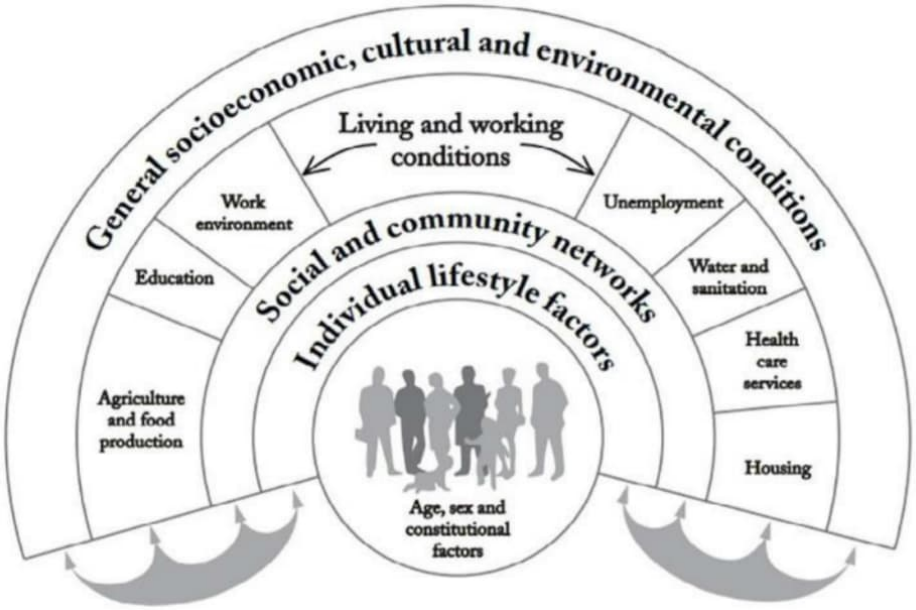
3.12.7.3 The health and wellbeing of individuals is determined by a broad range of individual constitutional and behavioural factors, as well as broader environmental, social and economic factors. Some factors are direct and obvious, others are indirect.

3.12.7.4 Dahlgreen and Whitehead's model of the main determinants of health illustrates the breadth of possible influences on health, as show in Image 3-12-1. At the centre of the illustration are factors that are largely fixed – including individual age, sex, constitutional and genetic factors. Outside of this are factors generally described as the wider or broader determinants of health. The model emphasises interactions between the layers. Moving outwards from the centre, individual lifestyle choices are embedded in social norms and community networks, and in living and working

[254] World Health Organisation (2018). Health inequities and their causes. [online] Available at: https://www.who.int/news-room/facts-in-pictures/detail/health-inequities-and-their-causes

conditions, which in turn are shaped by and related to the wider socioeconomic and cultural environment.

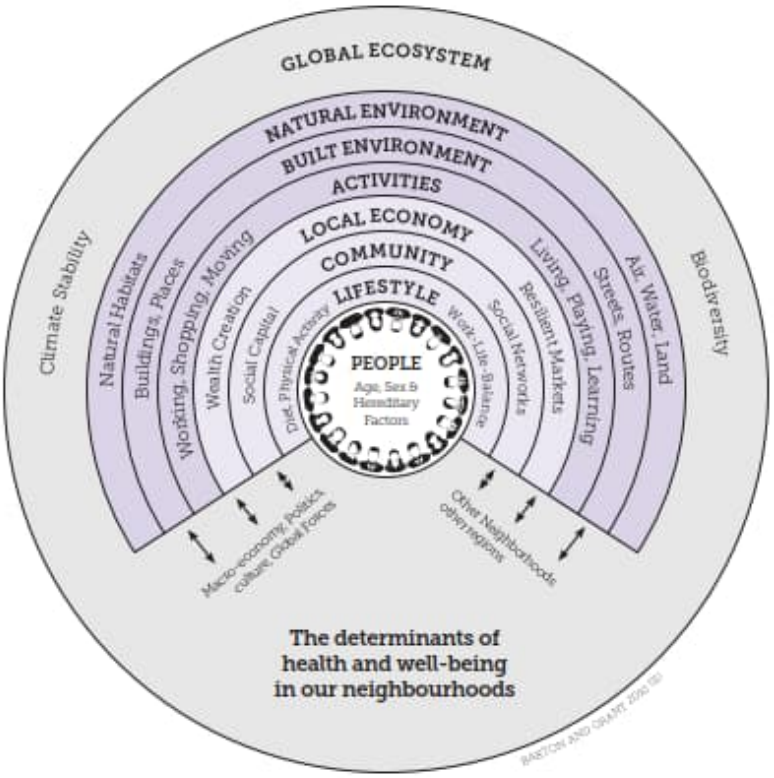
Image 3.12.1: Determinants of health



Source: Dahlgreen and Whitehead, 1993

3.12.7.5 This model has been developed to show elements of the built environment and communities that are the key determinants of health, as shown in Image 3-12-2.

Image 3.12.2: Determinants of health in neighbourhoods



Source: Barton and Grant, 2006

3.12.7.6 Within a population there can also be health inequalities, defined by the WHO as 'differences in health status or in the distribution of health determinants between different population groups. For example, differences in mobility between elderly people and younger populations or differences in mortality rates between people from different social classes'[255].

Baseline

3.12.7.7 Relevant policy will be reviewed at the local, regional and national levels to identify the key issues of relevance to the Kent Onshore Scheme.

3.12.7.8 A baseline assessment will be undertaken using a range of sources to provide a description of the health conditions within the health study areas as set out above. This will be done using established statistical sources and desk based research.

Assessment of Potential Effects

3.12.7.9 As set out above the factors contributing to individual health and wellbeing are broad, and the health of existing and new residents, workers and visitors will be largely

[255] World Health Organisation (2018). Health inequities and their causes. [online] Available at: https://www.who.int/news-room/facts-in-pictures/detail/health-inequities-and-their-causes

determined by individual age and constitutional factors and lifestyle factors unrelated to the Kent Onshore Scheme.

3.12.7.10 Taking account of these factors, the health assessment will use relevant guidance set out in the framework for assessment set out by the *NHS HUDU Planning for Health Rapid HIA Tool* to consider how the Kent Onshore Scheme could influence health – including how it could influence health inequalities, during the construction, maintenance, operational and decommissioning phases.

3.12.7.11 The HUDU assessment tool identifies eleven broad determinants that are likely to be influenced by specific development proposals and can be influenced through design and management measures, against which the likely impacts of new developments can be assessed. Of these, the following five broad determinants are relevant to the potential health impacts arising from the Kent Onshore Scheme:

- Access to health and social care services and other social infrastructure;
- Access to open space and nature;
- Air quality, noise and neighbourhood amenity;
- Accessibility and active travel; and
- Social cohesion and inclusive design.

3.12.7.12 Due to the diverse nature of health determinants and outcomes which are assessed, and the difficulty of quantifying these with respect to health outcomes, NHS HUDU guidance does not provide a methodology for assessing the significance of effects. In line with this, the assessment of likely health impacts of the Kent Onshore Scheme will be described qualitatively, based on professional judgement and best practice guidance, and effects will be assessed as: 'positive', 'negative', 'neutral' or 'uncertain', using the criteria set out in Table 3-12-4.

3.12.7.13 Where an impact is identified, actions will be proposed to mitigate any negative impact on health, or to realise opportunities to create health benefits. It should be noted that in many cases, mitigation will be embedded within the design of the Kent Onshore Scheme, and the implementation of this will be an underlying assumption of the assessment.

Table 3.12.4: Health assessment impact categories

Impact category	Description
Positive	A beneficial impact is identified
Neutral	No discernible health impact is identified
Negative	An adverse impact is identified
Uncertain	Where uncertainty exists as to the overall impact

3.12.7.14 The assessment will draw on the findings of related technical assessments, as listed at 3.12.3.1. The geographical extent of health effects will be determined by the assessments set out in those related chapters.

3.12.8 Conclusion

Summary

3.12.8.1 This chapter of the Scoping Report has set out the proposed scope and methodology for the ES assessment of health and wellbeing effects arising from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. The socio-economic, recreation and tourism receptors that have been identified within the respective study areas surrounding the Kent Onshore Scheme include local communities, residents and workers, as well as visitors and users of PRoW, open space and community facilities within the respective study areas.

Proposed Scope of the Assessment

3.12.8.2 A summary of the proposed scope of the assessment is provided in Table 3.12.5.

Table 3.12.3:Proposed scope of the assessment

Receptor	Potential for significant effects	Project phase(s)	Proposed to be scoped in/out
Local residents, workers and visitors within the relevant technical assessment study areas.	Potential health related effects experienced as a result of the Kent Onshore Scheme would be determined through the topic specific assessments, but are expected to include air quality, noise and vibration, landscape amenity and traffic and transport effects during the construction, maintenance and decommissioning phase, and noise and vibration during the operational phase.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Users of PRoW and recreational routes within 500m of Kent Scoping Boundary.	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Users of open space within 500m of Kent Scoping Boundary.	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**

Community facilities within 500m of the Kent Scoping Boundary.	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Local communities within 1km of the Kent Scoping Boundary.	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Local residents and workers in close proximity to the Kent Scoping Boundary.	The Applicant will ensure that policies and procedures are in place at the design phase to ensure that all equipment will comply with public EMF exposure limits.	Construction, maintenance and decommissioning	Scoped out
		Operation	Scoped out

3.13 Cumulative Effects

3.13.1 Introduction

3.13.1.1 This chapter presents how the intra-project and inter-project cumulative effects assessment will consider the potentially significant cumulative effects that may arise from the Kent Onshore Scheme. A description of intra-project and inter-project cumulative effects is presented in **Part 1, Chapter 5, EIA Approach and Method**.

3.13.1.2 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Method**; and
- **Part 3, Technical Chapters 2-12**

3.13.1.3 This chapter is supported by the following figures:

- **Figure 3.13.1 Zone of Influence for the Kent Onshore Scheme**;
- **Figure 3.13.2 All Projects and Development Plans Located within the Zone of Influence for the Kent Onshore Scheme**; and
- **Figure 3.13.3 Projects proposed to be taken to Stage 2 for the Kent Onshore Scheme**.

3.13.2 Intra-Project

3.13.2.1 The proposed method for assessing the intra-project cumulative effects is presented in **Part 1, Chapter 5**, **EIA Approach and Method**. This describes a proposed three staged approach that will be used to assess whether the culmination of effects on an individual receptor is likely to lead to an overall effect of greater significance.

3.13.2.2 The first stage (pre-screening) in the process is to identify whether individual or groups of receptors could be affected by more than one type of effect (usually where they are considered by more than one technical chapter).

3.13.2.3 Where multiple types of effects are considered within one chapter, the findings are not proposed to be presented within the Intra-Project Cumulative Effects Chapter. This is likely to be:

- effects on ecological receptors as the Ecology and Biodiversity Chapter will identify all potential types of effects on ecological receptors; and
- effects on Human Health as the Human Health Chapter will identify all potential types of effect.

3.13.2.4 Where this first stage identifies that either:

- there is only one type of effect for a particular receptor; or
- only one topic has identified effects on that receptor,

- it is considered that there will be no potential for an intra-project effects and receptors will not be taken through to the next stage (screening) of the assessment.

3.13.2.5 An initial pre-screening assessment is presented in Table 3.13.1 showing how the receptor groups are likely to interact between chapters. This will be revisited as part of the ES to ensure all receptors considered within the ES are taken through this pre-screening assessment.

Table 3.13.1: Pre-screening Stage

Receptors	Technical chapters+										
	2	3	4	5	6	7	8	9	10	11	12
Landscape elements	✓		✓								
Residential receptors	✓							✓	✓	✓	
Commercial receptors									✓	✓	
Designated Sites		✓						✓	✓	✓	
Ecological receptors		✓						✓			
Notable Habitats (terrestrial and aquatic)		✓		✓				✓			
Designated heritage assets	✓		✓								
Non-designated heritage assets			✓								
Water resources (existing abstractions and discharges)				✓	✓						
Watercourses and waterbodies				✓	✓						
Flood risk receptors				✓							
BMV Agricultural Land						✓					
Agricultural holdings						✓					
Soil						✓				✓	
Public rights of way	✓						✓			✓	
Cycle Routes	✓						✓			✓	
Roads							✓				
Communities	✓				✓				✓	✓	
Geology					✓						
Groundwater					✓						
Human Health					✓						✓

+ Chapter numbers refer to the Scoping Technical Chapters: Chapter 2 Landscape and Visual (Part 3.2); Chapter 3 Ecology and Biodiversity (Part 3.3); Chapter 4 Cultural Heritage (Part 3.4); Chapter 5 Water Environment (Part 3.5); Chapter 6 Geology and Hydrogeology (Part 3.6); Chapter 7 Agriculture and Soils (Part 3.7); Chapter 8 Traffic

and Transport (Part 3.8); Chapter 9 Air Quality (Part 3.9); Chapter 10 Noise and Vibration (Part 3.10); Chapter 11 Socioeconomic, Recreation and Tourism (Part 3.11); and Chapter 12 Human Health (Part 3.12).

3.13.3 Inter-Project

3.13.3.1 The proposed method for assessing the inter-project cumulative effects is presented in **Part 1, Chapter 5, EIA Approach and Method**. The following section sets out the methodology for Stage 1 and Stage 2 in relation to the Kent Onshore Scheme.

Stage 1

3.13.3.2 Stage 1 of the approach outlined in PINS Advice Note Seventeen requires a 'long list' of other developments to be identified, as well as high level information, such as the location/application boundary. This initial long list is provided in **Appendix 1.5.A Inter Project Cumulative Effects Long List** and will be continually reviewed and updated as required.

Establishing the ZOI

3.13.3.3 The first step in identifying the long list is to establish the Zone of Influence (ZOI) for the Kent Onshore Scheme. **Part 1, Chapter 5, EIA Approach and Methodology** describes how the ZOI has been defined based on the largest study area of the technical chapters.

3.13.3.4 The study areas proposed for technical chapters 2-12 are summarised in Table 3.13.2. The rationale for these study areas are explained in section 3 of the relevant technical topic chapters 2-12.

Table 3.13.2:Study Areas for Environmental Topics

Environmental topic	Study areas
Ecology and Biodiversity	10km
Landscape and Visual	3km
Cultural Heritage	1km
Water Environment, Geology and Hydrogeology, Air Quality	<0.5km
Noise and Vibration, Agriculture and Soils, Traffic and Transport*	<0.25km

*at this stage construction traffic routes are not yet known, however it is not anticipated that construction traffic routes ultimately assessed within the ES routes would extend beyond 10km due to the proximity of the strategic road network. This will be reviewed once construction traffic routes are known.

3.13.3.5 The largest topic study area has been identified as 10km from the Kent Onshore Scheme Scoping Boundary, therefore a ZOI of 20km from the Kent Onshore Scheme Scoping Boundary has been set to establish the long list of developments. This is illustrated on **Figure 3.13.1 Zone of Influence for the Kent Onshore Scheme**.

3.13.3.6 This will be kept under review as the Project develops and the long list updated as required.

Identify the long list of 'Other Developments'

3.13.3.7 A long list of other projects within the ZOI has been established and is presented in **Appendix 1.5.A Inter Project Cumulative Effects Long List** and those that are within the ZOI for the Kent Onshore Scheme are shown on **Figure 3.13.2 All Projects and Development Plans Located within the Zone of Influence for Kent Onshore Scheme**. This has been established using the guidance provided in Advice Note Seventeen and the 'other developments' have been categorised into three Tiers as described in **Part 1, Chapter 5, EIA Approach and Method**. The long list has been established by a search of the Planning Inspectorate's Programme of Projects (undertaken in July 2022) and planning applications held on the following relevant planning authority websites:

- Thanet District Council;
- Dover District Council; and
- Canterbury City Council

3.13.3.8 Allocated sites in Local Plans or other Development Plans which were not yet subject to planning applications have also been identified on the long list.

3.13.3.9 Minor planning applications have been excluded from the assessment, as these relate to projects of small which are unlikely to give rise to significant environmental effects. These projects are therefore unlikely to give rise to significant cumulative environmental effects with the Kent Onshore Scheme.

Stage 2

3.13.3.10 The long list is presented in **Appendix 1.5.A Inter Project Cumulative Effects Long List** and those projects relevant to the Kent Onshore Scheme are illustrated on **Figure 3.13.2 All projects and Development Plans located within the Zone of Influence for the Kent Onshore Scheme**. The projects included on the long list were then screened as to the nature and scale of development to identify whether they would be likely to result in a potential for a significant cumulative effect with the Kent Onshore Scheme.

3.13.3.11 The long list of projects to be proposed to be taken forward to Stage 2 are listed in Table 3.13.3 below and illustrated on **Figure 3.13.3 Projects proposed to be taken forward to Stage 2 for the Kent Onshore Scheme**.

Table 3.13.3:Projects proposed to be taken forward for Stage 2

ID	Application Ref (where applicable)	Planning Authority	Project and location	Description	Distance from Project Scoping Boundary (km)	Tier

10	TR020002	Planning Inspectorate	Manston Airport	Reopen and develop Manston Airport	1.8	Tier 1
16	OL/TH/22/0414	Thanet	Land on the north side of Foxborough Lane RAMSGATE Kent	Outline planning application for the erection of up to 115 dwellings with all matters reserved except for access	1.0	Tier 1
17	F/TH/21/1671	Thanet	Land south of Canterbury Road West RAMSGATE Kent	Erection of 145 dwellings, with open space, landscaping, access and associated infrastructure.	0.8	Tier 1
30	F/TH/20/0648	Thanet	Stonelees Golf Course Ebbsfleet Lane RAMSGATE Kent CT12 5DJ	Erection of 10 No. detached and 10 No. semi-detached 2-storey holiday homes together with single storey site office/reception building, parking and landscaping. Open for comment icon	0.1	Tier 1
44	F/TH/19/0173	Thanet	Hoo Farm 147 Monkton Road Minster RAMSGATE Kent CT12 4JB	Erection of 23 no. dwellings following the demolition of existing buildings, with associated parking, open space and landscaping.	1.6	Tier 1
79	F/TH/22/0579	Thanet	Richborough Energy Park Sandwich Road RAMSGATE Kent CT13 9NL	Extension of electricity battery storage facility to provide additional 249mw capacity including electrical plant and equipment, alterations to land levels, landscaping and associated works, following removal of existing wind turbine, site clearance and levelling Open for comment icon	0.7	Tier 1
100	22/00245	Dover	Goshall Valley East	Environmental Impact Assessment - Scoping	3.8	Tier 2

			Street Ash Kent	Opinion for a proposed solar farm		
108	20/00540	Dover	Field southwest of Solton Manor Farm The Lane Guston Kent	Request for EIA Screening Opinion for proposed solar farm	16.7	Tier 2

3.13.4 Conclusion

3.13.4.1 As outlined above inter and intra cumulative effects are proposed to be scoped into the EIA and the results will be presented in the Environmental Statement (ES). **Appendix 1.5.A Inter-Project Cumulative Effects Long List** considers each scoped in environmental discipline, the ZOI and whether effects associated with each of the developments could interact with the effects associated with this project. Table 3.13.3 outlines the proposed short-listed developments that further information including, design, location, programme, operation and decommissioning information and reported environmental effects will be gathered for, to inform which of those developments will be assessed as part of the inter-project cumulative effects assessment.

Sea Link

Environmental Impact Assessment Scoping Report
Volume 1 Main Text
Part 4 Offshore Scheme

October 2022



nationalgrid

Contents

4.1 Evolution of the Offshore Scheme 1

4.1.1 Introduction 1
4.1.2 Network Connection Points 1
4.1.3 Study Area 1
4.1.4 Landfall Areas of Search 1
4.1.5 Indicative Marine Alignments 2
4.1.6 Offshore Scheme Description 10

4.2 Physical Environment 12

4.2.1 Introduction 12
4.2.2 Regulatory and Planning Context 12
4.2.3 Study Area 15
4.2.4 Baseline Conditions 15
4.2.5 Embedded and Control & Management Measures 26
4.2.6 Potential for Significant Effects 27
4.2.7 Proposed Assessment Methodology 32
4.2.8 Conclusion 36

4.3 Benthic Ecology 39

4.3.1 Introduction 39
4.3.2 Regulatory and Planning Context 39
4.3.3 Study Area 41
4.3.4 Baseline Conditions 42
4.3.5 Embedded and Control & Management Measures 45
4.3.6 Potential for Significant Effects 47
4.3.7 Proposed Assessment Methodology 60
4.3.8 Conclusion 64

4.4 Fish and Shellfish Ecology 67

4.4.1 Introduction 67
4.4.2 Regulatory and Planning Context 67
4.4.3 Study Area 70
4.4.4 Baseline Conditions 70

4.4.5 Embedded and Control & Management Measures 76
4.4.6 Potential for Significant Effects 78
4.4.7 Proposed Assessment Methodology 85
4.4.8 Conclusion 91

4.5 Marine Mammals 93
4.5.1 Introduction 93
4.5.2 Regulatory and Planning Context 93
4.5.3 Study Area 96
4.5.4 Baseline Conditions 98
4.5.5 Embedded and Control & Management Measures 102
4.5.6 Potential for Significant Effects 103
4.5.7 Proposed Assessment Methodology 109
4.5.8 Conclusion 114

4.6 Marine Ornithology 116
4.6.1 Introduction 116
4.6.2 Regulatory and Planning Context 116
4.6.3 Study Area 118
4.6.4 Baseline Conditions 119
4.6.5 Embedded and Control & Management Measures 122
4.6.6 Potential for Significant Effects 123
4.6.7 Proposed Assessment Methodology 127
4.6.8 Conclusion 132

4.7 Marine Archaeology 134
4.7.1 Introduction 134
4.7.2 Regulatory and Planning Context 134
4.7.3 Study Area 139
4.7.4 Baseline Conditions 139
4.7.5 Embedded and Control & Management Measures 143
4.7.6 Potential for Significant Effects 146
4.7.7 Proposed Assessment Methodology 151
4.7.8 Conclusion 157

4.8 Shipping and Navigation 161
4.8.1 Introduction 161
4.8.2 Regulatory and Planning Context 161
4.8.3 Study Area 163

4.8.4 Baseline Conditions 163
4.8.5 Embedded and Control & Management Measures 167
4.8.6 Potential for Significant Effects 168
4.8.7 Proposed Assessment Methodology 172
4.8.8 Conclusion 178

4.9 Commercial Fisheries 180
4.9.1 Introduction 180
4.9.2 Regulatory and Planning Context 180
4.9.3 Study Area 182
4.9.4 Baseline Conditions 183
4.9.5 Embedded and Control & Management Measures 186
4.9.6 Potential for Significant Effects 187
4.9.7 Proposed Assessment Methodology 192
4.9.8 Conclusion 195

4.10 Other Sea Users 197
4.10.1 Introduction 197
4.10.2 Regulatory and Planning Context 197
4.10.3 Study Area 199
4.10.4 Baseline Conditions 199
4.10.5 Embedded and Control & Management Measures 205
4.10.6 Potential for Significant Effects 206
4.10.7 Proposed Assessment Methodology 209
4.10.8 Conclusion 211

4.11 Cumulative Effects 213
4.11.1 Introduction 213
4.11.2 Intra-Project 213
4.11.3 Inter-Project 214
4.11.4 Conclusion 217

Tables

Table 4.2.1: Tidal current 17
Table 4.2.2: Tidal water levels 17
Table 4.2.3: Annual mean wave height and wind speed 18
Table 4.2.4: Sources and impacts 28
Table 4.2.5: Impact pathways with receptors 30
Table 4.2.6: Assessment methodology of potential effects 33
Table 4.2.7: Terms and definitions 35

Table 4.2.8: Magnitude criteria 35
Table 4.2.9: Receptor sensitivity criteria 36
Table 4.2.10: Proposed scope of the assessment 37
Table 4.3.1: Sites designated for benthic ecology within the study area 44
Table 4.3.2: Sources and impacts 48
Table 4.3.3: Impact pathways with receptors 51
Table 4.3.4: Importance criteria for marine ecology features / receptors 62
Table 4.3.5: Description of significance terminology 64
Table 4.3.6: Proposed scope of the assessment 65
Table 4.4.1: Important spawning grounds within the study area 74
Table 4.4.2: Important nursery grounds within the study area 74
Table 4.4.3: Designated sites for fish and shellfish within the study area 76
Table 4.4.4: Sources and impacts 79
Table 4.4.5: Impact pathways with receptors 82
Table 4.4.6: Importance criteria for marine ecology features/receptors 88
Table 4.4.7: Description of significance terminology 91
Table 4.4.8: Proposed scope of the assessment 92
Table 4.5.1: Density and abundance of most common cetaceans observed in SCANS-III survey area Block L 99
Table 4.5.2: Designated sites for marine mammals within the screening distance 101
Table 4.5.3: Sources and impacts 104
Table 4.5.4: Impact pathways with receptors 107
Table 4.5.5: Importance criteria for marine ecology features/receptors 111
Table 4.5.6: Description of significance terminology 114
Table 4.5.7: Proposed scope of the assessment 115
Table 4.6.1: Sources and impacts 124
Table 4.6.2: Impact pathways with receptors 125
Table 4.6.3: Importance criteria for marine ecology features/receptors 129
Table 4.6.4: Description of significance terminology 131
Table 4.6.5: Proposed scope of the assessment 132
Table 4.7.1: Summary of relevant NPS documents 136
Table 4.7.2: East Suffolk Council's Suffolk Coastal Local Plan 137
Table 4.7.3: Thanet District Local Plan policies 138
Table 4.7.4: Sources and impacts 148
Table 4.7.5: Impact pathways with receptors 149
Table 4.7.6: Criteria to assess the archaeological value of assets 154
Table 4.7.7: Magnitude of effect definitions 157
Table 4.7.8: Significance of impacts matrix 157
Table 4.7.9: Proposed scope of the assessment 158
Table 4.8.1: Data sources 164
Table 4.8.2: Sources and impacts 170
Table 4.8.3 Impact pathways with receptors 171
Table 4.8.4: Indicative hazard outcome severity criteria 175
Table 4.8.5 Indicative likelihood criteria 176
Table 4.8.6: Risk matrix 176
Table 4.8.7: Tolerability definitions 176
Table 4.8.8: Hazard and effects register example 177
Table 4.8.9: Proposed scope of the assessment 178
Table 4.9.1: Vessels registered with home port status in 2022 within 55km of the Offshore Scoping Boundary and weight of landed catch at each port in 2021 184
Table 4.9.2: Sources and impacts 188
Table 4.9.3: Impact pathways with receptors 190
Table 4.9.4: Definitions of sensitivity for commercial fisheries 194
Table 4.9.5: Magnitude criteria 195
Table 4.9.6: Proposed scope of the assessment 196
Table 4.10.1: Mineral and aggregate extraction locations within the study area 203
Table 4.10.2: Sources and impacts 207
Table 4.10.3: Impact pathways with receptors 208
Table 4.10.4: Definitions of value/sensitivity for other sea users 209
Table 4.10.5: Example definitions of the magnitude levels for other sea users 210
Table 4.10.6: Proposed scope of the assessment 211

Table 4.11.1: Pre-screening stage 214
Table 4.11.2: Long list of projects to be taken forward for Stage 2 216

4.1 Evolution of the Offshore Scheme

4.1.1 Introduction

4.1.1.1 The current stage of Project design is the result of an iterative process that commenced at project inception when the initial need to reinforce the network in the South East of England was identified in 2019.

4.1.1.2 **Part 1, Chapter 3, Main Alternatives Considered** describes National Grid's approach to options appraisal and summarises both the strategic options that have been considered for the Project as well as the routeing and siting process. This chapter provides a more detailed summary of the routeing and siting appraisal relevant to the evolution of the Offshore Scheme from the point at which a preferred strategic option was selected to definition of the Offshore Scheme Scoping Boundary as illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary**.

4.1.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 3, Main Alternatives Considered;**
- **Part 2, Chapter 1, Evolution of the Suffolk Onshore Scheme;** and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme.**

4.1.1.4 This chapter is supported by the following figure:

- **Figure 4.1.1 Evolution of the Offshore Scheme.**

4.1.2 Network Connection Points

4.1.2.1 The preferred strategic option identified Richborough substation as the network connection point in Kent and the Sizewell Area as the preferred connection point in Suffolk (**Part 1, Chapter 3, Main Alternatives Considered**). This was used as the basis for defining the routeing and siting study area.

4.1.3 Study Area

4.1.3.1 The routeing and siting study area for the Offshore Scheme extended from Mean High-Water Spring (MHWS) on the Kent coast (from Herne Bay on the north Kent coast to Kingsdown on the east Kent Coast) to MHWS on the Suffolk Coast (from Hellesley in the south to Dunwich in the north). The routeing and siting study area is illustrated on **Figure 1.3.1 Routeing and Siting Study Area**.

4.1.4 Landfall Areas of Search

Areas of Search - Suffolk

4.1.4.1 Five landfall areas of search were initially identified in Suffolk. These are illustrated on **Figure 1.3.2 Suffolk Landfall Areas of Search**. The southernmost area of search

(S1) was identified to the south of Aldeburgh, north of the Alde and Ore River. A second area of search was identified between Aldeburgh and Thorpeness (S2). A third area of search was identified between Thorpeness and Sizewell (S3). This area was further split down into two sub areas, south (S3) and north (S3N). A fourth area (S4) at Sizewell and the northern most area of search was identified to the north of Sizewell, south of Minsmere (S5).

Areas of Search - Kent

4.1.4.2 Six landfall areas of search were identified in Kent, which were split geographically across Pegwell Bay, Broadstairs, and the north Kent coast. These are illustrated on **Figure 1.3.3 Kent Landfall Areas of Search**. One area of search (K1) was identified within Pegwell Bay, which stretched from the settlement of Ramsgate to the settlement of Deal. One area (K1a) was identified at North Foreland between the settlements of Margate and Broadstairs. Four areas of search (K2, K3, K4 and K5) were identified along the north Kent coast between the settlements of Herne Bay and Birchington.

4.1.5 Indicative Marine Alignments

4.1.5.1 Due to the extensive geographical study area in the marine environment and large-scale nature of many of the constraint features, in order to perform a meaningful routeing appraisal in the marine environment it was necessary to identify indicative marine alignments (500m wide, representing a typical offshore working corridor) connecting the identified landfall areas of search in Suffolk to those in Kent. These were developed based on the following criteria:

- shortest route possible to minimise the cable length, which in turn reduces the manufacturing and installation cost as well as the environmental and security footprint;
- avoidance of environmentally sensitive areas where possible;
- avoidance of areas that have restricted movement i.e., anchorages;
- avoidance of known wrecks and areas of archaeological importance;
- avoidance of offshore installations (renewable, oil/gas, wells/platforms, etc.);
- limiting the need to cross in-service cables and pipelines and, where crossings would be necessary, corridors and alignments were routed to ensure the crossing angle would be optimal and water depth would be sufficient for navigational safety;
- routed to consider shipping density, i.e., anchorage areas, high density shipping lanes;
- avoidance of hazardous seabed terrain (e.g., bedrock outcrop and mobile sediments) where possible, ensuring the cable would be protected by achieving an acceptable depth of burial; and
- limiting the impact on third-party considerations including seasonal fishing activities, local tourist trade, and military practice zones.

Summary of Appraisal Outcomes

4.1.5.2 The Offshore Scheme and associated indicative marine alignments are divided into three main sections, the approach to landfalls in Suffolk (landfalls and alignments with

prefix S), the central section (alignments with prefix C) and the approach to the Kent landfalls (landfalls and alignments with prefix K) (**Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 1 of 4**).

Marine alignments and landfalls (up to MHWS) – Suffolk

4.1.5.3 The section of the Suffolk coast within the routeing and siting study area has a number of nature conservation designations, with all potential marine alignment options interacting with these designations to varying degrees on the approach to the landfall.

4.1.5.4 All marine alignments approaching the Suffolk coast intersect with the Outer Thames Estuary Special Protection Area (SPA) and the Southern North Sea Special Area of Conservation (SAC).

4.1.5.5 Marine alignments S1 and S2 are not constrained in the offshore environment.

4.1.5.6 Marine alignment option S2 intersects with the Leiston-Aldeburgh Site of Special Scientific Interest (SSSI) and The Haven, Aldeburgh Local Nature Reserve (LNR) both of which extend onto the foreshore, however the use of a trenchless technique, if feasible, at the landfall could mitigate impacts.

4.1.5.7 Marine alignment option S3 is considered significantly constrained in the immediate offshore environment due to the rocky reefs comprised of cemented limestone-rich shells in the immediate offshore environment known as the Coralline Crag, which is an important feature for coastal processes. This alignment also intersects with the Leiston-Aldeburgh SSSI at landfall; however, the use of a trenchless technique, if feasible, at the landfall could mitigate impacts.

4.1.5.8 Marine alignment option S3 is also potentially constrained in the immediate offshore by the proposed export cable route of the East Anglia One North and East Anglia Two developments (**Figure 4.10.1 Offshore Infrastructure in the Study Area**).

4.1.5.9 Landfall area of search S3 and associated marine alignment S3N is less constrained by the Coralline Crag in the immediate offshore environment however this location is constrained by the presence of existing infrastructure, namely the Concerto submarine telecommunications cable and the export cables of Greater Gabbard and Galloper offshore windfarms as well as the proposed (and consented) Sizewell C Nuclear Power Station development.

4.1.5.10 Landfall area of search S4 and associated marine alignment S4 is constrained by the existing Sizewell B Nuclear Power Station site including the intake/outtake pipes located in the immediate offshore area in front of Sizewell B.

4.1.5.11 Landfall area of search S5 intersects with the Minsmere-Walberswick Heaths and Marshes SSSI/SAC and the Minsmere-Walberswick SPA/Ramsar at the landfall including in the intertidal area, however the use of a trenchless technique, if feasible, at the landfall could mitigate impacts.

4.1.5.12 Landfall areas of search S4 and S5 and associated marine alignment options S4 and S5 are considered to be more constrained than the other options due to the additional number of offshore crossings that would be required and also the proposed Sizewell C development.

Summary of relevant terrestrial constraints – Suffolk

4.1.5.13 All landfall areas of search in Suffolk are within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB).

4.1.5.14 Whilst the marine alignment to landfall area S1 was relatively unconstrainted, the terrestrial green corridor was constrained technically by two large river crossings of the Alde and Ore River, which would also require a crossing of the Alde, Ore and Butley Estuaries SAC in two places and the Alde-Ore Estuary SPA and SSSI in three places. A large proportion of this corridor is within the Flood Zone and this corridor would require the longest route within the Suffolk Coasts and Heaths AONB. Access to this corridor was also considered to be very limited, in particular in the area between the two large river crossings.

4.1.5.15 The marine approach to the landfall area S2 has few constraints, however the Leiston-Aldeburgh SSSI and North Warren RSPB reserve could not be avoided without the use of trenchless construction techniques at this landfall. The red terrestrial route corridor from this landfall area of search also includes the pinch-point along Leiston Road. The majority of the landfall area of search is within Flood Zone 2 and 3, depending on the installation technique, construction works within these zones are potentially avoidable.

4.1.5.16 Onward terrestrial routeing from landfall S3 within the blue corridor would likely require a crossing of the Sandlings SPA and Leiston-Aldeburgh SSSI although the potential for significant effects would likely be avoidable through the use of trenchless construction techniques.

4.1.5.17 The purple terrestrial route corridor connecting to S3 landfall area of search and marine alignment S3N could avoid the designated sites for ecological conservation but could not avoid either of the two following pinch points. The first being a pinch-point to the south of Aldringham at the crossing of the Hundred River. This area is constrained by the Hundred River itself, the crossing of the B1353 and the B1122, and an area of woodland and properties. In addition, the proposed cables for the East Anglia One North and Two Offshore Windfarms are proposed to be routed through this same pinch-point. The second being a pinch-point to the northwest of Leiston associated with the offsite works for the proposed Sizewell C Nuclear Power Station including an area which has recently been established for ecological mitigation measures related to the project.

4.1.5.18 Landfall area of search S4 was identified as being significantly constrained from a terrestrial perspective as no onward terrestrial route corridor was identified from this landfall area of search, as it is significantly constrained by the existing Sizewell B Nuclear Power Station.

4.1.5.19 Landfall area of search S5 is located to the north of the existing Sizewell Nuclear Power Station and south of Minsmere New Cut drainage channel. The whole of the intertidal area and immediate terrestrial area is designated as Minsmere-Walberswick Ramsar and SPA, Minsmere to Walberswick Heaths & Marshes SAC and SSSI and Minsmere RSPB Reserve. These designated sites are unavoidable within this area of search, but the use of trenchless construction techniques could be used to avoid potential significant effects. A second crossing of the Minsmere to Walberswick Heaths & Marshes SSSI and Minsmere RSPB Reserve would also be required for any onward terrestrial routeing. The majority of this landfall area of search is within Flood Zones 2 and 3 and construction within the Flood Zone could not be avoided. Access to this

landfall area of search is also very limited and likely to require a long temporary access road.

4.1.5.20 The onward terrestrial corridor for landfall area of search S5 also crosses a large area of the proposed Sizewell C Nuclear Power Station development area which could significantly constrain the ability to route through this area and also have programme implications associated with construction sequencing of the two developments.

Overall summary – Suffolk

4.1.5.21 When considering marine constraints alone there is a preference for Landfalls S1, S2 and S3 with associated marine alignments S1, S2 and S3N respectively (**Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 2 of 4).**

4.1.5.22 When considering the constraints from both a terrestrial and marine perspective, on balance, landfall area of search S2 is preferred with associated marine alignment S2 connecting to the red corridor. An alternative marine alignment of S3N connecting to the northern part of landfall area of search S3 connecting to the terrestrial purple corridor is also being proposed at this stage, this alternative is included as there are further ground investigations required to inform final decision making (**Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 3 of 4**).

Marine alignments and landfalls (up to MHWS) - Kent

4.1.5.23 The section of the Kent coast within the routeing and siting study area has a number of national and international nature conservation designations, with all potential marine alignment options interacting with several of these designations, to varying degrees, on approach to the landfall areas of search.

4.1.5.24 Detailed consideration has therefore been given to the potential activities associated with cable installation and operation on the type of features for which the sites are designated, the distribution of the features within the sites and the sensitivity and recoverability of the features. The extent of interaction and potential for mitigation were also considered.

4.1.5.25 Marine alignment sections connecting into landfalls K2, K3 and K4 (**Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 1 of 4**) were determined to be the least preferred options from a nature conservation perspective due to the length of interaction with the Margate and Long Sands SAC and the interaction with the Thanet Coast SSSI/ Marine Conservation Zone (MCZ) and the Thanet Coast & Sandwich Bay SPA/Ramsar. Sections K2 and K3 also intersect with the Thanet Coast SAC.

4.1.5.26 Several significant constraints were also identified around the marine alignment sections K2, K3 and K4 approaching landfalls on the North Kent coast from a physical environment perspective. It is unlikely that mobile sandbanks could be avoided, some of which may be exposed at low tide, which presents a considerable exposure and engineering risk. It is also likely that there would be some interaction with key anchorage areas offshore of Margate.

4.1.5.27 All routes making landfall at K1 in Pegwell Bay (**Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 1 of 4)** intersect with the Sandwich Bay to Hacklinge Marshes SSSI, Sandwich and Pegwell Bay NNR, Sandwich Bay SAC, Thanet Coast & Sandwich Bay SPA/Ramsar and the Goodwin Sands MCZ.

4.1.5.28 K1a at Broadstairs (**Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 1 of 4)** also intersects with areas designated for their nature conservation value - Thanet Coast SAC/SSSI/MCZ and Thanet Coast & Sandwich Bay SPA/Ramsar.

4.1.5.29 Although the K1a marine alignment to landfall area of search K1a and all marine alignments to landfall area of search K1 are all constrained from a biological environment perspective, there is a slight preference for K1a at Broadstairs. This is because the extent of interaction is smaller, and it would also be possible to avoid potential interaction with the Goodwin Sands MCZ in the offshore environment. There is a preference for marine alignments making landfall to the south in Pegwell bay as the extent of interaction with the designations is reduced towards the south of this landfall area.

4.1.5.30 Based on the available desktop information it was initially considered that the Goodwin Sands MCZ could not be avoided by the identified marine alignments connecting to landfalls in Pegwell Bay. This interaction is due to the routeing in this area being constrained, to the east, by the Goodwin Sandbank - routeing over the Goodwin Sandbank could increase the risk of cable exposure during the lifetime of the cable. This could subsequently result in the requirement for additional rock protection associated with any remedial works, potentially resulting in permanent habitat loss. To the west routeing is constrained by the Ramsgate dredged channel and an area of sandwave fields.

4.1.5.31 Additionally, when routeing east out from Pegwell Bay, in order to head north the route must cross the Nemo Link cable and the Thanet Offshore Windfarm export cables, requiring the placement of rock protection on the seabed at these locations, potentially resulting in permanent habitat loss, including within the Goodwin Sands MCZ. The water depths in this area are very shallow, slowly gaining depth moving to the east. In order to ensure alignment with guidance regarding reductions in water depths that could pose a hazard to marine vessels (reduction of no more than 5% of water depth – advice from Maritime Coastal Agency[1]) proposed crossings locations should be located in areas with a suitable water depth.

4.1.5.32 Considering the factors described above (dredged areas, acceptable navigational depths and seabed features) routeing within the northwest corner of the Goodwin Sands MCZ was considered likely to be unavoidable.

4.1.5.33 Marine routeing into Broadstairs (landfall area of search K1a) would require fewer marine cable crossings than the routes connecting into Pegwell Bay (landfall area of search K1) as there would be no requirement to cross with Thanet Offshore Windfarm export cables and the Nemo Link interconnector. However, landfall areas of search K1a is located at a popular recreational beach location, meaning there could be a greater temporary recreational impact during construction at this landfall location.

4.1.5.34 Although landfalls in Pegwell Bay (landfall area of search K1) would interact with designated sites, these could be largely mitigated by using trenchless techniques, such as Horizontal Directional Drilling (HDD). This would avoid/reduce the need to trench across areas of saltmarsh and intertidal habitat, which could potentially result in greater habitat loss and water quality effects.

4.1.5.35 It has been assumed that access to the seaward end of the potential HDD in the intertidal area will be from the sea by a marine vessel or limited terrestrially to the site

[1]Maritime and Coastguard Authority (MCA) (2021). MGN 654 (M+F) Offshore Renewable Energy Installations (OREI) safety response. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/980898/MGN_654_-_FINAL.pdf.

of the disused hoverport, to avoid impacts to the sensitive saltmarsh habitat in the northern part of the bay.

Summary of relevant terrestrial constraints – Kent

4.1.5.36 Of the three corridors that connect with the Pegwell Bay K1 landfall area of search, the red and blue corridors are significantly constrained from a traffic and access perspective, with key issues including access to the east of the River Stour and weight restrictions on local roads around the Sandwich Bay Estate and Royal St George and Royal Cinque Ports golf courses.

4.1.5.37 All three corridors that connect with the Pegwell Bay landfall area of search K1 interact with sites designated for their nature conservation value; whilst the blue corridor minimises that interaction, it is the longest corridor of the three and would require a crossing of the River Stour at a point where is it designated as a Ramsar, SAC, SPA and SSSI. Access to the red corridor is limited and this corridor would also require a crossing of the River Stour. Both the red and green corridors would require a crossing of a golf course. Whilst the green corridor interacts with a larger area of the designated sites for nature conservation this would be temporary and short term and this corridor represents the most direct connection to either of the converter site option areas and has fewer river and road crossings.

4.1.5.38 Both the red and the blue corridors extend across a large area of Flood Zone and would require several watercourses associated with the River Stour to be crossed. The blue corridor would require crossing the River Stour at a point where is it designated as a Ramsar, SAC, SPA and SSSI; although, if feasible, the river could be crossed using trenchless techniques.

4.1.5.39 Both the green and red corridors intersect with golf courses; however, it is proposed that a trenchless technique, if feasible, would be used at these locations to minimise disturbance.

4.1.5.40 The green corridor which connects to the landfall area of search K1a at Broadstairs crosses a linear belt of development between the settlements of Margate and Ramsgate. This would require routeing the cable along either Star Lane or Farley Road, both of which are heavily constrained by several connected planning allocations for housing as well as a proposed extension to the cemetery. These constraints span the entire corridor west of the Westwood Industrial Estate and these factors significantly constrain this corridor.

4.1.5.41 The three corridors connecting the landfall areas of search located on the north Kent coast (K2, K3 and K4) were all significantly constrained from a traffic and access perspective, due to weight restricted bridge, sensitive receptors, and carriageway widths that are inadequate to allow two-way Heavy Goods Vehicle (HGV) movements. It is likely that extensive mitigation would be required, even during temporary construction work to facilitate safe access and to minimise other environmental effects (congestion, delays) that could arise because of additional HGV construction traffic on poorly suited roads. Careful routeing of the cables could avoid access issues around the Minster Marshes.

Overall summary – Kent

4.1.5.42 When considering marine constraints alone there is a preference for landfall area of search K1a with associated marine alignment K1a (**Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 2 of 4).**

4.1.5.43 When considering the constraints from both a terrestrial and marine perspective, on balance, landfall area of search K1 with associated marine alignment section K1c is preferred (**Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 3 of 4)**.

Marine alignments – central section

4.1.5.44 The central section of the offshore route is common to both the Suffolk and Kent alignment options. All central indicative marine alignments intersect with the Outer Thames Estuary SPA and Southern North Sea SAC.

4.1.5.45 There is a particularly constrained area within the central section where the north-eastern extent of the Margate and Long Sands SAC abuts the Sunk Traffic Separation Scheme (TSS). Also present are several aggregate extraction areas and deep-water shipping channels.

4.1.5.46 In addition, there are three proposed projects in this area, namely the NeuConnect Interconnector and the proposed Five Estuaries and North Falls Offshore Windfarms and associated export cables, as well as the existing Greater Gabbard and Galloper Offshore Windfarms.

4.1.5.47 Considering the potentially conflicting constraints relating to the biological environment, shipping and navigation and existing and proposed new infrastructure in this central section the emerging marine routeing preferences were discussed with marine stakeholders, including nature conservation bodies, port authorities and other developers to obtain their feedback to help inform decision making.

4.1.5.48 The draft outputs of the marine options appraisal were presented to stakeholders to help inform the decision making and reduce potential for consenting risk. This was undertaken in advance of the planned project-specific marine survey (summer 2021), to ensure the most likely route was surveyed.

4.1.5.49 The most significant marine survey route refinements based on stakeholder feedback were in the following areas:

- northeast of the Margate and Long Sands SAC
- southwest of Thanet Offshore Windfarm

4.1.5.50 These are discussed further below.

Northeast of the Margate and Long Sands SAC

4.1.5.51 The original proposed marine alignments in this area are the black routes shown on **Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 1 of 4**. These routes provided suitable seabed conditions for cable installation (geology and topography), whilst also being the most direct route to the Suffolk landfalls.

4.1.5.52 The route alignments were refined as a result of feedback from:

- Natural England;
- Maritime and Coastguard Agency;
- Trinity House;
- Port of London Authority;
- Harwich Haven Authority;
- Port of Felixstowe;

- North Falls Offshore Windfarm (OWF);
- Five Estuaries Offshore Windfarm; and
- the aggregate extraction operators of Areas 508, 509/3, 510/1 and 510/2 (**Figure 4.10.1 Offshore Infrastructure in the Study Area**).

4.1.5.53 Natural England expressed concerns regarding the potential impacts of crossing the proposed NeuConnect cable within the Margate and Long Sands SAC as the material required for the crossing would introduce hard substrate into a naturally sandy environment, which could permanently change the protected features in this site. Natural England also advised that their preference was for the project to avoid any cable installation in the protected site.

4.1.5.54 The navigational bodies also expressed concerns regarding the cable routeing in this area, specifically in relation to the potential for a reduction of navigable depths because of rock protection at the potential crossing with NeuConnect. Concerns were also raised relating to cable installation in this area, due to the high shipping density caused by the Long Sands Head Deep shipping channel; however, it was agreed that the implementation of a robust vessel management plan during installation could mitigate this issue.

4.1.5.55 The aggregate operators advised that their preference was for the route to be located to the east of Area 510/2 to minimise interaction with their operations (**Figure 4.10.1 Offshore Infrastructure in the Study Area, Sheet 1**).

4.1.5.56 Based on the above stakeholder feedback the black marine alignment furthest to the to the east (C8) was identified as this alternative (**Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 3 of 4)**:

- routes to the east of aggregate extraction Area 510/2; and
- crosses NeuConnect in deep waters outside Margate and Long Sands SAC and Long Sands Two Way Shipping Channel.

4.1.5.57 However, following consultation with the developers of North Falls Offshore Windfarm, it was established that they had identified the same area for their proposed export cable route, and they were undertaking their offshore survey imminently (**Figure 4.10.1 Offshore Infrastructure in the Study Area, Sheet 1**). As such, the route was reviewed again to try to avoid potential complications regarding crowding and installation and an alternative C8A (**Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 3 of 4**) was identified.

4.1.5.58 Discussions with Five Estuaries Offshore Windfarm highlighted potential constraints of the C8A alternative with their proposed export cable route (**Figure 4.10.1, Sheet 1 Offshore Infrastructure in the Study Area**).

4.1.5.59 Due to the proximity to the Sunk TSS, and the associated high shipping density to the north and east of these proposed export cable corridors, and the shallower waters and sensitive benthic habitats of the Margate and Long Sands SAC to the west, it was determined that a further deviation needed to be identified.

4.1.5.60 Factoring in the parameters (shipping density and water depth) provided by the navigational bodies, an additional marine alignment section, referred to as C8B (**Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 3 of 4**) was identified. This refined route alignment:

- avoids the higher density shipping areas in the Sunk TSS; and

- keeps the crossings of the proposed NeuConnect cable and North Falls and Five Estuaries offshore windfarms export cables in deeper water and out of the busy shipping lanes.

4.1.5.61 This results in a route deviating east to the centre of the Sunk TSS approach channels, where the shipping density is lower and the crossings could be in deeper water, routeing north through the centre of the Sunk TSS, where the shipping density is again lower, before routing west, north of the Harwich and Port of Felixstowe approach channel to avoid the higher shipping density in this area. The revised route received the support of the navigational bodies.

Southwest of Thanet OWF

4.1.5.62 The original preferred marine routeing in this area was the black route shown on **Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 3 of 4** (marine alignment section C4). This route provided suitable seabed conditions for cable installation (geology and topography). However, following stakeholder engagement the route needed to be refined because of feedback from the Port of London Authority, who expressed significant concerns regarding the potential decrease in water depths that would occur where the route would cross the proposed GridLink interconnector.

4.1.5.63 The Port of London Authority advised that because this area is an important area for shipping, and water depths are too shallow, they would not be able to support the routeing as originally proposed. They also advised that the Thanet Extension Offshore Windfarm DCO application, the export cable from which was also proposed to be in this area, was refused by the Secretary of State (SoS) due to potential impacts on shipping and navigation.

4.1.5.64 An alteration to the route was established, that has required a slight deviation to the original marine alignment section C4, referred to as C4A (**Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 3 of 4**) to increase the water depth of the crossing by an additional 3.5m. The Port of London Authority and other navigational bodies were consulted on the refined route and have advised that they are satisfied with the modification made to the route.

Summary

4.1.5.65 Considering the above factors, the preferred option from a marine appraisal perspective is marine alignment central section's C8B and C4A (**Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 3 of 4**).

4.1.6 Offshore Scheme Description

4.1.6.1 The evolution of the Offshore Scheme is illustrated on **Figure 4.1.1 Evolution of the Offshore Scheme, Sheets 1 – 4**.

4.1.6.2 The Offshore Scheme comprises of a marine HVDC cable from preferred landfall area of search S2 or alternative landfall area of search S3 in Suffolk to landfall area of search K1 in Kent. Marine alignment sections S2 or S3N, C8B, C4A and K1c are preferred.

4.1.6.3 Based on the outputs of the project marine geophysical and geotechnical survey undertaken summer 2021 there are a number of routeing refinements proposed within the scoping boundary. This includes potential routeing to avoid the Goodwin Sands MCZ. All route refinements will be informed by further project survey work.

4.1.6.4 For the purpose of scoping the Offshore Scheme Scoping Boundary, illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary** is 500m wide for the majority of the Offshore Scheme, representing a typical offshore working corridor within which the cable can be laid; however, the outputs of the project marine survey undertaken in summer 2021 have been analysed and as such there are some areas where the offshore scheme scoping boundary has been widened to allow flexibility for route optimisation. The Offshore Scheme is shown on **Figure 4.1.1 Evolution of the Offshore Scheme, Sheet 4 of 4**.

4.1.6.5 The proposed scope of assessment presented in Part 4, Chapters 2-11 is for the Project as described in **Part 1, Chapter 4, Description of the Project**.

4.2 Physical Environment

4.2.1 Introduction

4.2.1.1 This chapter presents how the physical environment assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Offshore Scheme as described in **Part 1, Chapter 4, Description of the Project**. This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how these potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

4.2.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Offshore Scheme Scoping Boundary hereafter referred to as the Offshore Scoping Boundary is illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary.**

4.2.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Methodology;**
- **Part 4, Chapter 1, Evolution of the Offshore Scheme;** and
- **Part 4, Chapter 3, Benthic Ecology.**

4.2.1.4 This chapter is supported by the following figures:

- **Figure 4.2.1 Physical Environment Study Area and Metocean Data Sites;**
- **Figure 4.2.2 Significant Wave Height;**
- **Figure 4.2.3 Wind Speed;**
- **Figure 4.2.4 Bathymetry of the Study Area;**
- **Figure 4.2.5 Bedrock Geology at the Kent Landfall;**
- **Figure 4.2.6 Bedrock Geology at the Suffolk Landfalls;**
- **Figure 4.2.7 Superficial Geology at the Kent Landfall;**
- **Figure 4.2.8 Superficial Geology at the Suffolk Landfalls;**
- **Figure 4.2.9 Seabed Sediments across the Study Area;** and
- **Figure 4.2.10 Average Suspended Sediment around the UK.**

4.2.2 Regulatory and Planning Context

4.2.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on the physical environment associated

with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

4.2.2.2 The following legislation is relevant to the marine physical environment:

- European Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy - commonly referred to as the Water Framework Directive[2];
- European Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of environmental policy[3]; and
- Marine and Coastal Access Act 2009[4] provides the legal mechanism to help ensure clean, healthy, safe and productive and biologically diverse oceans and seas[4].

Planning Policy

4.2.2.3 The following plans and policies are relevant to the marine physical environment.

National planning policy

- The UK Marine Policy Statement (MPS)[5] was adopted in 2011 and provides the policy framework for the preparation of marine plans and establishes how decisions affecting the marine area should be made.

Local planning policy

- The following marine plans have been considered in the development of this Scoping Report:
  - East Inshore and East Offshore Marine Plan[6]
  - South East Inshore Marine Plan[7]

Guidance

4.2.2.4 The following guidance is relevant to the marine physical environment:

[2] Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy. OJ L327, 22.12.2000 [online]. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32000L0060&from=en.

[3] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) [online]. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32008L0056&from=EN.

[4] Marine and Coastal Access Act 2009 [online]. Available at: https://www.legislation.gov.uk/ukpga/2009/23/contents.

[5] Department for Environment, Food and Rural Affairs (DEFRA) (2020). UK Marine Policy Statement. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf.

[6] Department for Environment, Food and Rural Affairs (DEFRA) (2014). East Inshore and East Offshore Marine Plans. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312496/east-plan.pdf.

[7] Department for Environment, Food, and Rural Affairs (DEFRA) (2021). South East Inshore Marine Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004493/FINAL_South_East_Marine_Plan__1_.pdf.

- Coastal Process Modelling for Offshore Windfarm Environmental Impact Assessment: Best Practice Guide[8];
- Cumulative Impact Assessment Guidelines – Guiding Principles for Cumulative Impact Assessment in Offshore Wind Farms[9];
- Guidelines for data acquisition to support marine environmental assessments of offshore renewable energy projects[10];
- Environmental Impact Assessment for offshore renewable energy projects[11];
- Best practice guidance for assessment, evaluation and monitoring of the possible effects of marine aggregate extraction on the coast – a Coastal Impact Study[12];
- Extraction by Dredging of Aggregates from England's Seabed[13];
- Guidance on Environmental Impact Assessment in Relation to Dredging Applications[14];
- Guidance on Best Practice for Marine and Coastal Physical Processes Baseline Survey and Monitoring Requirements to Inform EIA of Major Development Projects[15];
- Offshore windfarms: guidance note for Environmental Impact Assessment in respect of Food and Environmental Protection Act (FEPA) and Coast Protection Act (CPA) requirements: Version 2[16];
- Nature Conservation Guidance on Offshore Wind Farm Development[17];
- Licensing: Sediment Analysis and Sample Plans[18];

[8] ABPmer and HR Wallingford (2009). Coastal Process Modelling for Offshore Wind Farm Environmental Impact Assessment: Best Practice Guide. [online] Available at: https://www.researchgate.net/publication/228784265_Coastal_Process_Modelling_for_Offshore_Wind_Farm_Environmental_Impact_Assessment_Best_Practice_Guide/link/57582e5a08aef6cbe362a6df/download.

[9] RenewableUK (2013). Cumulative Impacts Assessment Guidelines: Guiding Principles for Cumulative Impacts Assessment in Offshore Wind Farms. [online] Available at: https://tethys.pnnl.gov/sites/default/files/publications/Cumulative-Impact-Assessment-Guidelines.pdf.

[10] Cefas (2012). Guidelines for data acquisition to support marine environmental assessments of offshore renewable energy projects. [online] Available at: https://tethys.pnnl.gov/sites/default/files/publications/CEFAS_2012_Eenvironmental_Assessment_Guidance.pdf.

[11] British Standards Institution (2015). Environmental impact assessment for offshore renewable energy projects. [online] Available at: https://knowledge.bsigroup.com/products/environmental-impact-assessment-for-offshore-renewable-energy-projects-guide/standard.

[12] British Marine Aggregate Producers Association and The Crown Estate (2013). Marine aggregate dredging and the coastline: a guidance note. Best practice guidance for assessment, evaluation and monitoring of the possible effects of marine aggregate extraction on the coast – a Coastal Impact Study. [online] Available at: https://www.bmapa.org/documents/Coastal_Impact_Study_Best_Practice_Guidance.pdf.

[13] British Marine Aggregate Producers Association and The Crown Estate (2017). Good Practice Guidance Extraction by Dredging of Aggregates from England's Seabed. [online] Available at: https://www.bmapa.org/documents/BMAPA_TCE_Good_Practice_Guidance_04.2017.pdf.

[14] Office of the Deputy Prime Minister (2001). Guidance on Environmental Impact Assessment in Relation to Dredging Applications.

[15] Brooks, A., Whitehead, P. and Lambkin, D. (2018). Guidance on Best Practice for Marine and Coastal Physical Processes Baseline Survey and Monitoring Requirements to inform EIA of Major Development Projects. Cardiff: Natural Resources Wales, NRW Report No: 243,119.

[16] Cefas (2004). Offshore Wind Farms: Guidance Note for Environmental Impact Assessment in Respect of FEPA and CPA Requirements, Version 2. [online] Available at: https://www.cefas.co.uk/publications/files/windfarm-guidance.pdf.

[17] Department for Environment, Food and Rural Affairs (DEFRA) (2005). Nature Conservation Guidance on Offshore Windfarm Development A guidance note on the implications of the EC Wild Birds and Habitats Directives for developers undertaking offshore windfarm developments, Version R1.9. [online] Available at: https://tethys.pnnl.gov/sites/default/files/publications/Nature_Conservation_Guidance_on_Offshore_Windfarm_Development.pdf.

[18] Marine Management Organisation (MMO) (2014). Marine Licensing: sediment analysis and sample plans, Details of sediment and sample analysis for marine licence applications. [online] Available at: https://www.gov.uk/guidance/marine-licensing-sediment-analysis-and-sample-plans.

- UK Climate Projections (UKCP18): sea level rise[19];
- EA 'Flood Risk Assessments: Climate Change Allowances[20];
- Isle of Grain to South Foreland Shoreline Management Plan (SMP)[21];
- Lowestoft to Felixstowe SMP[22]; and
- UK Government Guidance on undertaking WFD assessment in estuarine and coastal waters[23].

4.2.3 Study Area

4.2.3.1 The study area for the physical environment follows the alignment of the Offshore Scoping Boundary as shown in **Figure 4.2.1 Physical Environment Study Area and Metocean Data Sites** up to Mean High Water Springs (MHWS) at landfalls. However, in terms of metocean conditions, environmental influences will originate outside this area and the corresponding effects are also likely to extend beyond the limits of this boundary. Consequently, the offshore Zone of Influence (ZOI) will be determined by the dimensions and orientation of the spring tidal ellipses and the location of littoral sub-cell boundaries for the nearshore region.

4.2.4 Baseline Conditions

4.2.4.1 In order to assess the potential impacts of the Offshore Scheme on the marine physical environment, it is important to establish the baseline conditions in the study area and assess the likely future baseline conditions over the lifespan of the Project. For the purposes of this Scoping Report, the physical environment is defined as encompassing the following elements:

- Meteorological and Oceanographic (Metocean) Conditions (Wind, Waves and Tides);
- Bathymetry and Geology;
- Geomorphology and Sediment Transport;
- Marine Sediment Quality;
- Coastal Geomorphology; and
- Water Quality.

4.2.4.2 The component physical processes include tidal currents, water levels, wind, climate change, bathymetry, geology, geomorphology and seabed sediments, suspended

[19] Met Office (2022). UK Climate Projections, Sea level anomalies for marine projections around UK coastline, 2007-2100 (UKCP). [online] Available at: https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index.

[20] Environment Agency (2016). Guidance: Flood risk assessments: climate change allowances. [online] Available at: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

[21] Halcrow Group Limited (2010). Isle of Grain to South Foreland SMP Review. [online] Available at: https://se-coastalgroup.org.uk/shoreline-management-plans/isle-of-grain-to-south-foreland/.

[22] Oakes Associates Ltd. (2019). Shoreline Management Plan 7 - Lowestoft to Felixstowe SMP. [online] Available at: http://www.suffolksmp2.org.uk/.

[23] Environment Agency (2016). Guidance - Water Framework Directive assessment: estuarine and coastal waters. [online] Available at: https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters.

sediment, marine sediment quality, sediment transport processes and marine water quality.

Data Sources

4.2.4.3 An initial desk-based review of literature and data sources within the study area has been undertaken. The key data sources are summarised below.

- British Geological Survey (https://www.bgs.ac.uk/datasets)
- Cefas Climatology Report (2016). Waters Suspended Sediment Concentrations (SSC)[24]
- Cefas Suspended sediment concentrations (https://data.cefas.co.uk/view/18133) Monthly average non-algal Suspended Particulate Matter concentrations on the UK shelf waters
- EMODnet Bathymetry Portal (https://portal.emodnet-bathymetry.eu/): bathymetry data
- ABPmer SEASTATES (https://www.seastates.net/explore-data/): modelled wave, wind and tidal current.
- Atlas of UK marine renewables resources (https://www.abpmer.co.uk/experience/atlas-of-uk-marine-renewable-energy-resources/): modelled wave, wind and tidal current.
- United Kingdom Hydrographic Office (UKHO) - Published Charts and Tide tables: tidal diamonds with current stream data.
- UK Climate Projections (UKCP): sea level rise (https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index)
- EA 'Flood Risk Assessments: Climate Change Allowances (https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances): increase in wave height and wind
- Environment Agency Bathing Water Quality (https://environment.data.gov.uk/bwq/profiles/)
- Environment Agency Catchment Data Explorer (https://environment.data.gov.uk/catchment-planning)
- National Coastal Erosion Risk Mapping (NCERM) - National (2018 - 2021) https://data.gov.uk/dataset/7564fcf7-2dd2-4878-bfb9-11c5cf971cf9/national-coastal-erosion-risk-mapping-ncerm-national-2018-2021
- East Anglia ONE North Offshore Windfarm, Marine Geology, Oceanography and Physical Processes (Royal HaskoningDHV, 2019) https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010077/EN010077-001072-6.1.7%20EA1N%20Environmental%20Statement%20Chapter%2007%20Marine%20Geology,%20Oceanography%20and%20Physical%20Processes.pdfMarine

[24] Cefas (2016). Suspended Sediment Climatologies around the UK. Report for the UK Department for Business, Energy & Industrial Strategy offshore energy Strategic Environmental Assessment programme. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/584621/CEFAS_2016_Suspended_Sediment_Climatologies_around_the_UK.pdf.

Aggregate Regional Environmental Assessment (MAREA), MarineSpace 2010-2022. http://marine-aggregate-rea.info/

- Southern North Sea Sediment Transport Study, Phase 2 (HR Wallingford, 2002) https://eprints.hrwallingford.com/1461/1/SouthernNorthSeaSedimentTransport-EX4526-SNS2-main%20report.pdf

Metocean Conditions

4.2.4.4 The metocean conditions provided in UKHO Admiralty tide tables, the ABPmer SEASTATES database and the Atlas of UK marine renewables have primarily been considered at the scoping stage. Physical conditions will vary across the study area, between the offshore to nearshore and coastal environment. Metocean data provided in these data sets has been extracted close to both the Kent landfall and the two Suffolk landfalls (the resolution of the source data is not sufficient to differentiate between the two alternative landfall sites in Suffolk), along with two locations along the route (**Figure 4.2.1 Physical Environment Study Area and Metocean Data Sites**).

Tidal currents

4.2.4.5 Information on tidal currents taken from the Atlas of UK marine renewables resources (subsequently referred to as 'the Atlas'), represents conditions at mid-depth. Table 4.2.1 provides the spring and neap peak flow speeds for the four locations identified in **Figure 4.2.1 Physical Environment Study Area and Metocean Data Sites**, which are in a range of 0.52m/s to 1.15m/s. Based on the tidal excursion ellipses presented in the Atlas, the primary axis for tidal current directions is aligned north-east to south-west along the Offshore Scoping Boundary.

Table 4.2.1: Tidal current

Tidal Stage	P1 (Suffolk Landfalls)	P2	P3	P4 (Kent Landfall)
Spring Peak Flow (m/s)	1.15	1.00	0.84	0.58
Neap Peak Flow (m/s)	0.60	0.58	0.52	0.74

Water levels

4.2.4.6 Table 4.2.2 presents the standard tidal planes from the UKHO Admiralty tide tables (2020) for the study area, at the Kent Landfall and Suffolk Landfalls.

Table 4.2.2: Tidal water levels

Tidal Level (m above Chart Datum)	Kent Landfall	Suffolk Landfalls
Highest Astronomical Tide (HAT)	5.7m	3.4m
Mean High Water Springs (MHWS)	5.2m	2.7m

Mean High Water Neaps (MHWN)	4.0m	2.3m
Mean Sea Level (MSL)	2.7m	1.66m
Mean Low Water Neaps (MLWN)	1.4m	0.9m
Mean Low Water Springs (MLWS)	0.6m	0.3m
Lowest Astronomical Tide (LAT)	-0.3m	-0.2m

4.2.4.7 From Table 4.2.2 it is noted that the tidal range increases along the Offshore Scoping Boundary from north to south with tidal conditions near the Suffolk landfalls being closer to an amphidromic point (a point where the tidal range is almost zero) off the Suffolk coast near Lowestoft, approximately 40km to the north.

Wave and wind

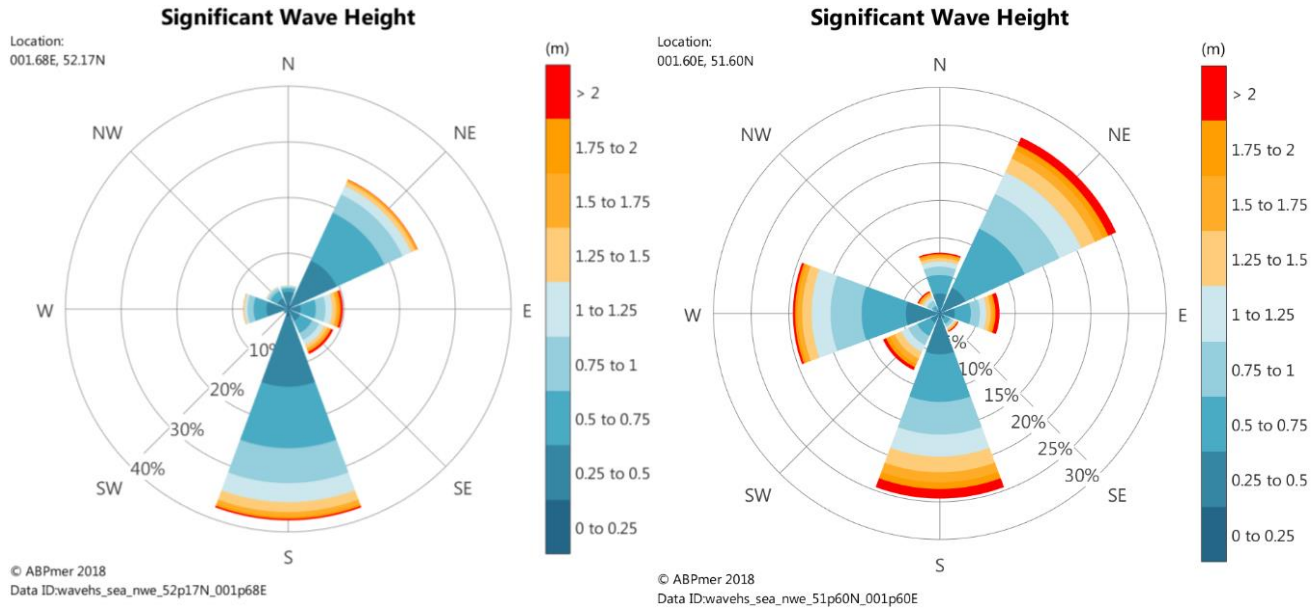
4.2.4.8 Wave and wind data have been extracted from the ABPmer SEASTATES database. The wave and wind data in Table 4.2.3 provide a useful indication of averages conditions likely to be encountered at the Kent and Suffolk landfalls, and the two locations identified. The extracted data shows the variability within the Offshore Scoping Boundary (**Figure 4.2.1 Physical Environment Study Area and Metocean Data Sites**). Annual mean wave heights are in the range of 0.6m and 0.9m, which are lower at the landfalls with the higher values found further offshore. Annual mean wind speeds are between 6.9m/s and 7.3m/s along the Offshore Scoping Boundary.

4.2.4.9 The wave and wind roses for these points are presented below in Figure 4.2.2 and Figure 4.2.3 respectively, which indicate that at the Kent landfall the dominant winds are from the north-east and south. Along the Offshore Scoping Boundary and up to the Suffolk landfalls, the dominant winds are from the south-west. The largest waves at the Kent landfall are from the north-east and south-west, along the route and towards the Suffolk landfalls they are from the north-east and south.

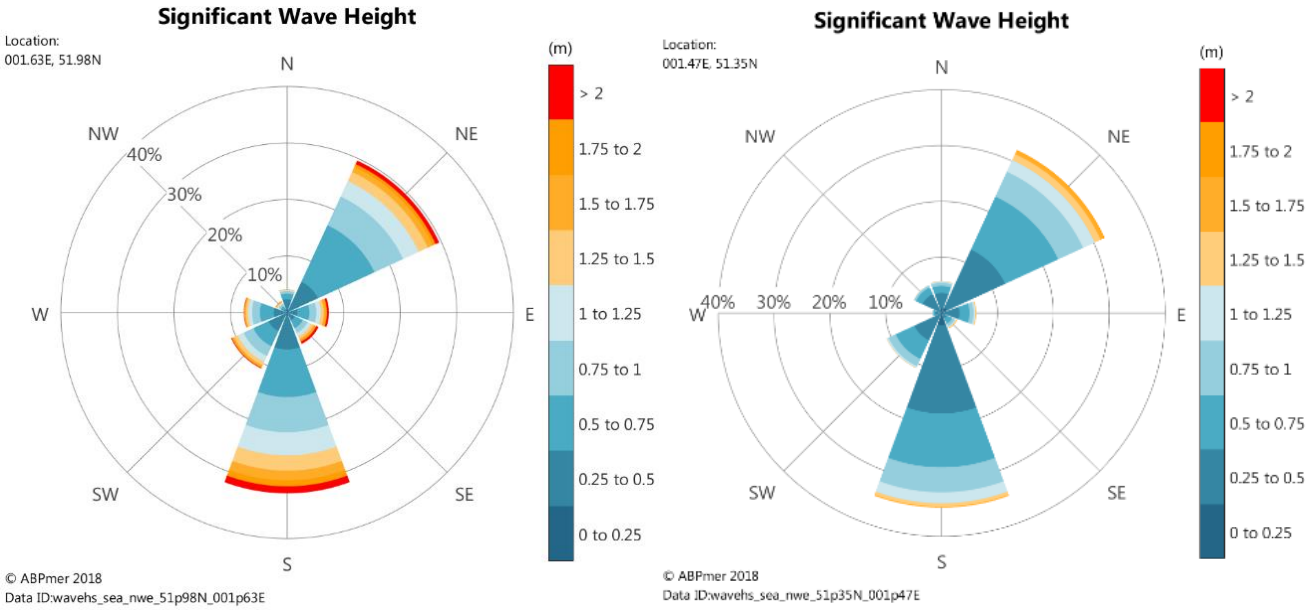
4.2.4.10 According to the Isle of Grain to South Foreland SMP, the forcing conditions that have the greatest influence on the Kent landfall shoreline are those generated by weather systems acting on the relatively shallow southern North Sea. There are two different directional sectors – although there is a greater fetch from the east and north-east leading to the generation of larger waves, the waves generated in the north-west are also associated with storm surges and higher water levels.

Table 4.2.3: Annual mean wave height and wind speed

Site	P1 (Suffolk Landfalls)	P2	P3	P4 (Kent Landfall)
Mean Wave Height (m)	0.7	0.8	0.9	0.6
Wind Speed (m/s)	7.0	7.1	7.3	6.9



P1 **P2**



P3 **P4**

Figure 4.2.2 Significant Wave Height

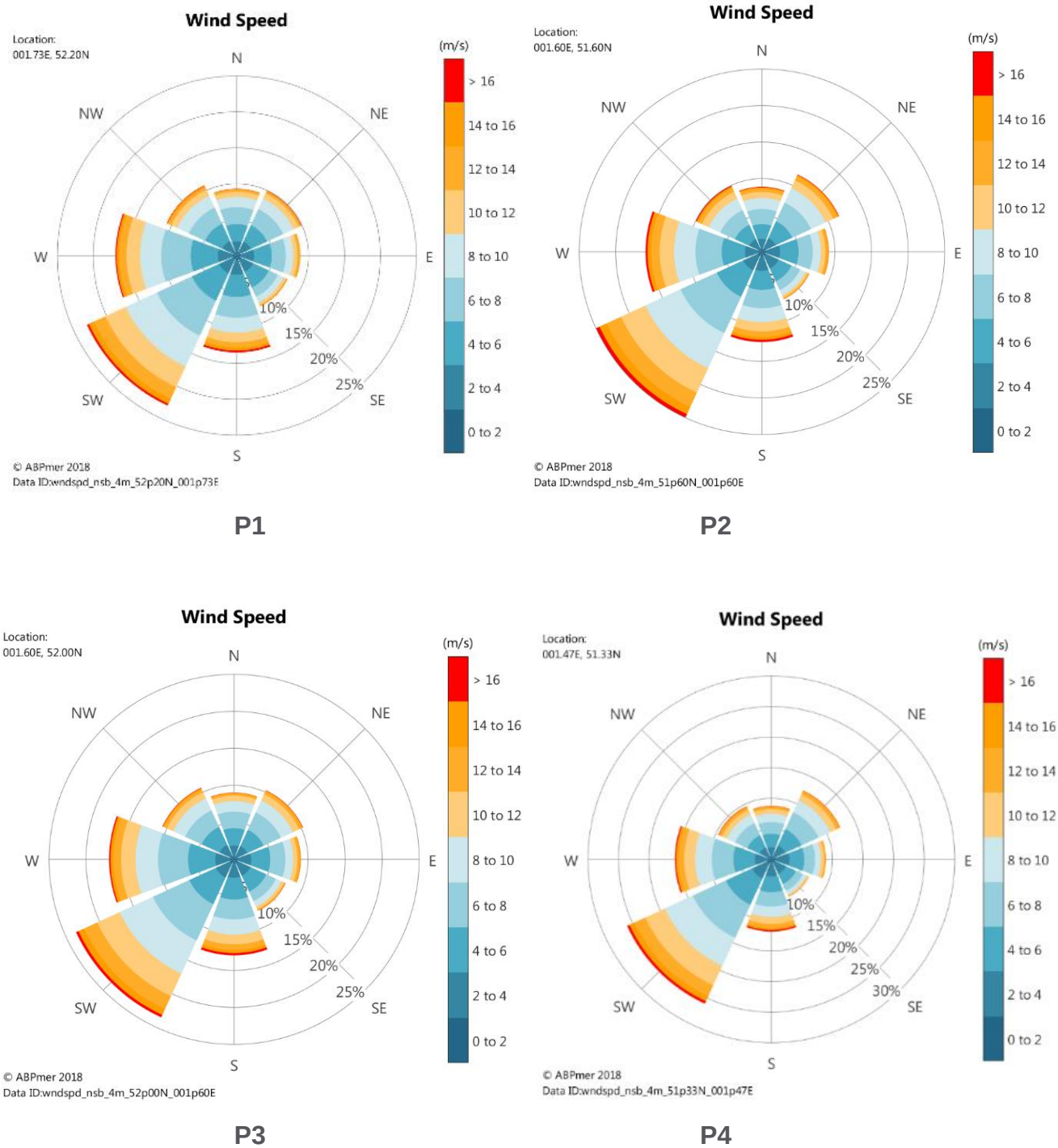


Figure 4.2.3 Wind Speed

Climate change

4.2.4.11 For the assessment of the impact of climate change on the physical environment in the future, the UK guidance and projection of sea level rise and changing storm conditions are applied to the baseline.

4.2.4.12 Guidance on changes in future wind and wave conditions has been provided by the Environment Agency[25]. The guidance states that wind speeds and wave height should be increased by 5% between 1990 and 2055, then by 10% for 2056 to 2115.

4.2.4.13 UKCP18[19] provides the most up-to-date assessment of climate change up to 2100 and beyond 2100. Sea level rise data along the UK coastline is available to download from the Met Office UKCP18 website at the grid square. By 2050, sea level rise may rise by 0.25m above 2022 levels at the Kent landfall and the Suffolk landfall. This is estimated for a high emissions scenario (RCP 8.5) in the 95th percentile.

Bathymetry and Geology

Bathymetry

4.2.4.14 Water depths in the study area have been obtained from the EMODnet Bathymetry Portal[26] (accessed April 2022). **Figure 4.2.4 Bathymetry of the Study Area** shows that the water depths range between 5m and 25m below Lowest Astronomical Tide (LAT).

Geology

4.2.4.15 The dominant bedrock types in the Offshore Scoping Boundary are shown in **Figure 4.2.5 Bedrock Geology at the Kent Landfall** and **Figure 4.2.6 Bedrock Geology at the Suffolk Landfalls** with the superficial deposits shown in **Figure 4.2.7 Superficial Geology at the Kent Landfall** and **Figure 4.2.8 Superficial Geology at the Suffolk Landfalls**. The bedrock geology at the Kent landfall comprises the Thanet Sand Formation, primarily composed of Thanet Sands along with Brickearth (silt superficial deposits). At the preferred and alternative Suffolk landfalls, the bedrock geology comprises undifferentiated gravel, sand, silt and clay of the Neogene to Quaternary rocks. The superficial deposits are Glacial Sand and Gravel.

Geomorphology and sediment transport

4.2.4.16 The British Geological Survey[27] (BGS) provides mapping of the seabed sediments along the Offshore Scoping Boundary, as presented in **Figure 4.2.9 Seabed Sediments across the Study Area**. The seabed sediment inshore around the Kent landfall at Pegwell Bay is classified as sandy gravel, and at the preferred Suffolk landfall (between Aldeburgh and Thorpeness) is classified as sand. At the alternative Suffolk landfall near Sizewell, the seabed sediment is also classified as sand. The

[25] Environment Agency (2021). Guidance - Flood Risk Assessments: Climate Change Allowances. [online] Available at: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

[26] EMODnet Bathymetry (2022). The European Marine Observation and Data Network. [online] Available at: https://www.emodnet-bathymetry.eu/.

[27] British Geological Survey (2022). GeoIndex Offshore. [online] Available at: https://www.bgs.ac.uk/datasets/marine-sediments-250k/.

seabed within the Offshore Scoping Boundary primarily consists of sandy gravel and gravelly sand with a range of other smaller deposits.

Suspended sediment

4.2.4.17 The Cefas Climatology Report[28] provides the spatial distribution of average non-algal concentrations of Suspended Particulate Matter (SPM) between 1998 and 2015 for the majority of the UK continental shelf (Figure 4.2.10). The largest plume concentrations are associated with large rivers such as the Humber Estuary, Thames Estuary, Severn Estuary and Liverpool Bay, where the mean values of SPM are above 30 mg/l. Based on the data from Cefas, the SPM concentration associated with the Offshore Scoping Boundary has been estimated to be in the range 30-50 mg/l increasing toto 40-50 mg/l at landfalls.

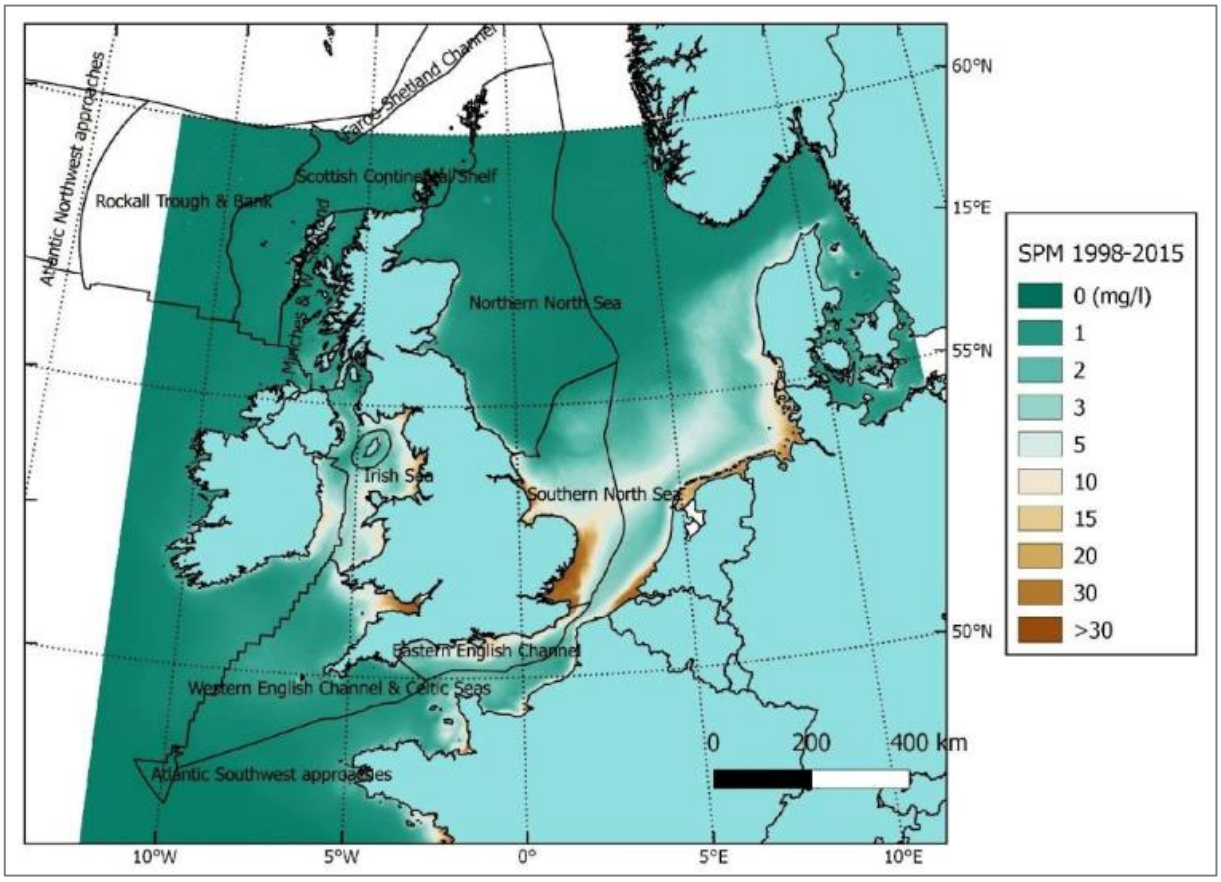


Figure 4.2.10 Average Suspended Sediment around the UK (Cefas 2016[26])

Marine sediment quality

4.2.4.18 Marine sediment quality can be affected by the deposition and accumulation of substances on the seabed. The Offshore Scoping Boundary is located in the Southern North Sea, adjacent to the Outer Thames Estuary. Historically the North Sea and its coastal zones have been heavily impacted by anthropogenic activities, which has

[28] Cefas (2016). Suspended Sediment Climatologies around the UK. Report for the UK Department for Business, Energy & Industrial Strategy offshore energy Strategic Environmental Assessment programme. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/584621/CEFAS_2016_Suspended_Sediment_Climatologies_around_the_UK.pdf.

resulted in significant chemical pollution[29] particularly relating to drilling fluids and produced waters discharged from oil and gas installations[30]. Additionally, the River Thames is a major input into the Southern North Sea, contributing industrial effluents and urban run-off for a large catchment[31].

4.2.4.19 As part of the geotechnical survey undertaken[32], grab samples of seabed sediment were collected along the Offshore Scoping Boundary for chemical analysis. This chemical analysis included the determination of concentrations of metals, organics, Total Hydrocarbon Content (THC), and Polycyclic Aromatic Hydrocarbons (PAHs).

4.2.4.20 For the purposes of scoping the following sections give an overview of general findings to be interpreted in greater detail in the Environmental Statement (ES).

Heavy and trace metals

4.2.4.21 Metals occur naturally in the marine environment and are widely distributed in both dissolved and sedimentary forms. Rivers, coastal discharges and the atmosphere are the principal modes of entry for metals into the marine environment, with anthropogenic inputs occurring as a result of industrial and municipal wastes. The metals most characteristic in offshore sediments include barium (Ba), chromium (Cr), lead (Pb) and zinc (Zn). Trace metal contaminants are most prone to various environmental interactions and transformations (physical, chemical and biological), potentially increasing their biological availability. Historically, within the Thames Estuary there has been increased sediment concentrations of copper (Cu), mercury (Hg), Pb, and Zn[34], while in the North Sea increased concentrations of Nickel (Ni), Cu, Zn, Cadmium (Cd), and Hg have been common[33].

4.2.4.22 Sediment chemistry values were compared against a number of different criteria including Cefas Action Levels[33] and Canadian Council of Ministers of the Environment (CCME) sediment quality guidelines (ISQG)[34] (including probable effect levels (PEL)). These are not ‘pass/fail’ criteria but highlight the need for further assessment.

4.2.4.23 Chemical analysis of sediment quality showed that metal concentrations varied along the survey route. Arsenic (As) was often found in concentrations above threshold values. There were a small number of sample sites where, Cr, Cu, Pb, and Ni were above threshold values.

[29] Logemann, A., Reininghaus, M., Schmidt, M., Ebeling, A., Zimmermann, T., Wolschke, H., Friedrich, J., Brockmeyer, B., Pröfrock, D. and Witt, G. (2022). Assessing the chemical anthropocene–development of the legacy pollution fingerprint in the North Sea during the last century. Environmental Pollution, 302, pp.119040.

[30] Cefas (2001). Contaminant Status of The North Sea: Technical Report Produced for Strategic Environmental Assessment – SEA2. Technical Report TR_004. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/197352/TR_SEA2_Contamination.pdf.

[31] Pope, N. and Langston, W. (2011). Sources, distribution and temporal variability of trace metals in the Thames Estuary. Hydrobiologia, 672(1), pp. 49-68.

[32] Environmental Survey Report: SEA Link Marine Survey. September – October 2021.

[33] Cefas (2022). Use of Action Levels in Dredged Material Assessments. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/573075/Appendix_B_Action_Levels.pdf.

[34] Canadian Council of Ministers of the Environment (CCME) (2022). Guidelines Canadian Environmental Quality Guidelines (CEQGs) provide science-based goals for the quality of aquatic and terrestrial ecosystems. [online] Available at: https://ccme.ca/en/current-activities/canadian-environmental-quality-guidelines.

Organics

4.2.4.24 Total Organic Carbon (TOC) is often used as a non-specific indicator of water quality. Furthermore, organic material in disturbed sediments can act as an energy source for marine microorganisms, reducing the dissolved oxygen availability in the water.

4.2.4.25 TOC and organic matter varied along the survey route, with an average content of 0.3% and 1.1%.

Total hydrocarbon content and polycyclic aromatic hydrocarbons

4.2.4.26 THC values are used to describe the quantity of hydrocarbon impurities present and are generally associated with compounds derived from crude oil, such as petrochemicals. PAHs are contaminants with moderate to low water solubility, generated from coal and oil combustion. They are also released during transportation or industrial use of petroleum; wastewater effluent discharge and sewer overflows; urban runoff; and natural seeps. Concentrations of THCs and PAHs are understood to be lower but still notable in the Southern North Sea, when compared the northern areas of the North Sea[33].

4.2.4.27 THC concentrations varied along the survey route and did not exceed the Dutch RIVM intervention value[35] at any of the sample sites. PAH concentrations varied along the survey route with threshold values exceeded at several sites.

4.2.4.28 The contaminant levels will be explored more fully, and compared to regional background levels where possible, in the ES.

Coastal geomorphology

4.2.4.29 The coastline between Aldeburgh and Thorpeness is characterised by the headland at Thorpeness and high ground at Aldeburgh, with the valley of the Hundred River and low-lying area situated behind the shingle bank at the foreshore. At the preferred Suffolk landfall, there is a net northerly sediment transport. Aldeburgh is situated south of the promontory of Thorpeness, which restricts the southward net littoral drift. The frontage is predominantly undefended, with a ‘Hold the Line’ policy where there are existing embankments and sea walls, as well as ‘Managed Realignment’ where there are natural defences. Where there are no defences, there is a ‘No Active Intervention’ policy. There is a risk of coastal erosion; 4m over the short term (20 years), 10m over the medium term (50 years) and 20m over the long term (100 years).

4.2.4.30 Further to the north at Sizewell, where the alternative Suffolk landfall would be located, the management policy is ‘Hold the Line’ changing to ‘Managed Realignment’ further to the north and ‘No Active Intervention’ to the south. Modelling studies[36] suggest that sand transport pathways are southwards along the Sizewell frontage but for shingle

[35] Rijksinstituut Voor Volksgezondheid En Milieu (RIVM) (2001). Technical evaluation of the Intervention Values for Soil/sediment and Groundwater: Human and ecotoxicological risk assessment and derivation of risk limits for soil, aquatic sediment and groundwater. [online] Available at: https://www.rivm.nl/bibliotheek/rapporten/711701023.pdf.

[36] Electricite de France (EDF) (unknown date). Sizewell Coastal Geomorphology and Hydrodynamics: Synthesis for Environmental Impact Assessment (MSR1 – Edition 4) BEEMS Technical Report TR311. [online] Available at: https://consult.environment-agency.gov.uk/psc/ip16-4ur-nnb-generation-company-szc-ltd-cb3997ad/supporting_documents/SZC%20WDA%20BEEMS%20TR311%20Ed.%204%20Sizewell%20Coastal%20Geomorphology%20Hydrodynamics%20Synthesis%20for%20Environmental%20Impact%20Assessment%20MSR1.4.%202020.pdf.

sized material, the net transport is effectively zero which explains the relatively low rates of shoreline change over recent years.

4.2.4.31 The Pegwell Bay frontage is a shallow inlet within the English Channel, astride the estuary of the River Stour. The frontage is characterised by a sand beach stretching to Ramsgate towards the north, and Pegwell Bay Nature Reserve to the south which features coastal habitats such as saltmarsh and mudflats. Sandbanks located off the north Kent coast are believed to influence coastal processes and sediment transport patterns. The complex pattern of offshore conditions generated by the different directional weather systems creates a range of wave energy conditions which impacts the coastal sediment transport processes. The net littoral drift is towards the south, with a drift convergence at Pegwell Bay. Transport rates reduce in the southward direction and fine sediments accumulate at this location. The frontage is predominantly undefended, with a 'Hold the Line' policy where there is an existing seawall, and a 'No Active Intervention' policy where there are no existing defences and no risk of coastal erosion[37].

Water quality

Water Framework Directive

4.2.4.32 A programme of monitoring and water classification is undertaken by the Environment Agency, as part of the Water Framework Directive (WFD) requirements. The most recent classification data is available from the Environment Agency Catchment Data Explorer[38].

4.2.4.33 The preferred Suffolk landfall and alternative Suffolk landfall sites are both within the Suffolk waterbody (Water Body ID: GB650503520002). This waterbody is classified as Moderate Overall Status, with Moderate Ecological Status and Fail Chemical Status. The waterbody is failing to achieve good status because of high concentrations of dissolved mercury containing compounds and Polybrominated diphenyl ethers (PBDE).

4.2.4.34 The Kent landfall site is within the Stour (Kent) waterbody (Water Body ID: GB520704004700). This waterbody is classified as Moderate Overall Status, with Moderate Ecological Status and Fail Chemical Status. The waterbody is failing to achieve good status because of high concentrations of dissolved mercury and PBDE.

4.2.4.35 An increase in suspended sediments is anticipated during the construction phase. The sediment plumes are likely to settle out within a short distance of the activity and limit the overall footprint of the affected area. The significance of impacts associated with temporary increases in suspended sediment will be dependent upon the habitats and communities present within the Offshore Scoping Boundary.

4.2.4.36 A Water Framework Directive Screening Assessment will be undertaken, and relevant stakeholders will be consulted.

[37] Environment Agency (2018). National Coastal Erosion Risk Mapping (NCERM) - National (2018 - 2021). [online] Available at: https://www.data.gov.uk/dataset/7564fcf7-2dd2-4878-bfb9-11c5cf971cf9/national-coastal-erosion-risk-mapping-ncerm-national-2018-2021.

[38] Environment Agency (2021). Explore catchment data. [online] Available at: https://environment.data.gov.uk/catchment-planning/.

Bathing water

4.2.4.37 Water quality at designated bathing water sites in England is assessed by the Environment Agency[39]. The data indicates the bathing water near the Kent landfall is classified as 'Good'. At the Suffolk landfalls, there is no designated bathing water.

4.2.5 Embedded and Control & Management Measures

4.2.5.1 The assessment of significant effects will take account of mitigation measures, included those which are embedded within the design and control and management measures.

Embedded Measures

4.2.5.2 The identification of the Offshore Scoping Boundary has been designed to avoid areas of sensitive and mobile seabed where possible.

Control and Management Measures

4.2.5.3 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the physical environment assessment are:

- GM01 - designated (and as minimal as possible) anchoring areas and protocols shall be employed during marine operations to minimise physical disturbance of the seabed;
- GM03 - an offshore Construction Environmental Management Plan (CEMP) including an Emergency Spill Response Plan and Waste Management Plan, Marine Pollution Contingency Plan (MPCP), Shipboard Oil Pollution Emergency Plan (SOPEP) and a dropped objects procedure will be produced prior to installation;
- LVS01 - all project vessels shall adhere to the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention) (IMO, 2017);
- LVS02 - all project vessels must comply with the International Regulations for Preventing Collisions at Sea (1972) (IMO, 2019a), regulations relating to International Convention for the Prevention of Pollution from Ships (the MARPOL Convention 73/78) (IMO, 2019e) with the aim of preventing and minimising pollution from ships and the international Convention for the Safety of Life at Sea (SOLAS, 1974);
- LVS05 - drilling fluids required for trenchless operations will be carefully managed to minimise the risk of breakouts into the marine environment. Specific avoidance measures would include:
  - the use of biodegradable drilling fluids (PLONOR substances) where practicable,

[39] Environment Agency (2021). Bathing Water Quality. [online] Available at: https://environment.data.gov.uk/bwq/profiles/.

  - drilling fluids will be tested for contamination to determine possible reuse or disposal; and
  - if disposal is required drilling fluids would be transported by a licensed courier to a licensed waste disposal site.
- MPE01 - during the course of cable route clearance, specific activities will be completed to remove items from the seabed. Out of Service cables will be removed as per industry guidelines, larger debris including lost fishing gear will be removed prior to cable installation and a pre-lay grapnel run will be completed to ensure smaller debris is removed. In the event that abandoned, lost or discarded fishing gear (ALDFG) is encountered, it may be necessary in certain circumstances to bring ALDFG onto the vessel deck. In these instances, marked ALDFG will be returned to the local Marine Management (MMO)/ Inshore Fisheries and Conservation Authority (IFCA) office for onward retrieval by the owner of the marked gear, in line with existing best practice. Not all gear (particularly 'active' gear) is marked; if necessary to bring onto the vessel deck, unmarked gear will be disposed of via conventional onshore waste channels;
- MPE02 - cables will be buried to a target depth of 1.0m to 2.0m for the majority of the route, depending on a number of factors including sediment type and sediment mobility; and
- MPE03 - cable protection features (e.g. rock placement, mattresses and grout bags) will be installed only where considered necessary for the safe operation of the Project.

4.2.6 Potential for Significant Effects

4.2.6.1 The physical environment assessment will consider the construction, operation, maintenance and decommissioning of the Offshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

4.2.6.2 Changes in physical processes within the study area as a result of the Offshore Scheme are considered as 'sources' of a change and 'pathways' for effects which have potential influence on other environmental receptors. In some cases, a physical process feature can also be considered directly as a receptor, such as climate change impact on metocean conditions. Change in the metocean conditions can affect sediment transport and shoreline evolution where the cable landfalls are located. In this aspect, the potential effects and risks from climate change will be explored.

4.2.6.3 The proposed scope of the physical environment assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

4.2.6.4 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Offshore Scheme.

4.2.6.5 The potential for the Offshore Scheme to result in potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- unexploded ordnance (UXO) clearance;
- pre-installation geophysical surveys;
- pre-installation clearance of obstacles and debris;
- sand wave sweeping;
- cable installation and cable lay; and
- cable protection (e.g. rock placement, concrete mattresses).

Sources of operational impacts

- presence of cable protection.

Sources of maintenance impacts

- cable repair or replacement; and
- cable protection (e.g. rock placement, concrete mattresses).

Sources of decommissioning impacts

- removal of cable from seabed;
- removal of cable protection (e.g. rock placement, concrete mattresses); and/or
- abandonment of cable in seabed;

Potential impacts

4.2.6.6 Table 4.2.4 identifies the potential impacts that could result from the sources identified above.

Table 4.2.4: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance & decommissioning	Cable installation/removal including route clearance and cable lay activities	Changes in suspended sediment concentrations as a result of seabed disturbance and alteration of water quality through disturbance of potentially	Yes	**Scoped in**

		contaminated sediment		
Construction, maintenance & decommissioning	Cable installation, maintenance, removal activities	Disturbance of coastal morphology	Yes	**Scoped in**
Construction, operation & decommissioning	Presence of cable protection	Disturbance of coastal morphology	Yes	**Scoped in**
Construction, maintenance & decommissioning	Cable installation/removal including route clearance and cable lay activities	Alteration of water quality due to accidental leaks and spills from vessels	No - changes in water quality are likely to be temporary. The significance of potential impacts is considered to be negligible due to the measures committed to.	Scoped out
Construction, maintenance & decommissioning	Cable installation/removal including route clearance and cable lay activities	Changes to seabed morphology (bathymetry and bedforms)	Yes	**Scoped in**
Construction, maintenance, operation & decommissioning	All project activities	Changes in metocean conditions	No - installation of the subsea cable and the presence of vessels and other equipment are considered to be relatively small-scale and transient. These activities will not therefore influence metocean conditions such as water levels, currents and waves. These issues can therefore be scoped out from further consideration	Scoped out

Operation and decommissioning	Presence of cable protection	Changes in suspended sediment concentrations due to scouring around the edge of cable protection measures	Yes	**Scoped in**
Operation	Presence of cable protection	Disturbance/change to seabed morphology and coastal processes at landfall locations due to presence of cable protection measures	Yes	**Scoped in**
Operation	Climate change	Changes in metocean conditions and coastal erosion at landfall sites as a result of climate change	Yes	**Scoped in**

Impact Pathways with Receptors (Step 2)

4.2.6.7 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the physical environment study area.

4.2.6.8 Table 4.2.5 provides a summary of the impact pathways identified and those scoped into and out of the assessment for the Offshore Scheme (**Figure 1.1.4 Offshore Scheme Scoping Boundary**).

Table 4.2.5: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in / out
Changes to suspended sediment concentrations caused as a result	Water quality – increase in suspended sediment concentration	Yes – installation, maintenance and decommissioning of cables will cause disturbance to the seabed and generate	**Scoped in**

of seabed disturbance during construction, maintenance and decommissioning activities		additional suspended sediment into the water column. The scale of this disturbance will vary depending on the techniques utilised. There is potential to result in the re-suspension into the water column of contaminated sediments or the release of chemicals. Whilst significant impacts as a result of contaminated sediments are considered unlikely within the study area, the potential impact will be determined through analysis of seabed sediment samples and the sediment plume dispersion	
Changes to suspended sediment concentrations due to cable protection measures	Water quality – changes in suspended sediment concentration	Yes - cable protection measures could lead to localised erosion and the release of fine sediments into the water column	**Scoped in**
Changes to coastal and seabed morphology caused by cable installation, maintenance, and removal activities	Changes to coastal morphology/ nearshore and offshore seabed morphology	Yes - the use of trenchless techniques such as HDD would greatly reduce the impact to the coastal environment, though some trenching would still likely be required Disturbance of coastal morphology at the landfall sites is not anticipated by the buried cables if no external scour protections are required. As the requirement for external cable protection measures has not yet been confirmed, it is proposed that this is scoped in. Further surveys will clarify if there are likely to be any significant effects.	**Scoped in**

Changes to seabed morphology and sediment transport processes due to presence of cable protection measures	Seabed morphology	Yes - cable protection measures could lead to localised erosion and accretion of sediment potentially affecting seabed morphology.	**Scoped in**
Change in sediment transport at the coastline due to changes to the local hydrodynamic regime as a result of climate change	Coastal erosion	Yes - there is no risk of erosion at the Kent landfall, Pegwell Bay. However; the coastline between Aldeburgh and Thorpeness at the preferred Suffolk landfall there is a risk of erosion of up to 20m over the next 100 years. This area could experience increased erosion rates due to sea level rise and increased wave action due to climate change. To ensure the landfall is located inland of the current coastline, it is recommended that a desktop study is undertaken to investigate if the impact is significant and inform appropriate mitigation.	**Scoped in**

4.2.7 Proposed Assessment Methodology

Proposed Data Sources

4.2.7.1 Specific to the marine physical environment, the following will be considered:

- South East Inshore Marine Plan (DEFRA, 2021)[40];
- East Inshore and East Offshore Marine Plans (DEFRA, 2021)[41];
- Suspended sediment climatologies around the UK (CEFAS, 2016)[42];

[40] Department for Environment, Food, and Rural Affairs (DEFRA) (2021). South East Inshore Marine Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004493/FINAL_South_East_Marine_Plan__1_.pdf

[41] Department for Environment, Food and Rural Affairs (DEFRA) (2014). East Inshore and East Offshore Marine Plans. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312496/east-plan.pdf.

[42] Cefas (2016). Suspended Sediment Climatologies around the UK. Report for the UK Department for Business, Energy & Industrial Strategy offshore energy Strategic Environmental Assessment programme. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/584621/CEFAS_2016_Suspended_Sediment_Climatologies_around_the_UK.pdf.

- UK Climate Projections (UKCP): sea level rise (https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index);
- EA 'Flood Risk Assessments: Climate Change Allowances (https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances);
- UK Government Guidance on undertaking WFD assessment in estuarine and coastal waters - https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters
- Isle of Grain to South Foreland SMP - https://se-coastalgroup.org.uk/shoreline-management-plans/isle-of-grain-to-south-foreland/
- Lowestoft to Felixstowe SMP - http://www.suffolksmp2.org.uk/

Proposed Assessment Methodology

4.2.7.2 In many cases there is no defined receptor for the physical environment but instead the physical processes act as a pathway which has the potential to impact other receptors (i.e. increased deposition resulting from the disturbance of seabed material could have an adverse impact on benthic habitats). One exception to this is coastal morphology which will be considered as a receptor in its own right.

4.2.7.3 The worst-case scenarios will be identified for the different elements during the construction, maintenance, operation and decommissioning phases.

4.2.7.4 The assessment of baseline conditions will be collated from various sources of desk-based literature and data collection. The impact assessment will be carried out using a range of evaluation techniques including desk-based study, reference, standards/guidelines, best practice and experience of other similar schemes and projects in relation to the impact of marine cable routes. A wide range of impact types will be considered, including waves, currents, sediment disturbance, water quality, shoreline erosion and climate change. These impacts will be addressed using standard desktop assessment approaches, excluding any requirement for numerical modelling.

4.2.7.5 For each environmental parameter, Table 4.2.6 summarises the proposed data sources and intended approach to assess the effects on the physical environment. Where it is evidenced through existing data that a potential impact is unlikely to occur, it is recommended that these matters be 'scoped out' of the EIA process for the parameter under consideration.

Table 4.2.6: Assessment methodology of potential effects

Potential Effect	**Increase in suspended sediment concentrations as a result of construction, maintenance, operation and decommissioning along the cable route and at the landfall sites**
Data	To estimate the potential changes in levels of suspended sediment concentration and extent of plume during the cable construction and operation, the following data and studies will be used: • existing and planned bathymetric surveys;

	• existing metocean surveys: ADCP surveys and wave buoys; • existing and planned seabed sediment samples & particle size analysis; • existing database: Atlas of Marine Renewable Energy Resources; and, • previous assessments of similar activities for the cable routes.
Approach	Potentially sensitive receptors sensitive to modification of the natural concentration levels of suspended sediment. If sensitive receptors are found to be present, historical and new survey data will be used to inform conceptual understanding of the potential impact. The existing modelling and analysis results would be used as the evidence to inform assessments of direct and indirect impacts on any sensitive receptors provided that there is sufficient similarity in the environmental setting and cable burial activities causing sediment disturbance.
Potential Effect	**Disturbance of coastal morphology**
Data	To determine the potential changes to coastal morphology at the landfall sites during the construction and operational phases, the following data and studies at the landfall sites will be used: • historical imagery and topographic data; • historical descriptions and studies; and, • previously assessments of similar activities for other projects.
Approach	Potentially sensitive receptors include the morphology of the coastline and any designated features in areas of special protection. The desktop analysis will be undertaken to understand coastal process at the landfalls using the available data. The magnitude and extent of potential impacts will be estimated on the basis of the proposed landfall construction methods. Reference will be made to any relevant evidence or experience from actual cable landfall activities, where the environmental setting and proposed construction methods are sufficiently similar.
Potential Effect	**Changes to coastal erosion at the landfall sites**
Data	To qualify the significance of sea level rise, increase in wind and wave by climate change and study the potential impact on sediment transport and shoreline erosion at the landfall sites. The following data and studies will be used: • existing and planned bathymetric surveys and sediment samples • existing metocean surveys: wave buoys, current measurements; and, • EA climate change guidance and database.
Approach	Sea level rise and wave height increases due to climate change will be estimated for the defined lifespan using the EA database. If they are found to be significant, further study will be carried out.

Significance criteria

4.2.7.6 The appraisal methodology has been developed to incorporate the principles of the Institute of Environmental Management and Assessment (IEMA) guidelines for Environmental Impact Assessment. For consistency, the terms interaction, impact and effect, as defined in Table 4.2.7 below will be used throughout the appraisal.

Table 4.2.7: Terms and definitions

Terms	Definition
Interaction	The link between an activity and the receptor. There must be an interaction for an effect to occur.
Impact	The action that occurs as a result of an identified interaction. The predicted change in the baseline environment.
Effect	An observable consequence of impacts, usually measurable. Effects only occur when an activity or environmental impact is present within an environment that is sensitive to it.

4.2.7.7 The appraisal process ranks impacts according to their significance determined by considering magnitude of change and receptor sensitivity as described in the following sections.

4.2.7.8 The magnitude of a given impact must be ascertained to determine its significance. A summary of the magnitude criteria that are associated to specific impacts is detailed in Table 4.2.8.

Table 4.2.8: Magnitude criteria

Magnitude criteria	Definition
Large	Long term (>5 years) and/or regional level loss; or major alteration to key elements/features of the baseline condition such that post development character/composition of the baseline will be fundamentally changed.
Medium	Medium term loss and/or local level change (greater than the proposed Project footprint) or alteration to one or more key elements/features of the baseline conditions such that post development character/composition of the baseline condition will be materially changed.
Small	Short term, site specific and/or a minor shift away from baseline conditions. Changes arising from the alteration will be detectable but not material; the underlying character/composition of the baseline condition will be similar to the pre-development situation.
Negligible	Very little change from baseline conditions. Change is barely distinguishable, approximating to a “no change” situation.

4.2.7.9 The criteria for assessing the sensitivity of the receptor are defined in Table 4.2.9.

Table 4.2.9: Receptor sensitivity criteria

Receptor sensitivity criteria	Definition
High	Receptor has little or no ability to absorb change without fundamentally altering its character. For example: • receptor has low/no capacity to return to baseline conditions within Project life, e.g., low tolerance to change and low recoverability such as a physical feature formed over a geological time scale, or loss of access with no alternatives; • the receptor is a designated feature of a protected site, is rare or unique; or • receptor is economically valuable.
Medium	Receptor has moderate capacity to absorb change without significantly altering its character. For example: • receptor has intermediate tolerance to change. • medium capacity to return to baseline condition, e.g., >5 of up to 10 years. • the receptor is valued but not protected.
Low	The receptor is tolerant to change without significant detriment to its character. For example: • receptor has high tolerance to change, e.g., disturbance to unconsolidated seabed sediments or sandwaves; • high capacity to return to baseline condition, e.g., within 1 year or up to 5 years; or • the receptor is common and/or widespread.
Negligible	The receptor's character, survival or viability has a high tolerance to change.

4.2.8 Conclusion

4.2.8.1 In summary:

- a range of activities associated with the construction, operation, maintenance and decommissioning of the offshore scheme have been identified as possible sources of impacts that may affect the physical environment.
- an overview of the potential impacts on the physical environment have been identified and scoped in and out of for further review.
- potential impacts include:

- Changes in suspended sediment concentrations as a result of seabed disturbance and alteration of water quality through disturbance of potentially contaminated sediment
- Changes to seabed morphology, including bathymetry and bedforms
- Change in the metocean conditions can affect sediment transport and shoreline evolution where the cable landfalls are located.

- the possible impact of climate change on the physical environment is also highlighted. Therefore, over the lifetime of the project the risks from climate change are to be explored.

Proposed Scope of the Assessment

4.2.8.2 A summary of the proposed scope of assessment is provided in Table 4.2.10 below.

Table 4.2.10: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out	
			Marine Cable Route	Landfalls
Water quality – increase in suspended sediment concentration	Changes to suspended sediment concentrations caused as a result of seabed disturbance	Construction, maintenance and decommissioning	**Scoped in**	**Scoped in**
Water quality – increase in suspended sediment concentration	Changes to suspended sediment concentrations due to the presence of cable protection measures	Operation and decommissioning	**Scoped in**	**Scoped in**
Coastal morphology/ nearshore and offshore seabed morphology	Disturbance caused by activities in the intertidal zone during cable installation, maintenance and removal	Construction, maintenance, decommissioning	**Scoped in**	**Scoped in**
Seabed morphology	Localised erosion and accretion of sediment affecting seabed morphology due to presence of cable protection measures	Operation and decommissioning	**Scoped in**	**Scoped in**

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out	
			Marine Cable Route	Landfalls
Coastal erosion	Change in sediment transport at the coastline due to changes to the local hydrodynamic regime as a result of climate change	Operation	Scoped out	**Scoped in**

4.3 Benthic Ecology

4.3.1 Introduction

4.3.1.1 This chapter presents how the benthic ecology assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance, and decommissioning of the Offshore Scheme as described in **Part 1, Chapter 4, Description of the Project**. This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

4.3.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Offshore Scheme Scoping Boundary hereafter referred to as the Offshore Scoping Boundary is illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary**.

4.3.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Methodology;**
- **Part 4, Chapter 1, Evolution of the Offshore Scheme;** and
- **Part 4, Chapter 2, Physical Environment.**

4.3.1.4 This chapter is supported by the following figure:

- **Figure 4.3.1 Benthic Ecology Study Area and Designated Sites.**

4.3.2 Regulatory and Planning Context

4.3.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on benthic ecology associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

4.3.2.2 The following legislation is relevant to benthic ecology:

- Marine and Coastal Access Act 2009[43] provides the legal mechanism to help ensure clean, healthy, safe and productive and biologically diverse oceans and seas;

[43] The Marine and Coastal Access Act 2009 [online]. Available at: https://www.legislation.gov.uk/ukpga/2009/23/contents.

- The Conservation of Habitats and Species Regulations 2017[44] (amended 2019[45]) transposes the Habitats Directive (92/43/EEC) into UK legislation out to the 12 nautical mile (NM) limit;
- The Conservation of Offshore Marine Habitats and Species Regulations 2017[46] applies within the UK Offshore Marine Area (beyond the 12 NM limit);
- The Wildlife and Countryside Act 1981[47] (as amended) includes provisions relating to nature conservation;
- The Marine Strategy Regulations 2010[48] transposes the Marine Strategy Framework Directive (2008/56/EC) into UK legislation;
- The Water Environment (Water Framework Directive) (England and Wales)) Regulations 2017[49] transposes the EU Water Framework Directive (2000/60/EC) into UK legislation;
- Section 41 of the NERC 2006[50] lists species of principal importance for the purpose of conservation of biodiversity; and
- Environment Act 2021[51], will set clear statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water and waste, and includes the introduction of Biodiversity Net Gain (BNG).

Planning Policy

4.3.2.3 The following plans and policies are relevant to benthic ecology.

National planning policy

- National Policy Statements (NPS) - the UK Government produces NPS which set out the UK Government's objectives for the development of Nationally Significant Infrastructure Projects (NSIP). Those potentially relevant to benthic ecology are:
  - Overarching National Policy Statement for Energy – EN-1[52];

[44] The Conservation of Habitats and Species Regulations 2017. [online] Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents/made.

[45] Amended in response to the UK's exit from the European Union (EU), making the Habitats (92/43/EEC) and Wild Birds (2009/147/EC) Directives, operable from 1 January 2021, and creating a UK natural site network in place of the EU Natura 2000 ecological network.

[46] The Conservation of Offshore Marine Habitats and Species Regulations 2017. [online] Available at: https://www.legislation.gov.uk/uksi/2017/1013/made

[47] The Wildlife and Countryside Act 1981. [online] Available at: https://www.legislation.gov.uk/ukpga/1981/69

[48] The Marine Strategy Regulations 2010. [online] Available at: https://www.legislation.gov.uk/uksi/2010/1627/contents/made.

[49] The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. [online] Available at: https://www.legislation.gov.uk/uksi/2017/407/contents/made.

[50] Section 41 of the Natural Environment and Rural Communities Act 2006. [online] Available at: https://www.legislation.gov.uk/ukpga/2006/16/section/41.

[51] The Act has been enshrined into law; however, it is not anticipated to come into full effect until the end of 2023 (2025 for NSIPs).

[52]Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf [Accessed 09 August 2022].

  - Renewable Energy Infrastructure – EN-3[53];
  - Electricity Networks - EN-5[54];
  - National Planning Policy Framework[55];
  - Planning Practice Guidance – Natural Environment[56]; and
  - Planning Practice Guidance – Renewable and low carbon energy[57].
- National Planning Framework 2 (NPF2)[58], aims to co-ordinate policies of a spatial nature with investment priorities. Biodiversity is stated as one of the factors contributing to the core objectives of sustainable economic development.
- The UK Marine Policy Statement (MPS)[59] was adopted in 2011 and provides the policy framework for the preparation of marine plans and establishes how decisions affecting the marine area should be made.

Local planning policy

- The following marine plans have been considered in the development of this Scoping Report:
  - East Inshore and East Offshore Marine Plan[60]
  - South East Inshore Marine Plan[61]

4.3.3 Study Area

4.3.3.1 For intertidal ecology a study area of 2km either side of the Offshore Scoping Boundary has been considered. Although considered to be a larger study area than is likely to be needed, the study area will be reviewed as the assessment work proceeds to

[53] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Renewable Energy (EN-3). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47856/1940-nps-renewable-energy-en3.pdf [Accessed 09 August 2022].

[54] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Electricity Networks (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed 09 August 2022].

[55] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf [Accessed 09 August 2022].

[56] Department for Levelling Up, House and Communities and Ministry of Housing, Communities and Local Government (2019). Planning Practice Guidance – Natural Environment. [online] Available at: https://www.gov.uk/guidance/natural-environment#biodiversity-geodiversity-and-ecosystems [Accessed 09 August 2022].

[57] Department for Levelling Up, House and Communities and Ministry of Housing, Communities and Local Government (2015), Planning Practice Guidance – Renewable and Low Carbon. [online] Available at: https://www.gov.uk/guidance/renewable-and-low-carbon-energy [Accessed 09 August 2022].

[58] National Planning Framework (2021). [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2.

[59] Department for Food, Environment and Rural Affairs (DEFRA) (2020). UK Marine Policy Statement. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf [Accessed 09 August 2022].

[60] Department for Environment, Food and Rural affairs (DEFRA) (2014). East Inshore and East Offshore Marine Plans. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312496/east-plan.pdf.

[61] Department for Environment, Food, and Rural Affairs (DEFRA) (2021). South East Inshore Marine Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004493/FINAL_South_East_Marine_Plan__1_.pdf.

ensure it remains appropriate to the likely impact pathways, which also reflect any coastal morphology that could affect the Zone of Influence (ZOI).

4.3.3.2 For subtidal benthic ecology, a distance of 10km of the Offshore Scoping Boundary has been considered, which encompasses all likely ZOI to benthic receptors within the subtidal area.

4.3.3.3 These distances have also been used to screen for designated sites.

4.3.3.4 The benthic ecology study areas are shown on **Figure 4.3.1. Benthic Ecology Study Area and Designated Sites**.

4.3.4 Baseline Conditions

4.3.4.1 Benthic ecology refers to the diversity, abundance, and function of organisms living on (epifauna) or in (infauna) the seabed. Benthic communities are found in all marine habitats, from the deepest parts of the ocean to the intertidal zone. Physical factors such as water depth, sediment type, and supply of organic matter determine habitat types and species present, and therefore the composition of benthic communities.

Data Sources

4.3.4.2 The study area includes a diverse range of intertidal and subtidal benthic habitats and communities. To determine the baseline conditions of benthic ecology within the study area the following key data sources have been reviewed:

- Project-specific survey data;
- Kent Habitat Survey Partnership[62];
- European Marine Observation Data Network (EMODnet) Seabed Habitats Project data for broad-scale habitat maps of the study area[63];
- European Union Nature Identification System (EUNIS) for classifying benthic habitats[64];
- Defra Future Coast Project[65];
- Magic maps for designated and protected sites[66]; and
- Academic papers and online reports as available for the study area.

4.3.4.3 Consultation with stakeholders including the Marine Management Organisation (MMO), Natural England (NE), the Environment Agency (EA), and the Joint Nature

[62] The Kent Habitat Survey Partnership (2003). Kent Habitat Survey 2003, GB000329. [Accessed: 06 June 2022].

[63] European Marine Observation and Data Network (EMODnet) (2021). EUSeaMap 2021. [online] Available from: https://www.emodnet-seabedhabitats.eu/access-data/launch-map-viewer/ [Accessed 09 March 2022].

[64] European Environment Agency (2021). EUNIS habitat classification. [online] Available at: https://www.eea.europa.eu/data-and-maps/data/eunis-habitat-classification-1 [Accessed 09 March 2022].

[65] Department of Environment, Food and Rural Affairs (DEFRA) (2002). Future coast project. National Network of Regional Coastal Monitoring Programmes. [online] Available at: https://coastalmonitoring.org/ccoresources/futurecoast/ [Accessed 06 June 2022].

[66] Department of Environment, Food and Rural Affairs (DEFRA) (No Date). Magic Interactive Mapping. [online] Available at: https://magic.defra.gov.uk/home.htm.

Conservation Committee (JNCC) (amongst others where relevant) will take place and any additional baseline information available from these stakeholders will be taken into consideration.

Intertidal Baseline

4.3.4.4 The intertidal habitat within the Offshore Scoping Boundary at the preferred Suffolk Landfall located between Aldeburgh and Thorpeness, and the alternative northern landfall location at Sizewell, both primarily consist of 'littoral mixed sediments' (EUNIS A2.4) along a long shingle and sand shoreline. In the upper littoral fringe, 'littoral coarse sediment' (EUNIS A2.1) is present[67].

4.3.4.5 In Pegwell Bay, at the Kent Landfall, the intertidal habitats primarily consist of 'littoral mud' (EUNIS A2.3), whilst small patches of saltmarsh ('coastal saltmarshes and saline reedbeds' EUNIS A2.5) are present on the upper littoral fringe in the innermost areas of the bay and along the banks of the River Stour. At Ramsgate Sands, to the north of the landfall location, a combination of 'littoral mud' (EUNIS A2.3), 'barren or amphipod-dominated mobile sand shores' (EUNIS A2.22), and 'polychaetes in littoral fine sand' (EUNIS A2.231) have been identified[67] [68].

Subtidal Baseline

4.3.4.6 Project specific benthic surveys[69] identified a range of subtidal benthic habitats within the Offshore Scoping Boundary. These habitats primarily consist of the following: 'circalittoral mixed sediments' (EUNIS A5.44), 'circalittoral sand' (A5.25 / A5.26), and 'circalittoral coarse sediment' (EUNIS A5.14). Towards the Suffolk landfall locations, the habitat was predominately 'infralittoral sand' (A5.23/A5.24), whilst close to the Kent landfall, the subtidal habitat was mostly 'infralittoral mixed sediment' (EUNIS A5.43), and 'infralittoral / circalittoral coarse sediment' (EUNIS A5.13 / A5.14), including large areas of the encrusting polychaete worm '*Pomatoceros triqueter* together with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles' (EUNIS A5.141). Two areas of '*Sabellaria spinulosa* on stable circalittoral mixed sediment' (EUNIS A5.611) were identified within the Offshore Scoping Boundary south of Thorpeness, however, these were assessed as not covering a large enough area to be classified as a reef under Annex I (REF). Additionally, '*Mytilus edulis* beds on sublittoral sediment' (EUNIS A5.625) were also identified within the Offshore Scoping Boundary.

4.3.4.7 The benthic communities identified by the Project specific surveys were dominated, in terms of both abundance and diversity of fauna, by polychaete worms and crustaceans. Where coarse sediments were present encrusting animals such as barnacles were observed.

4.3.4.8 Additional benthic habitat mapping by Natural England (1995)[68] around Thanet Coast, identified areas of subtidal chalk reef ('communities on soft circalittoral rock' EUNIS A4.23) and subtidal kelp beds ('kelp and red seaweeds (moderate energy infralittoral

[67] European Environment Agency (2021). EUNIS habitat classification. [online] Available at: https://www.eea.europa.eu/data-and-maps/data/eunis-habitat-classification-1 [Accessed 09 March 2022].

[68] Natural England (1995). Mapping the distribution of benthic biotopes around the Thanet Coast, ENRR No. 154. [online] Available at: http://publications.naturalengland.org.uk/publication/64039.

[69] Environmental Survey Report: SEA Link Marine Survey. September – October 2021.

rock)' EUNIS A3.21) within the Offshore Scoping Boundary, close to the nearshore area of the Kent landfall.

Designated Sites and Protected Habitats

4.3.4.9 As part of the Project specific subtidal benthic surveys, one Annex I habitat, 'sandbanks which are slightly covered by sea water all the time' (H1110), as well as four habitats of 'principal importance', listed under Section 41 of the 2006 Natural Environment and Rural Communities (NERC) Act, consisting of 'peat and clay exposures', 'subtidal chalks', 'subtidal sand and gravels', '*Sabellaria spinulosa* reefs', and 'blue mussel beds' were identified within the Offshore Scoping Boundary. In addition, saltmarsh identified in the intertidal zone at Pegwell Bay as part of the Kent Habitat Survey Partnership[70], is representative of 'coastal saltmarsh', a habitat of 'principal importance'.

4.3.4.10 The key sites designated for the protection of benthic features, within the benthic ecology study areas, comprise of three Special Areas of Conservation (SAC), four Marine Conservation Zones (MCZ), and two Sites of Special Scientific Interest (SSSI) and are listed in Table 4.3.1 and shown on **Figure 4.3.1 Benthic Ecology Study Area and Designated Sites**.

Table 4.3.1: Sites designated for benthic ecology within the study area

Site name	Distance from Offshore Scoping Boundary	Summary
Thanet Coast SAC	<1km	The Thanet Coast SAC is adjacent to the Offshore Scoping Boundary close to Pegwell Bay and is designated for the protection of 'reefs' and 'submerged or partially submerged sea caves'
Margate and Long Sands SAC	2km	The Margate and Long Sands SAC is located west of the Offshore Scoping Boundary and is designated for the protection of the Annex I habitat 'sandbanks which are slightly covered by sea water all the time'
Sandwich Bay SAC	0km	The Sandwich Bay SAC covers the intertidal area of Pegwell Bay, where the Kent Landfall is located. This site is designated for the protection of a range of dune habitats, including shifting dunes along the shoreline (white dunes)
Goodwin Sands MCZ	0km	The Offshore Scoping Boundary crosses the Goodwin Sand MCZ close to the Pegwell Bay landfall. The MCZ is designated for the protection of 'subtidal coarse sediment', 'subtidal sand', 'blue

[70] The Kent Habitat Survey Partnership (2003). Kent Habitat Survey 2003, GB000329. [Accessed: 06 June 2022].

		mussel beds', 'moderate energy circalittoral rock' and 'Ross worm *Sabellaria spinulosa* reefs'
Thanet Coast MCZ	<1km	The Thanet Coast MCZ is located north of the Pegwell Bay landfall site and is designated to protect 'blue mussel *Mytilus edulis* beds', 'moderate energy circalittoral rock', 'moderate energy infralittoral rock', 'peat and clay exposures', 'ross worm *Sabellaria spinulosa* reefs, 'stalked jellyfish *Calvadosia cruxmelitensis*' and *Haliclystus* spp.', 'subtidal chalk', 'subtidal coarse sediment', 'subtidal mixed sediments', and 'subtidal sand'
Kentish Knock East MCZ	1km	This site is located to the east of the central part of the Offshore Scoping Boundary and is designated for the protection of 'subtidal sand', 'subtidal coarse sediment', and 'subtidal mixed sediment'
Orford Inshore MCZ	9km	This site is located to the east of both potential Suffolk landfalls and is designated for the protection of 'subtidal mixed sediments'
Sandwich Bay to Hacklinge Marshes SSSI	0km	The Sandwich Bay to Hacklinge Marshes SSSI covers the intertidal area of Pegwell Bay, where the Kent landfall is located. This site is designated for the protection of a range of benthic habitats, including saltmarsh and mudflats
Thanet Coast SSSI	1km	The Thanet Coast SSSI is located to the north of the Pegwell Bay landfall site, and is designated for the protection of foreshore habitats, such as sand and mudflats and smaller areas of saltmarsh and coastal lagoons

Future Baseline

4.3.4.11 The benthic ecology chapter within the Environmental Statement (ES) will include an outline of the likely evolution of the baseline environment without the implementation of the development as far as natural changes from the baseline scenario can be assessed.

4.3.5 Embedded and Control & Management Measures

4.3.5.1 Given that many design elements of the Project have yet to be confirmed, the embedded and control and management measures have not been finalised at this stage. Measures will be discussed with statutory consultees and stakeholders throughout the EIA process.

Embedded Measures

4.3.5.2 The Offshore Scoping Boundary has been designed in order to avoid environmentally sensitive areas where possible. This includes avoiding the Margate and Long Sands SAC and the Kentish Knock East MCZ, which are both designated for the protection of benthic habitats. Further consideration is being given to the possibility of avoidance of the Goodwin Sands MCZ by the Offshore Scheme, but this is dependent on the outcome of further stakeholder engagement and additional survey work.

4.3.5.3 As the Offshore Scheme develops and route design is progressed (informed by the Project specific offshore survey data) the Project will aim to minimise impacts by micro siting around sensitive features where possible.

4.3.5.4 The use of a trenchless cable installation method to minimise habitat loss and disturbance within the intertidal zone is under assessment and may be used where possible.

Control and Management Measures

4.3.5.5 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the benthic ecology assessment are:

- GM01 - designated (and as minimal as possible) anchoring areas and protocols shall be employed during marine operations to minimise physical disturbance of the seabed;
- GM03 - an offshore Construction Environmental Management Plan (CEMP) including an Emergency Spill Response Plan and Waste Management Plan, Marine Pollution Contingency Plan (MPCP), Shipboard Oil Pollution Emergency Plan (SOPEP) and a dropped objects procedure will be produced prior to installation;
- LVS01 - all project vessels shall adhere to the International Convention for the Control and Management of Ships' Ballast Water and Sediments with the aim of preventing the spread of marine invasive non-native species (INNS)[71];
- LVS02 - all project vessels must comply with the International Regulations for Preventing Collisions at Sea (1972) (IMO, 2019a)[72], regulations relating to International Convention for the Prevention of Pollution from Ships (the MARPOL Convention 73/78)[73] (IMO, 2019e) with the aim of preventing and minimising pollution from ships and the International Convention for the Safety of Life at Sea (SOLAS, 1974)[74].

[71] International Maritime Organisation (IMO) (2017). International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships%27-Ballast-Water-and-Sediments-(BWM).aspx [Accessed 06 June 2022].

[72] International Maritime Organisation (IMO) (1972). Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/COLREG.aspx [Accessed 10 August 2022].

[73] International Maritime Organisation (IMO) (1983). International Convention for the Prevention of Pollution from Ships (MARPOL). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx [Accessed 10 August 2022].

[74] International Maritime Organisation (IMO) (1974). International Convention for the Safety of Life at Sea (SOLAS) 1974. [online] Available at: https://treaties.un.org/doc/Publication/UNTS/Volume%201184/volume-1184-I-18961-English.pdf.

- LVS05 - drilling fluids required for trenchless operations will be carefully managed to minimise the risk of breakouts into the marine environment. Specific avoidance measures would include:
  - the use of biodegradable drilling fluids (PLONOR substances) where practicable,
  - drilling fluids will be tested for contamination to determine possible reuse or disposal; and
  - If disposal is required drilling fluids would be transported by a licensed courier to a licensed waste disposal site.
- BE01 - a biosecurity plan will be produced for the Project, following the latest guidance on INNS from the GB non-native species secretariat;
- BE02 - all project vessels shall adhere to the International Maritime Organisation (IMO) Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (Biofouling Guidelines)[75]; and
- BE03 - cable installation will be carried out on a 24-hour basis in order to reduce the overall installation time and associated disturbance of ecological receptors.

4.3.6 Potential for Significant Effects

4.3.6.1 The benthic ecology assessment will consider the construction, operation, maintenance and decommissioning of the Offshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

4.3.6.2 The proposed scope of the benthic ecology assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology.**

Sources and Impacts (Step 1)

4.3.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Offshore Scheme.

4.3.6.4 The potential for the Offshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- unexploded ordnance (UXO) clearance;
- pre-installation geophysical surveys;
- pre-installation clearance of obstacles and debris;

[75] International Maritime Organisation (IMO) (2011). 2011 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species. Annex 26, Resolution MEPC.207(62), Adopted 15 July 2011. [online] Available at: https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MEPCDocuments/MEPC.207(62).pdf.

- sand wave sweeping;
- cable installation and cable lay; and
- cable protection (e.g. rock placement, concrete mattresses).

Sources of operational impacts

- presence of activated cable.

Sources of maintenance impacts

- geophysical and/or Remotely Operated Vehicle (ROV) surveys;
- cable repair or replacement; and
- cable protection (e.g. rock placement, concrete mattresses).

Sources of decommissioning impacts

- removal of cable from seabed;
- removal of cable protection (e.g. rock placement, concrete mattresses); and/or
- abandonment of cable in seabed;

Potential impacts

4.3.6.5 Table 4.3.2 identifies the potential impacts that could result from the sources identified above.

Table 4.3.2: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance and decommissioning	UXO clearance; Pre-installation clearance of obstacles and debris; Sand wave sweeping; Cable installation and cable lay; Cable repair or replacement; Removal of cable from seabed; and Removal of cable protection	Temporary physical disturbance to intertidal and subtidal benthic habitats and species	Yes	**Scoped in**

Construction and maintenance	Cable protection (e.g. rock placement, concrete mattresses)	Direct loss of subtidal benthic habitats and species due to placement of hard substrates on the seabed	Yes	**Scoped in**
Construction, maintenance and decommissioning	UXO clearance; Pre-installation clearance of obstacles and debris; Sand wave sweeping; Cable installation and cable lay; Cable repair or replacement; Removal of cable from seabed; and Removal of cable protection	Temporary increase in Suspended Sediment Concentrations (SSC) and sediment deposition leading to increased turbidity, smothering effects and contaminant mobilisation	Yes	**Scoped in**
Construction	Cable installation and cable lay	Changes to marine water quality from the use of Horizontal Directional Drilling (HDD) drilling fluids	No - the implementation of the control and management measure LVS05 means only inert (non-toxic), biodegradable drilling fluid will be used and disposed of at a licenced disposal site. As such, significant changes to water quality are highly unlikely	Scoped out
Construction, maintenance and decommissioning	Leaks and spills from vessels	Changes to marine water quality from accidental leaks and spills from	No - the implementation of control and management measures GM03 and LVS02	Scoped out

		vessels, including loss of fuel oils	create limited potential for accidental spills to occur. Relatively few vessels are expected to be involved, and potential pollutants would be limited to relatively small volumes. Should an accidental spill or leak occur, it would be small in extent and subject to immediate control measures, dilution and rapid dispersal within the marine environment	
Construction, maintenance and decommissioning	Vessels inadvertently transporting INNS	Introduction and spread of INNS via vessel hull or ballast water	No - the implementation of control and management measures (LVS01, BE01 and BE02) make the introduction of INNS through ship hulls and ballast water unlikely	Scoped out
Construction and maintenance	Cable protection (e.g. rock placement, concrete mattresses).	Introduction and spread of INNS by introducing hard substrate, creating steppingstones for INNS to become established	Yes	**Scoped in**

Construction, maintenance and decommissioning	UXO clearance; Pre-installation clearance of obstacles and debris; Sand wave sweeping; Cable installation and cable lay (including piling[76]); Cable repair or replacement; Removal of cable from seabed; Removal of cable protection; and Vessel traffic.	Underwater sound impacts on marine invertebrates	Yes	**Scoped in**
Operation	Presence of activated cable	Disturbance to benthic habitats and species due to subsea cable thermal emissions	Yes	**Scoped in**
Operation	Presence of activated cable	Electromagnetic field (EMF) emissions	Yes	**Scoped in**

Impact Pathways with Receptors (Step 2)

4.3.6.6 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the benthic ecology study areas.

4.3.6.7 Table 4.3.3 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the benthic ecology assessment for the Offshore Scheme (**Figure 1.1.4 Offshore Scheme Scoping Boundary**).

Table 4.3.3: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out

[76] At the cable landfall locations, percussive piling for the installation of a cofferdam as part of the use of trenched technologies (not the preferred method) cannot be ruled out at this stage.

Temporary physical disturbance to benthic habitats and species during construction, maintenance and decommissioning	Intertidal and subtidal habitats and species	Yes - activities associated with route preparation (i.e. route clearance and pre-sweeping, UXO clearance if required), cable installation[77]and removal can result in temporary physical disturbance to intertidal and subtidal benthic habitats and species which could lead to temporary loss of these habitats and associated species	**Scoped in**
Direct loss of subtidal benthic habitats and species due to placement of hard substrates on the seabed during construction and maintenance	Intertidal and subtidal ecology	Yes - cable installation, and repair may require protection, such as rock placement, concrete mattresses, rock/ gravel/sand/grout bags, or protection sleeves/cast-iron shells at some locations. Introduction of hard substrate would likely replace otherwise soft substrates, leading to permanent loss of these habitats and associated species[78]	**Scoped in**
Temporary increase in SSC and sediment deposition leading to turbidity, smothering effects, and contaminant mobilisation during	Intertidal and subtidal ecology	Yes - construction activities associated with the Project such as route clearance, pre-sweeping, cable installation (e.g. jetting, controlled flow	**Scoped in**

[77] These activities may include cable burial by ploughing, trenching or excavating. To avoid the intertidal zone and sensitive features at the landfall locations, the use of trenchless technologies such as HDD is currently the preferred option. However, further ground investigation (GI) Works are required to determine the feasibility of this option and therefore trenching of the cable at these locations cannot be ruled out at this stage.

[78] Adams, T., Miller, R., Aleynik, D. and Burrows, M. (2014). Offshore marine renewable energy devices as stepping stones across biogeographical boundaries. Journal of Applied Ecology, 51(2), pp. 330-338. DOI: 10.1111/1365-2664.12207.

construction, maintenance and decommissioning		excavation (CFE), and backfill) and protection, and UXO disposal have the potential to increase SSC which results in elevated turbidity, which can affect rates of photosynthesis via a reduction in light availability and an increase in particles in the water, may affect feeding efficiency of filter feeders if clogging of filtering systems occurs[78]. Suspended sediment may also settle out, resulting in increased deposition which can smother the seabed and sessile benthic organisms. The resuspension of sediment can also release any sediment-bound contaminants, which can impact benthic communities in a variety of ways, including adverse ecotoxic effects, bio-accumulation, and potentially mortality[78]	
Introduction and spread of INNS via the addition of cable protection during construction and maintenance	Intertidal and subtidal ecology	Yes - cables may require protection at some locations, which may introduce hard substrates to otherwise soft seabed. This could provide additional habitat for any existing INNS populations and allow for localised spreading[78]. Hard substrate may also create habitat for	**Scoped in**

		many locally common species, increasing local biodiversity. Studies have indicated that the introduction of hard substrate in otherwise barren areas are quick to be colonised and used by local species[79] [80]	
Underwater sound impacts on marine invertebrates during construction, maintenance and decommissioning	Intertidal and subtidal ecology	No - although the exact construction methods have yet to be determined, expected sources of underwater sound include geophysical surveys, UXO clearance, route preparation, cable installation (including piling) and vessel traffic. Marine invertebrates are believed to be sensitive to particle motion rather than to sound pressure[81], although few formal studies have been conducted on the impacts of underwater sound. At present there are no published sensitivity thresholds for invertebrates but effects have been recorded in some studies. Anatomical damage was observed in rock	Scoped out

[79] Joschko, T., Buck, B., Gutow, L. and Schröder, A. (2008). Colonization of an artificial hard substrate by Mytilus edulis in the German Bight. Marine Biology Research, 4(5), pp. 350-360.

[80] Kogan, I., Paull, C., Kuhnz, L., Burton, E., Von Thun, S., Greene, H. and Barry, J. (2003). Environmental Impact of the ATOC/Pioneer Seamount Submarine Cable. Technical Report, pp. 80. [online] Available at: https://montereybay.noaa.gov/research/techreports/trkogan2003a.html. [Accessed 10 August 2022].

[81] Popper, A. and Hawkins, A. (2018). The importance of particle motion to fishes and invertebrates. The Journal of the Acoustical Society of America, 143(1), pp. 470-488.

		lobster up to a year following seismic surveys, but no effects were observed on snow crabs[82]. The crustacean *Nephrops norvegicus* and the bivalve *Ruditapes philippinarum* demonstrated behavioural responses to impact pile driving sound source levels in a controlled laboratory environment, including physiological stress responses[83]; however, not all species tested demonstrated any behavioural response to underwater sound (e.g., the brittlestar *Amphiura filiformis*). Furthermore, responses can be subtle and may take extended periods of time to be expressed across a population or become detectable at an ecosystem level. In other laboratory experiments, a stress response in green shore crab *Carcinus maenas* subject to ship playback sound was observed, particularly in larger individuals[84], although, repeated exposure resulted in the crabs'

[82] Carrol, A., Przeslawski R., Duncan, A., Gunning, M. and Bruce, B. (2017). A critical review of the potential impacts of marine seismic surveys on fish and invertebrates. Marine Pollution Bulletin, 114(1), pp. 9-24. [online] Available at: https://www.sciencedirect.com/science/article/pii/S0025326X16309584. [Accessed 30 June 2022].

[83] Solan, M., Hauton, C., Godbold, J., Wood, C., Leighton, T. and White, P. (2016). Anthropogenic sources of underwater sound can modify how sediment-dwelling invertebrates mediate ecosystem properties. Scientific Reports, 6(1), pp. 1-9.

[84] Wale, M., Simpson, S. and Radford, A. (2013). Size-dependent physiological responses of shore crabs to single and repeated playback of ship noise. Biology Letters, 9(2).

		habituation or tolerance to it. In the absence of suitable anatomical studies, mortality may be a useful indicator of impacts to marine invertebrates. Field-based studies revealed no evidence of increased mortality to scallops, clams, or lobsters following airgun exposure, or of reduced catch-rates for plankton, reef-associated invertebrates, snow crab, shrimp, or lobster[83]. Although there is currently very limited evidence on the effects of underwater sound on marine invertebrates, current data suggest that the type and duration of underwater sound that will be generated by the Project will not have any significant effect on benthic invertebrates or benthic communities	
Disturbance to benthic habitats and species due to subsea cable thermal emissions during operation	Intertidal and subtidal ecology	Yes - operation of the HVDC cables generates heat due to resistance in the conductor components, which can warm the cable surface and adjacent environment (i.e., sediments). Temperature increases near the cable can modify chemical and physical	**Scoped in**

		properties of the substrate, such as oxygen concentration, microorganism communities, and/or bacterial activity. Physiological changes in macrobenthic organisms living at the water-sediment interface and in the top sediment layers can also potentially occur	
EMF emissions during operation	Intertidal and subtidal ecology	No - there is evidence from laboratory studies that some benthic invertebrates are able to detect EMF. For example, the brown crab *Cancer pagurus* showed a clear attraction to EMF of 2,800 µT (microtesla) and reduced their time spent roaming[85]. In another study, the blue mussel, *Mytilus edulis*, the brown shrimp, *Crangon crangon* and the crab, *Rhithropanopeus harrisii*, were exposed to a static B-field of 3,700 µT for three months, and differences in survival between experimental and control animals were detected[86]. In a laboratory study with the polychaete worm *Hediste diversicolor*	Scoped out

[85] Scott, K., Harsanyia, P. and Lyndon, A. (2018). Understanding the effects of electromagnetic field emissions from Marine Renewable Energy Devices (MREDs) on the commercially important edible crab, *Cancer pagurus* (L.). Marine Pollution Bulletin, 131, pp. 580-588.

[86] Bochert, R. and Zettler, M. (2004). Long-term exposure of several marine benthic animals to static magnetic fields. Bioelectromagnetics. Journal of the Bioelectromagnetics Society, 25(7), pp. 498-502.

		there was no evidence of avoidance or attraction behaviours at an EMF of 1,000 µT[87]. A recent study exposed embryonic and larval brown crab and European lobster *Homarus Gammarus* to an EMF 2,800 µT in laboratory conditions, noting increased occurrence of physical deformities in larvae, but no effect to development time or swim speed[88]. However, these studies used a much higher intensity of EMF, around an order of magnitude higher, than the maximum EMF produced by an active 2GW HVDC cable (predicted to be in the region of 400 µT. The edible crab has been subject to EMF exposure experiments, testing stress related parameters and behavioural response to lower intensity emissions. EMF strengths of 250 µT were found to have limited physiological and behavioural impacts[89]. At exposure

[87] Jakubowska, M., Urban-Malinga, B., Otremba, Z. and Andrulewicz, E. (2019). Effect of low frequency electromagnetic field on the behavior and bioenergetics of the polychaete *Hediste diversicolor*. Marine Environmental Research, 150, pp. 104766.

[88] Harsanyi, P., Scott, K., Easton, B., de la Cruz Ortiz, G., Chapman, E., Piper, A., Rochas, C. and Lyndon, A. (2022). The Effects of Anthropogenic Electromagnetic Fields (EMF) on the Early Development of Two Commercially Important Crustaceans, European Lobster, *Homarus gammarus* (L.) and Edible Crab, *Cancer pagurus* (L.). Journal of Marine Science and Engineering, 10(5), pp. 564.

[89] Scott, K., Harsanyi, P., Easton, B., Piper, A., Rochas, C. and Lyndon, A. (2021). Exposure to Electromagnetic Fields (EMF) from Submarine Power Cables Can Trigger Strength-Dependent Behavioural and Physiological Responses in Edible Crab, Cancer pagurus (L.). Journal of Marine Science and Engineering, 9(7), pp. 16.

		of 500 µT and 1000 µT stress responses were detected in histological indicators but crabs also showed a clear attraction at these EMF levels. However, this attraction has been observed to not impact overall crab movements[90] and, in an experiment with American lobsters, only subtle behavioural responses to HVDC EMF were observed[91]. There were notable changes in movement and distribution within an enclosed space, but the EMF did not represent a barrier to lobster movements, and no significant impact was observed overall. Therefore, after consideration of the available literature, including literature reviews[92] [93] and modelling analyses[94], it is concluded that while detection by invertebrates may be

[90] Love, M., Nishimotoa, M., Clark, S., McCrea, M. and Bull, A. (2017). Assessing potential impacts of energized submarine power cables on crab harvests. Continental Shelf Research, 151, pp. 23-29.

[91] Hutchison, Z., Sigray, P., He, H., Gill, A., King, J. and Gibson, C. (2018). Electromagnetic Field (EMF) Impacts on Elasmobranch (Shark, Rays, and Skates) and American Lobster Movement and Migration From Direct Current Cables. Sterling (VA): US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 3.

[92] Gill, A. and Desender, M. (2020). 2020 State of the Science Report, Chapter 5: Risk to Animals from Electromagnetic Fields Emitted by Electric Cables and Marine Renewable Energy Devices. [online] Available at: https://tethys.pnnl.gov/sites/default/files/publications/OES-Environmental-2020-State-of-the-Science-Ch-5_final_hr.pdf.

[93] Hutchison, Z., Gill, A., Sigray, P., He, H. and King, J. (2021). A modelling evaluation of electromagnetic fields emitted by buried subsea power cables and encountered by marine animals: Considerations for marine renewable energy development. Renewable Energy, 177, pp. 72-81.

[94] Scott, K., Piper, A., Chapman, E. and Rochas, C. (2020). Review of the effects of underwater sound, vibration, and electromagnetic fields on crustaceans. [online] Available at: https://www.researchgate.net/publication/349173743_Review_of_the_effects_of_underwater_sound_vibration_and_electromagnetic_fields_on_crustaceans.

	possible there is considered to be no realistic significant interaction between EMF emitted during the operation of the Project and benthic invertebrates or communities.

4.3.7 Proposed Assessment Methodology

Proposed Data Sources

4.3.7.1 The following data sources are proposed to be used to inform the assessment:

- Project-specific survey data;
- Kent Habitat Survey Partnership[95];
- European Marine Observation Data Network (EMODnet) Seabed Habitats Project data for broad-scale habitat maps of the study area[96];
- European Union Nature Identification System (EUNIS) for classifying benthic habitats[97];
- Defra Future Coast Project[98];
- Marine Data Exchange Offshore Wind Environmental Evidence Register (OWEER)[99];
- Marine Life Information Network for habitat and species sensitivity assessments, where available[100]
- Cefas OneBenthic Portal[101]
- Magic maps for designated and protected sites[102];

[95] The Kent Habitat Survey Partnership (2003). Kent Habitat Survey 2003, GB000329. [Accessed: 06 June 2022].

[96] European Marine Observation and Data Network (EMODnet) (2021). EUSeaMap 2021. [online] Available from: https://www.emodnet-seabedhabitats.eu/access-data/launch-map-viewer/ [Accessed 09 March 2022].

[97] European Environment Agency (2021). EUNIS habitat classification. [online] Available at: https://www.eea.europa.eu/data-and-maps/data/eunis-habitat-classification-1 [Accessed 09 March 2022].

[98] Department of Environment, Food and Rural Affairs (DEFRA) (2002). Future coast project. National Network of Regional Coastal Monitoring Programmes. [online] Available at: https://coastalmonitoring.org/ccoresources/futurecoast/ [Accessed 06 June 2022].

[99] Marine Data Exchange (2021). JNCC, Offshore Wind Evidence and Change Programme, Offshore Wind Environmental Evidence Register. [online] Available at: https://www.marinedataexchange.co.uk/details/3480/2021-jncc-offshore-wind-evidence-and-change-programme-offshore-wind-environmental-evidence-register-/summary [Accessed 10 August 2022].

[100] MarLIN (2022). Marine Evidence Based Sensitivity Assessment (MarESA). [online] Available at: https://www.marlin.ac.uk/sensitivity/sensitivity_rationale [Accessed 09 August 2022].

[101] Cefas (2022). OneBenthic Portal. [online] Available at: https://openscience.cefas.co.uk/ [Accessed 09 August 2022].

[102] Department of Environment, Food and Rural Affairs (DEFRA) (No Date). Magic Interactive Mapping. [online] Available at: https://magic.defra.gov.uk/home.htm.

- Designated sites condition assessments as available;
- Academic papers and online reports as available for the study area; and
- Relevant Environmental Statements.

Proposed Assessment Methodology

4.3.7.2 All ecological assessments for the Project will be completed in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2019)[103]. The method will be tailored to reflect the specific conditions of the marine environment, in particular to ensure the high levels of movement of marine receptors between habitats and populations, are considered fully in respect of the predicted ZOI arising from the Offshore Scheme.

4.3.7.3 The aims of the marine EcIA are to:

- identify important ecological features (e.g., designated sites, habitats or species) which have the potential to be impacted by the Offshore Scheme;
- provide a robust assessment of the likely ecological impacts and resultant effects of the Offshore Scheme, which may be beneficial (i.e. positive) or adverse (i.e. negative);
- facilitate determination of the consequences of the Offshore Scheme in terms of national, regional and local policies relevant to nature conservation and biodiversity, where the level of detail provided is proportionate to the scale of the development and the complexity of its impact pathways;
- identify appropriate mitigation to reduce any likely ecological impacts; and
- set out the steps to be taken to adhere to legal requirements relating to the relevant ecological features concerned.

4.3.7.4 In accordance with CIEEM (2019) guidance, not all habitats and species which have the potential to occur in the ZOI of the Offshore Scheme will be considered. Rather, focus will be placed on those features considered to be 'important' – determining importance is discussed in further detail below. To ensure compliance with National and European policy, consideration is still given to biodiversity in its entirety and the need to achieve no net loss and enhancement of biodiversity.

4.3.7.5 In accordance with the CIEEM guidance, the importance of an ecological feature or receptor is defined according to the following factors:

- conservation or legal status;
- quality or health;
- extent; and
- rarity or endemism.

[103] Chartered Institute of Ecology and Environmental Management's (CIEEM) (2019). Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. [online]. Available at: https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.2-April-22-Compressed.pdf

4.3.7.6 The importance of an ecological feature has also been defined with reference to a specific geographical context. Marine features are highly connected with few boundaries and the approach therefore adopts the level of legislative designation as a proxy for the geographical importance of a marine species receptor. These and the other criteria for importance ratings are shown in Table 4.3.4 below.

Table 4.3.4: Importance criteria for marine ecology features / receptors

Importance description*	
Very High	• designated sites and qualifying / supporting features of international importance SACs, Special Protection Areas (SPAs), Ramsar Sites) • species which are legally protected and / or in significant decline (i.e., classified as 'endangered' or 'critically endangered' according to the International Union for Conservation of Nature (IUCN) Red List (IUCN, 2019)) • high quality examples of rare habitats that are threatened throughout their range
High	• designated sites and qualifying / supporting features of national conservational importance (SSSI and MCZ) • priority habitats and species or those considered to be of principal importance for the conservation of biodiversity in England and those species considered vulnerable to decline (i.e., classified as 'vulnerable' or 'near threatened' according to the IUCN Red List) • high quality examples of uncommon habitats that are vulnerable throughout their range
Medium	• habitats and species of regional or local importance (i.e., Annex 1 of the Habitats Regs, which are not a qualifying feature of a nearby designated site) • those species considered to be of 'least concern' (according to the IUCN Red List or listed in the OSPAR104 list of threatened and / or declining species for the North-East Atlantic) • poor quality examples of rare or uncommon habitats that are threatened or vulnerable throughout their range
Low	• habitats and species of low conservation importance, such as those generally abundant and widespread around the UK with no specific local value

*Should there be any overlap in the description of a particular feature/receptor, the highest importance criteria rating shall be adopted.

4.3.7.7 In line with the CIEEM guidelines, the terminology used within the EcIA will draw a clear distinction between the terms ‘impact’ and ‘effect’. For the purposes of the EcIA, these terms are defined as follows:

- impact – actions resulting in changes to an ecological feature; for example, underwater sound disturbance leading to displacement of hearing sensitive species; and
- effect – outcome resulting from an impact, acting upon the conservation status or structure and function of an ecological feature; for example, displacement of individuals and loss of important foraging or breeding grounds leading to effects on the reproduction and survival of the local population.

4.3.7.8 The significance of effects will be based on an assessment of the impact magnitude (i.e., the deviation from the baseline condition) and the sensitivity and value (which are synonymous with 'importance') of the receptor. Temporary, permanent, direct and indirect effects that may occur during the construction, operation and maintenance, and decommissioning phases of the Offshore Scheme will be considered, and any mitigation measures necessary will be identified.

4.3.7.9 To determine the likely significance of effects, the following parameters will be considered:

- impact type - direct or indirect, positive or negative, temporary or permanent;
- magnitude of impact – the ‘amount’ or intensity of an impact. This may sometimes be synonymous with ‘extent’ (see below) for certain receptors, such as habitats loss. For mortality it may be the number of individuals killed;
- spatial extent of impact – the area over which the impact will occur; and
- temporal nature of impact – timing, frequency and duration.

4.3.7.10 The assessment has also given regard to the sensitivity of an ecological feature to an impact which is determined by its:

- adaptability - i.e. the capacity, or lack thereof, of a feature to avoid or adapt to a change; and
- tolerance / resilience - i.e. capacity, or lack thereof, of a feature to accommodate temporary or permanent change or recover to pre-existing state following exposure to a change.

4.3.7.11 For each marine ecological receptor only those characteristics relevant to understanding the ecological effect and determining the significance are described. The determination of the significance of effects will be based on predicted effects to:

- designated sites – i.e., the conservation objectives for the site and/or its interest/qualifying features;
- ecosystems/biodiversity – resulting in a change in ecosystem structure and/or function;
- habitats – i.e., extent, distribution, structure, function as well as its associated species, and its conservation status within a given geographical area; and

- species – i.e., abundance, distribution (including spawning, foraging and nursery habitats) and its conservation status within a given geographical area or at a particularly sensitive time (e.g., spawning season).

4.3.7.12 The significance of effects will be reported as either:

- not significant – no or limited effect to one or more of the features described above; or
- significant – one or more features described above are affected.

4.3.7.13 The CIEEM methodology does not advocate a matrix approach to determining the significance of effects. However, to maintain consistency with other disciplines, where a matrix approach is suitable, the assessment conclusions will be transposed into the significance terminology used within the wider ES (**Part 1, Chapter 5, EIA Approach and Methodology**). See Table 4.3.5 below.

Table 4.3.5: Description of significance terminology

Classification of effect based on CIEEM guidance	Terminology used elsewhere in the ES	Description in accordance with CIEEM guidance
Significant (beneficial)	Major beneficial	Beneficial effect on designated sites, ecosystems, habitat and/or species at the international level
	Moderate beneficial	Beneficial effect on designated sites, ecosystems, habitat and/or species at the national level
Not-significant	Minor beneficial	Beneficial effect on designated sites, ecosystems, habitat and/or species at a local level or regional level
	Negligible	No effect on designated sites, ecosystems, habitat and/or species
	Minor adverse	Adverse effect on designated sites, ecosystems, habitat and/or species at the local level or regional level
Significant (adverse)	Moderate adverse	Adverse effect on designated sites, ecosystems, habitat and/or species at the national level
	Major adverse	Adverse effect on designated sites, ecosystems, habitat and/or species at the international level

4.3.8 Conclusion

4.3.8.1 In summary:

- A range of potentially sensitive intertidal and subtidal habitats and species representative of Annex I habitats or listed as habitats of 'principal importance' listed under Section 41 of the 2006 NERC Act, are likely to occur within proximity to the Offshore Scheme;
- The Offshore Scoping Boundary intersects with the Goodwin Sands MCZ, Sandwich Bay SAC and the Sandwich Bay to Hacklinge Marshes SSSI, which are designated for the protection of benthic habitats. A total of six other designated sites that are in proximity to the Offshore Scoping Boundary within the study area are scoped in for further assessment;
- Project specific subtidal benthic surveys were completed in August to October 2021, whilst intertidal benthic surveys at the landfall locations are planned to be completed in 2023; and
- Underwater sound disturbance and EMF disturbance are scoped out for further consideration for benthic ecology.

Proposed Scope of the Assessment

4.3.8.2 A summary of the proposed scope of the assessment is provided in Table 4.3.6.

Table 4.3.6: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
Intertidal and subtidal ecology	Temporary physical disturbance to benthic habitats and species	Construction Maintenance Decommissioning	**Scoped in**
Intertidal and subtidal ecology	Direct loss of benthic habitats and species	Construction Maintenance	**Scoped in**
Intertidal and subtidal ecology	Reduction in feeding efficiency; smothering effects; bio-accumulation; and potentially mortality due to increased SSC.	Construction Maintenance Decommissioning	**Scoped in**
Intertidal and subtidal ecology	Introduction and spread of INNS via placement of hard substrate	Construction Maintenance	**Scoped in**
Intertidal and subtidal ecology	Loss, harm or disturbance to marine invertebrates from underwater sound	Construction Maintenance Decommissioning	Scoped out
Intertidal and subtidal ecology	Disturbance to benthic habitats and species due to subsea cable thermal emissions	Operation	**Scoped in**

Intertidal and subtidal ecology	Loss, harm or disturbance to marine invertebrates from EMF emissions	Operation	Scoped out

4.4 Fish and Shellfish Ecology

4.4.1 Introduction

4.4.1.1 This chapter presents how the fish and shellfish ecology assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Offshore Scheme as described in **Part 1, Chapter 4, Description of the Project**. This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

4.4.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Offshore Scheme Scoping Boundary hereafter referred to as the Offshore Scoping Boundary is illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary**.

4.4.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Methodology;**
- **Part 4, Chapter 1, Evolution of the Offshore Scheme;**
- **Part 4, Chapter 2, Physical Environment;**
- **Part 4, Chapter 3, Benthic Ecology;** and
- **Part 4, Chapter 9, Commercial Fisheries.**

4.4.1.4 This chapter is supported by the following figure:

- **Figure 4.4.1 Fish and Shellfish Ecology Study Area and Designated Sites.**

4.4.2 Regulatory and Planning Context

4.4.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on fish and shellfish ecology associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

4.4.2.2 The following legislation is relevant to fish and shellfish ecology:

- The Marine and Coastal Access Act 2009[105], which provides the legal mechanism to help ensure clean, healthy, safe and productive and biologically diverse oceans and seas;
- The Conservation of Habitats and Species Regulations 2017[106] (amended 2019[107]), which transpose the Habitats Directive (92/43/EEC) into UK legislation, covering the marine environment to 12 nautical mile (NM) offshore;
- The Conservation of Offshore Marine Habitats and Species Regulations 2017[108] applies within the UK Offshore Marine Area (beyond the 12 NM limit);
- The Wildlife and Countryside Act 1981[109], as amended, which includes provisions relating to nature conservation;
- The Marine Strategy Regulations 2010[110], which transpose the Marine Strategy Framework Directive (2008/56/EC) into UK legislation;
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (WFD)[111], which transpose the European Directive (2000/60/EC) in UK legislation and provides for the establishment of environmental objectives for water bodies, including in relation to fish;
- Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC)[112], which lists species of principal importance for the purpose of conservation biodiversity;
- The Eels (England and Wales) Regulations 2009[113], which implement Council Regulation (EC) No 1100/2007 (EC) No 1100/2007 establishing measures for the recovery of the stock of European eel including providing for the free passage of eels; and
- The Salmon and Freshwater Fisheries Act 1975[114], which relates to the protection of salmon and freshwater fisheries, as well as preventing the obstruction of fish migratory routes; and

[105] The Marine and Coastal Access Act 2009 [online]. Available at: https://www.legislation.gov.uk/ukpga/2009/23/contents.

[106] The Conservation of Habitats and Species Regulations 2017. [online] Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents/made.

[107] Amended in response to the UK's exit from the European Union (EU), making the Habitats (92/43/EEC) and Wild Birds (2009/147/EC) Directives, operable from 1 January 2021, and creating a UK natural site network in place of the EU Natura 2000 ecological network.

[108] The Conservation of Offshore Marine Habitats and Species Regulations 2017. [online] Available at: https://www.legislation.gov.uk/uksi/2017/1013/made

[109] The Wildlife and Countryside Act 1981. [online] Available at: https://www.legislation.gov.uk/ukpga/1981/69.

[110] The Marine Strategy Regulations 2010. [online] Available at: https://www.legislation.gov.uk/uksi/2010/1627/contents/made.

[111] The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. [online] Available at: https://www.legislation.gov.uk/uksi/2017/407/contents/made.

[112] Section 41 of the Natural Environment and Rural Communities Act 2006. [online] Available at: https://www.legislation.gov.uk/ukpga/2006/16/section/41.

[113] The Eels (England and Wales) Regulations 2009. [online] Available at: https://www.legislation.gov.uk/uksi/2009/3344/contents/made.

[114] The Salmon and Freshwater Fisheries Act 1975. [online] Available at: https://www.legislation.gov.uk/ukpga/1975/51.

- The Environment Act 2021[115] [116], will set clear statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water and waste, and includes the introduction of Biodiversity Net Gain (BNG).

Planning Policy

4.4.2.3 The following plans and policies are relevant to fish and shellfish ecology.

National planning policy

- National Policy Statements (NPS) - the UK Government produces NPS which set out the UK Government's objectives for the development of Nationally Significant Infrastructure Projects (NSIP). Those potentially relevant to fish and shellfish ecology are:
  - Overarching National Policy Statement for Energy – EN-1[117];
  - Renewable Energy Infrastructure – EN-3[118];
  - Electricity Networks - EN-5[119];
  - National Planning Policy Framework[120];
  - Planning Practice Guidance – Natural Environment[121]; and
  - Planning Practice Guidance – Renewable and low carbon energy[122].
- National Planning Framework 2 (NPF2)[123], aims to co-ordinate policies of a spatial nature with investment priorities. Biodiversity is stated as one of the factors contributing to the core objective of sustainable economic development.

[115] The Environment Act 2021. [online] Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted.

[116] The Act has been enshrined into law; however, it is not anticipated to come into full effect until the end of 2023 (2025 for NSIPs)

[117] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf [Accessed 09 August 2022].

[118] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Renewable Energy (EN-3). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47856/1940-nps-renewable-energy-en3.pdf [Accessed 09 August 2022].

[119] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Electricity Networks (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed 09 August 2022].

[120] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf [Accessed 09 August 2022].

[121] Department for Levelling Up, House and Communities and Ministry of Housing, Communities and Local Government (2019). Planning Practice Guidance – Natural Environment. [online] Available at: https://www.gov.uk/guidance/natural-environment#biodiversity-geodiversity-and-ecosystems [Accessed 09 August 2022].

[122] Department for Levelling Up, House and Communities and Ministry of Housing, Communities and Local Government (2015), Planning Practice Guidance – Renewable and Low Carbon. [online] Available at: https://www.gov.uk/guidance/renewable-and-low-carbon-energy [Accessed 09 August 2022].

[123] National Planning Framework. [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2.

Local planning policy

- The UK Marine Policy Statement (MPS)[124] was adopted in 2011 and provides the policy framework for the preparation of marine plans and establishes how decisions affecting the marine area should be made. The following marine plans have been considered in the development of this Scoping Report:
  - East Inshore and East Offshore Marine Plan[125]; and
  - South East Inshore Marine Plan[126].

4.4.3 Study Area

4.4.3.1 The study area for fish and shellfish ecology is an area of 15km from the Offshore Scoping Boundary, this has been determined in order to encompass all likely Zones of Influence (ZOI) for this receptor group. This spatial extent is somewhat arbitrary but is considered likely to be sufficient to encompass any potential effects on fish and shellfish, particularly from underwater sound. It also reflects the fact that the spatial resolution of much of the available baseline information on fish and shellfish in this region relates to the outer Thames Estuary and North Sea area.

4.4.3.2 A 50km distance has been adopted as an initial screening distance for any sites designated for migratory fish. However, to ensure any fish that may pass through the study area are considered, a regional approach has also been adopted, scoping in any sites for which an interaction may occur but is beyond this initial screening distance.

4.4.3.3 The fish and shellfish study area and designated sites screening area is shown on **Figure 4.4.1 Fish and Shellfish Ecology Study Area and Designated Sites**.

4.4.4 Baseline Conditions

4.4.4.1 The fish and shellfish ecology baseline has been described using several data sources, which inform the understanding of the relative importance and functionality of the study area in the regional context of the outer Thames Estuary and southern North Sea.

Data Sources

4.4.4.2 To determine the baseline conditions of fish and shellfish ecology within the study area the following key data sources have been reviewed:

[124] Department of Food, Environment and Rural Affairs (DEFRA) (2020). UK Marine Policy Statement. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf [Accessed 09 August 2022].

[125] Department for Environment, Food and Rural Affairs (DEFRA) (2014). East Inshore and East Offshore Marine Plans. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312496/east-plan.pdf.

[126] Department for Environment, Food, and Rural Affairs (DEFRA) (2021). South East Inshore Marine Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004493/FINAL_South_East_Marine_Plan__1_.pdf.

- Project-specific survey data[127]
- The Outer Thames Estuary Regional Environmental Characterisation[128]
- International Council for the Exploration of the Sea (ICES) Ecosystem Overviews, Greater North Sea Ecoregion[129]
- UK fleet landings by rectangle stock and estimated Exclusive Economic Zone (EEZ) 2016-2020[130]
- Transitional & Coastal waters fish survey relational datasets[131]
- Salmonid and fisheries statistics for England and Wales[132]
- Updated Fisheries Sensitivity Maps in British Waters[133] [134]
- Spawning and nursery grounds of selected fish species in UK waters[135]
- Spatial Interactions between Marine Aggregate Application Areas and Atlantic Herring Potential Spawning Areas[136]
- Spatial Interactions between Marine Aggregate Application Areas and Sandeel Habitat[137]
- Hydroacoustic seabed survey and grab sampling techniques to assess “local” sandeel population abundance [138]

[127] Subtidal benthic surveys have been completed along the length of the Offshore Scheme in August to October 2021, consisting of five Drop-Down Video (DDV) transects and 37 grab samples (using either dual van veen or hammon grabs), including but not limited to the identification of some shellfish species.

[128] Sturt, F. and Dix, J. (2009). The Outer Thames Estuary Regional Environmental Characterisation (09/J/1/06/1305/0870). London, UK: ALSF/MEPF (DEFRA), p. 145.

[129] ICES. (2021). ICES Ecosystem Overviews, Greater North Sea Ecoregion. ICES Advice 2021. [online] Available at: https://doi.org/10.17895/ices.advice.9434.

[130] Marine Management Organisation (MMO) (2021a). UK fleet landings by rectangle stock and estimated EEZ 2016-2020. [online] Available at: https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2020.

[131] Environment Agency (2021a). Transitional & Coastal waters (TraC) fish survey relational datasets. [online] Available at: https://data.gov.uk/dataset/74978f12-4b0d-4e05-8c67-631c5e33e51b/nfpd-trac-transitional-coastal-waters-fish-survey-relational-datasets.

[132] Environment Agency (2021b). Salmonid and fisheries statistics for England and Wales. [online] Available at: https://www.gov.uk/government/publications/salmonid-and-freshwater-fisheries-statistics-2020/salmonid-and-fisheries-statistics-for-england-and-wales-2020.

[133] Coull, K., Johnstone, R., and Rogers, S. (1998). Fisheries Sensitivity Maps in British Waters. Published and distributed by UKOOA Ltd.

[134] Aires, C., González-Irusta, J. and Watret, R. (2014). Updating Fisheries Sensitivity Maps in British Waters. Scottish Marine and Freshwater Science, 5(10), pp. 88.

[135] Ellis, J., Milligan, S., Readdy, L., Taylor, N. and Brown, M. (2012). Spawning and nursery grounds of selected fish species in UK waters. [online] Available at: https://www.cefas.co.uk/publications/techrep/techrep147.pdf.

[136] Reach, I., Latto, P., Alexander, D., Armstrong, S., Backstrom, J., Beagley, E., Murphy, K., Piper, R. and Seiderer, L. (2013). Screening Spatial Interactions between Marine Aggregate Application Areas and Atlantic Herring Potential Spawning Areas: A Method Statement produced for BMAPA. [online] Available at: https://www.marinespace.co.uk/wp-content/uploads/2021/06/Herring-Potential-Spawning-Habitat-Method-Statement-v1.1.pdf.

[137] Latto, P., Reach, I., Alexander, D., Armstrong, S., Backstrom, J., Beagley, E., Murphy, K., Piper, R. and Seiderer, L. (2013). Screening Spatial Interactions between Marine Aggregate Application Areas and Sandeel Habitat: A Method Statement produced for BMAPA. [online] Available at: https://www.marinespace.co.uk/wp-content/uploads/2021/06/Sandeel-Potential-Habitat-Method-Statement-v1.1.pdf.

[138] Greenstreet, S., Holland, G., Guirey, E., Armstrong, A., Fraser, H. and Gibb, I. (2010). Combining hydroacoustic seabed survey and grab sampling techniques to assess “local” sandeel population abundance. ICES Journal of Marine Science, 67(5), pp. 971-984.

- Sandeel sediment habitat preferences in the marine environment [139]
- Environmental Effect Pathways between Marine Aggregate Application Areas and Atlantic Herring Potential Spawning Habitat: Regional Cumulative Impact Assessments[140]
- Environmental Effect Pathways between Marine Aggregate Application Areas and Sandeel Habitat: Regional Cumulative Impact Assessments[141]
- Salmon Stocks and Fisheries in England and Wales[142];
- Cefas demersal fish data for the southern North Sea (ICES division IVc)[143];
- The International Convention for the Conservation of Nature (IUCN) Red List of Threatened Species[144];
- Shellfish classification zones of England and Wales[145];
- East Coast Regional Environmental Characterisation[146] for a summary of the distribution and ecology of fish and shellfish on the East Coast; and
- Publicly available and relevant academic journal papers and reports.

4.4.4.3 No additional stakeholder consultation in relation to fish and shellfish ecology, beyond statutory consultees has been identified.

Baseline

4.4.4.4 A number of demersal and pelagic species of commercial (discussed in further detail in **Part 4, Chapter 9, Commercial Fisheries**) and ecological importance are found within the study area.

[139] Holland, G., Greenstreet, S., Gibb I., Fraser, H. and Robertson, M. (2005). Identifying Sandeel *Ammodytes marinus* sediment habitat preferences in the marine environment. Marine Ecology Progress Series, 303, pp. 269-282.

[140] MarineSpace Ltd, ABPmer Ltd, ERM Ltd, Fugro EMU Ltd and Marine Ecological Surveys Ltd. (2013a). Environmental Effect Pathways between Marine Aggregate Application Areas and Atlantic Herring Potential Spawning Habitat: Regional Cumulative Impact Assessments. Version 1.0. A report for the British Marine Aggregates Producers Association.

[141] MarineSpace Ltd, ABPmer Ltd, ERM Ltd, Fugro EMU Ltd and Marine Ecological Surveys Ltd. (2013b). Environmental Effect Pathways between Marine Aggregate Application Areas and Sandeel Habitat: Regional Cumulative Impact Assessments. Version 1.0. A report for the British Marine Aggregates Producers Association.

[142] Cefas (2021). Salmon stocks and fisheries in England and Wales, 2020. Preliminary assessment prepared for ICES, March 2021. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1019223/SalmonReport-2020-summary.pdf.

[143] Parker-Humphreys, M. (2005). Distribution and Relative Abundance of Demersal Fishes from Beam Trawl Surveys in the Eastern English Channel (ICES Division VIId) and the Southern North Sea (ICES Division IVc) 1993-2001. [online] Available at: https://www.cefas.co.uk/publications/techrep/tech124.pdf.

[144] International Union for the Conservation of Nature (IUCN) (2022). The IUCN Red List of Threatened Species Version 2021-3. [online] Available at: https://www.iucnredlist.org [Accessed 28 March 2022].

[145] Cefas (2022). Shellfish Classification Zone Maps. [online] Available at: https://www.cefas.co.uk/data-and-publications/shellfish-classification-and-microbiological-monitoring/england-and-wales/classification-zone-maps/.

[146] Limpenny, S., Barrio Froján, C., Cotterill, C., Foster-Smith, R., Pearce, B., Tizzard, L., Limpenny, D., Long, D., Walmsley, S., Kirby, S., Baker, K., Meadows, W., Rees, J., Hill, J., Wilson, C., Leivers, M., Churchley, S., Russell, J., Birchenough, A., Green, S., and Law, R. (2011). The East Coast Regional Environmental Characterisation. Cefas Open report 08/04, p. 287.

4.4.4.5 In general, fish species of key importance within the study area include herring *Clupea herangus*, sprat *Sprattus sprattus*, cod *Gadus morhua*, whiting *Merlangius merlangus*, plaice *Pleuronectes platessa*, mackerel *Scomber scombrus*, hake *Merluccius merluccius* and anglerfish *Lophius piscatorius,* as well as Dover sole *Solea solea*, bib *Trisopterus luscus*, dab *Limanda limanda*, thornback ray *Raja clavata*, common dragonet *Callionymus lyra* and gobies *Pomatoschistus* spp.[147] [148] [149]

4.4.4.6 Diadromous fish have the potential to transit through the study area during seasonal migrations between the sea and riverine environments as part of their annual life cycle. Those species known to migrate through the Thames and adjacent estuaries (such as the Blackwater and the Crouch Estuary) and coastal environments include European eel *Anguilla Anguilla*, European smelt *Osmerus eperlanus*, sea lamprey *Petromyzon maximus*, Atlantic salmon *Salmo salar*, sea trout (brown trout) *Salmo trutta,* river lamprey *Lampetra fluvialitis*, allis shad *Alosa alosa* and twaite shad *Alosa fallax*[147] [148].

4.4.4.7 Elasmobranchs found within the study area comprise thornback ray *Raja clavata*, lesser spotted dogfish *Scyliorhinus canicular,* spotted ray *Raja montagui*, blonde ray *Raja brachyura,* tope shark *Galeorhinus galeus*, spurdog *Squalus acanthias*, tope *Galeorhinus galeus*, smooth hound *Mustelus mustelus,* and starry smooth hound *Mustelus asterias*. Thornback ray and lesser spotted dogfish are the most abundant elasmobranch species in the outer Thames Estuary and southern North Sea.

4.4.4.8 Fisheries sensitivity maps[150] [151] [152] indicate that spawning and nursery grounds for a number of fish species are known to occur within the study area. This includes high intensity spawning grounds[153] for herring and sandeel, demersal spawners laying eggs which settle and develop on the seabed and are vulnerable to benthic disturbance.

4.4.4.9 There are also important spawning grounds for Dover sole, whiting, lemon sole *Microstomus kitt*, and sprat (Table 4.4.1). However, these species are scoped out of impacts on spawning grounds as all are pelagic spawners, releasing eggs directly into the water column where they will be transported away by water movement. The benthic spawning species, herring and sandeel are scoped into the assessment of impacts to spawning grounds.

[147] Environment Agency (2021a). Transitional & Coastal waters (TraC) fish survey relational datasets. [online] Available at: https://data.gov.uk/dataset/74978f12-4b0d-4e05-8c67-631c5e33e51b/nfpd-trac-transitional-coastal-waters-fish-survey-relational-datasets

[148] Environment Agency (2021b). Salmonid and fisheries statistics for England and Wales. [online] Available at: https://www.gov.uk/government/publications/salmonid-and-freshwater-fisheries-statistics-2020/salmonid-and-fisheries-statistics-for-england-and-wales-2020.

[149] Coull, K., Johnstone, R., and Rogers, S. (1998). Fisheries Sensitivity Maps in British Waters. Published and distributed by UKOOA Ltd.

[150] Reach, I., Latto, P., Alexander, D., Armstrong, S., Backstrom, J., Beagley, E., Murphy, K., Piper, R. and Seiderer, L. (2013). Screening Spatial Interactions between Marine Aggregate Application Areas and Atlantic Herring Potential Spawning Areas: A Method Statement produced for BMAPA. [online] Available at: https://www.marinespace.co.uk/wp-content/uploads/2021/06/Herring-Potential-Spawning-Habitat-Method-Statement-v1.1.pdf.

[151] Latto, P., Reach, I., Alexander, D., Armstrong, S., Backstrom, J., Beagley, E., Murphy, K., Piper, R. and Seiderer, L. (2013). Screening Spatial Interactions between Marine Aggregate Application Areas and Sandeel Habitat: A Method Statement produced for BMAPA. [online] Available at: https://www.marinespace.co.uk/wp-content/uploads/2021/06/Sandeel-Potential-Habitat-Method-Statement-v1.1.pdf.

[152] Greenstreet, S., Holland, G., Guirey, E., Armstrong, A., Fraser, H. and Gibb, I. (2010). Combining hydroacoustic seabed survey and grab sampling techniques to assess “local” sandeel population abundance. ICES Journal of Marine Science, 67(5), pp. 971-984.

[153] High intensity spawning grounds are considered to be areas for which the highest aggregation of fish for spawning are likely to occur, indicated by high catch rates of eggs and larvae

4.4.4.10 High intensity nursery grounds[154] of herring, and Dover sole were also identified within the study area, as were important nursery grounds of cod, whiting, sandeel, mackerel, plaice, lemon sole and sprat (Table 4.4.2). Low intensity spawning and nursery grounds included in Ellis *et al*.[155] will be reviewed at the baseline stage of the EIA.

Table 4.4.1: Important spawning grounds within the study area

Common name	Taxa name	High intensity spawning grounds (Ellis *et al*., 2012) [135]	Spawning grounds (Coull *et al*., 1998)[133]
Herring	*Clupea herangus*		✓
Sandeel	Ammodytidae		✓
Whiting	*Merlangius merlangus*		✓
Plaice	*Pleuronectes platessa*	✓	✓
Dover sole	*Solea solea*	✓	✓
Lemon sole	*Microstomus kitt*		✓
Sprat	*Sprattus sprattus*		✓

Table 4.4.2: Important nursery grounds within the study area

Common name	Taxa name	High intensity nursery grounds (Ellis *et al*., 2012)[135]	Nursery grounds (Coull *et al*., 1998)[133]
Herring	*Clupea herangus*	✓	✓
Cod	*Gadus morhua*		✓
Whiting	*Merlangius merlangus*		✓
Sandeel	Ammodytidae		✓
Mackerel	*Scomber scombrus*		✓
Plaice	*Pleuronectes platessa*		✓
Dover sole	*Solea solea*	✓	✓
Lemon sole	*Microstomus kitt*		✓
Sprat	*Sprattus sprattus*		✓

4.4.4.11 Due to their ecological importance as prey items, further assessment of herring spawning grounds and preferred sand eel habitat will be conducted as part of the EIA. This will use data from sediment particle size analysis (PSA) (from the Offshore

[154] High intensity nursery grounds are considered to be areas where the highest density of juveniles are likely to occur, indicated by high catch rates of juveniles

[155] Ellis, J., Milligan, S., Readdy, L., Taylor, N. and Brown, M. (2012). Spawning and nursery grounds of selected fish species in UK waters. [online] Available at: https://www.cefas.co.uk/publications/techrep/techrep147.pdf.

Scheme benthic characterisation survey results). For herring the classifications from Reach *et al*. (2013)136 will be used. Data from the annual international herring larvae surveys (IHLS) will also be considered. For sandeel, the classification of Latto *et al*. (2013)[151] will be used, which considers the work by Greenstreet *et al*. (2010)[152] and Holland *et al*. (2005)[156.] Additionally, herring and sandeel spawning habitat classifications by Marinespace *et al*. (2013a; 2013b)[157] [158] will also be considered.

4.4.4.12 Fisheries data from the MMO130 also show the presence of multiple commercially important shellfish species in the study area. Crustaceans include the edible crab *Cancer pagurus*, velvet swimming crab *Necora puber*, spider crab *Maja squinado*, Nephrops *Nephrops norvegicus*, brown shrimp *Crangon spp*., and the European lobster *Homarus gammarus*. Molluscs include native oyster *Ostrea edulis*, blue mussels *Mytilus edulis*, great scallop *Pecten maximus*, common razor shell *Ensis ensis*, and in particular, common whelk *Buccinum undatum* and common cockles *Cerastoderma edule* (see: **Part 4, Chapter 9, Commercial Fisheries**). The potential grounds of these species within the study area will be identified at the EIA stage and will also be informed by the baseline data collected for **Part 4, Chapter 9, Commercial Fisheries**.

Designated Sites and Species

4.4.4.13 There is potential for Annex II fish species to be present within the study area. These comprise the Atlantic salmon, sea lamprey, river lamprey, allis shad, and twaite shad. Additionally, European eel which are protected under the Eels (England and Wales) Regulations (2009)[113] and are an IUCN Red List critically endangered species[159], are known to be present in the River Thames[160]. These species, as well as sea trout, lesser sandeel *Ammodytes marinus*, herring, cod, whiting, hake, smelt, plaice mackerel, and Dover sole are all priority species listed under Section 41 of the 2006 Natural Environment and Rural Communities (NERC) Act[112].

4.4.4.14 The key sites designated for the protection of fish and shellfish within the study area comprise three Marine Conservation Zones (MCZ) (Table 4.4.3). There are no sites designated for migratory fish in the wider 50km designated sites screening area.

[156] Holland, G., Greenstreet, S., Gibb I., Fraser, H. and Robertson, M. (2005). Identifying Sandeel *Ammodytes marinus* sediment habitat preferences in the marine environment. Marine Ecology Progress Series, 303, pp. 269-282.

[157] MarineSpace Ltd, ABPmer Ltd, ERM Ltd, Fugro EMU Ltd and Marine Ecological Surveys Ltd. (2013a). Environmental Effect Pathways between Marine Aggregate Application Areas and Atlantic Herring Potential Spawning Habitat: Regional Cumulative Impact Assessments. Version 1.0. A report for the British Marine Aggregates Producers Association.

[158] MarineSpace Ltd, ABPmer Ltd, ERM Ltd, Fugro EMU Ltd and Marine Ecological Surveys Ltd. (2013b). Environmental Effect Pathways between Marine Aggregate Application Areas and Sandeel Habitat: Regional Cumulative Impact Assessments. Version 1.0. A report for the British Marine Aggregates Producers Association.

[159] Pike, C., Crook, V. and Gollock, M. (2020). *Anguilla anguilla*. The IUCN Red List of Threatened Species (2020). [online] Available at: https://www.iucnredlist.org/species/60344/152845178 [Accessed 01 March 2022].

[160] Pecorelli, J., Macphie, K., Hebditch, C., Clifton-Dey, D., Thornhill, I. and Debney, A. (2019). Using citizen science to improve the conservation of the European eel (*Anguilla anguilla)* in the Thames River Basin District. Freshwater Science, 38(2), pp. 281-291.

Table 4.4.3: Designated sites for fish and shellfish within the study area

Site name	Distance from Offshore Scoping Boundary	Summary
Goodwin Sands MCZ	0km	The Offshore Scoping Boundary runs through the northwestern edge of this MCZ, designated for the protection of blue mussel, *Mytilus edulis,* beds
Thanet Coast MCZ	<1km	The Offshore Scoping Boundary passes within 100m of this MCZ, designated for the protection of blue mussel, *Mytilus edulis,* beds
Dover to Deal MCZ	12km	Native oyster, *Ostrea edulis,* and blue mussel, *Mytilus edulis,* beds are a protected feature of this site. The Offshore Scoping Boundary is located directly north of this site

Future Baseline

4.4.4.15 The fish and shellfish ecology chapter within the Environmental Statement (ES) will include an outline of the likely evolution of the baseline environment without the implementation of the development as far as natural changes from the baseline scenario can be assessed.

4.4.5 Embedded and Control & Management Measures

4.4.5.1 Given that many design elements of the Project have yet to be confirmed, the embedded and control and management measures have not been finalised at this stage. Measures will be discussed with statutory consultees and stakeholders throughout the EIA process.

Embedded Measures

4.4.5.2 The Offshore Scoping Boundary has been designed in order to avoid environmentally sensitive areas where possible. As the Offshore Scheme develops and route design is progressed (informed by the Project specific offshore survey data) the Project will aim to minimise impacts by micro siting around sensitive features where possible.

Control and Management Measures

4.4.5.3 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the fish and shellfish ecology assessment are:

- GM01 - designated (and as minimal as possible) anchoring areas and protocols shall be employed during marine operations to minimise physical disturbance of the seabed;

- GM03 - an offshore Construction Environmental Management Plan (CEMP) including an Emergency Spill Response Plan and Waste Management Plan, Marine Pollution Contingency Plan (MPCP), Shipboard Oil Pollution Emergency Plan (SOPEP) and a dropped objects procedure will be produced prior to installation;
- LVS01 - all project vessels shall adhere to the International Convention for the Control and Management of Ships' Ballast Water and Sediments with the aim of preventing the spread of marine INNS[161];
- LVS02 - all project vessels must comply with the International Regulations for Preventing Collisions at Sea (1972)[162] (IMO, 2019a), regulations relating to International Convention for the Prevention of Pollution from Ships (the MARPOL Convention 73/78) [163] (IMO, 2019e) with the aim of preventing and minimising pollution from ships and the International Convention for the Safety of Life at Sea (SOLAS, 1974)[164].
- LVS05 - drilling fluids required for trenchless operations will be carefully managed to minimise the risk of breakouts into the marine environment. Specific avoidance measures would include:
  - the use of biodegradable drilling fluids (PLONOR substances) where practicable,
  - drilling fluids will be tested for contamination to determine possible reuse or disposal; and
  - If disposal is required drilling fluids would be transported by a licensed courier to a licensed waste disposal site.
- BE01 - a biosecurity plan will be produced for the project, following the latest guidance on INNS from the GB non-native species secretariat;
- BE02 - all project vessels shall adhere to the International Maritime Organisation (IMO) Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (Biofouling Guidelines)[165];
- BE03 - cable installation will be carried out on a 24-hour basis in order to reduce the overall installation time and associated disturbance of ecological receptors; and

[161] International Maritime Organisation (IMO) (2017). International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships%27-Ballast-Water-and-Sediments-(BWM).aspx [Accessed 06 June 2022].

[162] International Maritime Organisation (IMO) (1972). Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/COLREG.aspx [Accessed 10 August 2022].

[163] International Maritime Organisation (IMO) (1983). International Convention for the Prevention of Pollution from Ships (MARPOL). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx [Accessed 10 August 2022].

[164] International Maritime Organisation (IMO) (1974). International Convention for the Safety of Life at Sea (SOLAS) 1974. [online] Available at: https://treaties.un.org/doc/Publication/UNTS/Volume%201184/volume-1184-I-18961-English.pdf.

[165] International Maritime Organisation (IMO) (2011). 2011 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species. Annex 26. Resolution MEPC.207(62). [online] Available at: https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MEPCDocuments/MEPC.207(62).pdf.

4.4.6 Potential for Significant Effects

4.4.6.1 The fish and shellfish ecology assessment will consider the construction, operation, maintenance and decommissioning of the Offshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

4.4.6.2 The proposed scope of the fish and shellfish ecology assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

4.4.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Offshore Scheme.

4.4.6.4 The potential for the Offshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- unexploded ordnance (UXO) clearance;
- pre-installation geophysical surveys;
- pre-installation clearance of obstacles and debris;
- sand wave sweeping;
- cable installation and cable lay; and
- cable protection (e.g. rock placement, concrete mattresses).

Sources of operational impacts

- presence of activated cable.

Sources of maintenance impacts

- geophysical and/or ROV surveys;
- cable repair or replacement; and
- cable protection (e.g. rock placement, concrete mattresses).

Sources of decommissioning impacts

- removal of cable from seabed;
- removal of cable protection (e.g. rock placement, concrete mattresses); and/or
- abandonment of cable in seabed.

Potential impacts

4.4.6.5 Table 4.4.4 identifies the potential impacts that could result from the sources identified above.

Table 4.4.4: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance and decommissioning	UXO clearance; Pre-installation clearance of obstacles and debris; Sand wave sweeping; Cable installation and cable lay; Cable repair or replacement; Removal of cable from seabed; and Removal of cable protection	Temporary disturbance to areas of seabed that could be important for fish and shellfish habitat including spawning and nursery grounds	Yes	**Scoped in**
Construction and maintenance	Cable protection (e.g. rock placement, concrete mattresses)	Direct loss of areas of seabed that could be important for fish and shellfish habitat (including spawning and nursery grounds) due to placement of hard substrates on the seabed	Yes	**Scoped in**
Construction, maintenance and decommissioning	UXO clearance; Pre-installation clearance of obstacles and debris; Sand wave sweeping; Cable installation and cable lay;	Temporary increase in Suspended Sediment Concentrations (SSC) and sediment deposition leading to increased	Yes	**Scoped in**

	Cable repair or replacement; Removal of cable from seabed; and Removal of cable protection	turbidity, smothering effects and contaminant mobilisation		
Construction	Cable installation and cable lay	Changes to marine water quality from the use of Horizontal Directional Drill (HDD) drilling fluids	No - the implementation control and management measure LVS05 means only inert (non-toxic), biodegradable drilling fluid will be used and disposed of at a licenced disposal site. As such, significant changes to water quality are highly unlikely	Scoped out
Construction, maintenance and decommissioning	Leaks and spills from vessels	Changes to marine water quality from accidental leaks and spills from vessels, including loss of fuel oils	No - the implementation of control and management measures GM03 and LVS02 create limited potential for accidental spills to occur. Relatively few vessels are expected to be involved, and potential pollutants would be limited to relatively small volumes. Should an accidental spill or leak occur, it would be small in extent and subject to immediate control measures, dilution and rapid	Scoped out

			dispersal within the marine environment	
Construction, maintenance and decommissioning	UXO clearance; Pre-installation clearance of obstacles and debris; Sand wave sweeping; Cable installation and cable lay (including piling[166]); Cable repair or replacement; Removal of cable from seabed; Removal of cable protection; and Vessel traffic	Underwater sound impacts on fish and shellfish	Yes	**Scoped in**
Operation	Presence of activated cable	Disturbance to benthic habitats and species due to subsea cable thermal emissions	Yes	**Scoped in**
Operation	Presence of activated cable	Electromagnetic field (EMF) emissions	Yes	**Scoped in**

Impact Pathways with Receptors (Step 2)

4.4.6.6 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the fish and shellfish ecology study area.

4.4.6.7 Table 4.4.5 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the fish and shellfish ecology assessment for the Offshore Scheme (**Figure 1.1.4 Offshore Scheme Scoping Boundary)**.

[166] At the cable landfall locations, percussive piling for the installation of a cofferdam as part of the use of trenched technologies (not the preferred method) cannot be ruled out at this stage

Table 4.4.5: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in/out
Temporary disturbance to fish and shellfish habitats during construction, maintenance and decommissioning	Fish and shellfish	Yes - there is a potential for temporary disturbance to areas of seabed that could be important for fish and shellfish habitat (including spawning and nursery grounds) from construction methods such as any necessary pre-sweep, preparation and installation of the cable. This could lead to temporary loss of these habitats and associated species	**Scoped in**
Direct loss of fish and shellfish habitats due to placement of hard substrates on the seabed during construction and maintenance	Fish and shellfish	Yes - there is a potential for the direct loss of areas of seabed that could be important for fish and shellfish habitat (including spawning and nursery grounds) due to the placement of hard substrates on the seabed for cable protection. Introduction of hard substrate would likely replace otherwise soft substrates, leading to permanent loss of these habitats and associated species[167]	**Scoped in**
Temporary increase in SSC and sediment deposition leading to increased turbidity, smothering effects and contaminant mobilisation during construction, maintenance and decommissioning	Fish and shellfish	Yes - project construction methods have the potential to disturb the seabed leading to the creation of sediment plumes with increased SSC. Consequently, increased turbidity may inhibit primary production of key food sources or providers of habitat.	**Scoped In**

[167] Taormina, B., Bald, J., Want, A., Thouzeau, G., Lejart, M., Desroy, N. and Carlier, A. (2018). A review of potential impacts of submarine power cables on the marine environment: Knowledge gaps, recommendations and future directions. Renewable and Sustainable Energy Reviews, 96, pp. 380-391.

		Sediment plumes may lead to the deposition of sediments smothering areas important for fish and/or filter feeding shellfish The resuspension of sediment can also release any sediment-bound contaminants (if present), which can impact fish and shellfish communities in a variety of ways, including adverse ecotoxic effects, bio-accumulation, and potentially mortality.	
Disturbance, harm, and mortality to fish and shellfish due to underwater sound and vibration during construction, maintenance and decommissioning	Fish and shellfish	Yes - underwater sound and vibration will be generated by a range of project construction activities including geophysical survey, UXO clearance, route preparation, and cable lay. Man-made underwater sound sources have the potential to result in injury and/or behavioural disturbance in fish (including eggs and larvae)[168]. This includes the potential for underwater sound to act as a barrier to the movement of diadromous fish during key migratory periods. Invertebrate species, which includes shellfish, have been scoped out for this impact pathway (see **Part 4, Chapter 3, Benthic Ecology**) as they are unlikely to be adversely impacted physiologically or behaviourally by the	**Scoped in**

[168] Popper, A., Hawkins, A., Fay, R., Mann, D., Bartol, S., Carlson, T., Coombs, S., Ellison, W., Gentry, R., Halvorsen, M., Løkkeborg, S., Rogers, P., Southall, B., Zeddies, D. and Tavolga, W. (2014). ASA S3/SC1.4 TR-2014 Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI. Cham, Switzerland: Springer and ASA Press.

		propagation of underwater sound and vibration[169]	
Disturbance to fish and shellfish due to subsea cable thermal emissions during operation	Fish and shellfish	Yes - electricity cables are known to produce heat during operation which could result physiological changes to shellfish, and migratory behaviour in fish, altering the community structure within the sediment [170]. Cables have negligible capacity to heat the overlying water column due to the high thermal capacity and movement of surrounding seawater	**Scoped in**
Disturbance to fish and shellfish due to changes in cable EMF emissions during operation	Fish and shellfish	Yes - EMF emissions from subsea cables have the potential to disturb foraging behaviour and inhibit migratory success through displacement of electro-receptive species (such as elasmobranchs) and migratory fish (such as salmon and eels)[171] [172] [173] [174]. Whilst some detection by shellfish (invertebrates) may be possible[175] [176] there is considered to be no realistic significant interaction	**Scoped in**

[169] Solan, M., Hauton, C., Godbold, J., Wood, C., Leighton, T. and White, P. (2016). Anthropogenic sources of underwater sound can modify how sediment dwelling invertebrates mediate ecosystem properties. [online] Available at: https://www.nature.com/articles/srep20540 [Accessed 29 February 2022].

[170] Taormina, B., Bald, J., Want, A., Thouzeau, G., Lejart, M., Desroy, N. and Carlier, A. (2018). A review of potential impacts of submarine power cables on the marine environment: Knowledge gaps, recommendations and future directions. Renewable and Sustainable Energy Reviews, 96, pp. 380-391.

[171] Formicki, K., Korzelecka-Orkisz, A. and Tański, A. (2019). Magnetoreception in fish. Journal of Fish Biology, 95(1), pp. 73-91.

[172] Newton, K., Gill, A. and Kajiura, S. (2019). Electroreception in marine fishes: chondrichthyans. Journal of Fish Biology, 95(1), pp. 135-154.

[173] Gill, A. and Desender, M. (2020). 2020 State of the Science Report, Chapter 5: Risk to Animals from Electromagnetic Fields Emitted by Electric Cables and Marine Renewable Energy Devices. [online] Available at: https://tethys.pnnl.gov/sites/default/files/publications/OES-Environmental-2020-State-of-the-Science-Ch-5_final_hr.pdf.

[174] Hutchison, Z., Gill, A., Sigray, P., He, H. and King, J. (2021). A modelling evaluation of electromagnetic fields emitted by buried subsea power cables and encountered by marine animals: Considerations for marine renewable energy development. Renewable Energy, 177, pp.72-81.

[175] Scott, K., Harsanyia, P. and Lyndon, A. (2018). Understanding the effects of electromagnetic field emissions from Marine Renewable Energy Devices (MREDs) on the commercially important edible crab, *Cancer pagurus* (L.). Marine Pollution Bulletin, 131, pp. 580-588.

[176] Bochert, R. and Zettler, M. (2004). Long-term exposure of several marine benthic animals to static magnetic fields. Bioelectromagnetics: Journal of the Bioelectromagnetics Society, 25(7), pp. 498-502.

		between EMF emitted during the operation of the Project and benthic invertebrates or communities[177] [178] [179] (see **Part 4, Chapter 3, Benthic Ecology**). Thus, EMF disturbance has been scoped out for this impact pathway. It is likely that the HVDC cable may be installed in a bundled bi-pole configuration and most EMF emissions beyond background geomagnetic levels would be cancelled out by the close proximity of the cables. However, as the design has not yet been finalised a worst-case scenario of cables in separate trenches will be assessed

4.4.7 Proposed Assessment Methodology

Proposed Data Sources

4.4.7.1 The following data sources are proposed to be used to inform the assessment:

- Project-specific survey data[180]
- Marine Data Exchange Offshore Wind Environmental Evidence Register (OWEER)[181];
- Marine Life Information Network for habitat and species sensitivity assessments, where available[182]

[177] Scott, K., Harsanyi, P., Easton, B., Piper, A., Rochas, C., & Lyndon, A. (2021). Exposure to Electromagnetic Fields (EMF) from Submarine Power Cables Can Trigger Strength-Dependent Behavioural and Physiological Responses in Edible Crab, *Cancer pagurus* (L.). Journal of Marine Science and Engineering, 9(7), pp. 16.

[178] Love., M., Nishimotoa, M., Clark, S., McCrea, M. and Bull, A. (2017). Assessing potential impacts of energized submarine power cables on crab harvests. Continental Shelf Research, 151, pp. 23-29.

[179] Hutchison, Z., Sigray, P., He, H., Gill, A., King, J. and Gibson, C. (2018). Electromagnetic Field (EMF) Impacts on Elasmobranch (Shark, Rays, and Skates) and American Lobster Movement and Migration From Direct Current Cables. Sterling (VA): US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 3. [online] Available at: https://espis.boem.gov/final%20reports/5659.pdf.

[180] Subtidal benthic surveys have been completed along the length of the Offshore Scheme in August to October 2021, consisting of five Drop-Down Video (DDV) transects and 37 grab samples (using either dual van veen or hammon grabs). Intertidal benthic phase I and II surveys at the landfall locations are planned to be completed in Autumn 2021.

[181] Marine Data Exchange (2021). JNCC, Offshore Wind Evidence and Change Programme, Offshore Wind Environmental Evidence Register. [online] Available at: https://www.marinedataexchange.co.uk/details/3480/2021-jncc-offshore-wind-evidence-and-change-programme-offshore-wind-environmental-evidence-register-/summary [Accessed 10 August 2022].

[182] MarLIN (2022). Marine Evidence based Sensitivity Assessment (MarESA). [online] Available at: https://www.marlin.ac.uk/sensitivity/sensitivity_rationale [Accessed 09 August 2022].

- Cefas OneBenthic Portal[183]
- The Outer Thames Estuary Regional Environmental Characterisation[184];
- ICES Ecosystem Overviews, Greater North Sea Ecoregion[185];
- UK fleet landings by rectangle stock and estimated EEZ 2016-2020[186];
- Transitional & Coastal waters fish survey relational datasets[187];
- Updated Fisheries Sensitivity Maps in British Waters[188] [189] [134];
- Spawning and nursery grounds of selected fish species in UK waters[190];
- Spatial Interactions between Marine Aggregate Application Areas and Atlantic Herring Potential Spawning Areas[191];
- Spatial Interactions between Marine Aggregate Application Areas and Sandeel Habitat[192];
- Hydroacoustic seabed survey and grab sampling techniques to assess "local" sandeel population abundance[193];
- Sandeel sediment habitat preferences in the marine environment[194];
- Environmental Effect Pathways between Marine Aggregate Application Areas and Atlantic Herring Potential Spawning Habitat: Regional Cumulative Impact Assessments[195];

[183] Cefas (2022). OneBenthic Portal. [online] Available at: https://openscience.cefas.co.uk/ [Accessed 09 August 2022].

[184] Sturt, F. and Dix, J. (2009). The Outer Thames Estuary Regional Environmental Characterisation (09/J/1/06/1305/0870). London, UK: ALSF/MEPF (DEFRA), p. 145.

[185] ICES. (2021). ICES Ecosystem Overviews, Greater North Sea Ecoregion. ICES Advice 2021. [online] Available at: https://doi.org/10.17895/ices.advice.9434.

[186] Marine Management Organisation (MMO) (2021a). UK fleet landings by rectangle stock and estimated EEZ 2016-2020. [online] Available at: https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2020.

[187] Environment Agency (2021a). Transitional & Coastal waters (TraC) fish survey relational datasets. [online] Available at: https://data.gov.uk/dataset/74978f12-4b0d-4e05-8c67-631c5e33e51b/nfpd-trac-transitional-coastal-waters-fish-survey-relational-datasets.

[188] Coull, K., Johnstone, R., and Rogers, S. (1998). Fisheries Sensitivity Maps in British Waters. Published and distributed by UKOOA Ltd.

[189] Aires, C., González-Irusta, J. and Watret, R. (2014). Updating Fisheries Sensitivity Maps in British Waters. Scottish Marine and Freshwater Science, 5(10), pp. 88.

[190] Ellis, J., Milligan, S., Readdy, L., Taylor, N. and Brown, M. (2012). Spawning and nursery grounds of selected fish species in UK waters. [online] Available at: https://www.cefas.co.uk/publications/techrep/techrep147.pdf.

[191] Reach, I., Latto, P., Alexander, D., Armstrong, S., Backstrom, J., Beagley, E., Murphy, K., Piper, R. and Seiderer, L. (2013). Screening Spatial Interactions between Marine Aggregate Application Areas and Atlantic Herring Potential Spawning Areas: A Method Statement produced for BMAPA. [online] Available at: https://www.marinespace.co.uk/wp-content/uploads/2021/06/Herring-Potential-Spawning-Habitat-Method-Statement-v1.1.pdf.

[192] Latto, P., Reach, I., Alexander, D., Armstrong, S., Backstrom, J., Beagley, E., Murphy, K., Piper, R. and Seiderer, L. (2013). Screening Spatial Interactions between Marine Aggregate Application Areas and Sandeel Habitat: A Method Statement produced for BMAPA. [online] Available at: https://www.marinespace.co.uk/wp-content/uploads/2021/06/Sandeel-Potential-Habitat-Method-Statement-v1.1.pdf.

[193] Greenstreet, S., Holland, G., Guirey, E., Armstrong, A., Fraser, H. and Gibb, I. (2010). Combining hydroacoustic seabed survey and grab sampling techniques to assess "local" sandeel population abundance. ICES Journal of Marine Science, 67(5), pp. 971-984

[194] Holland, G., Greenstreet, S., Gibb I., Fraser, H. and Robertson, M. (2005). Identifying Sandeel *Ammodytes marinus* sediment habitat preferences in the marine environment. Marine Ecology Progress Series, 303, pp. 269-282.

[195] MarineSpace Ltd, ABPmer Ltd, ERM Ltd, Fugro EMU Ltd and Marine Ecological Surveys Ltd. (2013a). Environmental Effect Pathways between Marine Aggregate Application Areas and Atlantic Herring Potential Spawning Habitat: Regional Cumulative Impact Assessments. Version 1.0. A report for the British Marine Aggregates Producers Association.

- Environmental Effect Pathways between Marine Aggregate Application Areas and Sandeel Habitat: Regional Cumulative Impact Assessments[196];
- Salmon Stocks and Fisheries in England and Wales[197];
- Salmonid and fisheries statistics for England and Wales[198];
- Cefas demersal fish data for the southern North Sea (ICES division IVc)[199];
- IUCN Red List of Threatened Species[200];
- Shellfish classification zones of England and Wales[201];
- International Herring Larvae Surveys (IHLS)[202]
- East Coast Regional Environmental Characterisation[146] for a summary of the distribution and ecology of fish and shellfish on the East Coast;
- Magic maps for designated and protected sites;
- Designated sites condition assessments as available;
- Academic papers and online reports as available for the study area; and
- Relevant Environmental Statements.

Proposed Assessment Methodology

4.4.7.2 All ecological assessments for the project will be completed in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2019)[203]. The method will be tailored to reflect the specific conditions of the marine environment, in particular to ensure the high levels of movement of marine receptors between habitats and populations, are considered fully in respect of the predicted ZOI arising from the Offshore Scheme.

[196] MarineSpace Ltd, ABPmer Ltd, ERM Ltd, Fugro EMU Ltd and Marine Ecological Surveys Ltd. (2013b). Environmental Effect Pathways between Marine Aggregate Application Areas and Sandeel Habitat: Regional Cumulative Impact Assessments. Version 1.0. A report for the British Marine Aggregates Producers Association.

[197] Cefas (2021). Salmon stocks and fisheries in England and Wales, 2020. Preliminary assessment prepared for ICES, March 2021. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1019223/SalmonReport-2020-summary.pdf.

[198] Environment Agency (2021b). Salmonid and fisheries statistics for England and Wales. [online] Available at: https://www.gov.uk/government/publications/salmonid-and-freshwater-fisheries-statistics-2020/salmonid-and-fisheries-statistics-for-england-and-wales-2020.

[199] Parker-Humphreys, M. (2005). Distribution and Relative Abundance of Demersal Fishes from Beam Trawl Surveys in the Eastern English Channel (ICES Division VIId) and the Southern North Sea (ICES Division IVc) 1993-2001. [online] Available at: https://www.cefas.co.uk/publications/techrep/tech124.pdf.

[200] International Union for the Conservation of Nature (IUCN) (2022). The IUCN Red List of Threatened Species Version 2021-3. [online] Available at: https://www.iucnredlist.org [Accessed 28 March 2022].

[201] Cefas (2022). Shellfish Classification Zone Maps. [online] Available at: https://www.cefas.co.uk/data-and-publications/shellfish-classification-and-microbiological-monitoring/england-and-wales/classification-zone-maps/.

[202] ICES (2020). Report of the Working Group on Surveys on Ichthyoplankton in the North Sea and adjacent Seas (WGSINS; outputs from 2020 meeting. [online] Available at: https://archimer.ifremer.fr/doc/00708/82030/86779.pdf [Accessed 01 September 2022].

[203] Chartered Institute of Ecology and Environmental Management (CIEEM) (2019). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. [online] Available at: https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1Update.pdf.

4.4.7.3 The aims of the marine EcIA are to:

- identify important ecological features (e.g., designated sites, habitats or species) which have the potential to be impacted by the Offshore Scheme;
- provide a robust assessment of the likely ecological impacts and resultant effects of the Offshore Scheme, which may be beneficial (i.e. positive) or adverse (i.e. negative);
- facilitate determination of the consequences of the Offshore Scheme in terms of national, regional and local policies relevant to nature conservation and biodiversity, where the level of detail provided is proportionate to the scale of the development and the complexity of its impact pathways;
- identify appropriate mitigation to reduce any likely ecological impacts; and
- set out the steps to be taken to adhere to legal requirements relating to the relevant ecological features concerned.

4.4.7.4 In accordance with CIEEM (2019) guidance, not all habitats and species which have the potential to occur in the ZOI of the Offshore Scheme will be considered. Rather, focus will be placed on those features considered to be 'important' – determining importance is discussed in further detail below. To ensure compliance with National and European policy, consideration is still given to biodiversity in its entirety and the need to achieve no net loss and enhancement of biodiversity.

4.4.7.5 In accordance with the CIEEM guidance, the importance of an ecological feature or receptor is defined according to the following factors:

- conservation or legal status;
- quality or health;
- extent; and
- rarity or endemism.

4.4.7.6 The importance of an ecological feature has also been defined with reference to a specific geographical context. Marine features are highly connected with few boundaries and the approach therefore adopts the level of legislative designation as a proxy for the geographical importance of a marine species receptor. These and the other criteria for importance ratings are shown in Table 4.4.6 below.

Table 4.4.6: Importance criteria for marine ecology features/receptors

Importance	**description***
Very High	• designated sites and qualifying/supporting features of international importance (Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar Sites) • species which are legally protected and/or in significant decline (i.e., classified as 'endangered' or 'critically endangered' according to the IUCN Red List (IUCN, 2019))

	• high quality examples of rare habitats that are threatened throughout their range
High	• designated sites and qualifying/supporting features of national conservational importance (Sites of Special Scientific Interest (SSSI) and MCZ) • priority habitats and species[204] or those considered to be of principal importance[205] for the conservation of biodiversity in England, and those species considered vulnerable to decline (i.e., classified as 'vulnerable' or 'near threatened' according to the IUCN Red List) • high quality examples of uncommon habitats that are vulnerable throughout their range
Medium	• habitats and species of regional or local importance (i.e., Annex 1 of the Habitats Regs, which are not a qualifying feature of a nearby designated site) • those species considered to be of 'least concern' (according to the IUCN Red List or listed in the OSPAR[206] list of threatened and / or declining species for the North-East Atlantic) • poor quality examples of rare or uncommon habitats that are threatened or vulnerable throughout their range.
Low	• habitats and species of low conservation importance, such as those generally abundant and widespread around the UK with no specific local value.

.*Should there be any overlap in the description of a particular feature/receptor, the highest importance criteria rating shall be adopted.

.

4.4.7.7 In line with the CIEEM guidelines, the terminology used within the EcIA will draw a clear distinction between the terms 'impact' and 'effect'. For the purposes of the EcIA, these terms are defined as follows:

- impact – actions resulting in changes to an ecological feature; for example, underwater sound disturbance leading to displacement of hearing sensitive species; and
- effect – outcome resulting from an impact, acting upon the conservation status or structure and function of an ecological feature; for example, displacement of

[204] JNCC (2007). UK Biodiversity Action Plan (BAP) Priority Marine Species. [online] Available at: https://data.jncc.gov.uk/data/98fb6dab-13ae-470d-884b-7816afce42d4/UKBAP-priority-marine-species.pdf.

[205] Natural Environment and Rural Communities (NERC) Act 2006 [online]. Available at: https://www.legislation.gov.uk/ukpga/2006/16/contents.[6]

[206] OSPAR refers to the Oslo and Paris Convention for the protection of the marine environment of the North-East Atlantic

individuals and loss of important foraging or breeding grounds leading to effects on the reproduction and survival of the local population.

4.4.7.8 The significance of effects will be based on an assessment of the impact magnitude (i.e., the deviation from the baseline condition) and the sensitivity and value (which are synonymous with 'importance') of the receptor. Temporary, permanent, direct and indirect effects that may occur during the construction, operation and maintenance, and decommissioning phases of the Offshore Scheme will be considered, and any mitigation measures necessary will be identified.

4.4.7.9 To determine the likely significance of effects, the following parameters will be considered:

- impact type - direct or indirect, positive or negative, temporary or permanent;
- magnitude of impact – the ‘amount’ or intensity of an impact. This may sometimes be synonymous with ‘extent’ (see below) for certain receptors, such as habitats loss. For mortality it may be the number of individuals killed;
- spatial extent of impact – the area over which the impact will occur; and
- temporal nature of impact – timing, frequency and duration.

4.4.7.10 The assessment has also given regard to the sensitivity of an ecological feature to an impact which is determined by its:

- adaptability - i.e. the capacity, or lack thereof, of a feature to avoid or adapt to a change; and
- tolerance / resilience - i.e. capacity, or lack thereof, of a feature to accommodate temporary or permanent change or recover to pre-existing state following exposure to a change.

4.4.7.11 For each marine ecological receptor only those characteristics relevant to understanding the ecological effect and determining the significance are described. The determination of the significance of effects will be based on predicted effects to:

- designated sites – i.e., the conservation objectives for the site and / or its interest / qualifying features;
- ecosystems / biodiversity – resulting in a change in ecosystem structure and / or function;
- habitats – i.e., extent, distribution, structure, function as well as its associated species, and its conservation status within a given geographical area; and
- species – i.e., abundance, distribution (including spawning, foraging and nursery habitats) and its conservation status within a given geographical area or at a particularly sensitive time (e.g., spawning season).

4.4.7.12 The significance of effects will be reported as either:

- not Significant – no or limited effect to one or more of the features described above; or
- significant – one or more features described above are affected.

4.4.7.13 The CIEEM methodology does not advocate a matrix approach to determining the significance of effects (CIEEM, 2019). However, to maintain consistency with other disciplines, where a matrix approach is suitable, the assessment conclusions will be transposed into the significance terminology used within the wider ES (**Part 1, Chapter 5, EIA Approach and Methodology**) See Table 4.4.7 below.

Table 4.4.7: Description of significance terminology

Classification of effect based on CIEEM guidance	Terminology used elsewhere in the ES	Description in accordance with CIEEM guidance
Significant (beneficial)	Major beneficial	Beneficial effect on designated sites, ecosystems, habitat and/or species at the international level
	Moderate beneficial	Beneficial effect on designated sites, ecosystems, habitat and/or species at the national level
Not-significant	Minor beneficial	Beneficial effect on designated sites, ecosystems, habitat and/or species at a local level or regional level
	Negligible	No effect on designated sites, ecosystems, habitat and/or species
	Minor adverse	Adverse effect on designated sites, ecosystems, habitat and/or species at the local level or regional level
Significant (adverse)	Moderate adverse	Adverse effect on designated sites, ecosystems, habitat and/or species at the national level
	Major adverse	Adverse effect on designated sites, ecosystems, habitat and/or species at the international level

4.4.8 Conclusion

4.4.8.1 In summary:

- A range of potentially sensitive fish species, including those that are protected, or are species of commercial importance, occur within proximity of the Offshore Scheme;
- The study area overlaps with spawning and nursery grounds for a variety of fish species, particularly several of commercial importance;
- The study area overlaps with three MCZs designated for the protection of shellfish, there are no sites designated for migratory fish in the wider 50km designated sites screening area;
- No project specific surveys for fish and shellfish will be undertaken as available data are considered sufficient to undertake an assessment of the identified impact pathways; and
- The scoping exercise has identified a number of impact pathways that will be fully addressed in the ES.

Proposed Scope of the Assessment

4.4.8.2 A summary of the proposed scope of the assessment is provided in Table 4.4.8

Table 4.4.8: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
Fish and shellfish	Temporary disturbance to fish and shellfish habitats	Construction Maintenance Decommissioning	**Scoped in**
Fish and shellfish	Direct loss of fish and shellfish habitats	Construction Maintenance	**Scoped in**
Fish and shellfish	Reduction in feeding efficiency; smothering effects; bio-accumulation; and potentially mortality due to increased SSC.	Construction Maintenance Decommissioning	**Scoped in**
Fish	Disturbance, harm, and mortality to fish and shellfish due to underwater sound and vibration.	Construction Maintenance Decommissioning	**Scoped in**
Fish and shellfish	Disturbance to fish and shellfish due to subsea cable thermal emissions	Operation	**Scoped in**
Fish and shellfish	Disturbance to fish and shellfish due to cable EMF emissions	Operation	**Scoped in**

4.5 Marine Mammals

4.5.1 Introduction

4.5.1.1 This chapter presents how the marine mammal assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Offshore Scheme as described in **Part 1, Chapter 4, Description of the Project**. This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

4.5.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Offshore Scheme Scoping Boundary hereafter referred to as the Offshore Scoping Boundary is illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary.**

4.5.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Methodology;**
- **Part 4, Chapter 1, Evolution of the Offshore Scheme;**
- **Part 4, Chapter 3, Benthic Ecology;** and
- **Part 4, Chapter 4, Fish and Shellfish Ecology.**

4.5.1.4 This chapter is supported by the following figure:

- **Figure 4.5.1 Marine Mammals Study Area and Designated Sites.**

4.5.2 Regulatory and Planning Context

4.5.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on marine mammals associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

4.5.2.2 The following legislation is relevant to marine mammals:

- Marine and Coastal Access Act 2009[207], which provides the legal mechanism to help ensure clean, healthy, safe and productive and biological diverse oceans and seas;
- Conservation of Habitats and Species Regulations 2017[208] (amended 2019[209]), transposes the Habitats Directive (92/43/EEC) into UK legislation, covering the marine environment to 12 nautical mile (NM) offshore;
  - All cetaceans are listed as European Protected Species (EPS) on Schedule 2 of the Habitats Directive
  - Grey seal *Halichoerus grypus* and harbour seal *Phoca vitulina* listed as Annex II (as are harbour porpoise *Phocoena phocoena* and bottlenose dolphin *Tursiops truncatus*)
- The Conservation of Offshore Marine Habitats and Species Regulations 2017[210] applies within the UK Offshore Marine Area (beyond the 12 NM limit);
- Wildlife and Countryside Act 1981[211], Schedule 5 states that all cetaceans are fully protected within UK territorial waters, protecting them from killing or injury, sale, destruction of a particular habitat (which they use for protection or shelter) and disturbance;
- The Marine Strategy Regulations 2010[212], which transpose the Marine Strategy Framework Directive (2008/56/EC) into UK legislation;
- Conservation of Seals Act 1970[213], which provides seasonal protection to seals;
- Natural Environment and Rural Communities Act 2006[214] (NERC), Section 41 of the NERC lists species of 'principal importance' for the purpose of conservation biodiversity; and
- Environment Act 2021[215] [216], will set clear statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water and waste, and includes the introduction of Biodiversity Net Gain (BNG).

[207] The Marine and Coastal Access Act 2009 [online]. Available at: https://www.legislation.gov.uk/ukpga/2009/23/contents.

[208] The Conservation of Habitats and Species Regulations 2017. [online] Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents/made.

[209] Amended in response to the UK's exit from the European Union (EU), making the Habitats (92/43/EEC) and Wild Birds (2009/147/EC) Directives, operable from 1 January 2021, and creating a UK natural site network in place of the EU Natura 2000 ecological network.

[210] The Conservation of Offshore Marine Habitats and Species Regulations 2017. [online] Available at: https://www.legislation.gov.uk/uksi/2017/1013/made

[211] The Wildlife and Countryside Act 1981. [online] Available at: https://www.legislation.gov.uk/ukpga/1981/69.

[212] The Marine Strategy Regulations 2010. [online] Available at: https://www.legislation.gov.uk/uksi/2010/1627/contents/made.

[213] Conservation of Seals Act 1970. [online] Available at: https://www.legislation.gov.uk/ukpga/1970/30

[214] Section 41 of the Natural Environment and Rural Communities Act 2006. [online] Available at: https://www.legislation.gov.uk/ukpga/2006/16/section/41.

[215] The Environment Act 2021. [online] Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted.

[216] The Act has been enshrined into law; however, it is not anticipated to come into full effect until the end of 2023 (2025 for NSIPs)

Planning Policy

4.5.2.3 The following plans and policies are relevant to marine mammals.

National planning policy

- National Policy Statements (NPS) - the UK Government produces NPS which set out the UK Government's objectives for the development of Nationally Significant Infrastructure Projects (NSIP). Those potentially relevant to marine mammals are:
  - Overarching National Policy Statement for Energy – EN-1[217];
  - Renewable Energy Infrastructure – EN-3[218];
  - Electricity Networks - EN-5[219];
  - National Planning Policy Framework[220];
  - Planning Practice Guidance – Natural Environment[221]; and
  - Planning Practice Guidance – Renewable and low carbon energy[222].
- National Planning Framework 2 (NPF2)[223], aims to co-ordinate policies of a spatial nature with investment priorities. Biodiversity is stated as one of the factors contributing to the core objective of sustainable economic development.

Local planning policy

- The UK Marine Policy Statement (MPS)[224] was adopted in 2011 and provides the policy framework for the preparation of marine plans and establishes how decisions affecting the marine area should be made. The following marine plans have been considered in the development of this Scoping Report:

[217] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf [Accessed 09 August 2022].

[218] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Renewable Energy (EN-3). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47856/1940-nps-renewable-energy-en3.pdf [Accessed 09 August 2022].

[219] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Electricity Networks (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed 09 August 2022].

[220] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf [Accessed 09 August 2022].

[221] Department for Levelling Up, House and Communities and Ministry of Housing, Communities and Local Government (2019). Planning Practice Guidance – Natural Environment. [online] Available at: https://www.gov.uk/guidance/natural-environment#biodiversity-geodiversity-and-ecosystems [Accessed 09 August 2022].

[222] Department for Levelling Up, House and Communities and Ministry of Housing, Communities and Local Government (2015). Planning Practice Guidance – Natural Environment. [online] Available at: https://www.gov.uk/guidance/renewable-and-low-carbon-energy [Accessed 09 August 2022].

[223] National Planning Framework (2021) [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2.

[224] Department for Environment, Food and Rural Affairs (DEFRA) (2020). UK Marine Policy Statement. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf [Accessed 09 August 2022].

- East Inshore and East Offshore Marine Plan[225]
- South East Inshore Marine Plan[226]

Guidance

4.5.2.4 The following guidance is relevant to marine mammals:

- Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise Special Areas of Conservation (SACs) (England, Wales & Northern Ireland)[227]; and
- The 'Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas' (ASCOBANS) 1992 - makes provision for the protection of cetaceans through monitoring, research, public awareness, pollution control and data sharing. This agreement has been signed by eight European countries bordering the Baltic and North Seas (including the English Channel) and includes the United Kingdom (UK). A number of guidance documents, including in relation to mitigation for unexploded ordnance (UXO) detonation, are available on the ASCOBANS website[228].

4.5.3 Study Area

4.5.3.1 The Offshore Scheme is located within the International Council for the Exploration of the Sea (ICES) Greater North Sea Ecoregion[229].

4.5.3.2 To account for the highly mobile and transient nature of marine mammal species, and potential implications of local impacts on wider populations, the study area will take into consideration species specific marine mammal Management Units (MUs) (though MUs have not been created for all species) published by the Inter Agency Marine Mammal Working Group (IAMMWG)[230].

4.5.3.3 The size of the MUs varies between species as they have been defined based on an understanding of the biological population structures and the ecological differentiation of these populations (taking into account political boundaries and the management of human activities). There are MUs defined for the following species:

- harbour porpoise *Phocoena phocoena*;

[225] Department for Environment, Food and Rural Affairs (DEFRA) (2014). East Inshore and East Offshore Marine Plans. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312496/east-plan.pdf.

[226] Department for Environment, Food, and Rural Affairs (DEFRA) (2021). South East Inshore Marine Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004493/FINAL_South_East_Marine_Plan__1_.pdf.

[227] JNCC (2020). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales & Northern Ireland). [online] Available at: https://data.jncc.gov.uk/data/2e60a9a0-4366-4971-9327-2bc409e09784/JNCC-Report-654-FINAL-WEB.pdf [Accessed 11 August 2022].

[228] Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS) (2022). [online] Available at: https://www.ascobans.org/en [Accessed 11 August 2022].

[229] ICES (2021). Greater North Sea Ecoregion – Ecosystem Overview. [online] Available at: https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2021/2021/EcosystemOverview_GreaterNorthSea_%202021.pdf.

[230] IAMMWG (2021). Updated abundance estimates for cetacean Management Units in UK waters. JNCC Report No. 680, ISSN 0963-8091. Peterborough, UK: JNCC.

- bottlenose dolphin *Tursiops truncatus*;
- white-beaked dolphin *Lagenorhynchus albirostris*;
- minke whale *Balaenoptera acutorostrata*;
- short-beaked common dolphin *Delphinus delphis*;
- Atlantic white-sided dolphin *Lagenorhynchus acutus*; and
- Risso's dolphin *Grampus griseus*.

4.5.3.4 For the purpose of this assessment, the MUs defined by the IAMMWG[231] for each of these species have also been used to undertake an initial screening of designated and protected sites. The greatest likely Zone of Influence (ZOI) from project activities is likely to be in relation to underwater sound, reflecting potentially extensive propagation of underwater sound energy and the importance of sound to all marine mammals.

4.5.3.5 Joint Nature Conservation Committee (JNCC) (2020) guidance[231] regarding the assessment of effects from underwater sound source impacts in relation to SACs, designated for the protection of harbour porpoise (the cetacean species with the highest hearing sensitivity), indicates the maximum distance for significant disturbance from geophysical surveys is 5km, and 26km for impact piling and high order UXO detonation. Thus, all sites designated for cetaceans within 26km of the study area have been automatically scoped in for consideration.

4.5.3.6 However, both harbour porpoise and bottlenose dolphin are highly mobile and wide ranging, with some populations travelling between different habitats depending on the season[232]. Therefore, a review of connectivity within the IAMMWG units will also be undertaken to determine if sites beyond the screening distance should also be considered. Additionally, the known travel distances of species will be taken into consideration, with a designated sites screening distance of 50km for cetaceans (**Figure 4.5.1 Marine Mammals Study Area and Designated Sites**).

4.5.3.7 There are currently no MUs for seals, therefore instead, sites within the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention[233]) Seal Indicator Assessment Unit 10: Southeast England[234] are identified for initial consideration. The designated sites within this unit that are to be scoped in, are based on established foraging ranges for seals. In particular, grey seals are known to forage over large distances between and away from haul-out sites (where they return to rest, moult, and breed), often travelling over 100km on trips, which can last between 1 and 30 days[235]. To account for these foraging distances, and based on guidance from regulators on other projects, a designated sites screening distance of 135km has been used to screen in sites designated for grey seal. In contrast, harbour seals are

[231] JNCC (2020). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales & Northern Ireland). JNCC Report No. 654, ISSN 0963-8091. Peterborough, UK: JNCC.

[232] Heinänen, S. and Skov, H. (2015). The identification of discrete and persistent areas of relatively high harbour porpoise density in the wider UK marine area. Peterborough, UK: JNCC.

[233] OSPAR refers to the Oslo and Paris Convention for the protection of the marine environment of the North-East Atlantic

[234] OSPAR (2021). OSPAR Seal Indicator Assessment Units - QSR2023. [online] Available at: https://odims.ospar.org/en/submissions/ospar_seal_au_2021_02/.

[235] Special Committee on Seals (SCOS) (2020). Scientific Advice on Matters Related to the Management of Seal Populations. [online] Available at: http://www.smru.st-andrews.ac.uk/files/2020/08/SCOS-2019.pdf.

known to forage much closer to their haul-out sites, typically within 30km and in water depths ranging from 10 - 50m[236] the designated sites screening distance for harbour seal has been identified as the same as for cetaceans at 50km (**Figure 4.5.1 Marine Mammals Study Area and Designated Sites**).

4.5.4 Baseline Conditions

4.5.4.1 There is a significant diversity and abundance of cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals) in UK waters. Most marine mammals are wide ranging and those recorded within the study area may be individuals from larger populations. This baseline characterises marine mammal species known or likely to be present within the study area defined above.

Data Sources

4.5.4.2 Detailed baseline conditions will be established by undertaking a desktop review of published information and through consultation with relevant organisations. Key data sources that will be used to inform the baseline description include, but may not be limited to:

- Small Cetacean Abundance in the European Atlantic and North Sea (SCANS) data[237];
- Inter-Agency Marine Mammal Working Group[238];
- Sea Mammal Research Unit (SMRU)[239];
- Habitat-based predictions of at-sea distributions for grey and harbour seals in the British Isles[240];
- UK Cetacean Stranding Investigation Programme[241];
- Distribution models for harbour porpoise within the UK Exclusive Economic Zone[233]
- Distribution models for 12 species of cetacean covering the North-east Atlantic[242];

[236] Tollit, D., Black, A., Thompson, P., Mackay, A., Corpe, H., Wilson, B., Van Parijs, S., Grellier, K. and Parlane, S. (1998). Variations in harbour seal *Phoca vitulina* diet and dive-depths in relation to foraging habitat. Journal of Zoology, 244(2), pp. 209-222.

[237] Hammond, P., Lacey, C., Gilles, A., Viquerat, S., Borjesson, P., Herr, H., Oien, N. (2021). Estimates of cetacean abundance in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys. [online] Available at: https://edepot.wur.nl/414756.

[238] The Inter-Agency Marine Mammal Working Group (IAMMWG) (2021). Updated abundance estimates for cetacean Management Units in UK waters. JNCC Report No. 680, ISSN 0963-8091. Peterborough, UK: JNCC.

[239] University of St Andrews Sea Mammal Research Unit (No Date). [online] Available at: http://www.smru.st-andrews.ac.uk/.

[240] Carter, M., Boehme, L., Duck, C., Grecian, W., Hastie, G., McConnell, B., Miller, D., Morris, C., Moss, S., Thompson, P. and Russell, D. (2020). Habitat-based predictions of at-sea distribution for grey and harbour seals in the British Isles. Report to BEIS, OESEA-16-76/OESEA-17-78. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/959723/SMRU_2020_Habitat-based_predictions_of_at-sea_distribution_for_grey_and_harbour_seals_in_the_British_Isles.pdf.

[241] UK Cetacean Stranding Investigation Programme (CSIP) (No Date). [online] Available at: http://ukstrandings.org/csip-publications/.

[242] Waggitt, J., Evans, P., Andrade, J., Banks, A. and Bolton, M. (2019). Distribution maps of cetacean and seabird populations in the North-East Atlantic. Journal of Applied Ecology, 57(2), pp. 253-269.

- The Sea Watch Foundation marine mammal sightings distribution maps[243];
- Special Committee on Seals (SCOS)[244];
- Magic maps (UK)[245] and the European Environment Agency (EU)[246,247] for designated and protected sites; and
- Academic journals and online reports.

4.5.4.3 No additional stakeholder consultation in relation to marine mammals, beyond the necessary statutory consultees, have been identified.

Cetaceans

4.5.4.4 Within the ICES Greater North Sea Ecoregion, four species occur commonly or are resident[248]. These are: harbour porpoise, bottlenose dolphin, minke whale and white-beaked dolphin. An additional five species occur regularly in the ecoregion but are less common: short-beaked common dolphin *Delphinus delphis*, Atlantic white-sided dolphin, long-finned pilot whale *Globicephala melas,* killer whale *Orcinus orca,* and Risso's dolphin.

4.5.4.5 Cetacean distribution in the UK was surveyed in 2016 as part of the Small Cetaceans in European Atlantic waters and the North Sea (SCANS-III) surveys, involving standard boat-based line transect surveys and aerial transect surveys[238]. These surveys provide abundance and density estimates for the UK, divided into blocks, with the Offshore Scheme located entirely in Block L. Within Block L, only harbour porpoise was observed in high enough numbers to be able to determine estimates of total abundance and density (Table 4.5.1). The density and abundance of harbour porpoise within Block L was lower compared to the adjacent northern Block O (density = 0.888 individuals km^2; abundance = 53,485 individuals).

Table 4.5.1: Density and abundance of most common cetaceans observed in SCANS-III survey area Block L

Species	Density (individuals km^{-2})	Abundance
Harbour porpoise	0.607	19,064

Source: Hammond et al. 2021[237]

[243] Reid, J., Evans, P. and Northridge, S. (2003). Atlas of Cetacean Distribution in North-West European Waters. Joint Nature Conservation Committee. [online] Available at: https://www.seawatchfoundation.org.uk/species-distribution-maps/ [Accessed 12 August 2022]

[244] Special Committee on Seals (SCOS) (2020). Scientific Advice on Matters Related to the Management of Seal Populations. [online] Available at: http://www.smru.st-andrews.ac.uk/files/2020/08/SCOS-2019.pdf.

[245] Department of Environment, Food and Rural Affairs (DEFRA) (No Date). Magic Interactive Mapping. [online] Available at: https://magic.defra.gov.uk/.

[246] European Environment Agency (EEA) (2022). Sites search. [online] Available at: https://eunis.eea.europa.eu/sites.jsp [Accessed 12 August 2022].

[247] Natura 2000 (2022). General Viewer. [online] Available at: https://www.arcgis.com/home/webmap/viewer.html?webmap=c79e2f4856f54ed7a15ff7abc56acc1b [Accessed 12 August 2022].

[248] ICES (2021). Greater North Sea Ecoregion – Ecosystem Overview. [online] Available at: https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2021/2021/EcosystemOverview_GreaterNorthSea_%202021.pdf.

Pinnipeds

4.5.4.6 The UK supports important populations of both seal species occurring in the North-east Atlantic – harbour seal *Phoca vitulina* and grey seal *Halichoerus grypus*. The majority (~77%) of the population of both species occur around the west coast of Scotland. On the east coast of England the most important haul-out sites are around the Wash and Humber estuaries. There is also a population of an estimated 4,175 seals in the Greater Thames Estuary (~78% of these are grey seal). Both species are known to regularly haul-out at a number of locations within the Greater Thames Estuary[249,250].

4.5.4.7 Harbour seals have a relatively stable resident population in the region, with haul-out sites located at (but not limited to) Foulness Island, Hamford Water, and Pegwell Bay, with larger colonies favouring coastal sandbanks[252]. The hauling-out of harbour seals is seasonal, peaking in August – September during the moulting season, with a decrease in June – July during the pupping season[251]. Tagged seals within the region have shown high variability in their movements and have shown connectivity between the Thames Estuary and the Wash[252].

4.5.4.8 Grey seals are not thought to breed in the region and are likely to be seasonal visitors to the Greater Thames Estuary, avoiding the peak breeding season, which is August to December[252 253]. Approximately 75% of the grey seals recorded in the region haul out at Goodwin Sands off the Kent coast, although numbers of this species in the region are generally lower than for harbour seal[244 252]. Grey seals forage in open seas, frequently travelling >100 km from their haul out sites244. Tracking data has indicated that grey seals can forage up to 135 kilometres offshore and stay at sea for up to 30 days. Individuals often return to the same foraging areas but can also occasionally move to new haul out sites, thus acquiring new foraging regions[246].

Designated Sites

4.5.4.9 The key sites designated for the protection of marine mammals within the screening distance are two UK SACs, one SAC in Belgium, three SACs in the Netherlands and four SACs in France (Table 4.5.2).

[249] Cox, T., Barker, J., Bramley, J., Debney, A., Thompson, D. and Cucknell, A. (2020). Populations trends of harbour and grey seals in the Greater Thames Estuary. Mammal Communications, 6, pp. 44-51.

[250] Barker, J. and Obregon, C. (2015). Greater Thames Estuary Harbour Seal Population Survey. Europe Conservation Programme Zoological Society of London. [online] Available at: https://www.zsl.org/sites/default/files/media/2016-01/Harbour%20Seal%20Survey%20Report%20-%20December%202015.pdf.

[251] Wilson, S. (2001). Population growth, reproductive rate and neo-natal morbidity in a re-establishing harbour seal-colony. Mammalia, 65(3), pp. 319-334.

[252] Barker, J., Seymour, A., Mowat, S., and Debney, A. (2014). Thames Harbour Seal Conservation Project. UK and Europe Conservation Programme Zoological Society of London. [online] Available at: https://www.zsl.org/sites/default/files/media/2014-12/Thames%20Harbour%20Seal%20Conservation%20Project%20Report.pdf.

[253] Barker, J. (2015). Greater Thames Estuary Seal Surveys Report. UK & Europe Conservation Programme Report, Zoological Society of London. [online] Available at: https://www.zsl.org/sites/default/files/media/2015-07/2015_July_Greater%20Thames%20Estuary%20Seal%20Survey%20Report.pdf.

Table 4.5.2: Designated sites for marine mammals within the screening distance

Site name	Distance from Offshore Scoping Boundary	Summary
Southern North Sea SAC	0 km	The Offshore Scheme passes through the Southern North Sea SAC, which has been designated for the protection of the Annex II species harbour porpoise.
Bancs des Flandres SAC	~25.2 km	The Bancs des Flandres SAC is located in France. It is designated for the protection of harbour porpoise, habour seal, and grey seal.
Ridens et Dunes Hydrauliques du Détroit du Pas-de-Calais SAC	~36.6 km	The Ridens et Dunes Hydrauliques du Détroit du Pas-de-Calais SAC is located in France. It is designated for the protection of harbour porpoise, harbour seal and grey seal.
Vlaamse Banken SAC	~48.6 km	The Vlamse Banken SAC is located in Belgium, It is designated for the protection of harbour porpoise, harbour seal, and grey seal.
Baie de Canche et Couloir des Trois Estuaires SAC	~79.9 km	The Baie de Canche et Couloir des Trois Estuaires SAC is located in France. It is designated for the protection of harbour porpoise, harbour seal, and grey seal.
Vlakte van de Raan SAC	~101.3 km	The Vlakte van de Raan SAC is located in the Netherlands, It is designated for the protection of harbour porpoise, harbour seal, and grey seal.
Estuaires et Littoral Picards (Baies de Somme et d'Authie) SAC	~102.7 km	The Estuaires et Littoral Picards (Baies de Somme et d'Authie) SAC is located in France. It is designated for the protection of harbour porpoise, harbour seal, and grey seal.
Voordelta SAC	~107.1 km	The Voordelta SAC is located in the Netherlands. It is designated for the protection of harbour porpoise, harbour seal, and grey seal.
Wash and North Norfolk Coast SAC	110 km	The Wash and North Norfolk Coast SAC is located approximately 110 km away from the Offshore Scheme. This site is designated for the protection of the Annex II species harbour seal. This site has been included as telemetry data

		indicates that harbour seals from the Greater Thames Estuary may be associated with this site.
Grevelingen SAC	~134.4 km	The Grevelingen SAC is located in the Netherlands. It is designated for the protection of harbour seal, and grey seal.

Future Baseline

4.5.4.10 The marine mammal chapter within the ES will include an outline of the likely evolution of the baseline environment without the implementation of the development as far as natural changes from the baseline scenario can be assessed.

4.5.5 Embedded and Control & Management Measures

4.5.5.1 Given that many design elements of the Project have yet to be confirmed, the embedded and control and management measures have not been finalised at this stage. However, any measures will be discussed with statutory consultees and stakeholders throughout the EIA process.

Embedded Measures

4.5.5.2 The identification of the Offshore Scoping Boundary has been designed to avoid sensitive areas where possible.

Control and Management Measures

4.5.5.3 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the marine mammal assessment are:

- GM03 - an offshore Construction Environmental Management Plan (CEMP) including an Emergency Spill Response Plan and Waste Management Plan, Marine Pollution Contingency Plan (MPCP), Shipboard Oil Pollution Emergency Plan (SOPEP) and a dropped objects procedure will be produced prior to installation;
- LVS02 - all project vessels must comply with the International Regulations for Preventing Collisions at Sea (1972)[254] (IMO, 2019a), regulations relating to International Convention for the Prevention of Pollution from Ships (the MARPOL Convention 73/78) [255] (IMO, 2019e) with the aim of preventing and minimising pollution from ships and the International Convention for the Safety of Life at Sea (SOLAS, 1974)[256].

[254] International Maritime Organisation (IMO) (1972). Convention on the International Regulations for Preventing Collisions at Sea 1972 (COLREGs). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/COLREG.aspx [Accessed 10 August 2022].

[255] International Maritime Organisation (IMO) (1983). International Convention for the Prevention of Pollution from Ships (MARPOL). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx [Accessed 10 August 2022].

[256] International Maritime Organisation (IMO) (1974). International Convention for the Safety of Life at Sea (SOLAS). [online] Available at: https://treaties.un.org/doc/Publication/UNTS/Volume%201184/volume-1184-I-18961-English.pdf.

- LVS05 - drilling fluids required for trenchless operations will be carefully managed to minimise the risk of breakouts into the marine environment. Specific avoidance measures would include:
  - the use of biodegradable drilling fluids (PLONOR substances) where practicable,
  - drilling fluids will be tested for contamination to determine possible reuse or disposal; and
  - If disposal is required drilling fluids would be transported by a licensed courier to a licensed waste disposal site.
- BE03 - cable installation will be carried out on a 24-hour basis in order to reduce the overall installation time and associated disturbance of ecological receptors; and
- MM01 - adherence to JNCC guidelines, where appropriate, regarding the minimisation of impacts from underwater sound generated from known project activities of piling[257], geophysical surveys[258], and UXO detonation[259].

4.5.6 Potential for Significant Effects

4.5.6.1 The marine mammal assessment will consider the construction, operation, maintenance and decommissioning of the Offshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

4.5.6.2 The proposed scope of the marine mammal assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

4.5.6.3 This section identifies the sources and impacts that could occur as a result of the construction, operation, maintenance and decommissioning of the Offshore Scheme.

4.5.6.4 The potential for the Offshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- unexploded ordnance (UXO) clearance;
- pre-installation geophysical surveys;
- pre-installation clearance of obstacles and debris;
- sand wave sweeping;

[257] JNCC (2010). Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise. [online] Available at: https://data.jncc.gov.uk/data/31662b6a-19ed-4918-9fab-8fbcff752046/JNCC-CNCB-Piling-protocol-August2010-Web.pdf.

[258] JNCC (2017). JNCC guidelines for minimising the risk of injury to marine mammals from geophysical surveys. [online] Available at: https://data.jncc.gov.uk/data/e2a46de5-43d4-43f0-b296-c62134397ce4/jncc-guidelines-seismicsurvey-aug2017-web.pdf.

- cable installation and cable lay; and
- cable protection (e.g. rock placement, concrete mattresses).
- cable protection (e.g. rock placement, concrete mattresses);

Sources of operational impacts

- presence of activated cable.

Sources of maintenance impacts

- geophysical and/or ROV surveys;
- cable repair or replacement; and
- cable protection (e.g. rock placement, concrete mattresses).

Sources of decommissioning impacts

- removal of cable from seabed;
- removal of cable protection (e.g. rock placement, concrete mattresses); and/or
- abandonment of cable in seabed;

Potential impacts

4.5.6.5 Table 4.5.3 identifies the potential impacts that could result from the sources identified above.

Table 4.5.3: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance and decommissioning	UXO clearance; Pre-installation clearance of obstacles and debris; Sand wave sweeping Cable installation and cable lay (including piling); Cable repair or replacement;	Underwater sound impacts on marine mammals	Yes	**Scoped in**

	Removal of cable from seabed; Removal of cable protection; and Vessel traffic.			
Construction, maintenance and decommissioning	UXO clearance; Pre-installation clearance of obstacles and debris; Sand wave sweeping; Cable installation and cable lay; Cable repair or replacement; Removal of cable from seabed; and Removal of cable protection.	Temporary increase in suspended sediment concentrations and sediment deposition leading to increased turbidity and contaminant mobilisation.	Yes	**Scoped in**
Construction, maintenance and decommissioning	UXO clearance; Pre-installation clearance of obstacles and debris; Sand wave sweeping Cable installation and cable lay (including piling)[259]; Cable repair or replacement; Removal of cable from seabed;	Indirect effects through impacts to prey species	Yes	**Scoped in**

[259] At the cable landfall locations, percussive piling for the installation of a cofferdam as part of the use of trenched technologies (not the preferred method) cannot be ruled out at this stage.

	Removal of cable protection; and Vessel traffic.			
Construction, maintenance and decommissioning	Vessel traffic.	Airborne sound and visual disturbance	Yes	**Scoped in**
Operation	Presence of activated cable	Disturbance marine mammals due to subsea cable thermal emissions	Yes	**Scoped in**
Operation	Presence of activated cable	Electromagnetic field (EMF) emissions	Yes	**Scoped in**
Construction, maintenance and decommissioning	Vessel traffic	Collision with project vessels	Yes	**Scoped in**
Construction, maintenance and decommissioning	Leaks and spills from vessels	Changes to marine water quality from accidental leaks and spills from vessels, including loss of fuel oils	No - the implementation of embedded and good practice measures (GM03 and LVS02) create limited potential for accidental spills to occur during the Project. Relatively few vessels are expected to be involved, and potential pollutants would be limited to relatively small volumes. Should an accidental spill or leak occur, it	Scoped out

		would be very small in extent and subject to immediate dilution and rapid dispersal within the marine environment.	

Impact Pathways with Receptors (Step 2)

4.5.6.6 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the marine mammal study area.

4.5.6.7 Table 4.5.4 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the marine mammal assessment for the Offshore Scheme.

Table 4.5.4: Impact pathways with receptors

Impact Pathway	Receptors	Potential for significant effect	Proposed to be scoped in/out
Disturbance, harm, and mortality to marine mammals due to underwater sound and vibration during construction, maintenance and decommissioning	Marine mammals	Yes - marine mammals are highly sensitive to underwater sound (UWS) which can cause auditory injury and induce behavioural changes. The exact construction methods have yet to be determined but the expected UWS sources include geophysical surveys, UXO clearance, route preparation, cable installation (including piling) and vessel traffic	**Scoped in**
Temporary increase in suspended sediment concentrations and sediment deposition leading to increased turbidity and contaminant mobilisation during construction, maintenance and decommissioning	Marine mammals	No - suspended sediment is expected to be minimal and confined to the lower reaches of the water column, due to the depth at which works will occur. Furthermore, marine mammals are frequent inhabitants of turbid environments with low visibility, and studies have	Scoped out

		indicated that they do not typically experience severe impact from increased suspended sediment concentrations[260]	
Potential for indirect effects through impacts to prey species during construction, maintenance and decommissioning	Marine mammals	Yes - due to the potential impacts to benthic communities and fish and shellfish species, there remains the possibility of indirect impact to marine mammals through disturbance and possibly loss of prey species leading to reduced foraging success or displacement of marine mammals, in extreme cases leading to mortality. This may include impacts that have been scoped out as direct impacts to marine mammals	**Scoped in**
Airborne sound and visual disturbance during construction, maintenance and decommissioning	Marine mammals	Yes - air-borne sound from vessels has the potential to disturb seals located at coastal breeding sites and haul outs causing avoidance behaviours; in some cases, stampedes can result in pup mortality. Considering the proximity of sites known to host harbour and grey seal populations, this impact pathway has been scoped in for assessment	**Scoped in**
Disturbance to marine mammals due to cable thermal emissions during operation	Marine mammals	No - cables have negligible capacity to heat the overlying water column due to the high thermal capacity and movement of surrounding seawater. Regardless of whether the cables are buried, it is not considered likely that marine mammals will be exposed to any potential thermal effects and	Scoped out

[260] Todd, V., Todd, I., Gardiner, J., Morrin, E., MacPherson, N., DiMarzio, N. and Thomsen, F. (2015). A review of impacts of marine dredging activities on marine mammals. ICES Journal of Marine Science, 72(2), pp. 328-340.

		there is considered to be no interaction between this impact and marine mammals	
Disturbance to marine mammals due to cable EMF emissions during operation	Marine mammals	Yes - there is potential for EMF from subsea cables to interfere with marine mammal behaviour, as they rely on the Earth's magnetic field for navigation; however, the impacts of EMF are still poorly understood so they have been scoped in for further assessment in the EIA	**Scoped in**
Collision with project vessels during construction, maintenance and decommissioning	Marine mammals	Yes - marine mammals may be susceptible to collision with operations vessels, which can result in lethal and sub-lethal injury	**Scoped in**

4.5.7 Proposed Assessment Methodology

Proposed Data Sources

4.5.7.1 The following data sources are proposed to be used to inform the assessment:

- SCANS (Small Cetacean Abundance in the European Atlantic and North Sea) data[261];
- Inter-Agency Marine Mammal Working Group[262];
- Sea Mammal Research Unit (SMRU)[263];
- Habitat-based predictions of at-sea distributions for grey and harbour seals in the British Isles[264];
- UK Cetacean Stranding Investigation Programme[265];

[261] Hammond, P., Lacey, C., Gilles, A., Viquerat, S., Borjesson, P., Herr, H., Oien, N. (2021). Estimates of cetacean abundance in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys. [online] Available at: https://edepot.wur.nl/414756.

[262] The Inter-Agency Marine Mammal Working Group (IAMMWG) (2021). Updated abundance estimates for cetacean Management Units in UK waters. JNCC Report No. 680, ISSN 0963-8091. Peterborough, UK: JNCC.

[263] University of St Andrews Sea Mammal Research Unit (No Date). [online] Available at: http://www.smru.st-andrews.ac.uk/.

[264] Carter, M., Boehme, L., Duck, C., Grecian, W., Hastie, G., McConnell, B., Miller, D., Morris, C., Moss, S., Thompson, P. and Russell, D. (2020). Habitat-based predictions of at-sea distribution for grey and harbour seals in the British Isles. Report to BEIS, OESEA-16-76/OESEA-17-78. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/959723/SMRU_2020_Habitat-based_predictions_of_at-sea_distribution_for_grey_and_harbour_seals_in_the_British_Isles.pdf.

[265] UK Cetacean Stranding Investigation Programme (CSIP) (No Date). [online] Available at: http://ukstrandings.org/csip-publications/.

- Distribution models for harbour porpoise within the UK Exclusive Economic Zone[266];
- Distribution models for 12 species of cetacean covering the North-east Atlantic[267];
- The Sea Watch Foundation marine mammal sightings distribution maps[268];
- Special Committee on Seals (SCOS)[269];
- Designated sites assessments etc (UK and EU) as available;
- Magic maps (UK)[245] and the European Environment Agency (EU)[246,247] for designated and protected sites;
- Marine Data Exchange Offshore Wind Environmental Evidence Register (OWEER)[270]
- Academic journals and online reports; and
- Relevant Environmental Statements (ESs).

Proposed Assessment Methodology

4.5.7.2 All ecological ES chapters for the project will be completed in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2019[271]). The method will be tailored to reflect the specific conditions of the marine environment, in particular to ensure the high levels of movement of marine receptors between habitats and populations, are considered fully in respect of the predicted ZOI arising from the Offshore Scheme.

4.5.7.3 The aims of the marine EcIA are to:

- identify important ecological features (e.g., designated sites, habitats or species) which have the potential to be impacted by the Offshore Scheme;
- provide a robust assessment of the likely ecological impacts and resultant effects of the Offshore Scheme, which may be beneficial (i.e. positive) or adverse (i.e. negative);

[266] Heinänen, S. and Skov, H. (2015). The identification of discrete and persistent areas of relatively high harbour porpoise density in the wider UK marine area. Peterborough, UK: JNCC.

[267] Waggitt, J., Evans, P., Andrade, J., Banks, A. and Bolton, M. (2019). Distribution maps of cetacean and seabird populations in the North-East Atlantic. Journal of Applied Ecology, 57(2), pp. 253-269.

[268] Reid, J., Evans, P. and Northridge, S. (2003). Atlas of Cetacean Distribution in North-West European Waters. Joint Nature Conservation Committee. [online] Available at: https://www.seawatchfoundation.org.uk/species-distribution-maps/ [Accessed 12 August 2022]

[269] Special Committee on Seals (SCOS) (2020). Scientific Advice on Matters Related to the Management of Seal Populations. [online] Available at: http://www.smru.st-andrews.ac.uk/files/2020/08/SCOS-2019.pdf.

[270] Marine Data Exchange (2021). JNCC Offshore Wind Evidence and Change Programme, Offshore Wind Environmental Evidence Register. [online] Available at: https://www.marinedataexchange.co.uk/details/3480/2021-jncc-offshore-wind-evidence-and-change-programme-offshore-wind-environmental-evidence-register-/summary [Accessed 10 August 2022].

[271] Chartered Institute of Ecology and Environmental Management (CIEEM) (2019). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. [online] Available at: https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1Update.pdf.

- facilitate determination of the consequences of the Offshore Scheme in terms of national, regional and local policies relevant to nature conservation and biodiversity, where the level of detail provided is proportionate to the scale of the development and the complexity of its impact pathways;
- identify appropriate mitigation to reduce any likely ecological impacts; and
- set out the steps to be taken to adhere to legal requirements relating to the relevant ecological features concerned.

4.5.7.4 In accordance with CIEEM (2019) guidance, not all habitats and species which have the potential to occur in the ZOI of the Offshore Scheme will be considered. Rather, focus will be placed on those features considered to be 'important' – determining importance is discussed in further detail below. To ensure compliance with National and European policy, consideration is still given to biodiversity in its entirety and the need to achieve no net loss and enhancement of biodiversity.

4.5.7.5 In accordance with the CIEEM guidance, the importance of an ecological feature or receptor is defined according to the following factors:

- conservation or legal status;
- quality or health;
- extent; and
- rarity or endemism.

4.5.7.6 The importance of an ecological feature has also been defined with reference to a specific geographical context. Marine features are highly connected with few boundaries and the approach therefore adopts the level of legislative designation as a proxy for the geographical importance of a marine species receptor. These and the other criteria for importance ratings are shown in Table 4.5.5 below.

Table 4.5.5: Importance criteria for marine ecology features/receptors

Importance description*	
Very High	• designated sites and qualifying/supporting features of international importance (Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar Sites) • species which are legally protected and / or in significant decline (i.e., classified as 'endangered' or 'critically endangered' according to the International Union for Conservation of Nature (IUCN) Red List (IUCN, 2019)) • high quality examples of rare habitats that are threatened throughout their range
High	• designated sites and qualifying / supporting features of national conservational importance (Sites of Special Scientific Interest (SSSI) and Marine Conservation Zones (MCZ))

	• priority habitats and species or those considered to be of principal importance for the conservation of biodiversity in England and those species considered vulnerable to decline (i.e., classified as 'vulnerable' or 'near threatened' according to the IUCN Red List) • high quality examples of uncommon habitats that are vulnerable throughout their range
Medium	• habitats and species of regional or local importance (i.e., Annex 1 of the Habitats Regs, which are not a qualifying feature of a nearby designated site) • those species considered to be of 'least concern' (according to the IUCN Red List or listed in the OSPAR272 list of threatened and / or declining species for the North-East Atlantic) • poor quality examples of rare or uncommon habitats that are threatened or vulnerable throughout their range
Low	• habitats and species of low conservation importance, such as those generally abundant and widespread around the UK with no specific local value

*Should there be any overlap in the description of a particular feature/receptor, the highest importance criteria rating shall be adopted.

4.5.7.7 In line with the CIEEM guidelines, the terminology used within the EcIA will draw a clear distinction between the terms 'impact' and 'effect'. For the purposes of the EcIA, these terms are defined as follows:

- impact – actions resulting in changes to an ecological feature; for example, underwater sound disturbance leading to displacement of hearing sensitive species; and
- effect – outcome resulting from an impact, acting upon the conservation status or structure and function of an ecological feature; for example, displacement of individuals and loss of important foraging or breeding grounds leading to effects on the reproduction and survival of the local population.

4.5.7.8 The significance of effects will be based on an assessment of the impact magnitude (i.e., the deviation from the baseline condition) and the sensitivity and value (which are synonymous with 'importance') of the receptor. Temporary, permanent, direct and indirect effects that may occur during the construction, operation and maintenance, and decommissioning phases of the Offshore Scheme will be considered, and any mitigation measures necessary will be identified.

[272] OSPAR refers to the Oslo and Paris Convention for the protection of the marine environment of the North-East Atlantic.

4.5.7.9 To determine the likely significance of effects, the following parameters will be considered:

- impact type - direct or indirect, positive or negative, temporary or permanent;
- magnitude of impact – the 'amount' or intensity of an impact. This may sometimes be synonymous with 'extent' (see below) for certain receptors, such as habitats loss. For mortality it may be the number of individuals killed;
- spatial extent of impact – the area over which the impact will occur; and
- temporal nature of impact – timing, frequency and duration.

4.5.7.10 The assessment has also given regard to the sensitivity of an ecological feature to an impact which is determined by its:

- adaptability - i.e. the capacity, or lack thereof, of a feature to avoid or adapt to a change; and
- tolerance / resilience - i.e. capacity, or lack thereof, of a feature to accommodate temporary or permanent change or recover to pre-existing state following exposure to a change.

4.5.7.11 For each marine ecological receptor only those characteristics relevant to understanding the ecological effect and determining the significance are described. The determination of the significance of effects will be based on predicted effects to:

- designated sites – i.e., the conservation objectives for the site and / or its interest / qualifying features;
- ecosystems / biodiversity – resulting in a change in ecosystem structure and / or function;
- habitats – i.e., extent, distribution, structure, function as well as its associated species, and its conservation status within a given geographical area; and
- species – i.e., abundance, distribution (including spawning, foraging and nursery habitats) and its conservation status within a given geographical area or at a particularly sensitive time (e.g., spawning season).

4.5.7.12 The significance of effects will be reported as either:

- not significant – no or limited effect to one or more of the features described above; or
- significant – one or more features described above are affected.

4.5.7.13 The CIEEM methodology does not advocate a matrix approach to determining the significance of effects (CIEEM, 2019). However, to maintain consistency with other disciplines, where a matrix approach is suitable, the assessment conclusions will be transposed into the significance terminology used within the wider ES (**Part 1, Chapter 5, EIA Approach and Methodology**). See Table 4.5.6 below.

Table 4.5.6: Description of significance terminology

Classification of effect based on CIEEM guidance	Terminology used elsewhere in the ES	Description in accordance with CIEEM guidance
Significant (beneficial)	Major beneficial	Beneficial effect on designated sites, ecosystems, habitat and/or species at the international level
	Moderate beneficial	Beneficial effect on designated sites, ecosystems, habitat and/or species at the national level
Not-significant	Minor beneficial	Beneficial effect on designated sites, ecosystems, habitat and/or species at a local level or regional level
	Negligible	No effect on designated sites, ecosystems, habitat and/or species
	Minor adverse	Adverse effect on designated sites, ecosystems, habitat and/or species at the local level or regional level
Significant (adverse)	Moderate adverse	Adverse effect on designated sites, ecosystems, habitat and/or species at the national level
	Major adverse	Adverse effect on designated sites, ecosystems, habitat and/or species at the international level

4.5.8 Conclusion

4.5.8.1 In summary:

- Of the cetacean species found in UK waters, harbour porpoise occur in the highest numbers within the study area. Bottlenose dolphin, minke whale, white-beaked dolphin are also commonly occurring or resident UK cetacean species but are found in low density in the study area;

- Harbour seal and grey seal are known to haul-out at a number of locations within the Greater Thames Estuary, including Pegwell Bay and Goodwin Sands;
- The Offshore Scheme passes through the Southern North Sea SAC, designated for harbour porpoise;
- The Wash and North Norfolk Coast SAC designated for harbour seal has been screened in for further assessment, despite being approximately 110km away from the Project, due to the identification of the potential connectivity between the Greater Thames Estuary and this site.

Proposed Scope of the Assessment

4.5.8.2 A summary of the proposed scope of assessment is provided within Table 4.5.7 below.

Table 4.5.7: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
Marine mammals	Disturbance, harm, and mortality to marine mammals due to underwater sound	Construction Maintenance Decommissioning	**Scoped in**
Marine mammals	Indirectly reduced foraging success, displacement, or mortality from impacts to prey species	Construction Maintenance Decommissioning	**Scoped in**
Marine mammals	Disturbance, avoidance behaviour, and potential pup mortality due to airborne sound and visual disturbance	Construction Maintenance Decommissioning	**Scoped in**
Marine Mammals	Disturbance to marine mammals due to cable thermal emissions	Operation	Scoped out
Marine mammals	Interference with behaviour and navigation due to cable EMF emissions	Operation	**Scoped in**
Marine mammals	Injury and mortality via collision with project vessels	Construction Maintenance Decommissioning	**Scoped in**

4.6 Marine Ornithology

4.6.1 Introduction

4.6.1.1 This chapter presents how the marine ornithology assessment will consider the potentially significant effects that may arise from the construction, and operation, maintenance and decommissioning of the Offshore Scheme as described in **Part 1, Chapter 4, Description of the Project**. This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment and how these potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

4.6.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Offshore Scheme Scoping Boundary hereafter referred to as the Offshore Scoping Boundary is illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary.**

4.6.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Methodology;**
- **Part 4, Chapter 1, Evolution of the Offshore Scheme;**
- **Part 4, Chapter 3, Benthic Ecology;** and
- **Part 4, Chapter 4, Fish and Shellfish Ecology.**

4.6.1.4 This chapter is supported by the following figure:

- **Figure 4.6.1 Marine Ornithology Study Area and Designated Sites.**

4.6.2 Regulatory and Planning Context

4.6.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on marine ornithology associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

4.6.2.2 The following legislation is relevant to marine ornithology:

- Marine and Coastal Access Act 2009[273] provides the legal mechanism to help ensure clean, healthy, safe and productive and biologically diverse oceans and seas;

[273] Marine and Coastal Access Act 2009 [online]. Available at: https://www.legislation.gov.uk/ukpga/2009/23/contents.

- The Conservation of Habitats and Species Regulations 2017[274] (amended 2019[275]) transposes the Habitats Directive (92/43/EEC) into UK legislation out to the 12 nautical mile (NM) limit;
- The Conservation of Offshore Marine Habitats and Species Regulations 2017[276] applies within the UK Offshore Marine Area (beyond the 12 NM limit);
- The Wildlife and Countryside Act 1981 (as amended)[277] includes provisions relating to nature conservation;
- The Marine Strategy Regulations 2010[278] transposes the Marine Strategy Framework Directive (2008/56/EC) into UK legislation;
- Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC)[279] lists species of principal importance for the purpose of conservation of biodiversity;
- The Countryside and Rights of Way (CRoW) Act 2000 (as amended) [280], and
- Environment Act 2021[281], will set clear statutory targets for the recovery of the natural world in four priority areas: air quality, biodiversity, water and waste, and includes the introduction of Biodiversity Net Gain (BNG).

Planning Policy

4.6.2.3 The following plans and policies are relevant to marine ornithology.

National planning policy

- National Policy Statements (NPS) - the UK Government produces NPS which set out the UK Government's objectives for the development of Nationally Significant Infrastructure Projects (NSIP). Those potentially relevant to marine ornithology are:
  - Overarching National Policy Statement for Energy – EN-1[282];
  - Renewable Energy Infrastructure – EN-3[283];

[274] The Conservation of Habitats and Species Regulations 2017. [online] Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents/made.

[275] Amended in response to the UK's exit from the European Union (EU), making the Habitats (92/43/EEC) and Wild Birds (2009/147/EC) Directives, operable from 1 January 2021, and creating a UK natural site network in place of the EU Natura 2000 ecological network.

[276] The Conservation of Offshore Marine Habitats and Species Regulations 2017. [online] Available at: https://www.legislation.gov.uk/uksi/2017/1013/made

[277] The Wildlife and Countryside Act 1981. [online] Available at: https://www.legislation.gov.uk/ukpga/1981/69.

[278] The Marine Strategy Regulations 2010. [online] Available at: https://www.legislation.gov.uk/uksi/2010/1627/contents/made.

[279] Section 41 of the Natural Environment and Rural Communities Act 2006. [online] Available at: https://www.legislation.gov.uk/ukpga/2006/16/section/41.

[280] Wildlife and Countryside Act 1981 (as amended) 1981 [online]. Available at: https://www.legislation.gov.uk/ukpga/1981/69/contents.

[281] The Act has been enshrined into law; however, it is not anticipated to come into full effect until the end of 2023 (2025 for NSIPs).

[282] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf [Accessed 09 August 2022].

[283] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Renewable Energy (EN-3). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47856/1940-nps-renewable-energy-en3.pdf [Accessed 09 August 2022].

- Electricity Networks - EN-5[284];
- National Planning Policy Framework[285];
- Planning Practice Guidance – Natural Environment[286]; and
- Planning Practice Guidance – Renewable and low carbon energy[287].

- National Planning Framework 2 (NPF2)[288], aims to co-ordinate policies of a spatial nature with investment priorities. Biodiversity is stated as one of the factors contributing to the core objectives of sustainable economic development.

Local planning policy

- The UK Marine Policy Statement (MPS)[289] was adopted in 2011 and provides the policy framework for the preparation of marine plans and establishes how decisions affecting the marine area should be made. The following marine plans have been considered in the development of this Scoping Report:
  - East Inshore and East Offshore Marine Plan[290]
  - South East Inshore Marine Plan[291]

4.6.3 Study Area

4.6.3.1 This study area has been defined, recognising the highly mobile and wide-ranging nature of birds in the marine environment and the potential implications of local impacts on wider populations. Considering the maximum likely Zones of Influence (ZOI) for potential effects on sensitive marine ornithological receptors from the Offshore Scheme, the study area for the baseline encompasses a buffer of 10km around the Offshore Scoping Boundary (**Figure 4.6.1 Ornithology Study Area and Designated Sites**).

4.6.3.2 In defining the study area an initial review of the following available sources has been undertaken:

[284] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Electricity Networks (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed 09 August 2022].

[285] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf [Accessed 09 August 2022].

[286] Department for Levelling Up, House and Communities and Ministry of Housing, Communities and Local Government (2019). Planning Practice Guidance – Natural Environment. [online] Available at: https://www.gov.uk/guidance/natural-environment#biodiversity-geodiversity-and-ecosystems [Accessed 09 August 2022].

[287] Department for Levelling Up, House and Communities and Ministry of Housing, Communities and Local Government (2015), Planning Practice Guidance – Renewable and Low Carbon. [online] Available at: https://www.gov.uk/guidance/renewable-and-low-carbon-energy [Accessed 09 August 2022].

[288] Ministry of Housing, Communities and Local Government National Planning Framework (2012). National Planning Policy Framework. [online] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2.

[289] Department for Environment, Food and Rural Affairs (DEFRA) (2020). UK Marine Policy Statement. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf [Accessed 09 August 2022].

[290] Department for Environment, Food and Rural Affairs (DEFRA) (2014). East Inshore and East Offshore Marine Plans. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312496/east-plan.pdf.

[291] Department for Environment, Food, and Rural Affairs (DEFRA) (2021). South East Inshore Marine Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004493/FINAL_South_East_Marine_Plan__1_.pdf.

- The Joint Nature Conservation Committee (JNCC) atlas of seabird distribution in north-west European waters[292] and Distribution of seabirds in the North-East Atlantic[293];
- relevant Environmental Statements (ES) and associated appendices detailing the results of project specific ornithological surveys produced for large infrastructure projects in the vicinity of the Offshore Scheme, when published into the public domain; and
- seabird foraging ranges[294] [295], including site and specific species studies.

4.6.3.3 This supports a 10km study area for designated sites as being proportionate, with infrequent occurrence of seabird species with extensive foraging ranges associated with more distant designated sites known or likely to be present within the Offshore Scoping Boundary. The relevant designated sites within the study area are set out in the following section.

4.6.4 Baseline Conditions

4.6.4.1 Birds designated as qualifying features of the National Site Network (including Special Protection Areas (SPAs) and Ramsar Sites), otherwise known as European sites, and those species listed as part of nationally designated sites (e.g., Sites of Special Scientific Interest (SSSI) and National Nature Reserve (NNR)) (all hereafter referred to as 'Designated sites') represent populations of highest conservation importance and sensitivity. Therefore, only qualifying bird species which have the potential to be present in the ZOI of the Offshore Scheme are considered further within this chapter.

Data Sources

4.6.4.2 To determine the baseline conditions for marine ornithology within the study area the following key data sources have been reviewed:

- JNCC atlas of seabird distribution in north-west European waters[294] and Distribution of seabirds in the North-East Atlantic[295];
- JNCC website for details of SPAs including site information and designation details, including Supplementary Advice on Conservation Objectives (SACOs)[296];
- Natural England Designated Sites Viewer for designated site information and designation details[297];

[292] Stone, C., Webb, A., Barton, C., Ratcliffe, N., Reed, T., Tasker, M., Camphuysen, C. and Pienkowski, M. (1995). An Atlas of seabird distribution in north-west European Water. [online] Available at: https://data.jncc.gov.uk/data/c132752f-827c-41fc-b617-e681db21eaf5/atlas-of-seabird-distribution-north-west-european-waters.pdf [Accessed 03 June 2022].

[293] Waggitt, J. *et al*., (2020). Distribution maps of cetacean and seabird populations in the North-East. Journal of Applied Ecology, 57(2), pp. 105.

[294] Thaxter, C., Lascelles, B., Sugar, K., Cook, A., Roos, S., Bolton, M., Langston, R. and Burton, M. (2012). Seabird foraging ranges as a preliminary tool for identifying candidate Marine Protected Areas. Biological Conservation, 156, pp. 53.

[295] Woodward, I., Thaxter, C., Owen, E. and Cook, A. (2019). Desk-based revision of seabird foraging ranges used for HRA screening. Report of work carried out by the British Trust for Ornithology on behalf of NIRAS and The Crown Estate, Issue BTO Research Report No.724.

[296] JNCC (no date). About Marine Protected Areas. [online] Available at: https://jncc.gov.uk/our-work/about-marine-protected-areas/.

[297] Natural England (no date). Designated Sites. [online] Available at: https://designatedsites.naturalengland.org.uk/.

- relevant ES and associated appendices detailing the results of project specific ornithological surveys produced for large infrastructure projects in the vicinity of the Offshore Scheme, when published into the public domain.

Baseline

4.6.4.3 The Offshore Scheme passes directly through six designated sites, which are internationally or nationally designated for the protection of species of seabird and waterbird, which have the potential to interact with the Offshore Scheme:

- Outer Thames Estuary SPA;
- Thanet Coast & Sandwich Bay SPA;
- Thanet Coast & Sandwich Bay Ramsar;
- Sandwich & Pegwell Bay NNR;
- Sandwich Bay to Hacklinge Marshes SSSI; and
- Leiston – Aldeburgh SSSI.

4.6.4.4 The Outer Thames Estuary SPA is located on the east coast of England, between the counties of Norfolk to the north and Kent to the south and extends into the North Sea. The site comprises areas of shallow and deeper water, high tidal current streams and a range of mobile mud, sand, silt and gravely sediments extending into the marine environment, incorporating areas of sandbanks often exposed at low tide. Intertidal mud and sandflats are found further towards the coast and within creeks and inlets inland down the Blyth estuary and the Crouch and Roach estuaries. The Outer Thames Estuary SPA is designated for its aggregation of wintering red-throated diver (*Gavia stellata*) as well as to provide protection for the foraging areas of both the common tern (*Sterna hirundo*) and little tern (*Sternula albifrons*) during the breeding season.

4.6.4.5 Thanet Coast and Sandwich Bay SPA is located across the north and east Kent coast stretching from Swalecliffe to Deal. A large proportion of the site is intertidal consisting of large areas of intertidal mud and sand flats at Pegwell, Minnis and Sandwich Bay, with shingle and rocky shores, lagoons, maritime grassland, saltmarsh habitats, and intertidal shingle habitats. Thanet Coast and Sandwich Bay SPA is designated for breeding populations of little tern and non-breeding populations of golden plover (*Pluvialis apricaria*), and turnstone (*Arenaria interpres*). The site is also designated as a Ramsar site due to the ecological features previously mentioned and additional noteworthy species including ringed plover (*Charadrius hiaticula*), common greenshank (*Tringa nebularia*), red-throated diver, great crested grebe (*Podiceps cristatus*) and sanderling (*Calidris alba*).

4.6.4.6 Sandwich & Pegwell Bay NNR is located in the north-east coast of Kent. The site has largest reed bed in the south-east of England, which supports a range of specialised birds and insects. The reed beds support a wide variety of migrating birds including barn swallows (*Hirundo rustica*) and house martins (*Delichon urbicum*) in the summer and starlings (*Sturnus vulgaris*) in the winter. Other common occurring species include bittern (*Botaurus stellaris*), marsh harrier (*Circus aeruginosus*), kingfisher (*Alcedo atthis*), great crested grebe, coot (*Fulica atra*), moorhen (*Gallinula chloropus*).

4.6.4.7 Sandwich Bay to Hacklinge Marshes SSSI stretches between Deal and Sandwich in Kent. The site forms part of the Thanet Coast and Sandwich Bay SPA/Ramsar site and Sandwich & Pegwell Bay NNR and is designated for the same non-breeding

populations of bird species. The biological feature of interest for this site is the mudflats in Pegwell Bay which provide bird roosting and feeding grounds.

4.6.4.8 Leiston-Aldeburgh SSSI contains a rich mosaic of habitats, including acid grassland, heath, woodland, fen, scrub, open water and vegetated shingle. This unusual mix of habitats and associated transition communities between habitats support a diverse and abundant community of breeding and overwintering birds.

4.6.4.9 In addition to this, six other designated sites for the protection of marine and coastal birds are located within the 10km study area. These sites are:

- Minsmere to Walberswick SPA
- Minsmere to Walberswick Ramsar
- Minsmere to Walberswick SSSI
- Alde-Ore Estuary SPA
- Alde-Ore Estuary Ramsar
- Alde-Ore Estuary SSSI

4.6.4.10 Some intertidal bird surveys of waterbirds using the intertidal habitat within and surrounding the Suffolk and Kent Onshore Schemes have been undertaken by AECOM and further surveys will be undertake in 2022/2023. Intertidal bird surveys to date were conducted from December 2021 to January 2022 for the Suffolk Onshore Scheme and December 2021 to March 2022 for the Kent Onshore Scheme. The surveys were carried out using Wetland Bird Survey (WeBS)[298] core count and low tide count methodology. This involved monthly high tide and low tide surveys. Where possible, a high-water count was then followed on the same day by a low water count (or vice versa). Counts were conducted during the day within two hours (three at most) either side of the tide.

4.6.4.11 The intertidal bird survey was undertaken from suitable vantage points to observe all birds without causing disturbance. During the survey, one experienced ornithologist, equipped with binoculars and telescope of appropriate magnification recorded and mapped all waterbird species within the survey area. Further survey details are provided in **Part 2**, **Chapter 3, Ecology and Biodiversity** and **Part 3, Chapter 3, Ecology and Biodiversity.**

4.6.4.12 Breeding bird and wintering bird surveys along the shoreline of Suffolk and Kent Onshore Schemes have been undertaken by AECOM in 2022 and further surveys are scheduled to be undertaken in 2023.These surveys were carried out using the Common Bird Census (CBC) methodology, as described in Gilbert *et al* [299]. (1998). Surveys were undertaken early in the morning, commencing just after sunrise and finishing before midday. Two suitably qualified ecologists recorded all species of breeding birds present within the survey area, and detailed bird behaviour, including singing, calling, flights and movements between areas, carrying food, nest building, aggressive encounters and any other bird behaviour.

[298] British Trust of Ornithology (BTO) (No Date). Wetland Bird Survey. [online] Available at: https://www.bto.org/our-science/projects/wetland-bird-survey/taking-part/core-counts-methods.

[299] Gilbert, G., Gibbons, D. and Evans, J. (1998). Bird monitoring methods: A manual of techniques for key UK species. London, UK: RSPB and Pelagic Publishing.

4.6.4.13 Further intertidal and breeding bird surveys have been proposed for the Suffolk and Kent Onshore Schemes. Any data collected during these surveys will be used to inform the marine ornithology chapter of the EIA, where appropriate.

Future Baseline

4.6.4.14 The marine ornithology chapter within the ES will include an outline of the likely evolution of the baseline environment without the implementation of the development as far as natural changes from the baseline scenario can be assessed.

4.6.5 Embedded and Control & Management Measures

4.6.5.1 The mitigation required will be proportionate to the significance of impact to marine ornithological receptors. Given that many design elements of the Offshore Scheme have yet to be set, mitigation approaches will need to be informed by the findings of the baseline characterisation, project-specific surveys and discussed with statutory consultees and stakeholders throughout the EIA process.

Embedded Measures

4.6.5.2 The identification of the Offshore Scoping Boundary has been designed to avoid sensitive areas where possible.

Control and Management Measures

4.6.5.3 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the marine ornithology assessment are:

- GM03 - an offshore Construction Environmental Management Plan (CEMP) including an Emergency Spill Response Plan and Waste Management Plan, Marine Pollution Contingency Plan (MPCP), Shipboard Oil Pollution Emergency Plan (SOPEP) and a dropped objects procedure will be produced prior to installation.
- LVS02 - all project vessels must comply with the International Regulations for Preventing Collisions at Sea (1972)[300] (IMO, 2019a), regulations relating to International Convention for the Prevention of Pollution from Ships (the MARPOL Convention 73/78) [301] (IMO, 2019e) with the aim of preventing and minimising pollution from ships and the International Convention for the Safety of Life at Sea (SOLAS, 1974)[302].

[300] International Maritime Organisation (IMO) (1972). Convention on the International Regulations for Preventing Collisions at Sea 1972 (COLREGs). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/COLREG.aspx [Accessed 10 August 2022].

[301] International Maritime Organisation (IMO) (1983). International Convention for the Prevention of Pollution from Ships (MARPOL). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx [Accessed 10 August 2022].

[302] International Maritime Organisation (IMO) (1974). International Convention for the Safety of Life at Sea (SOLAS). [online] Available at: https://treaties.un.org/doc/Publication/UNTS/Volume%201184/volume-1184-I-18961-English.pdf.

- LVS05 - drilling fluids required for trenchless operations will be carefully managed to minimise the risk of breakouts into the marine environment. Specific avoidance measures would include:
  - the use of biodegradable drilling fluids (PLONOR substances) where practicable,
  - drilling fluids will be tested for contamination to determine possible reuse or disposal; and
  - If disposal is required drilling fluids would be transported by a licensed courier to a licensed waste disposal site.
- MPE03 - cable protection features (e.g. rock placement, mattresses and grout bags) will be installed only where considered necessary for the safe operation of the Project.
- BE03 - cable installation will be carried out on a 24-hour basis in order to reduce the overall installation time and associated disturbance of ecological receptors.
- O01 - the CoCP and CEMP will outline the best practice mitigation measures required to be implemented during construction. This would include measures to prevent accidental spillages from occurring and to minimise disturbance of sediments.

4.6.6 Potential for Significant Effects

4.6.6.1 The marine ornithology assessment will consider the construction, operation, maintenance and decommissioning of the Offshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

4.6.6.2 The proposed scope of the marine ornithology assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology.**

Sources and Impacts (Step 1)

4.6.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Offshore Scheme. The potential for the identified impacts to result in potential significant effects takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- unexploded ordnance (UXO) clearance;
- pre-installation geophysical surveys;
- pre-installation clearance of obstacles and debris;
- sand wave sweeping;
- cable installation and cable lay;
- cable protection (e.g. rock placement, concrete mattresses); and

- vessel presence.

Sources of operational impacts

- N/A

Sources of maintenance impacts

- cable repair or replacement;
- cable protection (e.g. rock placement, concrete mattresses); and
- vessel presence.

Sources of decommissioning impacts

- removal of cable from seabed;
- removal of cable protection (e.g. rock placement, concrete mattresses); and
- vessel presence.

Potential impacts

4.6.6.4 Table 4.6.1 identifies the potential impacts that could result from the sources identified above.

Table 4.6.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance & decommissioning	All vessel activities associated with the Project	Direct disturbance and displacement of birds associated with sound, visual impacts and presence from vessels	Yes	**Scoped in**
Construction, maintenance, & decommissioning	Cable route preparation/installation/repair, cable protection, cable removal	Direct loss and disturbance of seabed habitat (including, associated prey) used by foraging seabirds and waterbirds	Yes	**Scoped in**
Construction, maintenance & decommissioning	Cable route preparation/installation/repair, cable	Alteration of water quality due to increased Suspended Sediment Concentrations	Yes	**Scoped in**

	protection, cable removal	(SSC) and disturbance of contaminated sediment		
Construction, maintenance & decommissioning	All vessel activities associated with the Project	Alteration of water quality due to accidental leaks and spills from vessels	No - the significance of potential impacts is considered to be negligible due to the measures committed to in the CoCP these same measures would apply to maintenance and decommissioning activities	Scoped out

Impact Pathways with Receptors (Step 2)

4.6.6.5 This section identifies whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the marine ornithology study area.

4.6.6.6 Table 4.6.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the marine ornithology assessment for the Offshore Scheme (**Figure 1.1.4 Offshore Scheme Scoping Boundary**).

Table 4.6.2: Impact pathways with receptors

Impact Pathway	Receptors	Potential for significant effect	Proposed to be scoped in/out
Direct disturbance and displacement of birds associated with sound, visual impacts and presence from vessels during construction, maintenance and decommissioning	Marine ornithology	Yes - various activities associated with the Project such as cable route preparation, cable installation/repairs and removal require the presence of vessels. Vessel presence/movements and the associated increased noise may result in displacement and/or avoidance of birds foraging or loafing in the area.	**Scoped in**
Direct loss and disturbance of seabed habitat (including,	Marine ornithology	Yes - there is a potential for direct loss and disturbance of	**Scoped in**

associated prey) used by foraging seabirds and waterbirds from cable installation/maintenance/decommissioning activities and project infrastructure during operation.		seabird foraging habitat from cable installation, maintenance and decommissioning activities and through the placement and removal of offshore project infrastructure. This includes the potential loss of prey items (such as herring and sandeel) for which certain subtidal habitat are important. The loss of benthic habitat will be limited to the locations of the cable installation and at landfall locations as well as any placement of hard substrates on the seabed for cable protection.	
Alteration of water quality due to increased SSC and disturbance of contaminated sediment.	Marine ornithology	Yes - construction, maintenance and decommissioning methods have the potential to disturb the seabed leading to the creation of sediment plumes with increased SSC. Consequently, increased turbidity may inhibit primary production of key food sources or providers of habitat. Sediment plumes may lead to the deposition of sediments to the seabed, in turn smothering areas important foraging areas for seabirds. Additionally, if present, contaminants within the sediment could be released during these works if sediment is disturbed, which could	**Scoped in**

	affect water quality and marine ecological receptors including ornithological features.

4.6.7 Proposed Assessment Methodology

Proposed Data Sources

4.6.7.1 The desk study and relevant bird surveys of the terrestrial and intertidal areas will characterise the ornithological baseline of the study area and establish the ornithological receptors taken forward for assessment.

4.6.7.2 The marine ornithology baseline will be determined through review of existing datasets and sources and informed by project specific intertidal and breeding bird surveys; no dedicated offshore bird surveys are proposed to be undertaken.

4.6.7.3 Establishment of the baseline environment will be informed using the following key data sources:

- JNCC website for details of SPAs including site information and designation details, including Supplementary Advice on Conservation Objectives (SACOs)[303];
- The British Trust for Ornithology (BTO) website[304] for site specific data from the WeBS, a partnership between the BTO, the Royal Society for the Protection of Birds (RSPB) and JNCC (the last on behalf of Natural England (NE), Natural Resources Wales (NRW), Scottish Natural Heritage (SNH) and the Department of the Environment Northern Ireland (DENI)) in association with the Wildfowl and Wetlands Trust (WWT);
- JNCC Offshore Wind Evidence Environmental Evidence Register[305];
- JNCC atlas of seabird distribution in north-west European waters[306] and Distribution of seabirds in the North-East Atlantic[307];
- Relevant Environmental Statements and associated appendices detailing the results of project specific ornithological surveys produced for large infrastructure projects in the vicinity of the Offshore Scheme, when published into the public domain;

[303] JNCC (no date). About Marine Protected Areas. [online] Available at: https://jncc.gov.uk/our-work/about-marine-protected-areas/.

[304] British Trust for Ornithology (BTO) (No Data). [online] Available at: https://www.bto.org/our-science/data.

[305] Marine Data Exchange (2021). JNCC, Offshore Wind Evidence and Change Programme, Offshore Wind Environmental Evidence Register. [online] Available at: https://www.marinedataexchange.co.uk/details/3480/2021-jncc-offshore-wind-evidence-and-change-programme-offshore-wind-environmental-evidence-register-/summary [Accessed 10 August 2022].

[306] Stone, C., Webb, A., Barton, C., Ratcliffe, N., Reed, T., Tasker, M., Camphuysen, C. and Pienkowski, M. (1995). An Atlas of seabird distribution in north-west European Water. [online] Available at: https://data.jncc.gov.uk/data/c132752f-827c-41fc-b617-e681db21eaf5/atlas-of-seabird-distribution-north-west-european-waters.pdf [Accessed 03 June 2022].

[307] Waggitt, J. et al., (2020). Distribution maps of cetacean and seabird populations in the North-East. Journal of Applied Ecology, 57(2), pp. 105.

- Seabird foraging ranges[308] [309], including site and specific species studies;
- FAME (Future of the Atlantic Marine Environment) and STAR (Seabird Tracking and Research) seabird tracking projects[310]; and
- Analyses of European Seabirds at Sea (ESAS) data[311].

Proposed Assessment Methodology

4.6.7.4 All ecological assessments for the project will be completed in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2019). The method will be tailored to reflect the specific conditions of the marine environment, in particular to ensure the high levels of movement of marine receptors between habitats and populations, are considered fully in respect of the predicted ZOI arising from the Offshore Scheme.

4.6.7.5 The aims of the marine EcIA are to:

- identify important ecological features (e.g., designated sites, habitats or species) which have the potential to be impacted by the Offshore Scheme;
- provide a robust assessment of the likely ecological impacts and resultant effects of the Offshore Scheme, which may be beneficial (i.e. positive) or adverse (i.e. negative);
- facilitate determination of the consequences of the Offshore Scheme in terms of national, regional and local policies relevant to nature conservation and biodiversity, where the level of detail provided is proportionate to the scale of the development and the complexity of its impact pathways;
- identify appropriate mitigation to reduce any likely ecological impacts; and
- set out the steps to be taken to adhere to legal requirements relating to the relevant ecological features concerned.

4.6.7.6 In accordance with CIEEM (2019) guidance, not all habitats and species which have the potential to occur in the ZOI of the Offshore Scheme will be considered. Rather, focus will be placed on those features considered to be 'important' – determining importance is discussed in further detail below. To ensure compliance with National and European policy, consideration is still given to biodiversity in its entirety and the need to achieve no net loss and enhancement of biodiversity.

4.6.7.7 In accordance with the CIEEM guidance, the importance of an ecological feature or receptor is defined according to the following factors:

[308] Thaxter, C., Lascelles, B., Sugar, K., Cook, A., Roos, S., Bolton, M., Langston, R. and Burton, M. (2012). Seabird foraging ranges as a preliminary tool for identifying candidate Marine Protected Areas. Biological Conservation, 156, pp. 53.

[309] Woodward, I., Thaxter, C., Owen, E. and Cook, A. (2019). Desk-based revision of seabird foraging ranges used for HRA screening. Report of work carried out by the British Trust for Ornithology on behalf of NIRAS and The Crown Estate, Issue BTO Research Report No.724.

[310] Wakefield, E., Owen, E., Baer, J., Carroll, M., Daunt, F., Dodd, S., Green, J., Guilford, T., Mavor, R., Miller, P. and Newell, M. (2017). Breeding density, fine-scale tracking, and large-scale modelling reveal the regional distribution of four seabird species. Ecological Applications, 27(7), pp. 2074-2091.

[311] Kober K., Webb A., Win I., Lewis M., O'Brien S., Wilson L., and Reid, J. (2010). JNCC Report No. 431, An analysis of the numbers and distribution of seabirds within the British Fishery Limit aimed at identifying areas that qualify as possible marine SPAs. [online] Available at: https://hub.jncc.gov.uk/assets/7db38547-5074-4136-8973-fd7d97666120.

- conservation or legal status;
- quality or health;
- extent; and
- rarity or endemism.

4.6.7.8 The importance of an ecological feature has also been defined with reference to a specific geographical context. Marine features are highly connected with few boundaries and the approach therefore adopts the level of legislative designation as a proxy for the geographical importance of a marine species receptor. These and the other criteria for importance ratings are shown in Table 4.6.3 below.

Table 4.6.3: Importance criteria for marine ecology features/receptors

Importance description*	
Very High	• designated sites and qualifying / supporting features of international importance (SACs, SPAs, Ramsar Sites). • species which are legally protected and / or in significant decline (i.e., classified as 'endangered' or 'critically endangered' according to the International Union for Conservation of Nature (IUCN) Red List (IUCN, 2019)). • high quality examples of rare habitats that are threatened throughout their range.
High	• designated sites and qualifying / supporting features of national conservational importance (SSSI and Marine Conservation Zones (MCZ)) • priority habitats and species or those considered to be of principal importance for the conservation of biodiversity in England and those species considered vulnerable to decline (i.e., classified as 'vulnerable' or 'near threatened' according to the IUCN Red List). • high quality examples of uncommon habitats that are vulnerable throughout their range.
Medium	• habitats and species of regional or local importance (i.e., Annex 1 of the Habitats Regs, which are not a qualifying feature of a nearby designated site). • those species considered to be of 'least concern' (according to the IUCN Red List or listed in the OSPAR[312] list of threatened and / or declining species for the North-East Atlantic). • poor quality examples of rare or uncommon habitats that are threatened or vulnerable throughout their range.

[312] OSPAR refers to the Oslo and Paris Convention for the protection of the marine environment of the North-East Atlantic.

Low	• habitats and species of low conservation importance, such as those generally abundant and widespread around the UK with no specific local value.

*Should there be any overlap in the description of a particular feature/receptor, the highest importance criteria rating shall be adopted.

4.6.7.9 In line with the CIEEM guidelines, the terminology used within the EcIA will draw a clear distinction between the terms ‘impact’ and ‘effect’. For the purposes of the EcIA, these terms are defined as follows:

- impact – actions resulting in changes to an ecological feature; for example, underwater sound disturbance leading to displacement of hearing sensitive species; and
- effect – outcome resulting from an impact, acting upon the conservation status or structure and function of an ecological feature; for example, displacement of individuals and loss of important foraging or breeding grounds leading to effects on the reproduction and survival of the local population.

4.6.7.10 The significance of effects will be based on an assessment of the impact magnitude (i.e., the deviation from the baseline condition) and the sensitivity and value (which are synonymous with 'importance') of the receptor. Temporary, permanent, direct and indirect effects that may occur during the construction, operation and maintenance, and decommissioning phases of the Offshore Scheme will be considered, and any mitigation measures necessary will be identified.

4.6.7.11 To determine the likely significance of effects, the following parameters will be considered:

- impact type - direct or indirect, positive or negative, temporary or permanent;
- magnitude of impact – the ‘amount’ or intensity of an impact. This may sometimes be synonymous with ‘extent’ (see below) for certain receptors, such as habitat loss. For mortality it may be the number of individuals killed;
- spatial extent of impact – the area over which the impact will occur; and
- temporal nature of impact – timing, frequency and duration.

4.6.7.12 The assessment has also given regard to the sensitivity of an ecological feature to an impact which is determined by its:

- adaptability - i.e. the capacity, or lack thereof, of a feature to avoid or adapt to a change; and
- tolerance / resilience - i.e. capacity, or lack thereof, of a feature to accommodate temporary or permanent change or recover to pre-existing state following exposure to a change.

4.6.7.13 For each marine ecological receptor only those characteristics relevant to understanding the ecological effect and determining the significance are described. The determination of the significance of effects will be based on predicted effects to:

- designated sites – i.e., the conservation objectives for the site and / or its interest / qualifying features;

- ecosystems / biodiversity – resulting in a change in ecosystem structure and / or function;
- habitats – i.e., extent, distribution, structure, function as well as its associated species, and its conservation status within a given geographical area; and
- species – i.e., abundance, distribution (including spawning, foraging and nursery habitats) and its conservation status within a given geographical area or at a particularly sensitive time (e.g., spawning season).

4.6.7.14 The significance of effects will be reported as either:

- not Significant – no or limited effect to one or more of the features described above; or
- significant – one or more features described above are affected.

4.6.7.15 The CIEEM methodology does not advocate a matrix approach to determining the significance of effects (CIEEM, 2019). However, to maintain consistency with other disciplines, where a matrix approach is suitable, the assessment conclusions will be transposed into the significance terminology used within the wider ES (**Part 1, Chapter 5, EIA Approach and Methodology**) See Table 4.6.4 below.

Table 4.6.4: Description of significance terminology

Classification of effect based on CIEEM guidance	Terminology used elsewhere in the ES	Description in accordance with CIEEM guidance
Significant (beneficial)	Major beneficial	Beneficial effect on designated sites, ecosystems, habitat and/or species at the international level
	Moderate beneficial	Beneficial effect on designated sites, ecosystems, habitat and/or species at the national level
Not-significant	Minor beneficial	Beneficial effect on designated sites, ecosystems, habitat and/or species at a local level or regional level
	Negligible	No effect on designated sites, ecosystems, habitat and/or species
	Minor adverse	Adverse effect on designated sites, ecosystems, habitat and/or species at the local level or regional level
Significant (adverse)	Moderate adverse	Adverse effect on designated sites, ecosystems, habitat

		and/or species at the national level
	Major adverse	Adverse effect on designated sites, ecosystems, habitat and/or species at the international level

4.6.8 Conclusion

4.6.8.1 In summary:

- Seabirds and waterbirds are highly sensitive species with strong protection under UK legislation. A number of impact pathways have been identified from the Offshore Scheme that could potentially significantly affect seabirds and/or waterbirds.
- The Offshore Scheme will pass directly through the following designated sites:
  - Outer Thames Estuary SPA;
  - Thanet Coast & Sandwich Bay SPA;
  - Thanet Coast & Sandwich Bay Ramsar;
  - Sandwich & Pegwell Bay NNR;
  - Sandwich Bay to Hacklinge Marshes SSSI; and
  - Leiston – Aldeburgh SSSI.
- A detailed assessment based on the potential impacts identified above and informed by project-specific marine ornithology characterisation, will be carried out.

Proposed Scope of the Assessment

4.6.8.2 A summary of the proposed scope of assessment is provided within Table 4.6.5 below.

Table 4.6.5: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
Ornithology	Direct disturbance and displacement of birds associated with sound, visual impacts and presence from vessels	Construction, maintenance & decommissioning	**Scoped in**
Ornithology	Direct loss and disturbance of seabed habitat (including, associated prey) used by foraging seabirds and waterbirds	Construction, maintenance, operation & decommissioning	**Scoped in**

Ornithology	Alteration of water quality due to increased SSC and disturbance of contaminated sediment	Construction, maintenance & decommissioning	**Scoped in**

4.7 Marine Archaeology

4.7.1 Introduction

4.7.1.1 This chapter presents how the marine archaeological heritage assessment will consider the potentially significant effects on marine archaeological heritage assets that may arise from the construction, operation, maintenance and decommissioning of the Offshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report introduces the receptors relevant to marine archaeology, describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

4.7.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Offshore Scheme Scoping Boundary hereafter referred to as the Offshore Scoping Boundary is illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary.**

4.7.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Methodology;**
- **Part 4, Chapter 1, Evolution of the Offshore Scheme;** and
- **Part 4, Chapter 2, Physical Environment.**

4.7.1.4 This chapter is supported by the following figure:

- **Figure 4.7.1 Location of Recorded Seabed and Intertidal Features within, and in Proximity to, the Study Area.**

4.7.2 Regulatory and Planning Context

4.7.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on marine archaeology associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

4.7.2.2 The following legislation applies to marine heritage:

- Marine and Coastal Access Act 2009[313] provides the legal mechanism to help ensure clean, healthy, safe and productive and biologically diverse oceans and seas and is the primary legislation relevant to marine development plans;
- Protection of Wrecks Act 1973, Section One and Two[314], Section 1 of the act provides for wrecks to be designated because of historical, archaeological or artistic value. Section 2 provides for designation of dangerous sites. Wreck sites must have a known location in order to be designated;
- Ancient Monuments and Archaeological Areas Act 1979 (as amended)[315], legislation to protect terrestrial and marine archaeological heritage of England, Wales and Scotland;
- Protection of Military remains Act 1986[316], provides protection for the wreckage of military aircraft and designated military vessels; and
- Merchant Shipping Act 1995[317] - Part IX: Salvage and Wreck, sets out the procedures for determining the ownership of underwater material identified as 'wreck', defined as flotsam, jetsam, derelict and lagan found in or on the shores of the UK's territorial waters or any UK tidal water.

4.7.2.3 The above legislation provides a context for focussing approaches and consultation requirements. These legal frameworks provide protection for marine historic assets of historical, archaeological or artistic value, as well as allowing military wrecks and aircraft remains to be protected. Ownership of any wreck remains is determined in accordance with the Merchant Shipping Act 1995[319] as administered by the Receiver of Wreck.

Planning Policy

4.7.2.4 National Policy Statements (NPS) - the UK Government produces NPS which set out the UK Government's objectives for the development of Nationally Significant Infrastructure Projects (NSIP). Those potentially relevant to marine archaeology are shown in Table 4.7.1.

[313] Marine and Coastal Access Act 2009 [online]. Available at: https://www.legislation.gov.uk/ukpga/2009/23/contents/enacted [Accessed June 2022].

[314] Protection of Wrecks Act 1973 [online]. Available at: https://www.legislation.gov.uk/ukpga/1973/33/enacted [Accessed June 2022].

[315] Ancient Monuments and Archaeological Areas Act 1979 (as amended) [online]. Available at: https://www.legislation.gov.uk/ukpga/1979/46/enacted [Accessed June 2022].

[316] Protection of Military Remains Act 1986 [online]. Available at: https://www.legislation.gov.uk/ukpga/1986/35/contents/enacted [Accessed June 2022].

[317] Merchant Shipping Act 1995 [online]. Available at: https://www.legislation.gov.uk/ukpga/1995/21/contents/enacted [Accessed June 2022].

Table 4.7.1: Summary of relevant NPS documents

Policy	Summary
Overarching National Policy Statement for Energy (EN-1)[318]	This NPS sets out national policy for energy infrastructure and the importance of archaeological assessment in the development process.
National Policy Statement for Electricity Networks Infrastructure (EN-5)[319]	This NPS, taken together with the overarching NPS (EN-1), provides for decision making on above ground electricity lines of 132kV and over and other electricity networks associated with a Nationally Significant Infrastructure Project e.g. substations and converted stations.

National Planning Policy Framework

4.7.2.5 Section 15 of the National Planning Policy Framework[320] (NPPF) entitled 'Conserving and enhancing the historic environment' sets out the principal national guidance on the importance, management and safeguarding of heritage assets within the planning process. The aim of this section is to ensure that Regional Planning Bodies and Local Planning Authorities, developers, and owners of heritage assets adopt a consistent and holistic approach to their conservation and to reduce complexity in planning policy relating to proposals that affect them. The government guidance provides a framework that:

- recognises that heritage assets are an irreplaceable resource;
- requires applicants to provide proportionate information on the significance of heritage assets affected by the proposals and an impact appraisal of the proposed development on that significance;
- takes into account the desirability of sustaining and enhancing the significance of heritage assets and their setting;
- places weight on the conservation of designated heritage assets;
- requires developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and impact, and to make this evidence (and any archive generated) publicly accessible; and
- promotes the conservation of heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life for this and future generations.

[318] Department of Energy and Climate Change (2011) *Overarching National Policy Statement for Energy (EN-1)*. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf [Accessed May 2022].

[319] Department of Energy and Climate Change (2011) *National Policy Statement for Electricity Networks Infrastructure (EN-5)*. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed May 2022].

[320] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf [Accessed 09 August 2022].

Marine policy

4.7.2.6 The Marine and Coastal Access Act 2009[315] (MCAA) is the primary legislation relevant to marine development plans. Under this legislation, marine plans must be consistent with the UK Marine Policy Statement[321] (MPS) and fully reflect the requirements of the MPS at a local level. Marine plans must also be in accordance with other UK national policy, including the NPPF[322].

4.7.2.7 The MPS was prepared and adopted by HM Government and the devolved administrations of Scotland, Wales and Northern Ireland for the purposes of Section 44 of the Marine and Coastal Access Act 2009[315]. Marine Plans (see below) set out how the MPS will be implemented in specific areas.

Local planning policy

Marine plans

4.7.2.8 The following marine plans have been considered in the development of this Scoping Report:

- East Inshore and East Offshore Marine Plan[322]
- South East Inshore Marine Plan[323]

East Suffolk

4.7.2.9 East Suffolk Council's Suffolk Coastal Local Plan Adopted 2020[324], sets out the strategic and non-strategic planning policies which the Council will use to determine planning applications across the former Suffolk Coastal District area. The Council will be a statutory consultee in processes relating to all proposed NSIP.

4.7.2.10 Table 4.7.2 summarises the relevant policies from the plan.

Table 4.7.2: East Suffolk Council's Suffolk Coastal Local Plan

Policy ref.	Title
SCLP11.3	Historic Environment
SCLP11.6	Non-Designated Heritage Assets
SCLP11.7	Archaeology

[321] Department for Environment, Food and Rural Affairs (2011) UK Marine Policy Statement. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf (Accessed May 2022).

[322] Department for Environment, Food and Rural affairs (DEFRA) (2014). East Inshore and East Offshore Marine Plans. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312496/east-plan.pdf.

[323] Department for Environment, Food, and Rural Affairs (2021). South East Inshore Marine Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004493/FINAL_South_East_Marine_Plan__1_.pdf.

[324] East Suffolk Council (2020) Suffolk Coastal Local Plan Adopted 2020. [online] Available at: https://www.eastsuffolk.gov.uk/assets/Planning/Planning-Policy-and-Local-Plans/Suffolk-Coastal-Local-Plan/Adopted-Suffolk-Coastal-Local-Plan/East-Suffolk-Council-Suffolk-Coastal-Local-Plan.pdf [Accessed May 2022].

Thanet, Kent

4.7.2.11 Thanet District Council's Local Plan (adopted July 2020[325]) guides and delivers the Council's plans and aspirations for growth, as desired by the Council and community, and for the delivery of development projects and infrastructure.

4.7.2.12 Table 4.7.3 summarises the relevant policies from the plan.

Table 4.7.3: Thanet District Local Plan policies

Policy ref.	Title
SP36	Conservation and Enhancement of Thanet's Historic Environment
HE01	Archaeology
HE03	Heritage Assets

Guidance

4.7.2.13 This assessment will feed into a full desk-based assessment undertaken as part of the impact assessment process, which will be undertaken in a manner consistent with available guidance, listed below in chronological order of issue:

- Identifying and Protecting Palaeolithic Remains: Archaeological Guidance for Planning Authorities and Developers[326].
- Managing Lithic Scatters: Archaeological Guidance for planning authorities and developers[327].
- Military Aircraft Crash Sites: Guidance on their significance and future management[328].
- The Code of Practice for Seabed Developers[329].
- Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment[330].
- Our Seas – A shared resource: High level marine objectives[331].
- Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (second edition)[332].

[325] Thanet District Council (2020) Local Plan Adopted July 2020. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed May 2022].

[326] English Heritage (1998) Identifying and Protecting Palaeolithic Remains: Archaeological Guidance for Planning Authorities and Developers.

[327] English Heritage (2000) Managing Lithic Scatters: Archaeological Guidance for planning authorities and developers.

[328] English Heritage (2002) Military Aircraft Crash Sites: Guidance on their significance and future management.

[329] Joint Nautical Archaeology Policy Committee (2006) Code of Practice for Seabed Developers, Joint Nautical Archaeology Policy Committee. Available at http://www.jnapc.org.uk/Code%20of%20Practice%20No.2.pdf (Accessed June 2022).

[330] English Heritage (2008) Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment. Updated consultation draft 10/11/2017.

[331] Department for Environment, Food and Rural Affairs (2009). Our Seas – A shared resource: High level marine objectives. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/182486/ourseas-2009update.pdf.

[332] English Heritage (2011). Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (second edition).

- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector[333].
- Ships and Boats: Prehistory to Present: Designation Selection Guide[334].
- Marine Geophysics Data Acquisition, Processing and Interpretation Guidance Notes[335].
- The Setting of Heritage Assets – Historic Environment Good Practice Advice in Planning: 3[336].
- Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record[337].
- Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects[338].

4.7.3 Study Area

4.7.3.1 The study area for marine archaeology is the extent of the Offshore Scheme Scoping Boundary shown on **Figure 4.7.1 Location of Recorded Seabed and Intertidal Features within, and in Proximity to, the Study Area**. At each of the proposed landfalls, the study area extends to the Mean High Water Spring (MHWS) mark.

4.7.3.2 The boundary of the study area defines the area where any potential impact on marine archaeology receptors may occur. Marine archaeological seabed features that are located close to the boundary of the study area may be included in the scoping assessment as the features themselves, or their potential mitigation measure, may extend into the study area potentially impacting the chosen cable route. Assessment of the geophysical survey data will ascertain whether these receptors will be included in the assessment at the EIA stage of the Project.

4.7.3.3 The study area will be subject to review and may be amended for the Environmental Statement (ES) in response to the refinement of the landfalls and the identification of additional constraints, which may be environmental and/or engineering.

4.7.4 Baseline Conditions

4.7.4.1 The themes relevant to the marine archaeological resource are:

- Palaeogeography (for example, palaeochannels and other features that contain prehistoric sediment, and derived Palaeolithic artefacts such as handaxes) including their setting.

[333] COWRIE (2011). Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector. Southampton: Emu.

[334] English Heritage (2012). Designation Selection Guide, Ships and Boats: Prehistory to Present. London: Historic England.

[335] Plets, R., Dix, J. and Bates, R. (2013) Marine geophysics data acquisition, processing and interpretation: Guidance notes. London: English Heritage.

[336] English Heritage (2015). The Setting of Heritage Assets – Historic Environment Good Practice Advice in Planning: 3.

[337] English Heritage (2015). Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record.

[338] The Crown Estate (2021). Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects. Prepared by Wessex Archaeology. Available at https://www.thecrownestate.co.uk/media/3917/guide-to-archaeological-requirements-for-offshore-wind.pdf [Accessed May 2022].

- Seabed features, including maritime sites (such as shipwrecks and associated material including cargo, obstructions and fishermen's fasteners) and aviation sites (aircraft crash sites and associated debris) including their setting.
- Intertidal heritage receptors relating to marine activity for example fish traps, piers, sea defences located within the intertidal zone, between MHWS and Mean Low Water Spring (MLWS).
- The historic seascape character in and around the study area.

4.7.4.2 The types of archaeology listed above relate to the known marine resource, which will be discussed further in this chapter, and also the currently unknown resource. There is potential for the presence of palaeogeographic material dating from the Palaeolithic onwards. There is also potential for discoveries of maritime craft from the Mesolithic to the modern period. Post-medieval and modern wrecks, as they were generally made of more substantial material, are more likely to have been discovered through surveys undertaken by the United Kingdom Hydrographic Office (UKHO) and others, and thus recorded in the archaeological record. However, there is still potential for the discovery of previously unrecorded wreck sites, particularly of wooden wrecks, broken up wrecks or partially buried wrecks that are more difficult to detect through geophysical survey.

4.7.4.3 There is also potential for 20th century aircraft, particularly in relation to the Second World War[339]. Aircraft crash sites are also difficult to identify through archaeological assessments of geophysical survey, although experience indicates material from the site, such as engines or other material may be recorded as small obstructions or anomalies.

Data Sources

4.7.4.4 For the purposes of this scoping chapter, the baseline of known heritage assets within the proposed marine survey corridor has been obtained from the following sources:

- UKHO data for charted wrecks and obstructions.
- The National Marine Heritage Record (NMHR) maintained by Historic England, comprising data for terrestrial and marine archaeological sites, find spots and archaeological events.
- Historic Environment Records for Kent, Essex and Suffolk, comprising a database of recorded archaeological sites, find spots, and archaeological events.
- The National Heritage List for England (NHLE) maintained by Historic England, comprising data of designated heritage assets including sites protected under the Protection of Military Remains Act 1986[340] and the Protection of Wrecks Act 1973[341].
- The Historic Seascape Characterisation (HSC) report for Newport to Clacton and Adjacent Waters[342].

[339] Wessex Archaeology (2008). Aircraft Crash Sites at Sea: A Scoping Study. Archaeological Desk-based Assessment. Salisbury: unpublished report ref. 666410.02.

[340] Protection of Military Remains Act 1986 [online]. Available at: https://www.legislation.gov.uk/ukpga/1986/35/contents/enacted [Accessed June 2022].

[341] Protection of Wrecks Act 1973 [online]. Available at: https://www.legislation.gov.uk/ukpga/1973/33/enacted [Accessed June 2022].

[342] Oxford Archaeology (2011). Historic Seascape Characterisation: Newport to Clacton and Adjacent Waters. [online] Available at: https://doi.org/10.5284/1011887 [Accessed May 2022].

- Thames Estuary and Kent Historic Seascape Characterisation[343].

4.7.4.5 The datasets used in this assessment have been presented in Universal Transverse Mercator (UTM) Zone 31 North projected from a European Terrestrial Reference System 1989 (ETRS89) datum.

Archaeological Baseline

4.7.4.6 The baseline information presented here has been gathered following the best practice professional guidance outlined by the Chartered Institute for Archaeologists' (CIfA) Standard and Guidance for Historic Environment Desk-Based Assessment[344].

4.7.4.7 The following section provides a summary of the marine archaeology and cultural heritage baseline within the study area, compiled from the data sources listed above. The aim is to establish the known historic environment resource that could be affected by the Offshore Scheme.

4.7.4.8 The distribution of the known heritage receptors discussed in this section is illustrated in **Figure 4.7.1 Location of Recorded Seabed and Intertidal Features within, and in Proximity to, the Study Area.**

Protected sites

4.7.4.9 Wrecks protected under the Protection of Wrecks Act 1973[342], the Protection of Military Remains Act 1986[343] or the Ancient Monuments and Archaeological Areas Act 1978[345] are marked on appropriate UKHO Admiralty Charts. Interference or damage to these wrecks is considered a criminal offence.

4.7.4.10 There are currently no sites within the study area that are subject to statutory protection from these acts that can be used to protect marine archaeological sites (**Figure 4.7.1 Location of Recorded Seabed and Intertidal Features within, and in Proximity to, the Study Area**).

UKHO records within the study area

4.7.4.11 There are 44 UKHO records located inside the Offshore Scoping Boundary and an additional 124 records located within 100m of the boundary.

4.7.4.12 Within the Offshore Scoping Boundary, this total correlates to 22 wreck sites (13 of which are named or possibly named) and 22 obstructions.

4.7.4.13 Within 100m of the boundary of the Offshore Scoping Boundary, there are 70 wrecks (38 of which are named or possibly named) and 54 obstructions.

NMHR records within the study area

4.7.4.14 There are 19 NMHR point records located inside the Offshore Scoping Boundary and an additional 48 records located within 100m of the boundary.

[343] Cotswold Archaeology (2013). Thames Estuary and Kent Historic Seascape Characterisation.

[344] Chartered Institute for Archaeologists (2020). Standard and guidance for historic environment desk-based assessment. Published December 2014, updated in 2020. Available at https://www.archaeologists.net/sites/default/files/CIfAS%26GDBA_4.pdf [Accessed May 2022].

[345] Ancient Monuments and Archaeological Areas Act 1979 (as amended) [online]. Available at: https://www.legislation.gov.uk/ukpga/1979/46/enacted [Accessed June 2022].

4.7.4.15 Within the Offshore Scoping Boundary, the total correlates to 18 wreck sites (including one submarine) and one intertidal feature.

4.7.4.16 Within 100m of the boundary of the Offshore Scoping Boundary, there are 43 wreck sites (including one submarine), one aircraft crash site and four obstructions.

4.7.4.17 There are 159 NMHR polygon records located within, or intersecting, the Offshore Scoping Boundary. All but one of these refer to Recorded Losses, which are records for ships or aircraft that are known to have wrecked or crashed offshore, but for which the exact locations are not known. Recorded Losses are often grouped by area into Maritime Named Locations by the NMHR. For example, a Recorded Loss within this dataset may be based on the loss of a vessel off the coast at 'Sizewell Suffolk' or associated with a known navigational hazard such as a sand bank or rocks (which may give rise to a falsely precise geographic coordinate for the record). The positional data of these records is unreliable and serves only to provide an indication of the types of vessels that passed through the area and the wrecking incidents that are known to have occurred in the general region. Whilst the remains of these vessels and aircraft are expected to exist somewhere on the seafloor, their location is unknown. As such, they signify the potential maritime and aviation resource and are not presented on a figure.

4.7.4.18 The total number of polygon records correlates to 151 records relating to possible shipwreck events, seven records relating to possible aircraft crash sites and one record that refers to a findspot.

Suffolk records within the study area

4.7.4.19 There are seven records located inside the study area, which correlate to a shipwreck of unknown date, five terrestrial features dating to the Second World War and one modern terrestrial feature that is described as a ship's mast mounted in a metal sheath with footholds to aid climbing.

Essex records within the study area

4.7.4.20 There are no records relating to seabed archaeological features located within, or close to, the study area.

Kent records within the study area

4.7.4.21 There are no records relating to seabed archaeological features located within, or close to, the study area.

Historic Seascape Characterisation

4.7.4.22 Data from two HSC assessments will be used to assess the seascape character of the region. This section provides a summary of the seascape character.

4.7.4.23 The Newport to Clacton and Adjacent Waters[346] summarises the historic seascape character of the northern element of the study area as having fishing, navigation and industrial elements.

4.7.4.24 The Thames Estuary and Kent Historic Seascape Characterisation[345] divides the character of the southern element of the study area into coastal, sea surface, water

[346] Oxford Archaeology (2011) Historic Seascape Characterisation: Newport to Clacton and Adjacent Waters. Available at https://doi.org/10.5284/1011887 [Accessed May 2022].

column, sea floor and sub-sea floor. Character types for these elements of the assessment located within the study area include navigation activity and hazards, ports and docks, recreation, industries (including energy, shipping, fishing and telecommunications), palaeolandscapes, cultural topography, flood and erosion defence, and maritime safety.

4.7.5 Embedded and Control & Management Measures

Embedded Measures

4.7.5.1 With specific regard to marine archaeology, the design criteria to avoid wrecks and areas of archaeological importance should be taken into consideration when developing the Offshore Scoping Boundary.

4.7.5.2 Impacts to both known and potential marine archaeological receptors are addressed through the application of additional embedded mitigation measures. The mitigation measures suggested below will either avoid an impact altogether or ensure that where impact is unavoidable, further information is obtained for posterity or finds are recovered and preserved, thus further informing the archaeological record.

Geophysical and geotechnical survey

4.7.5.3 Geophysical and geotechnical survey data acquisition for pre-consent planning purposes will be assessed for indications of archaeology and the results used to supplement the desk-based research gathered to inform the EIA process. Any further geophysical or geotechnical surveys undertaken, for instance post-consent or post-construction, will also be archaeologically assessed and the results will be integrated with previous interpretations and reported on accordingly.

4.7.5.4 Furthermore, mitigating and offsetting impacts to palaeogeographic features such as palaeochannels may occur through further investigation of existing geotechnical samples or undertaking further samples, which can enhance the palaeogeographic record for an area.

Archaeological Exclusion Zones

4.7.5.5 Government policy recommends the *in-situ* preservation of known archaeological remains, therefore the ideal mitigation for such material is avoidance. Appropriately sized Archaeological Exclusion Zones (AEZs) will be established around known features of higher archaeological value. No works will be undertaken within the extent of an AEZ during the construction, operation and maintenance, or decommissioning phases of the Offshore Scheme. AEZs may be amended (enlarged, reduced, moved or removed) because of further data assessment of archaeological field evaluation and must be undertaken in consultation with the Archaeological Curator, Historic England. The locations and extents of all AEZs will be presented in the Written Scheme of Investigations (WSI; see Control and Management Measure MA01),

Other avoidance measures

4.7.5.6 AEZs will not be proposed for archaeological features of lower archaeological value, however such features will be avoided where practicable. Micro-siting of the cable route, where practicable, will help to avoid seabed features, such as geophysical anomalies of archaeological potential.

Anomaly investigation

4.7.5.7 Where micro-siting is not possible, further assessment will be undertaken to confirm the nature of the seabed anomaly. Methods of ground truthing assessment could include Remotely Operated Vehicle (ROV) or diver survey and could be undertaken in conjunction with other surveys associated with the Offshore Scheme, for example unexploded ordnance (UXO) or obstruction surveys.

Walkover and watching briefs

4.7.5.8 A walkover survey of the intertidal element of the study area will be undertaken to inform the understanding of the existing marine heritage assets and also the potential for unknown material to be uncovered.

4.7.5.9 Watching briefs will also be employed in the intertidal or marine areas where any intrusive works are planned. These could include pre-lay grapnel runs or intertidal cable-laying in an excavated trench. The proposed methodology will be presented in a Method Statement and agreed through consultation with the Archaeological Curator, Historic England, and the Regulator, the MMO.

Reduction of indirect impacts

4.7.5.10 Once the design of the Offshore Scheme has been confirmed, it may be possible to ascertain measures to protect heritage assets that could be indirectly impacted, for instance by scouring, exposure or erosion, caused by direct impacts to the seabed. For instance, 'buffers' may be placed around a heritage asset to protect it from scour. This will be confirmed following review of the Physical Environment Chapter (**Part 4, Chapter 2, Physical Environment**).

Control and Management Measures

4.7.5.11 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the marine archaeology assessment are:

- GM01 - designated (as minimal as possible) anchoring areas and protocols shall be employed during marine operations to minimise physical disturbance of the seabed.
- GM02 - as-built locations of cable and external protection will be supplied to the UKHO (Admiralty) and Kingfisher (KIS-ORCA).
- GM03 - an offshore Construction Environmental Management Plan (CEMP) and a Marine Pollution Contingency Plan (MPCP) and a dropped objects procedure will be produced prior to installation.
- MA01 - a Written Scheme of Investigation (WSI) including a Protocol for Archaeological Discoveries (PAD) will be agreed and implemented. Unavoidable impacts to potential archaeological receptors would be addressed through a series of agreed control and management measures to deal with the discoveries once impacts have occurred. These measures would be outlined in a WSI and would be in place throughout the construction, operation, maintenance and decommissioning phases. The WSI would address unavoidable impacts associated with the worst-case scenario (Rochdale Envelope) in accordance with archaeological best practice. The WSI would be agreed by the Archaeological

Curator via the Regulator prior to works commencing. A project-specific PAD will be established to support the reporting of unexpected archaeological material during the lifetime of the Project. Impact to unexpected archaeological material is reduced by promptly receiving archaeological advice and undertaking recording and/or conserving any objects that have been disturbed. Additional investigation of features with an uncertain identity or archaeological value can often mean their true nature and value can be better understood. A PAD reduces the impact on the marine historic environment by enabling Project staff to report their finds in a manner that is convenient and effective. Any additional marine geophysical survey, diver or ROV survey footage that takes place within the area will be assessed by a suitably qualified marine geophysicist or marine archaeologist, as appropriate. If an archaeologically important site is subsequently discovered during Project works, a temporary exclusion zone (TEZ) will be established to allow for further investigation to take place. The TEZ would then be re-evaluated, removed or expanded, based on the results of further investigations.

- MA02 - a Written Scheme of Investigation (WSI) will also include offsetting of archaeological impact where necessary through the completion of a palaeo-environmental assessment of deposits of high geoarchaeological potential which may be disturbed.
- MA03 - the project will be run in compliance with all relevant legislation, consents and permits, for example the Marine and Coastal Access Act 2009[347], Protection of Military Remains 1986[348], Merchant Shipping Act 1995[349], Protection of Wrecks Act 1973[350] and Ancient Monuments and Archaeological Areas Act 1979[351].
- MA04 - locations of known marine archaeological interest/value within the marine environment will be avoided by all marine vessels by the implementation of AEZs.
- MA05 - where a previously unknown heritage asset is discovered, or a known heritage asset proves to be more significant than foreseen at the time of application, the project will inform the MMO, as advised by Historic England, and will agree a solution that protects the significance of the new discovery, so far as is practicable, within the project parameters.
- MPE01 - during the course of cable route clearance, specific activities will be completed to remove items from the seabed. Out of Service cables will be removed as per industry guidelines, larger debris including lost fishing gear will be removed prior to cable installation and a pre-lay grapnel run will be completed to ensure smaller debris is removed. In the event that abandoned, lost or discarded fishing gear (‘ALDFG’) is encountered, it may be necessary in certain circumstances to bring ALDFG onto the vessel deck. In these instances, marked ALDFG will be returned to the local MMO/ Inshore Fisheries and Conservation Authority (IFCA) for onward retrieval by the owner of the marked gear, in line with existing best practice. Not all gear (particularly ‘active’ gear) is marked; if necessary to bring onto the vessel deck, unmarked gear will be disposed of via

[347] Marine and Coastal Access Act 2009 [online]. Available at: https://www.legislation.gov.uk/ukpga/2009/23/pdfs/ukpga_20090023_en.pdf [Accessed 04 August 2022].

[348] Protection of Military Remains Act 1986 [online]. Available at https://www.legislation.gov.uk/ukpga/1986/35/contents/enacted [Accessed June 2022].

[349] Merchant Shipping Act 1995 [online]. Available at https://www.legislation.gov.uk/ukpga/1995/21/contents/enacted [Accessed June 2022].

[350] Protection of Wrecks Act 1973 [online]. Available at https://www.legislation.gov.uk/ukpga/1973/33/enacted [Accessed June 2022].

[351] Ancient Monuments and Archaeological Areas Act 1979 (as amended) [online]. Available at https://www.legislation.gov.uk/ukpga/1979/46/enacted [Accessed June 2022].

conventional onshore waste channels. Objects identified as ‘wreck’ must be reported to the Receiver of Wreck within 28 days under the obligations of the Merchant Shipping Act 1995[351].

- MPE02 cables will be buried to a target depth of 1.0m to 2.0m for the majority of the route, depending on a number of factors including sediment type and sediment mobility.
- MPE03 - cable protection features (e.g. rock placement, mattresses and grout bags) will be installed only where considered necessary for the safe operation of the Project.

4.7.6 Potential for Significant Effects

4.7.6.1 The marine archaeology assessment will consider the construction, operation, maintenance and decommissioning of the Offshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

4.7.6.2 The proposed scope of the marine archaeology assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

4.7.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Offshore Scheme.

4.7.6.4 The potential for the identified impacts to result in potential significant effects takes into account the embedded and control and management measures described in section 5.

4.7.6.5 All seabed receptors have the potential to be damaged or destroyed if they directly interact with seabed preparation or construction activities. All damage to archaeological sites or material is permanent and recovery is limited to stabilisation or re-burial, limiting further interactions.

4.7.6.6 Potential impacts to seabed, sub-seabed and intertidal marine heritage assets include both direct and indirect impacts.

- Direct impacts can include direct damage to structures, features, deposits and artefacts, and the disturbance of relationships between these elements and the wider surroundings. The setting of known and named wreck sites may also be impacted and in turn this could potentially affect the significance of such receptors.
- The indirect interactions upon the known and potential marine archaeological receptors occur as a result of changes to hydrodynamic patterns and sediment transport regimes, where these changes have occurred as a consequence of activities and structures associated with the project activities. Scour has a negative or adverse impact on marine archaeological receptors whereby it can expose material which leads to increased rates of deterioration through biological, chemical and physical processes. Alternatively, the redeposition of sediments following settling of sediment plumes can be beneficial to the preservation of marine archaeological receptors as greater sediment cover increases the potential for anaerobic environment, which inhibits a range of biological, chemical and physical degradation processes.

Sources of construction impacts

- Direct damage to intertidal archaeological receptors:
  - Pre-installation ground preparation including pre-lay surveys, cable route clearance, pre-sweeping and UXO clearance.
  - Cable installation, using either trenched or trenchless methods including horizontal directional drill, micro-tunnel or direct pipe.
- Direct damage to marine archaeological receptors:
  - Pre-installation seabed preparation including pre-lay surveys, cable route clearance, pre-sweeping and UXO clearance.
  - Trenched cable installation methods including cable lay and post lay burial, ploughs, jet trenching, mechanical trenching, MFE and CFE and simultaneous cable lay and burial.
  - External cable protection where burial cannot be achieved including rock placement, concrete mattresses, rock/gravel/sand/grout bags and/or protection sleeves/cast iron shells.
  - Cable and pipeline crossings, whereby the separation and protection structures may comprise concrete mattresses, protective sleeves on the HVDC cables and/or pre- and post-lay rock placement.
  - Vessel usage associated with the cable installation, including cable lay vessel(s), cable burial vessel(s), guard vessel(s), support vessel(s), rock placement vessel(s) and cable lay barge(s).
- Indirect damage:
  - Clearance works associated with route preparation.
  - Sediment deposition or the placement of non-burial cable protection on the seabed.
  - Seabed sediment movement caused by propellers of construction vessels.

Sources of operational impacts

- Direct damage may occur where operational interactions contact with the seabed beyond the area already impacted during the construction phase.
- Indirect damage:
  - Sediment deposition or the placement of non-burial cable protection on the seabed.
  - Seabed sediment movement caused by propellers of operations vessels.

Sources of maintenance impacts

- Direct damage may occur where maintenance activities contact with the seabed beyond the area already impacted during the construction phase.
- Indirect damage:
  - Cable maintenance and repair may lead to alteration of sediment transport regimes.

- Seabed sediment movement caused by propellers of maintenance vessels.

Sources of decommissioning impacts

- Direct damage may occur where decommissioning activities contact with the seabed beyond the area already impacted during the construction phase.
- Indirect damage:
  - Cable removal may lead to alteration of seabed transport regimes.
  - Seabed sediment movement caused by propellers of decommissioning vessels.

Potential impacts

4.7.6.7 Table 4.7.4 identifies the potential impacts that could result from the sources identified above.

Table 4.7.4: Sources and impacts

Project Phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance and decommissioning	Pre-installation seabed/ground preparation including pre-lay surveys, cable route clearance, pre-sweeping and UXO clearance. Cable installation, using either trenched or trenchless methods including horizontal drill, micro-tunnel or direct pipe.	Direct impact to the intertidal zone	Yes	**Scoped in**
Construction	Pre-installation seabed preparation including pre-lay surveys, cable route clearance, pre-sweeping and UXO clearance	Direct and indirect (detrimental) impact to the seabed	Yes	**Scoped in**
Construction, maintenance and decommissioning. Operation (indirect impact only)	Trenched cable installation/ maintenance/removal activities and presence of non-burial cable protection	Direct and indirect (detrimental and beneficial) impact to the seabed and sub-seabed	Yes	**Scoped in**
Construction, maintenance and decommissioning.	Cable and pipeline crossings comprising concrete mattresses,	Direct and indirect (detrimental and	Yes	**Scoped in**

Project Phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Operation (indirect impact only)	protective sleeves on the HVDC cables and/or pre- and post-lay rock placement	beneficial) impact to the seabed		
Construction, operation, maintenance and decommissioning	Vessel usage associated with all offshore activities	Direct and indirect impact to the seabed	Yes	**Scoped in**

Impact Pathways with Receptors (Step 2)

4.7.6.8 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the shipping and navigation study area.

4.7.6.9 Table 4.7.5 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the benthic ecology assessment for the Offshore Scheme (**Figure 1.1.4 Offshore Scheme Scoping Boundary**).

Table 4.7.5: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in/out
Physical disturbance activities causing direct damage and/or loss to the intertidal zone, caused by trenching, horizontal directional drilling, micro-tunnelling or direct pipe during construction, maintenance and decommissioning	Intertidal heritage receptors including known and potential palaeogeography, historic terrestrial, marine and aviation features	Yes - disturbance to the intertidal zone is likely to cause damage to receptors	**Scoped in**
Physical disturbance activities causing direct damage and/or loss to the sub-seabed, caused by cable installation (ploughs, jet trenching, mechanical trenching, Mass Flow Excavator (MFE), Controlled Flow Excavator (CFE)) during construction, maintenance and decommissioning	Sub-seabed heritage receptors including known and potential palaeogeography and buried maritime and aviation features	Yes - disturbance to the sub-seabed is likely to cause damage to receptors	**Scoped in**

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in/out
Physical disturbance activities causing direct damage and/or loss to the seabed, caused by pre-lay surveys, cable route clearance, pre-sweeping, UXO survey, cable installation (ploughs, jet trenching, mechanical trenching, MFE, CFV), external cable protection (rock placement, concrete mattresses, rock/gravel/sand/grout bags, protection sleeves/cast-iron shells), vessel activities (cable lay vessel, cable burial vessel, guard vessels, support vessels, rock placement vessels - impact from anchors, jack-up platforms) during construction, maintenance and decommissioning.	Seabed heritage receptors including known and potential maritime and aviation features	Yes - disturbance to the seabed is likely to cause damage to receptors	**Scoped in**
Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes leading to sediment reduction on the seabed during construction, maintenance, operation and decommissioning.	Seabed heritage receptors including known and potential maritime and aviation features	Yes - indirect changes to hydrodynamic and sedimentary regimes may expose receptors leading to increased rates of deterioration through biological, chemical and physical processes	**Scoped in**
Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes leading to sediment accretion on the seabed during for construction,	Seabed heritage receptors including known and potential maritime and aviation features	Yes - indirect changes to hydrodynamic and sedimentary regimes may cause sediment	**Scoped in**

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in/out
maintenance, operation and decommissioning		to cover receptors inhibiting a range of biological, chemical and physical degradation processes (beneficial effect)	
Project works that temporarily or permanently change the setting of a heritage receptor during construction, maintenance, operation and decommissioning	Buried, seabed or intertidal heritage receptors including known and potential palaeogeography, maritime and aviation features, and intertidal historic terrestrial features	Yes - change to the setting of receptors may occur during works associated with the Project	**Scoped in**
Project works that temporarily or permanently change the character of the historic seascape during construction, maintenance, operation and decommissioning	Historic Seascape Character of the region	Change to the character of the historic seascape may occur as a result of the Project	**Scoped in**

4.7.7 Proposed Assessment Methodology

Proposed Data Sources

4.7.7.1 The following data sources are proposed to be used to inform the assessment:

- Geoarchaeological assessment of 69 vibrocore logs acquired along the Offshore Scoping Boundary.
- Assessment of geophysical survey datasets comprising sub-bottom profiler, sidescan sonar, magnetometer and multibeam echosounder.
- UKHO data for charted wrecks and obstructions.
- The NMHR maintained by Historic England, comprising data for terrestrial and marine archaeological sites, find spots and archaeological events.
- Historic Environment Records for Kent, Essex and Suffolk, comprising a database of recorded archaeological sites, find spots, and archaeological events.

- The NHLE maintained by Historic England, comprising data of designated heritage assets including sites protected under the Protection of Military Remains Act 1986[352] and the Protection of Wrecks Act 1973[353].
- The HSC report for Newport to Clacton and Adjacent Waters[354].
- Thames Estuary and Kent HSC[355].
- Relevant background mapping of the area derived from the British Geological Survey, UKHO and Ordnance Survey along with historic maps.
- Relevant documentary sources and grey literature held by Wessex Archaeology and those available through the Archaeological Data Service and other websites.

Proposed Assessment Methodology

4.7.7.2 This section provides a summary of the EIA methodology specifically relevant to marine archaeology. Cumulative impacts and impact interrelationships will be assessed within a separate chapter, however reference to these impacts with regards marine archaeology will take place at a later stage of the EIA process and are therefore not discussed further within this chapter of the Scoping Report.

4.7.7.3 Following submission of the Scoping Report, the baseline for marine archaeology will be further enhanced following the archaeological assessment of geophysical survey data obtained from the study area. The data will be archaeologically assessed to provide a full assessment of the known marine heritage receptors. Further desk-based research will be used to understand the potential for marine heritage receptors being located within the marine cable corridor. The setting and significance of the known and potential seabed features will also be assessed.

4.7.7.4 Furthermore, the palaeogeography baseline summary will be based on the geoarchaeological review of geotechnical and geophysical datasets gathered for the Offshore Scheme. This information will be further enhanced by a review of geological mapping of seabed sediments, solid geology and bathymetry from published British Geological Survey sources. The HSC of the region will also be assessed following review of current HSC reporting[356] [357].

4.7.7.5 An intertidal walkover survey will be undertaken at each of the proposed landfalls in order to ground truth previously recorded heritage receptors and to identify any new receptors that may be of relevance to the assessment.

4.7.7.6 The results of these surveys will be incorporated into a full desk-based technical assessment, which will be undertaken in conjunction with data obtained from the UKHO, and national and local archive sources. Relevant mapping including Admiralty Charts, historic maps and Ordnance Survey, together with documentary sources and grey literature held by Wessex Archaeology and those available through the Archaeological Data Service and other websites, will also be utilised for the marine archaeological technical assessment.

[352] Protection of Military Remains Act 1986 [online]. Available at https://www.legislation.gov.uk/ukpga/1986/35/contents/enacted [Accessed June 2022].

[353] Protection of Wrecks Act 1973 [online]. Available at https://www.legislation.gov.uk/ukpga/1973/33/enacted [Accessed June 2022].

[354] Oxford Archaeology (2011) Historic Seascape Characterisation: Newport to Clacton and Adjacent Waters. Available at https://doi.org/10.5284/1011887 [Accessed May 2022].

[355] Cotswold Archaeology (2013) Thames Estuary and Kent Historic Seascape Characterisation.

4.7.7.7 The results of which will be used to prepare a robust chapter for the ES, clearly presenting the information regarding the known and potential marine heritage receptors, with a discussion as to their archaeological value and sensitivity to impact. This will be used to inform the next strategic phase of the Project in a timely and appropriate manner.

Assessment criteria and assignment of significance

4.7.7.8 The UK MPS[356] describes a heritage asset (including archaeological receptors) as holding a degree of significance, where significance relates to the heritage interest of an asset that may be archaeological, architectural, artistic or historic.

4.7.7.9 For the significance of any given impact to be fully understood, the sensitivity of any receptors that may be impacted need to be considered along with the magnitude of the effect. The criteria used to assess the significance of an impact is presented below.

Receptor sensitivity

4.7.7.10 The sensitivity of a historic environment receptor is a function of its capacity to accommodate change and reflects its ability to recover if it is affected. The sensitivity of the receptor will be assessed with regard to the following factors:

- Value – a measure of the receptor's importance, rarity and worth.
- Adaptability – the degree to which a receptor can avoid or adapt to an effect.
- Tolerance – the ability of a receptor to accommodate temporary or permanent change without significant negative impact.
- Recoverability – the temporal scale over and extent to which a receptor will recover following an effect.

4.7.7.11 The NPPF states that heritage assets should be recognised as *"an irreplaceable resource"* and to *"conserve them in a manner appropriate to their significance"*[357].

4.7.7.12 Archaeological receptors cannot typically adapt, tolerate or recover from physical impacts resulting in material damage or loss caused by development. Consequently, the sensitivity of each receptor is predominantly quantified only by their value. Where receptors are considered to be capable of adapting to, tolerating or recovering from indirect impacts, these factors were incorporated into an assessment of their sensitivity.

Value of marine archaeological receptors

4.7.7.13 Based on Historic England's Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment[358] the significance of a historic

[356] HM Government (2011). UK Marine Policy Statement. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf.

[357] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf [Accessed 09 August 2022].

[358] Historic England (2008). Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment. [online] Available at: https://historicengland.org.uk/images-books/publications/conservation-principles-sustainable-management-historic-environment/conservationprinciplespoliciesandguidanceapril08web/.

asset "*embraces all the diverse cultural and natural heritage values that people associate with it, or which prompt them to respond to it"*.

4.7.7.14 Within this chapter, significance is weighed by consideration of the potential for the asset to demonstrate the following value criteria:

- evidential value – deriving from the potential of a place to yield evidence about past human activity.
- historical value – deriving from the ways in which past people, events and aspects of life can be connected through a place to the present. It tends to be illustrative or associative.
- aesthetic value – deriving from the ways in which people draw sensory and intellectual stimulation from a place.
- communal value – deriving from the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory. Communal values are closely bound up with historical (particularly associative) and aesthetic values but tend to have additional and specific aspects.

4.7.7.15 It should be noted that, while designation indicates that a receptor has been identified as being of high value, non-designated archaeological assets are not necessarily of lesser value. Consequently, non-designated receptors that can be demonstrated to be of equivalent value to designated sites are considered to be of equivalent significance.

4.7.7.16 The nature of the marine archaeological resource is such that there is a high level of uncertainty concerning remains on the seabed. Often data regarding the nature and extent of sites are limited or out of date and, as such, the precautionary principle has been applied to all aspects of archaeological impact assessment.

4.7.7.17 The value of known archaeological assets are assessed on a five-point scale using professional judgement informed by criteria provided in Table 4.7.6 below.

Table 4.7.6: Criteria to assess the archaeological value of assets

Value	Definition
High	Above average example and/or high potential to contribute to knowledge and understanding and/or outreach. Assets with a demonstrable national dimension to their importance are likely to fall within this category. Receptors with a demonstrable international dimension to their importance are likely to fall within this category. All other wrecked ships and aircraft with statutory protection under the Protection of Wrecks Act 1973314, Ancient Monuments and Archaeological Areas Act 1979315 or Protection of Military Remains Act 1986316, plus as-yet undesignated sites that are demonstrably of equivalent archaeological value. Palaeogeographic features with demonstrable potential to include artefactual and/or

	palaeoenvironmental material, possibly as part of a prehistoric site or landscape.
Medium	Average example and/or moderate potential to contribute to knowledge and understanding and/or outreach. Receptors with a demonstrable district level dimension to their importance are likely to fall within this category. Includes wrecks of ships and aircraft that do not have statutory protection or equivalent significance, but have moderate potential based on a formal assessment of their importance in terms of build, use, loss, survival and investigation. Prehistoric deposits with moderate potential to contribute to an understanding of the palaeoenvironment.
Low	Below average example and/or low potential to contribute to knowledge and understanding and/or outreach. Receptors with a demonstrable local dimension to their importance are likely to fall within this category. Includes wrecks of ships and aircraft that do not have statutory protection or equivalent significance, but have low potential based on a formal assessment of their importance in terms of build, use, loss, survival and investigation. Prehistoric deposits with low potential to contribute to an understanding of the palaeoenvironment.
Negligible	Poor example and/or little or no potential to contribute to knowledge and understanding and/or outreach. Assets with little or no surviving archaeological interest.
Unknown	There is not presently enough information available about the site to assess its value.

4.7.7.18 The perceived value of each marine archaeological receptor is generally assessed and assigned on a site-by-site basis, using professional judgement and past experience, and with reference to the criteria listed in Table 4.7.6.

4.7.7.19 Furthermore, On the Importance of Shipwrecks[359] suggests importance can be assessed through the following criteria: build, use, loss, survival and investigation.

4.7.7.20 In general, the Selection Guide on Boats and Ships in Archaeological Contexts[360] drew some generalisations about importance based on the age of the wreck:

[359] Wessex Archaeology (2006). On the importance of shipwrecks, final report. York: Archaeology Data Service [distributor]. [online] Available at: https://doi.org/10.5284/1000313 [Accessed June 2022].

[360] Wessex Archaeology (2008). Selection Guide: Boats and Ships in Archaeological Contexts. Salisbury: unpublished report.

- Pre-1500 AD: this covers the period from the earliest Prehistoric evidence for human maritime activity to the end of the medieval period, circa 1508. Little is known of watercraft or vessels from this period and archaeological evidence of them is so rare that all examples of craft are likely to be of special value.
- 1501-1815: this encompasses the Tudor and Stuart periods, the English Civil War, the Anglo-Dutch Wars and later the American Independence and French Revolutionary Wars. Wreck and vessel remains from this date are also quite rare, and can be expected to be of special value.
- 1816-1913: this period witnessed great changes in the way in which vessels were built and used, corresponding with the introduction of metal to shipbuilding, and steam to propulsion technology. Examples of watercraft from this period are more numerous and as such, it is those that specifically contribute to an understanding of these changes that should be regarded as having special value.
- 1914-1945: this period encompasses the First World War, the Interwar years and the Second World War. This date range contains Britain's highest volume of recorded boat and ships losses. Those which might be regarded as having special interest are likely to relate to technological changes and to local and global activities during this period.
- Post 1945: the final period extends from 1946 through the post-war years to the present day. Vessels from this date range would have to present a strong case if they are to be considered of special interest.

4.7.7.21 According to this composite timeline, vessels that pre-date 1816 are likely to be considered of special value on the basis of their rarity and subsequent national and international value in our understanding of maritime activity and shipping movements during these periods.

Magnitude of effect

4.7.7.22 The magnitude of effect upon known and potential marine archaeological receptors can be outlined by the following factors:

- Extent – the area over which an effect occurs.
- Duration – the time for which the effect occurs.
- Frequency – how often the effect occurs.
- Severity – the degree of change relative to existing environmental conditions.

4.7.7.23 The magnitude of effect is defined by the criteria presented in Table 4.7.7.

Table 4.7.7: Magnitude of effect definitions

Magnitude	Definition
High	Total loss of or major alteration to key elements or features of the pre-project conditions, such that the post-project character or composition of the feature would be fundamentally changed.
Medium	Loss of or alteration to key elements or features of the pre-project conditions, such that the post-project character of the feature would be partially changed.
Low	Minor alteration from pre-project conditions.
Negligible	No or unquantifiable change to pre-project conditions.

Significance of impact

4.7.7.24 The significance of an impact (positive or negative) on an archaeological receptor, whether a direct or indirect impact, is determined as a combination of the sensitivity of the archaeological receptor (Table 4.7.6) and the measures of the magnitude of the effect (Table 4.7.7). The matrix in Table 4.7.8 provides a guide to the assessment but is not a substitute for professional judgement and interpretation, particularly where the sensitivity or effect magnitude levels are not clear or are borderline between categories.

Table 4.7.8: Significance of impacts matrix

		Magnitude of change			
		Negligible	**Low**	**Medium**	**High**
Value / Sensitivity of receptor	**High**	Negligible	Moderate	Major	Major
	Medium	Negligible	Minor	Moderate	Major
	Low	Negligible	Negligible	Minor	Moderate
	Negligible	Negligible	Negligible	Negligible	Minor

4.7.8 Conclusion

4.7.8.1 In summary:

- There are no designated marine archaeological receptors within the marine survey corridor. Regarding known intertidal and seabed receptors, there are 44 UKHO records, 19 NMHR records and seven Suffolk HER records of relevance within the

Offshore Scheme Boundary and 124 UKHO records and 48 NMHR records locate within 100m of the Offshore Scheme Boundary.

- With regards to the potential resource, there are 159 NMHR polygons relating to Recorded Losses, which signify the potential maritime and aviation resource rather than existing sites. There is also potential for as yet undiscovered marine archaeological receptors within the study area, which include maritime and aviation features, as well as palaeo-geographic and intertidal heritage receptors. Two HSC assessments cover the extent of the study area and detail a range of seascape character types.
- Various mitigation measures have been presented in order to avoid, minimise and mitigate any harm to the significance of any heritage assets potentially impacted (directly or indirectly) by the proposed development.

Proposed Scope of the Assessment

4.7.8.2 A summary of the proposed scope of assessment is provided in Table 4.7.9.

Table 4.7.9: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
Intertidal heritage receptors including known and potential palaeogeography, historic terrestrial, marine and aviation features	Physical disturbance activities causing direct damage and/or loss to the intertidal zone, caused by trenching, horizontal directional drilling, micro-tunnelling or direct pipe	Construction Maintenance Operation Decommissioning	**Scoped in**
Sub-seabed heritage receptors including known and potential palaeogeography and buried maritime and aviation features	Physical disturbance activities causing direct damage and/or loss to the sub-seabed, caused by cable installation (ploughs, jet trenching, mechanical trenching, Mass Flow Excavator (MFE), Controlled Flow Excavator (CFE))	Construction Maintenance Decommissioning	**Scoped in**
Seabed heritage receptors including known and potential maritime and aviation features	Physical disturbance activities causing direct damage and/or loss to the seabed, caused by pre-lay surveys, cable route clearance, pre-sweeping, UXO survey, cable installation (ploughs, jet trenching, mechanical trenching, MFE, CFV),	Construction Maintenance Decommissioning	**Scoped in**

	external cable protection (rock placement, concrete mattresses, rock/gravel/sand/grout bags, protection sleeves/cast-iron shells), vessel activities (cable lay vessel, cable burial vessel, guard vessels, support vessels, rock placement vessels - impact from anchors, jack-up platforms)		
Seabed heritage receptors including known and potential maritime and aviation features	Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes leading to sediment reduction on the seabed	Construction Maintenance Operation Decommissioning	**Scoped in**
Seabed heritage receptors including known and potential maritime and aviation features	Physical disturbance activities causing indirect changes to hydrodynamic and sedimentary regimes leading to sediment accretion on the seabed	Construction Maintenance Operation Decommissioning	**Scoped in**
Sub-seabed, seabed or intertidal heritage receptors including known and potential palaeogeography, maritime and aviation features, and intertidal historic terrestrial features	Project works that temporarily or permanently change the setting of a heritage receptor	Construction Maintenance Operation Decommissioning	**Scoped in**
Historic Seascape Character of the region	Project works that temporarily or permanently change the character of the historic seascape	Construction Maintenance Operation Decommissioning	**Scoped in**

4.8 Shipping and Navigation

4.8.1 Introduction

4.8.1.1 This chapter presents how the shipping and navigation assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Offshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

4.8.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Offshore Scheme Scoping Boundary hereafter referred to as the Offshore Scoping Boundary is illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary.**

4.8.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Methodology;**
- **Part 4, Chapter 1, Evolution of the Offshore Scheme;** and
- **Part 4, Chapter 9, Commercial Fisheries.**

4.8.1.4 This chapter is supported by the following figures:

- **Figure 4.8.1 Study Area for Shipping and Navigation;**
- **Figure 4.8.2 Key Navigational Features;**
- **Figure 4.8.3 Chart of Vessel Tracks by Ship Type Group;** and
- **Figure 4.8.4 AIS Tracks Data by Ship Type Group (2019).**

4.8.2 Regulatory and Planning Context

4.8.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on shipping and navigation associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

4.8.2.2 The following legislation is relevant to shipping and navigation:

- United Nations Convention on the Law of the Sea (UNCLOS)[361];
- Convention on the International Regulations for Preventing Collisions at Sea (COLREGs)[362];
- International Convention for the Safety of Life at Sea (SOLAS) Chapter V[363]; and
- Marine and Coastal Access Act (2009), section 69 subsection (1)(c)[364].

Planning Policy

4.8.2.3 The following plans and policies are relevant to shipping and navigation**.**

National planning policy

4.8.2.4 The sections of national policies relevant to shipping and navigation are:

- Overarching National Policy Statement for Energy (EN-1) (2021) Section 5.14 Traffic and Transport which states that "the consideration and mitigation of transport impacts is an essential part of the Government's wider policy objectives for sustainable development"[365];
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (2011) Section 2.10 which considers Electric and Magnetic Fields (EMFs)[366]; and
- UK Marine Policy Statement (2011) Section 3.4 Ports and Shipping[367].

4.8.2.5 Additionally, the following policy and guidance is relevant for shipping and navigation, insofar as applicable to cable projects:

- International Maritime Organisation (IMO) Revised Guidelines for Formal Safety Assessment (FSA) for Use in the Rule-Making Process (MSC-MEPC.2/Circ. 12/Rev.2)[368];

[361] United Nations (UN) (1982). United Nations Convention on the Law of the Sea (UNCLOS). [online] Available at: https://treaties.un.org/doc/publication/CTC/Ch_XXI_6_english_p.pdf.

[362] International Maritime Organisation (IMO) (1972/77). Convention on the International Regulations for Preventing Collisions at Sea (COLREGs).

[363] International Maritime Organisation (IMO) (1974). International Convention for the Safety of Life at Sea (SOLAS). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/980898/MGN_654_-_FINAL.pdf.

[364] Marine and Coastal Access Act 2009 [online]. Available at: https://www.legislation.gov.uk/ukpga/2009/23/pdfs/ukpga_20090023_en.pdf [Accessed 04 August 2022].

[365] Department for Business, Energy and Industrial Strategy (2021). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf.

[366] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015238/en-5-draft-for-consultation.pdf.

[367] HM Government (2011). UK Marine Policy Statement. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf.

[368] International Maritime Organisation (IMO) (2018). Revised Guidelines for Formal Safety Assessment (FSA) for Use in the Rule-Making Process (MSC-MEPC.2/Circ. 12/Rev.2). [online] Available at: https://wwwcdn.imo.org/localresources/en/OurWork/HumanElement/Documents/MSC-MEPC.2-Circ.12-Rev.2%20-%20Revised%20Guidelines%20For%20Formal%20Safety%20Assessment%20(Fsa)For%20Use%20In%20The%20Imo%20Rule-Making%20Proces...%20(Secretariat).pdf.

- Maritime and Coastguard Agency (MCA) MGN 654 (M+F) Offshore Renewable Energy Installations (OREI) safety response[369];
- IALA Guideline G1162, Edition 1.0, The Marking of Offshore Man-Made Structures, Dec 2021[370]; and
- Maritime and Coastguard Agency (MCA) MGN 661 (M+F) Navigation – safe and responsible anchoring and fishing practices[371].

Local planning policy

4.8.2.6 The following regional policies are relevant for shipping and navigation:

- South East Inshore Marine Plan[372]; and
- East Inshore and East Offshore Marine Plans[373].

4.8.3 Study Area

4.8.3.1 The shipping and navigation study area comprises a 10 nautical mile (NM) buffer (equivalent to an 18.5km buffer) around the Offshore Scoping Boundary, as shown in **Figure 4.8.1 Study Area for Shipping and Navigation**. This wide study area reflects the large potential Zone of Influence (ZOI) of the Project in respect to shipping and navigation receptors. The study area considers the Offshore Scheme only, from Mean High Water Springs (MHWS) at the landfall in Suffolk, to MHWS at the landfall in Kent.

4.8.4 Baseline Conditions

4.8.4.1 This section provides a summary of the baseline environment of the Offshore Scheme for navigational features, vessel traffic and marine incidents.

Data Sources

4.8.4.2 A shipping and navigation baseline has been established to support this scoping exercise using publicly available and historic data sources, as detailed in Table 4.8.1.

[369] Maritime and Coastguard Agency (MCA) (2021a). MGN 654 (M+F) Offshore Renewable Energy Installations (OREI) Safety Response. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/980898/MGN_654_-_FINAL.pdf.

[370] International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) (2021). Guideline G1162, Edition 1.0, The Marking of Offshore Man-Made Structures. [online] Available at: https://www.iala-aism.org/product/g1162/.

[371] Maritime and Coastguard Authority (MCA) (2021b). MGN 661 (M+F) Navigation – safe and responsible anchoring and fishing practices. [online] Available at: https://www.gov.uk/government/publications/mgn-661-mf-navigation-safe-and-responsible-anchoring-and-fishing-practices/mgn-661-mf-navigation-safe-and-responsible-anchoring-and-fishing-practices.

[372] Department of Environment, Food and Rural Affairs (DEFRA) (2021a). South East Inshore Marine Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004493/FINAL_South_East_Marine_Plan__1_.pdf.

[373] Department of Environment, Food and Rural Affairs (DEFRA) (2021b). East Inshore and East Offshore Marine Plans. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312496/east-plan.pdf.

Table 4.8.1: Data sources

Name	Description	Source authority	Year/s
Automatic Identification System (AIS) data	Historic vessel traffic tracks from AIS data	MMO, ABPmer	2019
Admiralty Sailing Directions Dover Strait Pilot (13th Edition)	Provides details about ports and harbours, and coastal navigation	United Kingdom Hydrographic Office (UKHO)	2020
Admiralty charts	UKHO charts to provide context	UKHO	-
Offshore renewables lease data	GIS data from the Crown Estate including windfarm lease areas and cable areas	The Crown Estate	2022
Wrecks	UK wrecks and obstructions data from UKHO	UKHO	2021
Oil and gas surface structures and pipelines data	Oil and gas surface installations and pipelines GIS data	North Sea Transitional Authority (NSTA)	2022
Marine Accident Investigation Branch (MAIB) Incident Data	Maritime incidents reported to the MAIB within the study area	MAIB	1992 - 2021
Royal National Lifeboat Institution (RNLI) Incident Data	RNLI callouts data within the study area	RNLI	2008 – 2020
Search and Rescue Helicopter (SARH) taskings data	SARH taskings data within the study area	Dept for Transport, MCA	2016 – 2021
Royal Yachting Association (RYA) Coastal Atlas of Recreational Boating	Recreational boating data showing presence of recreational facilities as well as recreational AIS intensity	RYA	2019

Baseline

Navigational features

4.8.4.3 Key navigational features have been identified from a review of Admiralty Charts and the Dover Strait Pilot (N28) and are displayed together with oil and gas surface infrastructure, pipelines, offshore renewables sites and charted wrecks in **Figure 4.8.2 Key Navigational Features**.

4.8.4.4 The key navigational features in the study area are IMO routeing measures and offshore windfarms. Aids to Navigation (AtoN) and charted wrecks are also present throughout the study area. There are few oil and gas surface features within the study area, and no pipelines are within the study area.

4.8.4.5 The Kent landfall of the Offshore Scoping Boundary is in proximity to Ramsgate port, running under 100m from the port entrance southern breakwater. Ramsgate provides a cross-Channel ferry service for passengers and freight, and also services both offshore windfarms and recreational vessel traffic[374].

4.8.4.6 The Offshore Scoping Boundary crosses though the IMO routing measures for approximately 30km, including the Sunk Traffic Separation Scheme (TSS) approaches to the Thames Estuary. The Sunk TSS comprises North, South, and East lanes with Precautionary areas and a roundabout in the centre which is an Area to Be Avoided. Additionally, the study area overlaps with the Dover Straight TSS to the southeast (**Figure 4.8.2 Key Navigational Features**).

4.8.4.7 There are a number of offshore windfarms in proximity to the Offshore Scoping Boundary. Greater Gabbard (in operation), North Falls (pre-planning application), London Array (in operation) and the Thanet offshore windfarm (in operation) all overlap with the 10NM study area, and a number of windfarm export cable agreement areas also intersect the Offshore Scheme (see **Figure 4.8.2 Key Navigational Features**). Greater Gabbard is located 6.6km east of the Offshore Scoping Boundary, North Falls approximately 3.3km east of the Offshore Scoping Boundary, London Array is 1.3km west and Thanet offshore windfarm is 0.7km to the east (see **Figure 4.8.2 Key Navigational Features**).

4.8.4.8 A total of 1,656 charted wrecks are located within the 10NM study area, 44 of which fall within the Offshore Scoping Boundary. For further detail on charted wrecks refer to **Part 4, Chapter 7, Marine Archaeology.**

Vessel traffic

4.8.4.9 In 2019, there were 826,690 total AIS vessel tracks across the year in the study area, with an average of 2,265 tracks per day. In terms of vessel type, ‘high-speed craft’ represented 42.9% of tracks in the study area, while ‘port service craft’ represented 25.6%. Cargo vessel tracks were 11.3% of vessel tracks in the study area (**Figure 4.8.3 Chart of Vessel Tracks by Ship Type Group**), while ‘fishing vessels’, ‘tankers’, ‘passenger vessels’ and ‘recreational vessels’ each represented a much smaller proportion of the tracks in the study area, each with under 3% of total vessel tracks in 2019.

[374] United Kingdom Hydrographic Office (UKHO) (2020). NP28 - Admiralty Sailing Directions: Dover Strait Pilot (13th Edition). Taunton, UK: UKHO.

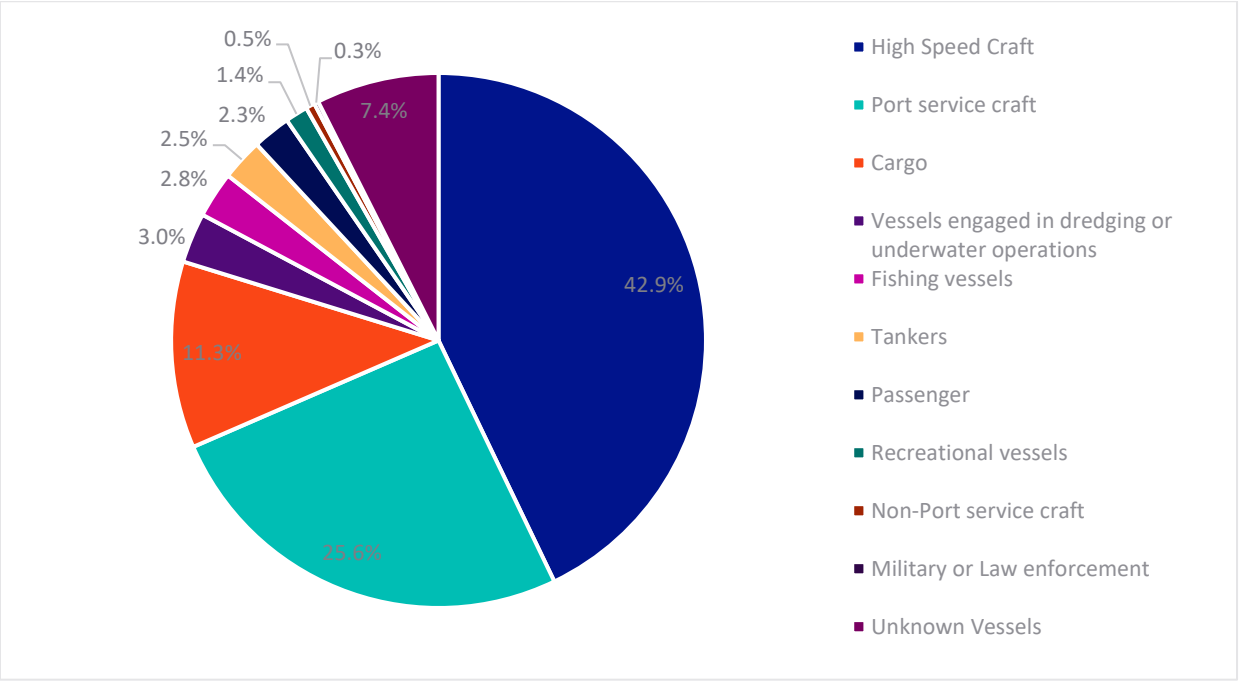


Figure 4.8.3: Chart of Vessel Tracks by Ship Type Group

4.8.4.10 An overview of the vessel activity within the study area based on MMO AIS track lines data from 2019 is shown in **Figure 4.8.4 AIS Tracks Data by Ship Type Group (2019)**.

4.8.4.11 **Figure 4.8.4 AIS Tracks Data by Ship Type Group (2019)** shows the geographic spread of vessel tracks by ship type group. The presence of cargo and tanker traffic routing in lanes north-south to and from the English coast and the Dover Strait, as well as to and from the Thames Estuary is clearly defined. Presence of regions where high-speed craft dominate, to the west and east of the Offshore Scoping Boundary, overlap with regions where windfarms are present, namely the Greater Gabbard (in operation), North Falls (pre-planning application), London Array (in operation) and Thanet (in operation) windfarms (see **Figure 4.8.2 Key Navigational Features**). Recreational traffic can be seen routeing around the coastline close inshore, as well as to and from the Thames Estuary. Fishing vessel activity can be seen primarily to the east of the Offshore Scoping Boundary, particularly in the south-eastern region of the study area, and some passenger vessel tracks can be seen routeing to and from the mouth of the River Orwell, crossing the Offshore Scoping Boundary in an east-west orientation. Dredging and underwater activity vessels are also present within the study area (**Figure 4.8.4 AIS Tracks Data by Ship Type Group (2019)**).

Marine incidents

4.8.4.12 In terms of marine incidents within the study area, an analysis of RNLI launches from 2008 to 2020, SARH taskings from 2016 to 2021 and MAIB incidents from 1992 to 2021 was conducted. Within the study area, 2,607 RNLI launches which were not false alarms or hoaxes were recorded, 135 of which fell within the Offshore Scoping Boundary. Of the total RNLI launches, 21.3% stated their reason for launch as being ‘machine failure’.

4.8.4.13 Within the study area, 149 SARH taskings were recorded, one of which fell within the Offshore Scoping Boundary. ‘Search only’ taskings represented 40.9% of taskings within the study area, and ‘rescue/recovery’ represented 31.5% of taskings.

4.8.4.14 In terms of MAIB incidents, 836 incidents were recorded within the study area, 23 of which fell within the Offshore Scoping Boundary area.

Future Baseline

4.8.4.15 A future baseline will also be considered as part of the Navigational Risk Assessment (NRA) process (see Section 4.8.7), involving a discussion of possible future shipping traffic.

4.8.5 Embedded and Control & Management Measures

Embedded

4.8.5.1 The Offshore Scoping Boundary has been identified in consideration of relevant shipping and navigation constraints. Potential impacts to shipping and navigation have been mitigated by design through avoidance of the main navigational features in the area such as charted and known anchorages, offshore installations, maintained channel depths and prohibited regions.

4.8.5.2 The preferred method of protection for marine cables is by burial, and the conditions will be assessed within a Cable Burial Risk Assessment (CBRA) to optimise burial along the offshore route, typically up to a depth of 1-2m or deeper in areas of greater risk. Where burial cannot be achieved, external cable protection may be required depending on soil or rock conditions. See **Part 1, Chapter 4, Description of the Project** for further details of the Project description.

Control and Management Measures

4.8.5.3 Certain measures have been adopted as part of the Project development process in order to reduce the potential for impacts to shipping and navigation. These include industry standard practice and any Project specific measures that are considered through the Project design. The shipping and navigation impact assessment is based on the inclusion of these measures. Additional mitigation measures will be identified to further reduce the risk if/where necessary.

4.8.5.4 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the shipping and navigation assessment are:

- GM02 - as-built locations of cable and external protection will be supplied to UKHO (Admiralty) and Kingfisher (KIS-ORCA);
- LVS02 - all project vessels must comply with the International Regulations for Preventing Collisions at Sea (1972) (IMO, 2019a)[375], regulations relating to International Convention for the Prevention of Pollution from Ships (the MARPOL Convention 73/78) (IMO, 2019e)[376] with the aim of preventing and minimising

[375] International Maritime Organisation (IMO) (1972). Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/COLREG.aspx [Accessed 10 August 2022].

[376] International Maritime Organisation (IMO) (1983). International Convention for the Prevention of Pollution from Ships (MARPOL). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx [Accessed 10 August 2022].

pollution from ships and the International Convention for the Safety of Life at Sea (SOLAS, 1974)[377].

- SN01 - a risk based burial approach will be used where cables will be buried to a target depth of 1.0m to 2.0m for the majority of the route, assessing cable protection risk factors such as sediment type, sediment mobility, fishing activity, shipping movements and anchor deployment along the route
- SN02 - relevant information will be communicated to other sea users via Notices to Mariners (NtM), Radio Navigation Warnings Navigational Telex (NAVTEX) and/or broadcast warnings;
- SN03 - all Project vessels will display appropriate marks and lights and will always broadcast their status on AIS;
- SN04 - temporary aids to navigation will be used as required to guide vessels around areas of installation activity;
- SN05 - a compass deviation report will be produced prior to installation;
- SN06 - guard vessel(s), using RADAR with Automatic RADAR Plotting Aid (ARPA) to monitor vessel activity and predict possible interactions, will be employed to work alongside the installation vessel(s) during cable installation works;
- CF02 – a Fishing Liaison Officer (FLO) and fisheries working group(s) will be maintained throughout installation to ensure project information is effectively disseminated, dialogue is maintained with the commercial fishing industry and access to home ports is maintained during the main fishing season.
- CF03 - timings of any temporary areas of exclusion from fishing grounds will be clearly communicated via a notice to mariners.
- OSU01 - Crossing Agreements with other cable and pipeline owners, and proximity agreements with windfarms in the vicinity of the Project, will be negotiated and agreed; and
- OSU02 - timely and efficient communication will be given to sea users in the area via Notices to Mariners, Kingfisher Bulletins, Navigational Telex (NAVTEX and Navigational Areas (NAVAREA) warnings.

4.8.6 Potential for Significant Effects

4.8.6.1 The shipping and navigation assessment will consider the construction, operation, maintenance and decommissioning of the Offshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

4.8.6.2 The proposed scope of the shipping and navigation assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

[377] International Maritime Organisation (IMO) (1975). International Convention for the Safety of Life at Sea (SOLAS) 1974. [online] Available at: https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-(SOLAS),-1974.aspx.

Sources and Impacts (Step 1)

4.8.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Offshore Scheme.

4.8.6.4 The potential for the Offshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- construction vessel presence;
- unexploded ordnance (UXO) clearance;
- pre-installation geophysical surveys;
- pre-installation clearance of obstacles and debris;
- sand wave sweeping;
- cable installation and cable lay; and
- cable protection (e.g. rock placement, concrete mattresses).

Sources of operational impacts

- presence of activated cable;
- reduction in under keel clearance; and
- subsea cable producing electromagnetic field resulting in compass deviation.

Sources of maintenance impacts

- maintenance vessel presence; and
- geophysical and/or Remotely Operated Vehicles (ROV) surveys;
- cable repair or replacement; and
- cable protection (e.g. rock placement, concrete mattresses).

Sources of decommissioning impacts

- decommissioning vessel presence; and
- removal of cable from seabed;
- removal of cable protection (e.g. rock placement, concrete mattresses); and/or
- abandonment of cable in seabed;

Potential impacts

4.8.6.5 Table 4.8.2 identifies the potential impacts that could result from the sources identified above.

Table 4.8.2: Sources and impacts

Project Phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance and decommissioning	Vessel presence	Increased risk of vessel collisions	Yes	**Scoped in**
Construction, maintenance and decommissioning	UXO clearance Pre-installation clearance of obstacles and debris Sand wave sweeping Cable installation and cable lay Cable repair or replacement Removal of cable from seabed Removal of cable protection	Risk of disruption to vessels using the area	Yes	**Scoped in**
Construction, maintenance and decommissioning	Cable installation and cable lay Cable repair or replacement Removal of cable from seabed Removal of cable protection	Risk of introducing unmarked subsurface hazards	Yes	**Scoped in**
Operation	Presence of cable	Presents potential snagging hazard to anchoring	Yes	**Scoped in**
Operation	Presence of cable	Presents potential snagging hazard to seabed fishing	Yes	**Scoped in**
Operation	Presence of activated cable	Potential reduction in under keel clearance	Yes	**Scoped in**
Operation	Presence of activated cable producing electromagnetic field	Potential to lead to magnetic compass deviations	Yes	**Scoped in**

Impact Pathways with Receptors (Step 2)

4.8.6.6 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the shipping and navigation study area.

4.8.6.7 Table 4.8.3 identifies the potential impacts pathways to shipping and navigation from all phases and identifies which are proposed to be scoped in or out of the assessment.

Table 4.8.3 Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in / out
Displacement resulting in increased vessel-to-vessel collision risk between third-party vessels during construction, maintenance and decommissioning phases	All vessel types	Limited potential to result in significant effect due to limited temporal and spatial presence of project vessels during all phases	Scoped out
Third-party to project vessel collision during all phases	All vessel types	Offshore Scoping Boundary is within a region where shipping activity is high, therefore has potential to result in a significant effect	**Scoped in**
Deviation from established and identified vessel routes and areas during construction maintenance and decommissioning phases	All vessel types	Offshore Scoping Boundary is within a region where shipping activity is high, therefore has potential to result in a significant effect	**Scoped in**
Introduction of unmarked subsurface hazards during construction, maintenance and decommissioning phases	All vessel types	Offshore Scoping Boundary is within a region where shipping activity is high, therefore has potential to result in a significant effect	**Scoped in**
Interaction with fishing gear during all phases	Fishing vessels	Fishing vessel tracks are present within study area therefore has potential to result in a significant effect	**Scoped in**

Interaction with vessel anchors and anchoring activity during all phases	All vessel types	Offshore Scoping Boundary is within a region where shipping activity is high, therefore has potential to result in a significant effect	**Scoped in**
Reduction in under keel clearance resulting from laid cable and associated protection during operation phase	All vessel types	Offshore Scoping Boundary is within a region where shipping activity is high, therefore has potential to result in a significant effect	**Scoped in**
Interference with marine navigational equipment during operation phase	All vessel types	Offshore Scoping Boundary is within a region where shipping activity is high, therefore has potential to result in a significant effect	**Scoped in**

4.8.7 Proposed Assessment Methodology

Proposed Data Sources

4.8.7.1 The following data sources are proposed to be used to inform the assessment:

- A year of AIS data (purchased from supplier)
- Vessel Monitoring System (VMS) data from the MMO;
- Marine Themes Administrative theme data (OceanWise);
- Admiralty Sailing Directions Dover Strait Pilot (13th Edition) (UKHO, 2020);
- The Shell Channel Pilot (8th Edition) (Imray, 2017);
- North Sea Passage Pilot (7th Edition) (Imray, 2022);
- Admiralty charts (UKHO);
- Offshore renewables lease data (The Crown Estate, 2022);
- UK wrecks and obstructions data (UKHO, 2021);
- Oil and gas surface structures and pipelines data (NSTA, 2022);
- RYA Coastal Atlas of Recreational Boating (RYA, 2019);
- MAIB incident data (MAIB, 1992 – 2021);
- RNLI incident data (RNLI, 2008 – 2020); and

- SARH taskings data (Dept for Transport & MCA, 2016 – 2021).

Proposed Assessment Methodology

4.8.7.2 An NRA shall be undertaken to understand and address the potential effects of the Project on shipping and navigation. The NRA will inform the shipping and navigation assessment chapter within the Environmental Statement (ES). The NRA will comprise the following key components:

- Marine Traffic Survey (MTS);
- Consultation; and
- Formal Safety Assessment (FSA).

Marine traffic survey

4.8.7.3 To provide a detailed understanding of shipping activity in the study area, a MTS will be undertaken as part of the NRA and shall identify navigational features and patterns of vessel activity within the vicinity of the proposed cable, to establish baseline conditions to inform the subsequent FSA.

4.8.7.4 The MTS shall acquire detailed AIS data for the region, with the following temporal and spatial extent:

- A proposed time period of one year of recent (post-COVID) AIS data; and
- A 10NM wide buffer around the proposed Project route.

4.8.7.5 IMO requires that; all ships of ≥ 300 gross tonnage engaged on international voyages, cargo vessels of ≥ 500 gross tonnage not engaged on international voyages, and all passenger ships regardless of size built on or after 1 July 2002, are fitted with an AIS. All European Union (EU) registered fishing vessels of length 15m and above are required to carry AIS equipment by EU directive. Smaller fishing vessels (below 15m) as well as recreational craft are not required to carry AIS but a proportion does so voluntarily, however these are likely to be under represented in the AIS data.

4.8.7.6 The AIS data will be used to assess the patterns and intensity of shipping activity in the vicinity of the Project. Due to the likely under representation of small fishing and recreational vessels in the AIS data, additional data sources including VMS data, the RYA Coastal Atlas, and consultation will be used to validate the findings of the AIS analysis.

4.8.7.7 Additional analysis shall consider key navigational features which will be extracted from additional sources of data such as:

- Historic AIS vessel traffic data;
- Fishing vessel traffic data (VMS and AIS), noting that additional information on fishing traffic will be available from the Commercial Fisheries assessment (**Part 4, Chapter 9, Commercial Fisheries**);
- Admiralty charts for the area;
- Maritime incident data in the area (RNLI, SARH and MAIB);
- The Royal Yachting Association (RYA) UK Coastal Atlas of Recreational Boating; and

- Sailing and Pilot books (including the Dover Strait Pilot - N28 and North Sea Passage Pilot).

Stakeholder consultation

4.8.7.8 Consultation with key maritime stakeholders relevant to the Project's location shall be undertaken to inform the baseline understanding of shipping in the area and also to obtain supplementary information which may not be available through the data sources outlined above.

4.8.7.9 Parties consulted will include, but may not be limited to:

- MCA;
- Trinity House;
- Chamber of Shipping;
- The RYA;
- Cruising Association;
- Sunk Vessel Traffic Services (VTS) Manager and Sunk User Group; and
- Relevant port and harbour authorities including Ramsgate port.

4.8.7.10 Pre-Scoping stakeholder engagement has already taken place between the Project and the Sunk VTS Manager and with some members of the Sunk User Group, with intention to engage further with the Sunk User Group going forward.

4.8.7.11 Consultee input shall be incorporated where appropriate into the NRA such that concerns, and impacts are recorded and addressed.

Formal safety assessment

4.8.7.12 The FSA process provides a systematic method for evaluating and controlling risk, within a structured framework. Baseline shipping patterns and navigational features along with stakeholder consultations provide the basis for establishing potential hazards, or impacts. These impacts are then characterised in their magnitude and likelihood, which ultimately provides for risk categorisation against a risk matrix.

4.8.7.13 Additional control or mitigation measures are then identified to provide a reduction in risk. The residual effects are assessed to determine risk acceptability in accordance with the principles of ALARP (As Low As Reasonably Practicable). Where necessary or appropriate, mitigation measures are assessed to determine/justify an ALARP position.

4.8.7.14 The FSA comprises the following components:

- hazard identification;
- risk assessment;
- identification of additional mitigation measures;
- cost-benefit analysis;
- risk assessment table; and
- cumulative effects and future case.

4.8.7.15 These components will be detailed in the following sections.

Hazard identification

4.8.7.16 Taking into account the Project components and activities, baseline information provided in the MTS, consultation responses and expert judgement/industry experience, a list of relevant impacts to marine navigation shall be compiled as a desktop exercise. The list shall be captured in a table and retained as an auditable hazard log. Hazards relating to separate Project phases shall be identified.

Risk assessment

4.8.7.17 The risk assessment process is implemented using a classic risk matrix approach. Each hazard/impact is individually evaluated against specific criteria and assigned categories for 'severity of consequence' (Magnitude) and 'frequency of occurrence' (Likelihood). This assessment of risk shall be conducted in consideration of the embedded mitigation outlined in Section 4.8.5.

4.8.7.18 The risk assessment categorisations directly reflect the UK Health and Safety Executive principles of ALARP. The approach is consistent with relevant marine guidance from the International Maritime Organisation[378] and the UK Maritime Coastguard Agency[379] as outlined in Section 4.8.2. The definitions of the categories for outcome severity/magnitude and the frequency or likelihood are captured in Table 4.8.4 and Table 4.8.5.

4.8.7.19 The likelihood and consequence categories are combined for each hazard/impact using the risk matrix shown in Table 4.8.6, which is used to derive a risk tolerability level of either Unacceptable, Tolerable or Broadly Acceptable, with unacceptable or tolerable risks being considered to be significant in EIA terms. Definitions of each risk tolerability level are provided in Table 4.8.7.

Table 4.8.4: Indicative hazard outcome severity criteria

Severity/Magnitude	Criteria
High	Loss of a crew member, or multiple serious injuries / Major/Severe damage to infrastructure or vessel / Operations / activities halted indefinitely
Medium	Serious injury to person / Notable damage to infrastructure or vessel / Protracted operational delays

[378] International Maritime Organisation (IMO) (2018). Revised Guidelines for Formal Safety Assessment (FSA) for Use in the Rule-Making Process. [online] Available at: https://wwwcdn.imo.org/localresources/en/OurWork/HumanElement/Documents/MSC-MEPC.2-Circ.12-Rev.2%20-%20Revised%20Guidelines%20For%20Formal%20Safety%20Assessment%20(Fsa)For%20Use%20In%20The%20Imo%20Rule-Making%20Proces...%20(Secretariat).pdf.

[379] Maritime and Coastguard Authority (MCA) (2021a). MCA MGN 654 (M+F) Offshore Renewable Energy Installations (OREI) safety response. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/980898/MGN_654_-_FINAL.pdf.

Low	Minor injury(s) to person / Minor/Local damage to equipment or vessel / Minor operational delays
Negligible	No significant operational impacts

Table 4.8.5 Indicative likelihood criteria

Definition	Indicative description
Remote	Never occurred during Company's activities but has been known to occur in the wider industry
Unlikely	Has occurred in Company's activities in the past but as an isolated incident under exceptional circumstance.
Occasional	Has occurred on more than one occasion during Company's activities in the past
Likely	Occurs regularly during Company's activities

Table 4.8.6: Risk matrix

Frequency/ Likelihood	Likely	Broadly Acceptable	Tolerable	Unacceptable	Unacceptable
	Occasional	Broadly Acceptable	Tolerable	Tolerable	Unacceptable
	Unlikely	Broadly Acceptable	Broadly Acceptable	Tolerable	Tolerable
	Remote	Broadly Acceptable	Broadly Acceptable	Broadly Acceptable	Tolerable
		Negligible	Low	Medium	High
	Severity of Consequence / Magnitude				

Table 4.8.7: Tolerability definitions

Tolerability	Definition
Broadly Acceptable (Low Risk - not significant)	Generally regarded as acceptable and adequately controlled. At these risk levels the opportunity for further reduction is limited.

Tolerable if ALARP (Moderate Risk - significant)	Typical of the risks from activities which people are prepared to tolerate to secure benefits. There is however an expectation that such risks are properly assessed, appropriate mitigation measures are in place, residual risks are ALARP and that risks are periodically reviewed to monitor if further controls are appropriate.
Unacceptable (High Risk - significant)	Generally regarded as unacceptable whatever the level of benefit associated with the activity. Significant risk mitigation or design modification required to reduce to tolerable (ALARP).

Identification of additional mitigation measures

4.8.7.20 Where risks are assessed as being unacceptable or tolerable (significant) after factoring in the embedded mitigation measures already identified, further additional risk mitigation measures are identified and considered.

Cost-benefit analysis

4.8.7.21 In order to formulate recommendations for decision-making, any additional risk mitigation measures identified are subjected to a qualitative cost-benefit comparison in order to justify the measure and establish a residual risk categorisation and basic ALARP position.

Risk assessment table

4.8.7.22 The Risk Assessment shall be captured in a table such that the hazards and impacts for each of the Project phases and the relevant embedded mitigation measures and any additional mitigation measures identified, are captured to provide an auditable hazards and effects register or log shown in Table 4.8.8.

Table 4.8.8: Hazard and effects register example

Hazard/ Impact	Collision
Phase	Construction
Embedded Mitigation Measures	Notice to Mariners COLREGS
Causes	Human Error
Consequence	High
Likelihood	Remote
Risk	Tolerable

Additional Mitigation Measures	Specific Procedures
CBA	Measure Justified
Residual Risk	ALARP

Cumulative effects and future case

4.8.7.23 Cumulative effects and future case will be included by review of future projects potentially affecting or influencing the study area and the wider general area and assumption of a general increase in traffic density. A list of potential projects and activities shall be compiled and is expected to include windfarms and offshore industry activities in the region. Each hazard/impact will be qualitatively reviewed against the potential direct and indirect cumulative effects from any of the projects listed. Any issues shall be captured, and further risk mitigation measures considered where deemed appropriate. It is noted that as a subsea cable, no infrastructure above sea surface will remain following construction therefore no lasting cumulative effect, with the exception of seabed interactions, is foreseen.

4.8.8 Conclusion

4.8.8.1 In summary:

- the Offshore Scheme presents a clear potential impact to shipping and navigation, as such the NRA shall be based on real shipping patterns and navigational features, from up-to date AIS data and publicly available navigational information and will cover construction and operation phases; and
- the assessment shall be centred around an FSA in line with relevant marine guidance and UK HSE principles of ALARP. The approach ultimately aims to identify effects on shipping such as collision and disruption such that they are recorded, auditable and effectively managed.

Proposed Scope of the Assessment

4.8.8.2 A summary of the proposed scope of the assessment is provided in Table 4.8.9.

Table 4.8.9: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
All vessel types	Displacement resulting in increased vessel-to-vessel collision risk between third-party vessels	Construction Operation Maintenance Decommissioning	Scoped out
All vessel types	Third-party to project vessel collision	Construction Operation	**Scoped in**

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
		Maintenance Decommissioning	
All vessel types	Deviation from established and identified vessel routes and areas	Construction Maintenance Decommissioning	**Scoped in**
All vessel types	Introduction of unmarked subsurface hazards	Construction Maintenance Decommissioning	**Scoped in**
Fishing vessels	Interaction with fishing gear	Construction Operation Maintenance Decommissioning	**Scoped in**
All vessel types	Interaction with vessel anchors and anchoring activity	Construction Operation Maintenance Decommissioning	**Scoped in**
All vessel types	Reduction in under keel clearance resulting from laid cable and associated protection	Operation	**Scoped in**
All vessel types	Interference with marine navigational equipment	Operation	**Scoped in**

4.9 Commercial Fisheries

4.9.1 Introduction

4.9.1.1 This chapter presents how the commercial fisheries assessment will consider the potentially significant effects that may arise from the construction, and operation, maintenance and decommissioning of the Offshore Scheme as described in **Part 1, Chapter 4, Description of the Project**. This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment and how these potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

4.9.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Offshore Scheme Scoping Boundary hereafter referred to as the Offshore Scoping Boundary is illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary.**

4.9.1.3 Alongside this chapter, an overview of potential impacts associated with commercially important fish and shellfish ecology is presented in **Part 4, Chapter 4, Fish and Shellfish**.

4.9.1.4 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Methodology;**
- **Part 4, Chapter 1, Evolution of the Offshore Scheme;**
- **Part 4, Chapter 4, Fish and Shellfish Ecology;**
- **Part 4, Chapter 8, Shipping and Navigation;** and
- **Part 4, Chapter 10, Other Sea Users.**

4.9.1.5 This chapter is supported by the following figures:

- **Figure 4.9.1 Commercial Fisheries Study Area;** and
- **Figure 4.9.2 Total landed weight (tonnes) and value (£) of catch by ICES rectangle (2016 – 2020).**

4.9.2 Regulatory and Planning Context

4.9.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on commercial fisheries associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

4.9.2.2 The following legislation is relevant to commercial fisheries:

- Marine and Coastal Access Act (MCAA) 2009[380] establishes fisheries management in the UK (i.e. legal duties of Inshore Fisheries Conservation Authorities (IFCAs) and the Marine Management Organisation (MMO), and identifies the UK marine area including 6 nautical mile (NM) and 12NM limits, and the Exclusive Economic Zone (EEZ);
- Fisheries Act (2020)[381] creates a legal requirement for the UK's national fisheries policy authorities (i.e. MMO) to produce a Joint Fisheries Statement (JFS) relating to identified fisheries objectives (e.g. sustainability, ecosystem, and access rights) (due November 2022[382]); and
- Salmon and Freshwater Fisheries Act 1975[383] establishes the duty to maintain, improve and develop freshwater fisheries of migratory species, including salmon, trout and eels through byelaws set by the Environment Agency (EA).

Planning Policy

4.9.2.3 The following plans and policies are relevant to commercial fisheries.

National planning policy

- National Policy Statements (NPS) - the UK Government produces NPS which set out the UK Government's objectives for the development of Nationally Significant Infrastructure Projects (NSIP). Those potentially relevant to commercial fisheries are:
  - Overarching National Policy Statement for Energy – EN-1[384];
  - Renewable Energy Infrastructure – EN-3[385];
  - Electricity Networks - EN-5[386];
  - National Planning Policy Framework[387];

[380] The Marine and Coastal Access Act 2009 [online]. Available at: https://www.legislation.gov.uk/ukpga/2009/23/contents.

[381] The Fisheries Act 2020 [online]. Available at: https://www.legislation.gov.uk/ukpga/2020/22/contents/enacted.

[382] Department of Environment, Food and Rural Affairs (2022). Joint Fisheries Statement Consultation 2022. [online] Available at: https://www.gov.uk/government/consultations/draft-joint-fisheries-statement-jfs.

[383] The Salmon and Freshwater Fisheries Act 1975 [online]. Available at: https://www.legislation.gov.uk/ukpga/1975/51.

[384] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf [Accessed 09 August 2022].

[385] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Renewable Energy (EN-3). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47856/1940-nps-renewable-energy-en3.pdf [Accessed 09 August 2022].

[386] Department of Energy and Climate Change (2011). Overarching National Policy Statement for Electricity Networks (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed 09 August 2022].

[387] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf [Accessed 09 August 2022].

- Planning Practice Guidance – Natural Environment[388]; and
- Planning Practice Guidance – Renewable and low carbon energy[389].

- Common Fisheries Policy (CFP)[390] - managed fisheries within UK whilst part of the European Union (EU). Following the UK's exit from the EU and the end of the associated transitional arrangement period on 1st January 2021, the UK Single Issuing Authority (UKSIA)[384] as part of the MMO manages fishing vessel licencing for foreign vessel access to UK waters within the British Fishery Limits on behalf of the UK sea fish licensing authorities of England, Scotland, Wales, and Northern Ireland. The UK fisheries authorities remain responsible for the administration and management of UK vessel licensing within the UK EEZ.

Local planning policy

- The UK Marine Policy Statement (MPS)[391] was adopted in 2011 and provides the policy framework for the preparation of marine plans and establishes how decisions affecting the marine area should be made. The following marine plans have been considered in the development of this Scoping Report:
  - East Inshore and East Offshore Marine Plan[392]
  - South East Inshore Marine Plan[393]

4.9.3 Study Area

4.9.3.1 The Offshore Scheme is located within the International Council for the Exploration of the Sea (ICES) Division IVc. Fisheries data are recorded and collated by statistical rectangles within each ICES Division. The commercial fisheries study area has therefore been defined with reference to the ICES rectangles within which the Offshore Scheme is located, these are ICES rectangles 33F1, 32F1 and 31F1 as shown on **Figure 4.9.1 Commercial Fisheries Study Area**.

4.9.3.2 The commercial fisheries study area defined above has been used to identify fisheries activity in areas relevant to the Offshore Scheme. However, where relevant, data and information has been included to provide context and describe the wider extent of relevant fisheries activity.

[388] Department for Levelling Up, House and Communities and Ministry of Housing, Communities and Local Government (2019). Planning Practice Guidance – Natural Environment. [online] Available at: https://www.gov.uk/guidance/natural-environment#biodiversity-geodiversity-and-ecosystems [Accessed 09 August 2022].

[389] Department for Levelling Up, House and Communities and Ministry of Housing, Communities and Local Government (2015). Planning Practice Guidance – Renewable and Low Carbon. [online] Available at: https://www.gov.uk/guidance/renewable-and-low-carbon-energy [Accessed 09 August 2022].

[390] European Commission (2018). European Union Common Fisheries Policy (CFP). [online] Available at: https://oceans-and-fisheries.ec.europa.eu/policy/common-fisheries-policy-cfp_en.

[391] Department of Environment, Food and Rural Affairs (DEFRA) (2020). UK Marine Policy Statement. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf [Accessed: 09 August 2022].

[392] Department of Environment, Food and Rural Affairs (DEFRA) (2014). East Marine Plans. [online] Available at: https://www.gov.uk/government/publications/east-inshore-and-east-offshore-marine-plans [Accessed 11 July 2022].

[393] Department of Environment, Food and Rural Affairs (DEFRA) (2016). South East Marine Plan. [online] Available at: https://www.gov.uk/government/collections/south-east-marine-plan [Accessed 11 July 2022].

4.9.4 Baseline Conditions

4.9.4.1 The Offshore Scheme is located within the southern North Sea. Commercial fishing is widely distributed in this body of water and is fished by both UK and foreign (mostly European) fishing vessels.

Data Sources

4.9.4.2 The latest published commercial fisheries data includes:

- UK fleet landings by ICES rectangle stock and estimated EEZ 2016 - 2020[394];
- UK sea fisheries annual statistics report 2020[395];
- 2021 UK and foreign vessels landings by UK port and UK vessel landings abroad: provisional data[396];
- 2022 UK and foreign vessels landings by UK port and UK vessel landings abroad: provisional data[397]; and
- Vessel lists 10m and under'[398] and vessel lists over 10m[399];

Baseline

4.9.4.3 Two of the UK's top 20 fishing ports, ranked by quantity of landings in 2020, are located within the Greater Thames Estuary. These are the Whitstable (~24km west of the Offshore Scoping Boundary) and Leigh-On-Sea (~62km west of the Offshore Scoping Boundary); landing 2.6kt[400] and 4.7kt of catch in 2020[397], respectively.

4.9.4.4 There are a further 23 ports located within 55km (28NM)[401, 402] of the Offshore Scoping Boundary (Table 4.9.1). Leigh-on-Sea and West Mersea are beyond this study area but have also been included as fishing vessels from these ports are likely to cross the Offshore Scheme. A total of 243 vessels are registered across these 26 ports, comprising 216 vessels of under 10m and 27 vessels of over 10m (Table 4.9.1). Of these, 105 vessels (43%) hold a shellfish licence[400,401].

---

[394] Marine Management Organisation (MMO) (2021a). UK landings by rectangle and estimated EEZ. [online] Available at: https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2020 [Accessed 18 May 2022].

[395] Marine Management Organisation (MMO) (2021b). UK sea fisheries annual statistics report 2020. [online] Available at: https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2020 [Accessed 18 May 2022].

[396] Marine Management Organisation (MMO) (2022c). 2021 UK and foreign vessels landings by UK port and UK vessel landings abroad: provisional data. [online] Available at: https://www.gov.uk/government/publications/uk-and-foreign-vessels-landings-by-uk-port-and-uk-vessel-landings-abroad-provisional-data [Accessed 06 June 2022].

[397] Marine Management Organisation (MMO) (2022d). 2022 UK and foreign vessels landings by UK port and UK vessel landings abroad: provisional data. [online] Available at: https://www.gov.uk/government/publications/2022-uk-and-foreign-vessels-landings-by-uk-port-and-uk-vessel-landings-abroad-provisional-data [Accessed 18 May 2022].

[398] Marine Management Organisation (MMO) (2022a). Vessel lists 10 metres and under. [online] Available at: https://www.gov.uk/government/statistical-data-sets/vessel-lists-10-metres-and-under [Accessed 18 May 2022].

[399] Marine Management Organisation (MMO) (2022b). Vessel lists over 10 metres. [online] Available at: https://www.gov.uk/government/statistical-data-sets/vessel-lists-over-10-metres [Accessed 18 May 2022].

[400] *kt denotes a metric kiloton (1000 tons = 100,000 kg)*

[401] 55 km is considered a reasonable distance for identifying ports fishing within the UK 12nm limit, which the Offshore Scoping Boundary is located within. Data from Scottish vessel Automatic Identification Systems (AIS) show mean distance travelled by fishing vessels to be between 24.9 km and 36.8 km from home port, with a maximum distance of 51.57km[20].

[402] James, M., Mendo, T., Jones, E.L., Orr, K., McKnight, A. and Thompson, J. (2018). AIS data to inform small scale fisheries management and marine spatial planning. Marine Policy, 91, pp.113-121.

Table 4.9.1: Vessels registered with home port status in 2022 within 55km of the Offshore Scoping Boundary and weight of landed catch at each port in 2021

Home Port	Distance from Offshore Scoping Boundary (km)	No. Vessels under 10 m	No. vessels over 10 m	Total vessels	No. Shellfish licences	Weight of landed catch, 2021 (Tonnes)[396]
Ramsgate	0.2	18	0	18	11	456.00
Aldeburgh and Orford	1.1	10	0	10	4	14.86
Southwold	13.4	12	0	12	8	145.48
Felixstowe	17.8	20	0	20	12	24.53
Harwich	22.4	18	0	18	10	38.37
Lowestoft	30.3	20	4	24	10	790.55
Whitstable	**37.7**	**14**	**5**	**19**	**7**	**3057.06**
Great Yarmouth	45.3	20	1	20	10	35.68
Wivenhoe	46.8	6	0	6	1	11.08
West Mersea	52.7	27	1	28	7	349.05
Dungeness	55.0	5	0	0	4	185.02
Queenborough*	56.3	6	4	10	5	329.26
Leigh-On-Sea*	**62.6**	**8**	**12**	**20**	**4**	**3911.66**
Ports with <5 registered vessels**	-	29	0	29	0	46.50†
Total	-	216	27	238	105	9395.10

***** Ports which exceed 55 km and are located adjacent to the Offshore Scheme within the Greater Thames Estuary. As such, it is highly likely that vessels registered here fish within the study area.

****** Brightlingsea (3), Burnham-On-Crouch (2), Canvey Island (3), Clacton (4), Faversham (2), Ipswich (3), Maldon (3), Rochester (1), Sheerness (1), Sizewell Beach (2), Southend-On-Sea (4), Walton-On-Naze (1).

† no 2021 landings data available for Burnham-on-Crouch.

Note: UK top 20 major ports by quantity of landings in bold.

4.9.4.5 In the period 2016 to 2020 UK vessels fishing in ICES rectangles 31F1, 32F1, and 33F1 landed an annual average weight of 6,168 tonnes, with an annual average value of £8,632,157. During this period the highest total landed weight and value (18,110 tonnes and £25,550,072) was obtained from ICES rectangle 31F1(Figure 4.9.2). Vessels from the Netherlands and Belgium also landed catch from ICES rectangles 33F1, 33F2 and 31F1[403].

[403] Scientific, Technical and Economic Committee for Fisheries (2017). Fisheries Dependent Information: Data by quarter-rectangle. [online] Available at: https://stecf.jrc.ec.europa.eu/dd/effort/graphs-quarter [Accessed 18 May 2022].

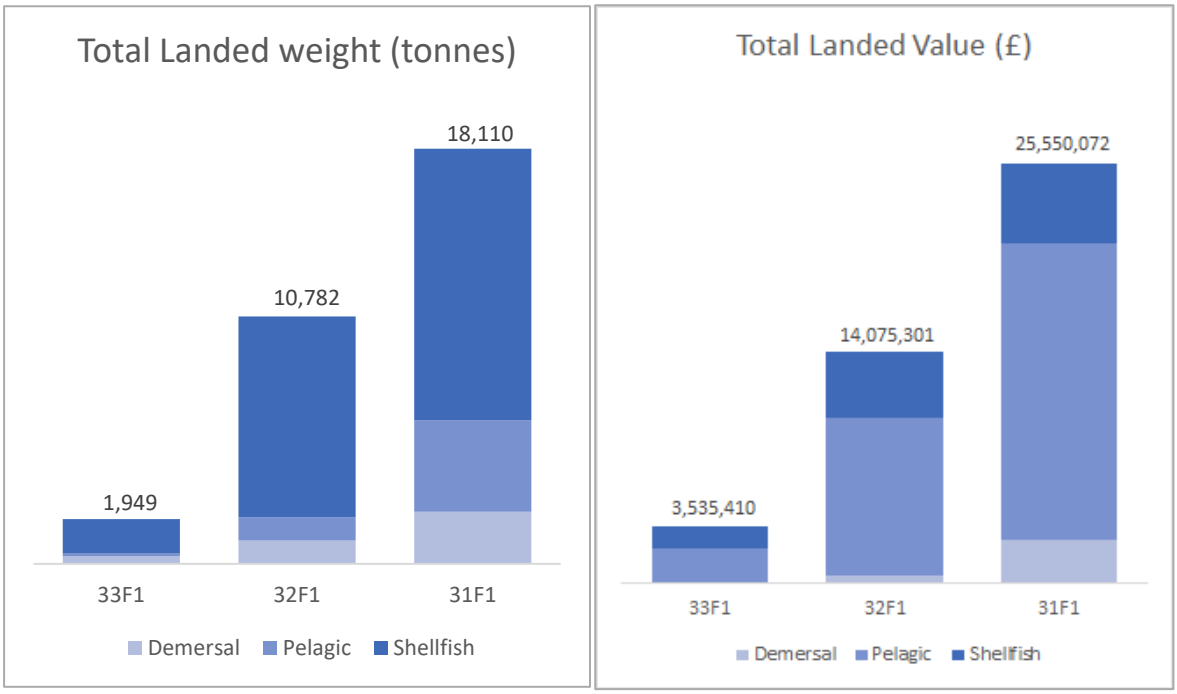


Figure 4.9.2: Total Landed Weight (tonnes) and Value (£) of Catch by ICES Rectangle (2016 – 2020)[404]

4.9.4.6 Annual statistics for the relevant ICES rectangles, and ICES Division IVc generally, show the quantity of landings (tonnes) to be greatly dominated by shellfish species, in comparison to pelagic or demersal species[405]. This was also the case for landings at Leigh-On-Sea and Whitstable.

4.9.4.7 Between 2016 and 2020 shellfish accounted for 68.9% of total landed value across all three ICES rectangles, demersal species accounted for 23.6%, and pelagic species 7.5%[406]. Cockles represented the highest proportion of the total landings value (39.4%), followed by whelk (18.4%), sole (9.1%), and horse mackerel (5.7%).

4.9.4.8 The dominance of shellfish catch reflects the importance of the Thames Cockle Fishery, located on the north Kent coast, partially within ICES 31F1. Other fisheries within the study area comprise the Thames-Blackwater Herring Drift-net Regulatory Area, located in the Thames Estuary (ICES 31F1) and the Tollesbury and Mersea Native Oyster Fishery in the Blackwater Estuary (ICES 32F1).

4.9.4.9 Numerous shellfish waters, protected by The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017[406], are located within the Thames Estuary. These include the Outer Thames and Margate designated shellfish waters, located ~8 km from the Offshore Scoping Boundary.

4.9.4.10 Dredges, pots and traps, and otter trawl were the most commonly used gear type across all three ICES rectangles, accounting for 48.5%, 20.8%, and 19.01% of the total 2016-2020 landed catch, respectively[406]. Mobile bottom gear, such as dredges and otter trawls were heavily favoured in ICES 31F1 and 32F1, whereas ICES 33F1

[404] Marine Management Organisation (MMO) (2021a). UK landings by rectangle and estimated EEZ. [online] Available at: https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2020 [Accessed 18 May 2022].

[405] Marine Management Organisation (MMO) (2021b). UK sea fisheries annual statistics report 2020. [online] Available at: https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2020 [Accessed 18 May 2022].

[406] The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 [online]. Available at: https://www.legislation.gov.uk/uksi/2017/407/contents/made.

favoured static gear such as pots and traps, and gears using hook, and drift and fixed nets. Pots and traps dominated the total landed catch in ICES 33F1 (74.4%).

Future Baseline

4.9.4.11 The commercial fisheries chapter within the Environmental Statement (ES) will include an outline of the likely evolution of the baseline environment without the implementation of the development as far as natural changes from the baseline scenario can be assessed.

4.9.5 Embedded and Control & Management Measures

4.9.5.1 Given that many design elements of the Project have yet to be confirmed, the embedded and control and management measures have not been finalised at this stage. However, any identified measures will need to be discussed with statutory consultees and stakeholders throughout the EIA process.

Embedded Measures

4.9.5.2 The Offshore Scoping Boundary has been designed in order to avoid environmentally sensitive areas where possible. This includes avoiding the Margate and Long Sands Special Area of Conservation (SAC) and the Kentish Knock East Marine Conservation Zone (MCZ), which are both designated for the protection of benthic habitats. Further consideration is being given to the possibility of avoidance of the Goodwin Sands MCZ by the Offshore Scheme, but this is dependent on the outcome of further stakeholder engagement and additional survey work.

4.9.5.3 As the Offshore Scheme develops and route design is progressed (informed by the Project specific offshore survey data) the Project will aim to minimise impacts by micro siting around sensitive features where possible.

Control and Management Measures

4.9.5.4 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the commercial fisheries assessment are:

- GM03 - an offshore Construction Environmental Management Plan (CEMP) including an Emergency Spill Response Plan and Waste Management Plan, Marine Pollution Contingency Plan (MPCP), Shipboard Oil Pollution Emergency Plan (SOPEP) and a dropped objects procedure will be produced prior to installation.
- LVS02 - all project vessels must comply with the International Regulations for Preventing Collisions at Sea (1972)[407] (IMO, 2019a), regulations relating to International Convention for the Prevention of Pollution from Ships (the MARPOL Convention 73/78) [408] (IMO, 2019e) with the aim of preventing and minimising

[407] International Maritime Organisation (IMO) (1972). Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/COLREG.aspx [Accessed 10 August 2022].

[408] International Maritime Organisation (IMO) (1983). International Convention for the Prevention of Pollution from Ships (MARPOL). [online] Available at: https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx [Accessed 10 August 2022].

pollution from ships and the International Convention for the Safety of Life at Sea (SOLAS, 1974)[409].

- CF01 - cables will be buried to a target depth of 1m to 2m for the majority of the route to minimise risk of interaction with fishing gear.
- CF02 - a Fisheries Liaison Officer (FLO) and fisheries working group(s) will be maintained throughout installation to ensure project information is effectively disseminated, dialogue is maintained with the commercial fishing industry and access to home ports is maintained during the main fishing season.
- CF03 - timings of any temporary areas of exclusion from fishing grounds will be clearly communicated via a notice to mariners.

4.9.6 Potential for Significant Effects

4.9.6.1 The commercial fisheries assessment will consider the construction, operation, maintenance and decommissioning of the Offshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

4.9.6.2 The proposed scope of the commercial fisheries assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology.**

Sources of Impacts (Step 1)

4.9.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Offshore Scheme.

4.9.6.4 The potential for the Offshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- unexploded ordnance (UXO) clearance;
- pre-installation geophysical surveys;
- pre-installation clearance of obstacles and debris;
- sand wave sweeping;
- cable installation and cable lay; and
- cable protection (e.g. rock placement, concrete mattresses).
- presence of marine vessels.

Sources of operational impacts

- presence of activated cable; and
- cable protection.

[409] International Maritime Organisation (IMO) (1975). International Convention for the Safety of Life at Sea (SOLAS) 1974. [online] Available at: https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-(SOLAS),-1974.aspx.

Sources of maintenance impacts

- presence of marine vessels associated with repairs/surveys;
- cable repair or replacement; and
- cable protection (e.g. rock placement, concrete mattresses).

Sources of decommissioning impacts

- removal of cable from seabed;
- removal of cable protection (e.g. rock placement, concrete mattresses); and/or
- abandonment of cable in seabed; and
- presence of marine vessels.

Potential impacts

4.9.6.5 Table 4.9.2 identifies the potential impacts that could result from the sources identified above.

Table 4.9.2: Sources and impacts

Project Phase	Source	Impact	Potential for significant effects	Proposed to be scoped In/out
Construction, maintenance and decommissioning	Cable protection (e.g. rock placement, concrete mattresses in shallow water) Presence of marine vessels	Obstruction of navigation routes to commercial fishing grounds	Yes	**Scoped in**
Construction, maintenance and decommissioning	Cable installation and cable lay Cable protection Presence of marine vessels Removal of cable from seabed Removal of cable protection	Displacement of commercial fishing activities	Yes	**Scoped in**

Construction and maintenance	Pre-installation clearance of obstacles and debris; Sand wave sweeping; Cable installation and cable lay Cable protection	Direct loss or damage to fishing grounds	Yes	**Scoped in**
Construction, operation, maintenance and decommissioning	Pre-installation clearance of obstacles and debris Sand wave sweeping Cable installation and cable lay Cable protection Presence of marine vessels Removal of cable from seabed Removal of cable protection	Loss or damage to fishing gear	Yes	**Scoped in**
Construction, operation, maintenance and decommissioning	UXO clearance Pre-installation geophysical surveys Pre-installation clearance of obstacles and debris Sand wave sweeping Cable installation and cable lay Cable protection Presence of marine vessels	Indirect effects on commercial fisheries as a result of impacts on the ecology of commercial species	Yes	**Scoped in**

	Presence of activated cable Removal of cable from seabed Removal of cable protection			
Construction, maintenance and decommissioning	Leaks and spills from vessels	Changes to marine water quality from accidental leaks and spills from vessels, including loss of fuel oils	No - the implementation of embedded and good practice measures (GM03 and LVS02) create limited potential for accidental spills to occur during the Project. Relatively few vessels are expected to be involved, and potential pollutants would be limited to relatively small volumes. Should an accidental spill or leak occur, it would be very small in extent and subject to immediate dilution and rapid dispersal within the marine environment.	Scoped Out

Impact Pathways with Receptors (Step 2)

4.9.6.6 This section identifies whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the commercial fisheries study area.

4.9.6.7 Table 4.9.3 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the benthic ecology assessment for the Offshore Scheme (**Figure 1.1.4 Offshore Scheme Scoping Boundary**).

Table 4.9.3: Impact pathways with receptors

Impact pathway	Receptor	Potential for significant effect	Proposed to be scoped in/out
Obstruction of navigation routes to commercial fishing grounds during construction, maintenance and decommissioning.	Commercial fisheries	Yes - the presence of marine vessels could result in the temporary disruption to navigation routes, distances and times for commercial fishing vessels. This could lead to increased operational costs for fishing vessels	**Scoped in**

Displacement of commercial fishing activities during construction, maintenance and decommissioning	Commercial fisheries	Yes - any loss or restricted access to commercial fishing grounds during could result in increased competition if these vessels are displaced to alternative grounds and fisheries resources	**Scoped in**
Direct loss or damage to fishing grounds during construction and maintenance	Commercial fisheries	Yes – route preparation, cable burial and cable protection activities may prohibit use of some fishing grounds commonly used by commercial vessels, particularly those where cable protection is placed in areas where bottom gears are deployed	**Scoped in**
Loss or damage to fishing gear during construction, operation, maintenance and decommissioning		Yes - seabed obstacles which may arise from the Project, including for example, accidentally dropped objects; the operational presence of cable protection and of vulnerable sections of cable (i.e. should areas of trenched cable become exposed) may pose a snagging risk to fishing gear. Additionally, static gear may also be present along the cable route which if not removed could be damaged by cable installation activities	**Scoped in**
Indirect effects on commercial fisheries as a result of impacts on the ecology of commercial species		Yes - there is potential for any works associated with the Project to indirectly impact commercial	**Scoped in**

during construction, operation, maintenance and decommissioning		fisheries as a result of impacts on the behaviour and distribution of fish. For example, changes in the underwater soundscape during construction and maintenance may result in behavioural responses in individuals of fish and shellfish which are of commercial importance and are fished in the vicinity of the Offshore Scheme. Consideration of fish and shellfish ecology is provided in **Part 4, Chapter 4 Fish and Shellfish**. The assessment will determine if any of the impact pathways to ecological receptors have the potential to affect commercial fishing

4.9.6.8 Navigation risk and safety issues associated with the interaction between the Offshore Scheme and the operation of fishing vessels including any potential for interference with magnetic compass used by fishing vessels for has been considered under **Part 4, Chapter 8, Shipping and Navigation**.

4.9.7 Proposed Assessment Methodology

Proposed Data Sources

4.9.7.1 The following data sources are proposed to be used to inform the assessment:

- Project-specific survey data (where applicable);
- ICES fisheries survey data (2021 (important species, gear type, spawning and nursery areas, species distribution))[410];
- Fisheries Research & Management Plans[411];

[410] Cefas (No Date) Cefas Data Portal. [online] Available at: https://data.cefas.co.uk/.
[411] Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA) (No Date). Research. [online] Available at: https://www.kentandessex-ifca.gov.uk/im-interested-in/research.

- Non-UK landings by ICES Rectangles (2018)[412];
- UK Annual fisheries Statistics[413];
- UK Fishing Vessel Lists[414,415];
- UK landings by rectangle and estimated EEZ[416];
- UK and foreign vessels landings by UK port and UK vessel landings abroad[417,418];
- Vessel Monitoring System data[419,420];
- Other publicly available reports and information, including:
  - Designated site risk-based fisheries assessments;
  - The Thames Estuary Cockle Fishery Regulating Order (1994)[421];
  - The Tollesbury and Mersea (Blackwater) Fishery Order (2019)[422]; and
  - MSC Fisheries Surveillance Reports.
- Other reports and information received from consultations.

4.9.7.2 In addition to the statutory stakeholder consultation that forms part of the assessment methodology, additional stakeholders will be identified, but are likely to include:

- Clacton Fishermen's Association;
- Felixstowe Ferry Fishermen's Association;
- Harwich Fishermen's Association;
- Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA);
- Lowestoft Fishermen's Association;
- Orford and District Fishermen's Association;

[412] Scientific, Technical and Economic Committee for Fisheries (2017). Fisheries Dependent Information: Data by quarter-rectangle. [online] Available at: https://stecf.jrc.ec.europa.eu/dd/effort/graphs-quarter [Accessed 18 May 2022].

[413] Marine Management Organisation (MMO) (2021b). UK sea fisheries annual statistics report 2020. [online] Available at: https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2020 [Accessed 18 May 2022].

[414] Marine Management Organisation (MMO) (2022a). Vessel lists 10 metres and under. [online] Available at: https://www.gov.uk/government/statistical-data-sets/vessel-lists-10-metres-and-under [Accessed 18 May 2022].

[415] Marine Management Organisation (MMO) (2022b). Vessel lists over 10 metres. [online] Available at: https://www.gov.uk/government/statistical-data-sets/vessel-lists-over-10-metres [Accessed 18 May 2022].

[416] Marine Management Organisation (MMO) (2021a). UK landings by rectangle and estimated EEZ. [online] Available at: https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2020 [Accessed 18 May 2022].

[417] Marine Management Organisation (MMO) (2022c). 2021 UK and foreign vessels landings by UK port and UK vessel landings abroad: provisional data. [online] Available at: https://www.gov.uk/government/publications/uk-and-foreign-vessels-landings-by-uk-port-and-uk-vessel-landings-abroad-provisional-data [Accessed 06 June 2022].

[418] Marine Management Organisation (MMO) (2022d). 2022 UK and foreign vessels landings by UK port and UK vessel landings abroad: provisional data. [online] Available at: https://www.gov.uk/government/publications/2022-uk-and-foreign-vessels-landings-by-uk-port-and-uk-vessel-landings-abroad-provisional-data [Accessed 18 May 2022].

[419] HM Government (2021). MMO/AnonymisedAISderivedTrackLines2019 (MapServer). [online] Available at: https://environment.data.gov.uk/arcgis/rest/services/MMO/AnonymisedAISderivedTrackLines2019/MapServer.

[420] European Marine Observatory and Data Network (EMODnet) (2020). Fishing Intensity. [online] Available at: https://emodnet.ec.europa.eu/en/map-week-%E2%80%93-fishing-intensity.

[421] The Thames Estuary Cockle Fishery Regulating Order 1994 [online]. Available at: https://www.legislation.gov.uk/uksi/1994/2329/contents/made.

[422] The Tollesbury and Mersea (Blackwater) Fishery Order 2019 [online]. Available at: https://www.legislation.gov.uk/uksi/2019/974/made.

- Thanet Fishermen's Association;
- The Eastern Inshore Fisheries and Conservation Authority (IFCA);
- West Mersea Fisherman's Association; and
- Whitstable Fisherman's Association.

Proposed Assessment Methodology

4.9.7.3 The overall assessment methodology for commercial fisheries will follow the standard methodology outlined in **Part 1, Chapter 5, EIA Approach and Methodology.** The proposed criteria for sensitivity of receptor and magnitude of impact for the assessment of commercial fisheries is presented below.

Sensitivity of receptor

4.9.7.4 When considering the sensitivity of commercial fisheries receptors, the following aspects are considered:

- operational range: extent of the area over which vessels normally operate;
- operational versatility: ability to deploy different fishing methods/target different species;
- adaptability: ability of vessels to adapt to the potential impact. Degree to which fishing vessels are able to avoid or adapt to changing circumstances, including their capacity to accommodate change; and
- importance: value of the fishery in the area around the Project.

4.9.7.5 The criteria used to define the sensitivity of commercial fisheries receptors are provided in Table 4.9.4.

Table 4.9.4: Definitions of sensitivity for commercial fisheries

Very High	Highly restricted operational range and ability to deploy only one gear type. High dependence upon a single fishing ground of high importance.
High	Limited operational range and ability to deploy only one gear type. High dependence upon a single fishing ground.
Medium	Moderate extent of operational range and/or ability to deploy an alternative gear type. Dependence upon a limited number of fishing grounds.
Low	Extensive operational range and/or ability to deploy a number of gear types or to modify gears. Ability to fish a number of fishing grounds.
Negligible	Extensive operational range and very high method versatility in terms of gear types.

	Vessels are able to exploit a large number of fishing grounds.

Magnitude of impact

4.9.7.6 When considering the potential magnitude of impact for commercial fisheries the following aspects are considered:

- area affected: extent of area affected in the context of available grounds and level of fishing activity that the area affected sustains;
- duration and frequency: time and frequency of the effect; and

4.9.7.7 The criteria used to define the magnitude of impact on commercial fisheries receptors are provided in Table 4.9.5.

Table 4.9.5: Magnitude criteria

Large	The area affected by the impact sustains high levels of activity by the fleet and covers a large or moderate extent of its grounds; and/or The effect is permanent.
Medium	The area affected by the impact sustains moderate/high levels of activity by the fleet and covers a small/moderate extent of its grounds; and/or The effect is long term.
Small	The area affected by the impact sustains low/moderate levels of activity by the fleet and covers a small extent of its grounds; and/or The effect is short to medium term.
Negligible	The area affected by the impact sustains low/ negligible activity by the fleet and covers a small/negligible extent of its grounds; and/or The effect is short term.

Significance of effect

4.9.7.8 Following the identification of receptor sensitivity and magnitude of impact, it is possible to determine the significance of effect following the approach detailed in **Part 1, Chapter 5, EIA Approach and Methodology**.

4.9.7.9 The approach will also refer to best practice guidance from a range of industry sectors, insofar as relevant to the installation and operation of submarine cables, noting that specific fisheries guidance for the cable sector is limited.

4.9.8 Conclusion

4.9.8.1 In summary:

- The Offshore Scoping Boundary is located in waters which support valuable mixed fisheries. Shellfisheries are of particular importance. These fisheries support local communities providing a valuable socio-economic function;
- Two of the UK's top 20 fishing ports are situated to the west of the Offshore Scoping Boundary, with a further 24 registered 'home ports' for fishing vessels located within 55 km. A total of 243 fishing vessels are registered across these 26 ports;
- The Offshore Scoping Boundary is 8km from the protected shellfish waters of the Greater Thames Estuary. Regulated fisheries for cockles, oyster and herring are found in this area;
- Bottom gear such as dredges, and otter trawls are widely used by fishers within the study area;
- The ES baseline assessment will include a more detailed review of commercial fisheries within the ZOI of the Offshore Scheme; and
- The Project will engage with the fishing community to manage potential interactions during all phases of the Offshore Scheme.

Proposed Scope of the Assessment

4.9.8.2 A summary of the proposed scope of the assessment is provided in Table 4.9.6.

Table 4.9.6: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
Commercial fisheries	Obstruction of navigation routes to commercial fishing grounds	Construction Maintenance Decommissioning	**Scoped in**
Commercial fisheries	Displacement of commercial fishing activities	Construction Maintenance Decommissioning	**Scoped in**
Commercial fisheries	Direct loss or damage to fishing grounds	Construction Maintenance	**Scoped in**
Commercial fisheries	Loss or damage to fishing gear	Construction Maintenance Operation Decommissioning	**Scoped in**
Commercial fisheries	Indirect effects on commercial fisheries as a result of impacts on the ecology of commercial species	Construction Maintenance Operation Decommissioning	**Scoped in**

4.10 Other Sea Users

4.10.1 Introduction

4.10.1.1 This chapter details how the assessment of other sea users will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Offshore Scheme as described in **Part 1, Chapter 4, Description of the Project**. This chapter of the Scoping Report describes the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how these potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA). The effect of the Project on commercial fishing is covered separately in **Part 4, Chapter 9, Commercial Fisheries**.

4.10.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Offshore Scheme Scoping Boundary hereafter referred to as the Offshore Scoping Boundary is illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary**.

4.10.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Methodology;**
- **Part 4, Chapter 1, Evolution of the Offshore Scheme;**
- **Part 4, Chapter 8, Shipping and Navigation;** and
- **Part 4 Chapter 9, Commercial Fisheries.**

4.10.1.4 This chapter is supported by the following figure:

- **Figure 4.10.1 Offshore Infrastructure in the Study Area.**

4.10.2 Regulatory and Planning Context

4.10.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on other sea users associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

4.10.2.2 The following legislation is relevant to other sea users:

- Marine and Coastal Access Act 2009[423] provides the legal mechanism to help ensure clean, healthy, safe and productive and biologically diverse oceans and seas;

[423] Marine and Coastal Access Act 2009 [online]. Available at: https://www.legislation.gov.uk/ukpga/2009/23/contents.

Planning Policy

4.10.2.3 The following plans and policies are relevant to other sea users.

National planning policy

- The UK Marine Policy Statement (MPS)[424] was adopted in 2011 and provides the policy framework for the preparation of marine plans and establishes how decisions affecting the marine area should be made.

Local planning policy

- The following marine plans have been considered in the development of this Scoping Report:
  - East Inshore and East Offshore Marine Plan[425]
  - South East Inshore Marine Plan[426]

Guidance

4.10.2.4 The following guidance is relevant to other sea users:

- International Cable Protection Committee (ICPC) Recommendation No.2. Cable Routing and Reporting Criteria (ICPC, 2015);
- International Cable Protection Committee (ICPC Recommendation No.3. Cable and Oil Pipeline/ Power Cables Crossing Criteria (ICPC, 2014);
- International Cable Protection Committee (ICPC Recommendation No.13. The Proximity of Offshore Renewable Wind Energy Installations and Submarine Cable Infrastructure in National Waters (ICPC, 2013);
- Energy Installations and Submarine Cable Infrastructure in National Waters (ICPC, 2013);
- The European Subsea Cable Association (ESCA) guideline No.6. 'The Proximity of Offshore Renewable Energy Installations & Submarine Cable Infrastructure in UK Waters' (ESCA, 2016);
- The European Subsea Cable Association (ESCA guideline No.19. Marine Aggregate Extraction Proximity Guidelines (ESCA 2016); and
- Guidance on assessing the socio-economic impacts of offshore windfarms (OWFs), produced by Oxford Brooks and Vattenfall (Glasson et al., 2020).

[424] Department of Environment, Food and Rural Affairs (DEFRA) (2020). UK Marine Policy Statement. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69322/pb3654-marine-policy-statement-110316.pdf [Accessed 09 August 2022].

[425] Department for Environment, Food and Rural affairs (DEFRA) (2014). East Inshore and East Offshore Marine Plans. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312496/east-plan.pdf.

[426] Department for Environment, Food, and Rural Affairs (DEFRA) (2021). South East Inshore Marine Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004493/FINAL_South_East_Marine_Plan__1_.pdf.

4.10.3 Study Area

4.10.3.1 For the purpose of baseline characterisation, an area of 10km width either side of the Offshore Scoping Boundary defines the study area (**Figure 4.10.1 Offshore Infrastructure in the Study Area**). The study area is defined by the extent of potentially affected other sea users who may be directly or indirectly impacted by the Offshore Scheme.

4.10.4 Baseline Conditions

4.10.4.1 Where consideration has been given to offshore infrastructure, this chapter includes both existing and planned offshore infrastructure where there is a reasonable volume of information about such infrastructure to enable assessment[427].

4.10.4.2 The Offshore Scheme falls within the UK marine areas covered by the East and South East Inshore Marine Plans. One of the aims of marine planning is to help ensure coexistence between a wide range of sea users whilst supporting sustainable development.

4.10.4.3 This baseline characterisation provides an overview of other sea users activities within the study area, including (but not necessarily limited to): recreational activities; marine tourism; Oil and Gas (O&G) operations; renewable energy development (i.e. offshore wind, tidal and wave deployment); marine mineral and aggregate extraction; dredging and disposal sites/activities; military practice areas; marine cables; and aquaculture.

4.10.4.4 Socioeconomic conditions, employment opportunities etc are considered within the Onshore Scheme scoping chapters.

Data Sources

4.10.4.5 To determine the baseline conditions within the study area the following key data sources have been reviewed:

- The Crown Estate Asset Maps: including offshore windfarms, wind export cable agreements, carbon capture and storage sites, and marine aggregate digital data;
- North Sea Transmission Authority (NSTA): Digital data for oil and gas infrastructure and blocks;
- Marine Management Organisation (MMO) Public Register for marine licences and MMO Evidence Projects;
- MMO ‘Explore Marine Plans’ data portal, including spatial data for marine aggregates, aquaculture, dredging and disposal sites, and recreational areas
- MMO Mapping recreational sea anglers in English waters;
- UK Hydrographic Office: Military Practice and Exercise Areas;
- Environment Agency: bathing waters in England;

[427] Where key information about planned or proposed third party infrastructure is not available, it is not possible to complete a detailed appraisal of potential interactions between the Offshore Scheme and that infrastructure. As the Offshore Scheme progresses through the DCO process, the applicant will review information available about third party infrastructure to ensure a robust assessment of other sea users at the time of submission.

- The Kingfisher Information Service – Offshore Renewable Cable (KIS-ORCA): Marine cables digital data;
- Marine sports websites (Professional Association of Diving Instructors (PADI), Magic Seaweed; Finstrokes);
- Automatic Identification System (AIS) vessel traffic data; and
- Royal Yachting Association (RYA) UK Coastal Atlas of Recreational Boating.

Marine Tourism and Recreation

4.10.4.6 The coastal and marine environment supports a wide range of tourism and recreation activities. Tourism is a general term that encompasses any time spent away from home to pursue leisure or relaxation activities, while recreation refers to leisure activities undertaken for enjoyment by local residents in their free time, near where they live.

4.10.4.7 The RYA UK Coastal Atlas of Recreational Boating provides a Geographical Information System (GIS) dataset of recreational boating activity around the UK. The dataset has spatial data which indicates location of RYA clubhouses, training centres and marinas, general boating areas, and AIS recreational intensity.

4.10.4.8 It is noted that all recreational activities are highly seasonal and dependant on certain weather conditions. Furthermore, due to the COVID-19 pandemic, contemporaneous data on recreation generally may under-predict the extent of activity in 'normal' periods (i.e. false-lows); the EIA will be cognisant of this risk and mitigate it through reviews of longer-term historical trends.

4.10.4.9 At the time of writing, the MMO has recently commissioned a series of marine recreation activity maps to help inform the management of non-licensable (recreational) activities within Marine Protected Areas[428]. This includes activities such as anchoring, launching and recovery of powerboats and sailing vessels, marine areas used by recreational craft, marine areas used by motorised and non-motorised personal watercraft and recreational diving sites. It is expected that these data will be published ahead of the completion of the EIA, and where available and relevant, used to inform the impact assessment. Should this resource not be available, targeted desk-based research will be completed to consider recreational activity along the Offshore Scoping Boundary, weighted toward landfall areas.

4.10.4.10 The East Inshore Marine Plan and South East Inshore Marine Plan recognise and emphasise the estimated economic contribution of recreational boating to the national and local economy as well as the indirect benefits for coastal towns.

4.10.4.11 The Three-year Report on the East Inshore and South East Inshore Marine Plans 2017 - 2020[429] reports that the number of coastal tourism and marine recreation businesses in these regions have increased. However, the number of people these sectors employ varies. For example, for the period between 2015 and 2018 the number of employees

[428] Marine Management Organisation (2021). Explore Marine Plans. [Online]. Available at: https://explore-marine-plans.marineservices.org.uk/.

[429] DEFRA. (2020). Three-year Report on the East Inshore and East Offshore Marine Plans For the period 2 April 2017 – 1 April 2020: Presented to Parliament pursuant to Sections 54 and 61 of the Marine and Coastal Access Act 2009. [Online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/875887/marine-east-plan-report1.pdf. [Accessed: 06/07/2022].

peaked at 54,180 in 2016 but by 2018 was 12% lower. The reason for this, however, is not given.

Recreational boating

4.10.4.12 Many RYA clubs and training centres have been identified along the south east coast of England. Within the study area, several RYA clubs are located in coastal areas around Margate and Ramsgate, and Orford Ness.

4.10.4.13 In the study area, AIS data of recreational boating traffic displays high density of recreational craft through the study area. High density recreational traffic is particularly focused in nearshore coastal waters around Margate and Ramsgate, and waters along the coast of Hollesley to Dunwich. Recreational density is also concentrated in navigation channels passing through the study area towards the major estuaries located nearby, including the Thames Estuary and Harwich Harbour into the rivers Orwell and Stour.

Recreational fishing

4.10.4.14 Recreational sea fishing is a popular activity around the UK coast. Common techniques include fishing from personal boats, charter vessels and smaller craft such as shore kayaks with a range of fishing gear. Recreational sea fishing occurs throughout the year, however there are seasonal fluctuations in sea conditions and presence of target species[430].

4.10.4.15 In the UK, recreational sea fishing is usually synonymous with angling. Angling pertains to fishing with lines, and in the UK this is almost entirely by line with rod and reel[432].

Other recreational activities

4.10.4.16 There have been 17 bathing waters identified in the study area: Herne Bay Central, Herne Bay, Minnis Bay (Birchington), West Bay (Westgate), St Mildred's Bay (Westgate), Westbrook Bay (Margate), Margate The Bay, Margate Fulsam Rock, Walpole Bay (Margate), Botany Bay (Broadstairs), Joss Bay (Broadstairs), Broadstairs (Stone Bay), Broadstairs (Viking Bay), Ramsgate Bay, Ramsgate Western Undercliffe, Sandwich Bay, and Deal Castle[431].

4.10.4.17 There were no PADI scuba diving sites located within the study area (PADI, 2022). There is one BSAC (British Sub-Aqua Club) called Canterbury BSAC club which dives off Goodwin Sands, just inside the study area (BSAC, 2022; PADI, 2022). Lowestoft Sub Aqua Club also dive along the east coast (BSAC. 2022). There are also a number of dive clubs, including Medway Sub Aqua Club, North West Kent BSAC, Southend on Sea Sub Aqua Club, Swale Divers, and Thanet Sub Aqua Club running diver trips around the Kent coast. Walpole tidal pool located on Margate coast is often used for diving and snorkelling[432].

[430] Marine Management Organisation (2020). Mapping recreational sea anglers in English waters (MMO1163): Non-technical Summary.

[431] Environment Agency (2021). [Online]. Available at: https://environment.data.gov.uk/bwq/profiles/. [Accessed: 29/06/2022].

[432] Finstrokes. (2022). Dive map. [Online]. Available at: https://www.finstrokes.com/dive-map. [Accessed: 29/06/2022].

4.10.4.18 There are six surfing beaches located close to the Kent landfall: these are Herne Bay, Main Sands, Joss Bay, Broadstairs – Viking Bay, Ramsgate Main Beach, Westcliff Promenade and Sandwich Bay[433].

Offshore Infrastructure

4.10.4.19 The following potential users of the sea have been identified within the study area.

Oil and gas operations

4.10.4.20 There are no oil and gas operations located within the study area (North Sea Transition Authority, 2022). There have also been no oil and gas license blocks identified within the study area.

Carbon capture and storage

4.10.4.21 There are no carbon capture and storage facilities located within the study area and no plans for future facilities were found. Based on current information it is not expected that the Offshore Scoping Boundary will cross future carbon capture and storage facilities.

Offshore wave and tidal projects

4.10.4.22 There is an area located within the study area to the east of the Offshore Scoping Boundary that is an area of identified tidal stream resource (**Figure 4.10.1 Offshore Infrastructure in the Study Area, Sheet 2**). There were no offshore wave and tidal projects occurring within the study area. Based on current information it is not currently expected that any future wave and tidal projects will occur within the study area.

Offshore windfarms

4.10.4.23 There are several offshore windfarms, with export cables, located in the study area. Those which are active and in operation include:

- London Array offshore windfarm, which covers an area of 122.5km^2, lying 1.18km to the west of the Offshore Scoping Boundary. This also includes the Blue Transmission London Array export cable, approximately 8.34km from the Offshore Scoping Boundary.
- Thanet offshore windfarm, which covers an area of 35km^2 and sits 0.62km from the Offshore Scoping Boundary. This also includes the Thanet Offshore Transmission Owner (OFTO) export cable which intersects the Offshore Scoping Boundary.
- Greater Gabbard offshore windfarm located 6.35km from Offshore Scoping Boundary, which consists of two sites covering a total area of 146 km^2, connected by the Greater Gabbard export cable which intersects the Offshore Scoping Boundary at the Suffolk landfall.

[433] Magic Seaweed. (2022). UK + Ireland Surf Reports and Surf Forecasts. [Online]. Available at: https://magicseaweed.com/UK-Ireland-Surf-Forecast/1/. [Accessed: 29/06/2022].

- Galloper offshore windfarm, which borders the Greater Gabbard site, consists of two sites covering a total area of 113.6km^2, situated 12km to the east of the Offshore Scoping Boundary. These sites are connected by the Galloper Transmission export cable, which intersects the Offshore Scoping Boundary at the Suffolk landfall.

4.10.4.24 There are also several offshore windfarms located in and/or intersecting the study area which are either in the pre-planning application stage, consented or under construction. These include:

- East Anglia Two Offshore Windfarm which is consented, covering an area of 255.6km^2. This site is located approximately 30.5km to the east of the Offshore Scoping Boundary. The East Anglia Two Transmission Asset export cable agreement is also consented and intersects the Offshore Scoping Boundary. This export cable agreement also forms part of the EA1N Transmission Asset export cable agreement to a site that falls outside of the study area.
- East Anglia One Transmission Asset export cable agreement, which intersects the Offshore Scoping Boundary. This agreement is currently under construction.
- East Anglia Three Transmission Asset export cable agreement, which intersects the Offshore Scoping Boundary. This agreement is consented, but construction has not started.
- North Falls Offshore wind site extension agreement which borders the Greater Gabbard wind site agreement to the west and is located 3.5km from the offshore scoping boundary. This is in the pre-planning application stage and is expected to cover 150.06km^2. The proposed export cable route intersects with the Offshore Scoping Boundary.
- Five Estuaries wind site extension agreement which borders the Galloper wind site to the east. This is also in the pre-planning application stage and is expected to cover an area of 148.7km^2. The proposed export cable route intersects with the Offshore Scoping Boundary.

Mineral and aggregate extraction

4.10.4.25 There are a number of mineral and aggregate extraction areas located within the study area. Although these areas do not overlap with the Offshore Scoping Boundary, three are located within 1km (see Table 4.10.1).

Table 4.10.1: Mineral and aggregate extraction locations within the study area

Company	Name	Type	Distance from Offshore Scoping Boundary
Hanson Aggregates Marine Ltd	Outer OTE (528/2)	Aggregate exploration and option area	<1km
Tarmac Marine Ltd	Longsand (509/1-3)	Aggregate production areas	8km
Britania Aggregates Ltd	Longsand (508)	Aggregate production area	1.2km

Company	Name	Type	Distance from Offshore Scoping Boundary
CEMEX UK Marine Ltd	Longsand (510/1-2)	Aggregate production area	<1km
Dover Harbour Board	Goodwin sands	Aggregate production area	9km
CEMEX UK Marine Ltd	Shipwash (507/1-6)	Aggregate production area	<1km

Dredging and disposal sites

4.10.4.26 Several navigational dredging sites have been identified in the study area, including Harwich navigation channel, Pegwell Bay navigational dredging area, North West Shipwash dredging site, the London Gateway Port navigation channel, the Inner Gabbard dredging area, Greater Gabbard dredging area and Project 8 Windserver dredging area[430].

4.10.4.27 Several licensed disposal sites have also been identified in the study area, including the Inner Gabbard East disposal site. EA One Route EC-3 disposal area and Harwich Haven disposal site[430]. A number of closed and disused disposal sites have also been identified.

Military areas

4.10.4.28 Several military practice zones, specifically Navy Practice and Exercise Areas (PEXAs) for surface fleet, have been identified in the study area. Only one of these zones (Kentish Knock), covering an area of 0.2km^2 intersects the Offshore Scoping Boundary.

4.10.4.29 A historical munitions disposal site (East Swin) has also been identified as present in the study area[430].

Pipeline and cable crossing

4.10.4.30 The Offshore Scoping Boundary will cross a number of active, planned and out of service cables. Active cables include Nemo link and BritNed submarine power cables, Thanet Offshore Windfarm export cable, East Anglia One export cable and a number of subsea telecommunications cables. In addition, a number of proposed projects will likely involve a crossing with the Project including Gridlink power cable and the export cables of the proposed East Anglia One North and East Anglia Two Offshore windfarms and North Falls and Five Estuaries offshore windfarms, as well as a number of proposed subsea telecommunications cables. There is a possible interaction with the existing Greater Gabbard and Galloper export cables at landfall in Suffolk.

Aquaculture

4.10.4.31 The study area is intersected by the Outer Thames shellfish waters[434].

[434] Cefas. (2016). Classified Bivalve Mollusc Harvesting Areas (England and Wales). [Online]. Available at: https://magic.defra.gov.uk/MagicMap.aspx. [Accessed: 29/06/2022].

4.10.4.32 The East Inshore Marine Plan and South East Inshore Marine Plan recognise aquaculture as a key area for development through its potential to contribute to the sustainability and security of the UK food supply which, in turn, may encourage growth in small and medium enterprises supporting the industry.

4.10.4.33 A study published in 2019[435] identified areas of aquaculture potential in English waters and defined strategic areas of sustainable aquaculture production, many of which are crossed by the study area and which may provide a future potential source of employment in deprived or peripheral areas, or those with a limited numbers of alternative employment options. It is seen as an industry where development could occur particularly at local levels[436]. In this context, the plan defines strategic areas of sustainable aquaculture production, many of which will be intersected by the study area[437] [438].

Future Baseline

4.10.4.34 The other sea users' chapter within the Environmental Statement (ES) will include an outline of the likely evolution of the baseline environment without the implementation of the development as far as natural changes from the baseline scenario can be assessed.

4.10.5 Embedded and Control & Management Measures

4.10.5.1 Given that many design elements of the Project have yet to be confirmed, the embedded and control and management measures have not been finalised at this stage. Measures will be discussed with statutory consultees and stakeholders throughout the EIA process.

Embedded Measures

4.10.5.2 The evolution of the Offshore Scoping Boundary has been informed by consideration of a number of different marine features; where possible, interaction with features such as spoil grounds, extraction areas, harbour limits and military training areas have been minimised where possible.

Control and Management Measures

4.10.5.3 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the other sea user's assessment are:

- OSU01 - crossing agreements will be agreed with aggregate extraction, cable and pipeline owners. The crossing agreement describes the rights and responsibilities of the parties and also the design of the crossing. Crossing design will be in line with industry standards, using procedures and techniques agreed with the cable and pipeline owners.

[435] MMO. (2019). Identification of areas of aquaculture potential in English waters (MMO1184).

[436] DEFRA. (2021). South East Inshore Marine Plan. Department for Environment, Food & Rural Affairs.

- OSU02 - timely and efficient communication will be given to sea users in the area via Notices to Mariners, Kingfisher Bulletins, Navigational Telex (NAVTEX), and Navigational Areas (NAVAREA) warnings.

4.10.6 Potential for Significant Effects

4.10.6.1 The assessment of other sea users will consider the construction, operation, maintenance and decommissioning of the Offshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

4.10.6.2 The proposed scope of the other sea users assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

4.10.6.3 This section identifies the sources and impacts that could occur as a result of the construction, operation, maintenance and decommissioning of the Offshore Scheme.

4.10.6.4 The potential for the Offshore Scheme to result in potential significant effects takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- unexploded ordnance (UXO) clearance;
- pre-installation geophysical surveys;
- pre-installation clearance of obstacles and debris;
- sand wave sweeping;
- cable installation and cable lay; and
- cable protection (e.g. rock placement, concrete mattresses).

Sources of operational impacts

- presence of activated cable; and
- presence of rock protection.

Sources of maintenance impacts

- geophysical and/or Remotely Operated Vehicle (ROV) surveys;
- cable repair or replacement; and
- cable protection (e.g. rock placement, concrete mattresses).

Sources of decommissioning impacts

- removal of cable from seabed;
- removal of cable protection (e.g. rock placement, concrete mattresses); and/or
- abandonment of cable in seabed;

Potential impacts

5.10.6.4 Table 4.10.2 identifies the potential impacts that could result from the sources identified above.

Table 4.10.2: Sources and impacts

Project Phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance and decommissioning	Presence of vessels	Vessel interaction with stationary or slow-moving traffic	Yes	**Scoped in**
Operation and decommissioning	Presence of in situ cable	Occupancy of seabed	Yes	**Scoped in**
Construction and decommissioning	UXO clearance; Pre-installation clearance of obstacles and debris; Sand wave sweeping; Cable installation and cable lay; Cable repair or replacement; Removal of cable from seabed; and Removal of cable protection	Route clearance in preparation for cable laying/removal will require the presence of specialist equipment	Yes	**Scoped in**
Construction, maintenance and decommissioning	Installation/removal of infrastructure	Installation/removal of infrastructure may interfere/displace other sea users	Yes	**Scoped in**

Impact Pathways with Receptors (Step 2)

4.10.6.5 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the other sea users study area.

4.10.6.6 Table 4.10.3 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the marine mammal assessment for the Offshore Scheme.

Table 4.10.3: Impact pathways with receptors

Impact Pathway	Receptors	Potential for Significant Effects	Proposed to be Scoped In/Out
Physical presence of vessels (e.g. cable lay barge and support vessels) interacting with stationary or slow-moving traffic during construction, maintenance and decommissioning	Offshore windfarm access, operating and maintenance; Recreational sports and fishing; Marine aggregate extraction; Marine dredging and disposal; Military practice areas; recreational boating; and Aquaculture	Yes - additional presence of project vessels could interfere with and provide obstacles in an area which is already characterised with high density vessel traffic	**Scoped in**
Occupancy of seabed during operation and decommissioning – below seabed	Offshore windfarm and export cable maintenance; marine aggregate extraction; dredging and disposal; and aquaculture	Yes - the cable will occupy an area of the seabed, which may disrupt the placement of future infrastructure/offshore activities	**Scoped in**
Occupancy of seabed during operation and decommissioning – above seabed	Offshore windfarm and export cable maintenance; marine aggregate extraction; dredging and disposal; and aquaculture	Yes – cable protection measures will occupy an area of the seabed, which may disrupt the placement of future infrastructure/offshore activities	**Scoped in**
Pre-clearance and pre-sweeping of seabed during construction and decommissioning	Offshore windfarms and export cable; marine aggregate extraction; dredging and disposal; aquaculture; military operations; and recreational boating.	Yes - the clearance and sweeping of the seabed in preparation for cable laying/removal will require the presence of specialist equipment, which may interfere with the operation of other sea users	**Scoped in**
Installation/removal of infrastructure during construction, maintenance and decommissioning	Operation of offshore windfarms; marine aggregate extraction; dredging and disposal; military operations; pipeline and cable crossings; aquaculture; recreational boating	Yes – installation of infrastructure could interfere/displace other sea users	**Scoped in**

4.10.7 Proposed Assessment Methodology

Proposed Data Sources

4.10.7.1 The following data sources are proposed to be used to inform the assessment:

- The Crown Estate Asset Maps: including offshore windfarms, wind export cable agreements, carbon capture and storage sites, and marine aggregate digital data;
- NST: Digital data for oil and gas infrastructure and blocks;
- MMO Public Register for marine licences and MMO Evidence Projects;
- MMO 'Explore Marine Plans' data portal, including spatial data for marine aggregates, aquaculture, dredging and disposal sites, and recreational areas
- MMO Mapping recreational sea anglers in English waters;
- UK Hydrographic Office: Military Practice and Exercise Areas;
- Environment Agency: bathing waters in England;
- KIS-ORCA: Marine cables digital data;
- Marine sports websites (Professional Association of Diving Instructors (PADI), Magic Seaweed; Finstrokes);
- AIS vessel traffic data;
- Relevant Environmental Statements;
- Marine Data Exchange Offshore Wind Environmental Evidence Register (OWEER); and
- RYA UK Coastal Atlas of Recreational Boating.

4.10.7.2 The overall assessment methodology for other sea users will follow the standard methodology outlined in **Part 1, Chapter 5, EIA Approach and Methodology.**

4.10.7.3 The assessment of impacts to other sea users will focus on establishing potential for overlaps, interactions and the consequent potential for conflict between activities in both a geographical and temporal context.

Proposed Assessment Methodology

Value and sensitivity of receptor

4.10.7.4 The value and sensitivity of the receptor is characterised as either very high, high, medium, low or negligible. Examples of definitions for differing levels of sensitivity of other sea user receptors are provided below in Table 4.10.4.

Table 4.10.4: Definitions of value/sensitivity for other sea users

Very High	Very high value activity/activity fundamental to the operator of an asset of international or national economic importance. No redundancy available in event of impact. Asset very sensitive to the impact. For example, gas pipeline, electrical infrastructure or telecommunication cable supporting UK or European activity or nationally important

	aggregates area where extraction company has no access to areas of equal quality aggregates.
High	High value activity/activity key to the operator of an asset of international or national economic importance. Very little redundancy available in event of impact. Asset sensitive to the impact. For example, gas pipeline, electrical infrastructure or telecommunication cable supporting UK or European activity or nationally important aggregates area where extraction company has very limited access to areas of equal quality aggregates.
Medium	Medium value activity. Impact to asset would significantly reduce operators' activities but not result in complete failure to continue operations. Limited redundancy available. Asset regionally important. Asset has limited tolerance of impact. For example, gas pipeline, electrical infrastructure or telecommunication cable supporting a specific region, where asset owners have some potential for redundancy planning. Aggregate areas where extraction company has some access to equal quality aggregate.
Low	Low value activity. Impact to asset would have limited implications on operator/public either due to the availability of redundancy or limited pathway for impact. Asset has some tolerance of impact. For example, electrical or telecommunication cable with ability to undertake redundancy planning to limit impact. Aggregate area where extraction company has access to large area of equal quality aggregate.
Negligible	Low value activity, operators' activities would not be significantly reduced by impact. Asset generally tolerant of impact. Limited impact to asset owners or local community in case of damage or failure.

Magnitude of impact

4.10.7.5 The magnitude of impact will be considered in terms of the spatial extent, duration and timing of the impact in question. The magnitude levels and definitions for other sea users are provided in Table 4.10.5.

Table 4.10.5: Example definitions of the magnitude levels for other sea users

Large	Fundamental, permanent/irreversible changes, over the whole receptor, and/or fundamental alteration to continuation of activity. For example, accidental damage to asset resulting in permanent or long-term inoperability or complete loss of access to economically important asset.
Medium	Considerable, permanent / irreversible changes, over the majority of the receptor, and / or discernible alteration to activity. For example, damage to an asset that results in either short term, complete inoperability or long term reduced functionality. Partial loss of access to economically important asset, or short-term complete loss of access

Small	Discernible, temporary (throughout project duration) change, over a minority of the receptor, and/or limited but discernible alteration activity. Accidental damage to asset resulting in short term reduction of functionality but not complete loss of function. Short term disruption to access of asset.
Negligible	Discernible, temporary (for part of the project duration) change, or barely discernible change for any length of time, over a small area of the receptor, and/or slight alteration to activity.

Significance of effect

4.10.7.6 Following the identification of other sea user receptor value and sensitivity and magnitude of impact, it is possible to determine the significance of effect following the approach detailed in **Part 1, Chapter 5, EIA Approach and Methodology**.

4.10.8 Conclusion

4.10.8.1 In summary:

- Other sea users are present in the study area;
- Offshore windfarms and corresponding export cables dominate offshore infrastructure in the study area;
- There are no oil and gas, carbon capture and storage, and wave and tidal projects present in the study area; and
- There is the potential for increased use by other sea users within the study area in the near future, including consented offshore wind sites.

Proposed Scope of the Assessment

4.10.8.2 A summary of the proposed scope of assessment is provided in Table 4.10.6 below.

Table 4.10.6: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
Other sea users	Increased presence of stationary and slow-moving vessels	Construction Maintenance Decommissioning	**Scoped in**
Other sea users	Occupancy of seabed - subsurface	Operation Decommissioning	**Scoped in**
Other sea users	Occupancy of seabed - surface	Operation Decommissioning	**Scoped in**
Other sea users	Disruption due to preparation of cable route	Construction Decommissioning	**Scoped in**

Other sea users	Disruption due to installation/removal of infrastructure	Construction Maintenance Decommissioning	**Scoped in**

4.11 Cumulative Effects

4.11.1 Introduction

4.11.1.1 This chapter presents how the intra-project and inter-project cumulative effects assessment will consider the potentially significant cumulative effects that may arise from the Offshore Scheme. A description of intra-project and inter-project cumulative effects is presented in **Part 1, Chapter 5, EIA Approach and Methodology**.

4.11.1.2 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project;**
- **Part 1, Chapter 5, EIA Approach and Method;** and
- **Part 4 Technical Chapters 2-10.**

4.11.1.3 This chapter is supported by the following figures:

- **Figure 4.11.1 Zone of Influence for the Offshore Scheme;**
- **Figure 4.11.2 Long List Projects within the Offshore Scheme Zone of Influence;** and
- **Figure 4.11.3 Projects proposed to be taken to Stage 2 for the Offshore Scheme.**

4.11.2 Intra-Project

4.11.2.1 The proposed method for assessing the intra-project cumulative effects is presented in **Part 1, Chapter 5**, **EIA Approach and Methodology**. This describes a proposed three staged approach that will be used to assess whether the culmination of effects on an individual receptor is likely to lead to an overall effect of greater significance.

4.11.2.2 The first stage (pre-screening) in the process is to identify whether individual or groups of receptors could be affected by more than one type of effect (usually where they are considered by more than one technical chapter).

4.11.2.3 Where this first stage identifies that either:

- there is only one type of effect for a particular receptor; or
- only one topic has identified effects on that receptor,

it is considered that there will be no potential for intra-project effects and receptors will not be taken through to the next stage (screening) of the assessment.

4.11.2.4 An initial pre-screening assessment is presented in Table 4.11.1 showing how the receptor groups are likely to interact between chapters. This will be revisited as part of the assessment to ensure all receptors considered within the Environmental Statement (ES) are taken through this pre-screening assessment.

Table 4.11.1: Pre-screening stage

Receptors by chapter	Technical chapters								
	2	3	4	5	6	7	8	9	10
Chapter 2 Physical Environment		✓							
Chapter 3 Benthic Ecology	✓								
Chapter 4 Fish and Shellfish Ecology	✓	✓						✓	
Chapter 5 Marine Mammals		✓	✓						
Chapter 6 Marine Ornithology		✓	✓						
Chapter 7 Marine Archaeology	✓								
Chapter 8 Shipping and Navigation				✓	✓			✓	✓
Chapter 9 Commercial Fisheries			✓				✓		✓
Chapter 10 Other Sea Users							✓	✓	

4.11.3 Inter-Project

4.11.3.1 The proposed method for assessing the inter-project cumulative effects is presented in **Part 1, Chapter 5, EIA Approach and Method**. The following section sets out the methodology for Stage 1 and Stage 2 in relation to the Offshore Scheme.

Stage 1

4.11.3.2 Stage 1 of the approach outlined in Planning Inspectorate (PINS) Advice Note Seventeen[437] requires a 'long list' of other developments to be identified, as well as high level information, such as the location/application boundary. This initial long list is provided in **Appendix 1.5.A Inter-Project Cumulative Effects Long List** and will be continually reviewed and updated as required.

Establishing the Zone of Influence (ZOI)

4.11.3.3 The first step in identifying the long list is to establish the Zone of Influence (ZOI) for the Offshore Scheme. **Part 1, Chapter 5, EIA Approach and Methodology** describes how the ZOI can be defined based on the largest study area of the technical chapters and doubling that area in order to identify a long list of other developments. The study areas identified within the offshore scoping technical chapters 2-10 have been identified to determine the baseline within the marine environment. These study areas take into account environmental influences such as metocean conditions originating at distance from the Offshore Scheme and the wide-ranging nature of mobile species rather than the maximum area over which the Offshore Scheme could result in potential effects.

[437] Planning Inspectorate (2019). Advice Note Seventeen: Cumulative effects assessment – cumulative effects assessment relevant to nationally significant infrastructure projects. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-17/.

4.11.3.4 Therefore, when identifying the ZOI for the assessment of cumulative effects in the marine environment, it is appropriate to consider the spatial extent of the impacts of the source activities in order to identify a proportionate and realistic ZOI rather than the study area identified to inform the baseline conditions.

4.11.3.5 The source activities which will have the furthest ranging spatial impacts in the marine environment are those that generate underwater noise. Guidance regarding the assessment of effects from underwater sound source impacts in relation to SACs designated for the protection of harbour porpoise (the cetacean species with the highest hearing sensitivity) indicates the maximum distance for significant disturbance from geophysical surveys is 5km and 26km for impact piling and high order unexploded ordnance (UXO) detonation[438].

4.11.3.6 Due to the impulsive, short lived and immediate nature of UXO detonation activities the likelihood of cumulative impacts with other projects undertaking this activity at the same point in time is low and as such it is not proposed to use this as the basis for defining the ZOI to identify the long list of projects. Consideration will however be given to the programme of activities of other developments as the Project progresses and additional information becomes available, and mitigation will be identified where necessary.

4.11.3.7 As described above geophysical surveys can produce noise levels that can have disturbance effects on marine mammals up to 5km. Based on the proposed cumulative assessment methodology (**Part 1, Chapter 5, EIA Approach and Methodology**) this would result in a ZOI of 10km for the identification of the long list of projects. It is however, acknowledged that there are a number of proposed offshore windfarm developments in the North Sea that, if progressed, would be undertaking piling activities. Although the detailed programme of activities is currently unknown, in-order to take a precautionary approach it is proposed that the ZOI for the identification of other projects to be considered with the assessment of cumulative effects be extended to take into account the potential temporal overlap with piling activities of other developments, which can have disturbance effects on marine mammals up to 26km. Therefore, the theoretical furthest distance that another project could be from the Project that could result in a potential cumulative effect is 31km (based on the Project potentially resulting in disturbance effects up to 5km and other developments which could have disturbance effects up to 26km).

4.11.3.8 Considering the above an overall cumulative assessment ZOI of 31km is proposed. This is illustrated on **Figure 4.11.1 Zone of Influence for the Offshore Scheme**. This will be kept under review as the Project develops and the long list updated as required.

Identify the long list of 'other developments'

4.11.3.9 A long list of other developments has been established and is presented in **Appendix 1.5.A Inter-Project Cumulative Effects Long List** and those that are within the ZOI for the Offshore Scheme are shown on **Figure 4.11.2 Long List Projects within the Zone of Influence.** This has been established using the guidance provided in Advice Note Seventeen and the 'other developments' have been categorised into three Tiers as described in **Part 1, Chapter 5, EIA Approach and Methodology**.

4.11.3.10 The Offshore Scheme Scoping Boundary does not directly interact with any existing or proposed marine aggregate extraction areas and existing activities associated with

[438] JNCC (2020). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales and Northern Ireland), JNCC Report No. 654, ISSN 0963-8091. Peterborough: JNCC.

marine aggregate dredging are considered as part of the existing baseline, however; aggregate exploration and option areas within 10km of the Offshore Scoping Boundary are included in the long list.

4.11.3.11 The Offshore Scheme Scoping Boundary does not directly interact with any licensed disposal sites over and above those associated with the other developments already identified in the long list.

4.11.3.12 Minor planning applications have been excluded from the assessment, as these relate to projects of small scale and local significance. These projects are highly unlikely to give rise to significant cumulative environmental effects over and above the Offshore Scheme in isolation.

Stage 2

4.11.3.13 The long list is presented in **Appendix 1.5.A Inter-Project Cumulative Effects Long List** and those projects relevant to the Offshore Scheme are illustrated on **Figure 4.11.2 Long List Projects within the Zone of Influence.** The projects included on the long list were then screened as to the nature and scale of development, to identify whether they would be likely to result in potential cumulative effects with the Offshore Scheme.

4.11.3.14 The long list of projects proposed to be taken forward to Stage 2 are listed in Table 4.11.2 below and illustrated on **Figure 4.11.3 Projects Proposed to be taken to Stage 2 for the Offshore Scheme**.

Table 4.11.2: Long list of projects to be taken forward for Stage 2

ID	Application Ref (where applicable)	Consenting body	Project	Description	Distance from Offshore Scoping Boundary (km)	Tier
1	EN10012	Planning Inspectorate	Sizewell C Nuclear Power Station	Development of new nuclear power station	<0.5	Tier 1
2	MLA/2019/00488	MMO	NeuConnect	Interconnector from UK to Germany	0	Tier 1
3	MLA/202000262	MMO	GridLink	Interconnector from UK to France	0	Tier 1
4	N/A	Planning Inspectorate	North Falls Offshore Windfarm	Offshore windfarm development	0	Tier 2
5	EN010077	Planning Inspectorate	East Anglia ONE North Offshore Windfarm	Offshore windfarm development	0	Tier 1

6	EN010078	Planning Inspectorate	East Anglia TWO Offshore Windfarm	Offshore windfarm development	0	Tier 1
7	N/A	Planning Inspectorate	Nautilus	Interconnector from UK to Belgium	0	Tier 2
9	N/A	Planning Inspectorate	Five Estuaries Offshore Windfarm	Offshore windfarm development	0	Tier 2
11	EN010056	Planning Inspectorate	East Anglia THREE Offshore Windfarm	Offshore windfarm development	0	Tier 1
287	N/A	TBC	EuroLink	Interconnector from UK to The Netherlands	TBC	Tier 3
289	N/A	MMO	Hanson Aggregates Marine Ltd Area 528/2	Aggregate exploration and option area	<500m	Tier 3

4.11.4 Conclusion

4.11.4.1 As outlined above inter and intra cumulative effects are proposed to be scoped into the EIA and the results will be presented in the ES. **Appendix 1.5.A Inter-Project Cumulative Effects Long List** considers each scoped in environmental discipline, the ZOI and whether effects associated with each of the developments could interact with the effects associated with this project. Table 4.11.2 outlines the proposed short-listed developments that further information including, design, location, programme, operation and decommissioning information and reported environmental effects will be gathered for, to inform which of those developments will be assessed as part of the inter-project cumulative effects assessment.

Sea Link

Environmental Impact Assessment Scoping Report
Volume 1 man Text
Part 5 Project Wide Effects

October 2022



nationalgrid

Contents

5.1 Climate Change 1

5.2.1 Introduction 1
5.2.2 Study Area 1
5.2.3 Regulatory and Planning Context 2
5.2.4 Baseline 4
5.2.5 Embedded and Good Practice Measures 4
5.2.6 Potential for Significant Effects 5
5.2.7 Proposed Assessment Methodology 8
5.2.8 Assumptions, Limitations and Uncertainties 14

5.2 Major Accidents and Disasters 15

5.2.1 Introduction 15
5.2.2 Regulatory and Planning Context 15
5.2.3 Study Area 16
5.2.4 Baseline Conditions 17
5.2.5 Scoping Methodology 22
5.2.6 Potential for Significant Effects 23
5.2.7 Proposed Assessment Methodology 23
5.2.8 Conclusion 24

5.3 Combined Effects of the Project 25

5.2.1 Introduction 25
5.2.2 Potential for Combined Effects 26

Tables

Table 5.1.1: Potential sources of GHG emissions 5
Table 5.1.2: Climate parameters for the ICCI assessment of the Project 7
Table 5.1.3: Parameters proposed to be scoped Into the Climate Change resilience assessment 8
Table 5.1.4: Significance Criteria 10
Table 5.1.5: Description of likelihood of climate change hazard 12
Table 5.1.6: Categories for the likelihood of the climate-related impact occurring 13
Table 5.1.7: Description of consequences 13
Table 5.1.8: Significance of effect matrix (where 'S' is significant and 'NS' is not significant) 13
Table 5.2.1: Major accidents and disaster groups and categories 18
Table 5.2.2: Signpost to chapters with relevant receptors 19
Table 5.2.3: COMAH sites within 3km of Project Scoping Boundary 20
Table 5.2.4: Proposed scope of the assessment 24
Table 5.3.1: Potential for combined effects 27

Images

Image 5.2.1 Scoping decision process flow 23

5.1 Climate Change

5.2.1 Introduction

5.1.1.1 To align with the requirements of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended by The Town and Country Planning, and Infrastructure Planning (Environmental Impact Assessment (EIA)) (Amendment) Regulations 2018) Regulations[1] and the Institute of Environmental Management and Assessment (IEMA)'s Guidance for assessing climate mitigation[2] and adaptation[3] in EIAs, consideration has been given within this chapter to three aspects of climate change assessment:

- **Lifecycle Greenhouse Gas (GHG) Impact Assessment** – The impact of GHG emissions arising from the Project on the climate over its lifetime;
- **In-Combination Climate Change Impact (ICCI) Assessment** – Combined impact of the Project and future climate change on the receiving environment[4]; and
- **Climate Change Resilience (CCR) Assessment** – The resilience of the Project to the potential impacts of climate change.

5.2.2 Study Area

Lifecycle GHG Impact Assessment

5.1.2.1 The study area for the Lifecycle GHG Impact Assessment covers all direct GHG emissions arising from activities undertaken with the Project scoping boundary during the preconstruction, construction, operation and maintenance, and decommissioning of the Project. It also includes indirect emissions embedded within the construction materials arising as a result of the energy used for their production, as well as emissions arising from the transportation of materials, waste and construction workers.

5.1.2.2 The environmental impact associated with GHG emissions is a national and global issue. Consequently, the potential significance of the proposed Project's Lifecycle GHG emissions will be assessed by comparing the estimated GHG emissions from the Project against the reduction targets defined in The Climate Change Act 2008 (2050

[1] His Majesty's Stationery Office (HMSO) (2011). The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended by The Town and Country Planning and Infrastructure Planning (Environmental Impact Assessment) (Amendment) Regulations 2018). [online] Available at: https://www.legislation.gov.uk/uksi/2018/695/contents/made.

[2] Institute of Environmental Management and Assessment (IEMA) (2022). Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance. [online] Available at: https://www.iema.net/preview-document/assessing-greenhouse-gas-emissions-and-evaluating-their-significance.

[3] Institute of Environmental Management and Assessment (IEMA) (2020). Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation. [online] Available at: https://www.iema.net/resources/reading-room/2020/06/26/iema-eia-guide-to-climate-change-resilience-and-adaptation-2020.

[4] In line with IEMA guidance, this is the combined effect of the impacts of the Project and potential climate change impacts on the receiving environment are referred to as 'in-combination impacts' and 'in-combination effects'.

Target Amendment) Order 2019[5] and associated five year, legally binding carbon budgets.

In-Combination Climate Change Impact Assessment

5.1.2.3 The study area for the ICCI Assessment is as defined in each environmental assessment within the Environmental Statement (ES), and includes all environmental receptors as identified within the assessments undertaken by the environmental disciplines for the purpose of this Project.

Climate Change Resilience Assessment

5.1.2.4 The study area for the CCR Assessment is the land within the Project Scoping Boundary, i.e., it covers the construction, operation and decommissioning of all assets and infrastructure which constitute the Project.

5.2.3 Regulatory and Planning Context

5.1.3.1 Legislation, planning policy and guidance relating to climate change, and pertinent to the Project, comprises:

Legislation

- The Climate Change Act 2008 (2050 Target Amendment) Order 2019; and
- The Carbon Budget Order 2021[6].

National Planning Policy

- National Planning Statement for Energy (NPS EN-1)[7], with particular reference to the following paragraphs:
  - Paragraphs 2.2.9 and 4.8.2 in relation to impacts on climate and adaptation;
  - paragraphs 4.1.3 to 4.1.4 in relation to adverse effects and benefits;
  - paragraphs 4.2.1, 4.2.3, 4.2.4, 4.2.8 to 4.2.10 and 5.1.2 in relation to EU Directive and ES requirements;
  - paragraphs 4.5.3 and 4.8.1 to 4.8.12 in relation to adaptation measures in response to climate projections; and
  - paragraphs 5.7.1 to 5.7.2 in relation to climate projections, flood risk and the importance of relevant mitigation.

[5] His Majesty's Stationery Office (HMSO) (2008). The Climate Change Act 2008 (2050 Target Amendment) Order 2019. [online] Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111187654.

[6] His Majesty's Stationery Office (HMSO) (2021). The Carbon Budget Order 2021. [online] Available at: https://www.legislation.gov.uk/ukdsi/2021/9780348222616.

[7] Department of Energy and Climate Change (DECC) (2011). National Policy Statement for Energy (EN-1). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf.

- National Planning Policy Framework (NPPF)[8] –
  - paragraphs 8, 20 and 149 in relation to adaptation, mitigation and climate change resilience;
  - paragraphs 148 and 157 in relation to flood risk and damage to property and people;
  - paragraphs 150 and 153 in relation to reduction of CO2 emissions through design and reduced energy consumption; and
  - paragraphs 155 to 165 in relation to climate projections, associated flood risk and adaptation.

National Guidance

- Planning Practice Guidance (PPG), Climate Change[9].

Local Planning Policy

- Thanet District Council Local Plan (Adopted July 2020)[10].
- Kent Environment Strategy – a strategy for environment, health and economy (March 2016)[11].
- Kent and Medway Energy and Low Emissions Strategy: Implementation Plan 2020-2023 (May 2021)[12].

5.1.3.2 The national planning policies identify the requirement for consideration of climate change resilience. Climate projections should be analysed, and appropriate climate change adaptation measures considered throughout the design process. Specific climate change risks identified within these policies include flooding, drought, coastal change, rising temperatures and associated damage to property and people.

5.1.3.3 Local planning policies identify the need to consider and, where appropriate, mitigate GHG emissions associated with new development. New development should aim for reduced or zero-carbon development by incorporating renewable or low-carbon energy sources and maximising energy efficiency where practicable, and should build in resilience to projected climate change impacts.

[8] Ministry of Housing, Communities and Local Government (MHCLG) (2019). National Planning Policy Framework (NPPF). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf.

[9] Ministry of Housing, Communities and Local Government (MHCLG) (2014). National Planning Practice Guidance: Climate Change. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf.

[10] Thanet District Council (2020). Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf.

[11] Kent County Council (2016). Kent Environment Strategy. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0020/10676/KES_Final.pdf.

[12] Kent County Council (2021). Kent and Medway Energy and Low Emissions Strategy: Implementation Plan 2020-2023. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0004/121954/Kent-and-Medway-Energy-and-Low-Emissions-Strategy-Implementation-Plan-2020-2023.pdf.

5.2.4 Baseline

Lifecycle GHG Impact Assessment

5.1.4.1 The receptor for the Lifecycle GHG Impact Assessment is the global climate. The current land use within the footprint of the Project consists predominately of arable land, managed hedgerows, and trees. Trees are present individually in some areas, as well as rows of trees and small woodland areas. The abundance of vegetation within the Project Scoping Boundary suggests a relatively high carbon sink potential. Current land use within the Project Scoping Boundary has minor levels of associated GHG emissions as the land use is largely arable. Baseline agricultural GHG emissions are dependent on soil and vegetation types present, and fuel use for the operation of vehicles and machinery. The baseline marine conditions can be found in **Part 4, Chapter 3, Benthic Ecology**.

5.1.4.2 For the GHG assessment, the baseline is a 'business as usual' scenario whereby the Project is not implemented. The Project is predominately underground however there will be above ground converter stations. A full assessment of the baseline 'business as usual' scenario will be undertaken within the ES.

In-Combination Climate Change Impact Assessment

5.1.4.3 The receptors for ICCI Assessment are receptors within the surrounding environment that will be impacted by the Project in combination with future climatic conditions. Baseline conditions for the ICCI Assessment are determined using the climate change projections data.

5.1.4.4 An initial review of UK Climate Projections 2018 (UKCP18) data[13] for the 25km grid square (637500.00, 162500.00) within which the Project is located suggests that by the 2050s time period (2040–2069), the region could experience an increase of around 2.4°C in summer mean air temperature at 1.5m, and an increase of 1.7°C in winter mean air temperature at 1.5m, compared to a 1981–2010 baseline period. For the same time period, summer mean precipitation could decrease by around 18.6%, whilst in winter it could increase by 10.0%.

Climate Change Resilience Assessment

5.1.4.5 The receptor for the CCR Assessment is the Project itself, including its construction and operation phases. The Climate Change Resilience Assessment will provide a description of how the Project will be designed to be more resilient to the climate change impacts identified during the review of the UKCP18 data. A more detailed assessment of climate change projections will be conducted for the land within the Project scoping boundary as part of the ES.

5.2.5 Embedded and Good Practice Measures

5.1.5.1 A number of measures are under consideration subject to the relevant assessments being undertaken and their needs identified and these considerations include:

[13] UK Climate Impacts programme (UKCIP) (2018) UK Climate Projections 2018 (UKCP18). [online] Available at: https://catalogue.ceda.ac.uk/uuid/c700e47ca45d4c43b213fe879863d589.

- The use of materials with a low embodied carbon;
- The use of low carbon construction techniques; and
- Designing the Project to be resilient to any significant impacts of climate change.

5.1.5.2 The considerations for the ICCI assessment will be determined by the topic specialists.

5.2.6 Potential for Significant Effects

Lifecycle GHG Impact Assessment

5.1.6.1 For the purposes of this assessment, it has been considered that any increase in GHG emissions compared to the baseline has the potential to have an impact, due to the high sensitivity of the receptor (global climate) to increases in GHG emissions. This is in line with the IEMA Guidance, which states that all GHG emissions have the potential to be significant. The application of the standard EIA significance criteria is not considered to be appropriate for climate change mitigation assessments. The GHG impacts will be put into context in terms of their impact on the UK's 5-year carbon budgets, which set legally binding targets for GHG emissions. The GHG impacts will also be put into context for the sub-sectoral budgets for energy generation. Table 5.1.1 provides the lifecycle stages, related activities and primary emission sources to be considered for the GHG assessment.

Table 5.1.1: Potential sources of GHG emissions

Lifecycle stage	Activity	Primary emission sources
Product stage	• Raw material extraction and manufacturing of products required to build the equipment for the Project. Due to the complexity of the equipment, this stage is expected to make a significant contribution to overall GHG emissions. • Transportation of materials for manufacturing.	• Embodied GHG emissions from energy use in extraction of materials and manufacture of components and equipment. • Emissions of GHG from transportation of products and materials.
Construction process stage	• On-site construction activity including emissions from construction compounds. • Transportation of construction materials (where these are not included in product-stage. • Travel of construction workers.	• Consumption of energy (electricity; other fuels) from plant, vehicles, generators, vessels and worker travel. • Fuel consumption from transportation of materials to site, where these are not included in product-stage embodied emissions. Due to the nature of the equipment, this could require shipment of certain aspects over significant distances.

	• Disposal of waste materials generated by the construction process. • Land use change. • Water use.	• GHG emissions from transportation and disposal of waste. • GHG emissions from net loss of carbon sink. • Provision of clean water, and treatment of wastewater.
Operation stage	• Operation and maintenance of the Project.	• GHG emissions from energy consumption, provision of clean water and treatment of wastewater. These operational emissions are expected to be negligible in the context of the overall GHG impact. • Leakage of potent GHGs, such as SF_6, during operation. • GHG emissions from material use and waste generation resulting from ongoing site maintenance. Emissions from routine maintenance are expected to be negligible, but the periodic replacement of components has the potential to have significant impacts given the complexity of the equipment involved.
Decommissioning stage	• On-site decommissioning activity. • Transportation and disposal of waste materials. • Worker travel.	• Consumption of energy (electricity and other fuels) from plant, vehicles, vessels and generators on site. • Emissions from the disposal and transportation of waste. This has the potential to be significant give the complexity of the equipment. • GHG emissions from transportation of workers to site.

5.1.6.2 An outline Environmental Management Plan (EMP) will be prepared to suggest mitigation measure. A Construction EMP (CEMP) will then need to be prepared and implemented at the delivery stage of the Project.

5.1.6.3 The final selection of any mitigation measures, if required, will be detailed as part of the lifecycle GHG impact assessment in the ES. This may include GHG emission mitigation measures concerning preconstruction, construction, operation and decommissioning of the Project. Since any increase in GHG emissions is considered to have an impact, the lifecycle GHG assessment is proposed to be scoped in.

In-Combination Climate Change Impact Assessment

5.1.6.4 The ICCI Assessment identifies how the resilience of various receptors in the surrounding environment is affected by a combination of future climate conditions and the Project. The climate parameters relevant to the Project are detailed in Table 5.1 below together with the rationale for scoping. On the basis of the information presented in Table 5.1.2 an ICCI Assessment is proposed to be scoped out.

Table 5.1.2: Climate parameters for the ICCI assessment of the Project

Parameter	Proposed to be scoped in/out	Rationale for scoping conclusion
Temperature change	Out	While impacts are expected as a result of projected temperature increases, for example on arable land, these temperature increases in combination with the Project are not expected to have a significant impact upon receptors identified by other environmental disciplines.
Sea level rise	Out	The Project is not located in an area that is susceptible to sea level rise due to the buried nature of the cable, even at landfall.
Precipitation change[14]	Out	Climate change may lead to an increase in substantial precipitation events that could lead to flash flooding or changes to groundwater levels. However, no significant impacts on surface water or groundwater levels are expected as a result of precipitation changes, in combination with the Project, as the flow of precipitation to ground will not be significantly hindered if SuDS principles are applied. The Project, in combination with projected changes in precipitation, is also not expected to have a significant impact upon receptors identified by other environmental disciplines.
Wind	Out	The Project, in combination with projected changes in wind patterns, is not expected to have a significant impact upon receptors identified by other environmental disciplines.

Climate Change Resilience Assessment

5.1.6.5 Climate parameters relevant to the climate change assessment are detailed in Table 5.1.3 below. On the basis of the information presented in Table 5.1.3**,** the climate change resilience review is proposed to be scoped in.

[14] Frequency and magnitude of precipitation events and droughts

Table 5.1.3: Parameters proposed to be scoped Into the Climate Change resilience assessment

Parameter	Proposed to be scoped in/out	Rationale
Extreme weather events	In	Storm damage to structures and assets are likely to the location of the Project.
Increased average temperatures and incidence of heatwaves	In	The location of the Project in the UK is not prone to regular extremes in temperatures that may result in heat stress of materials and structures however due to recent reports of materials in the UK suffering due to extreme weather conditions this has been scoped in.
Increased frequency of heavy precipitation events	In	Damage to structures and drainage systems could occur due to the nature of the Project location.
Sea level rise	In	The marine cable is to be buried under the seabed therefore it is not susceptible to sea level rise. However, throughout operation, maintenance will be required on the terrestrial cables, and there might be future access needs to the TJBs if they become submerged.

5.1.6.6 The Climate Change Resilience Assessment will qualitatively assess the Project's resilience to climate change. This will be completed in liaison with the Project's design team and the other EIA technical disciplines by considering the climate projections for the geographical location and timeframe of the Project.

5.1.6.7 A statement will be provided within the ES to describe how the Project will be adapted to improve its resilience to future climate conditions.

5.2.7 Proposed Assessment Methodology

Lifecycle GHG Impact Assessment

5.1.7.1 The GHG assessment will follow a project lifecycle approach to calculate estimated GHG emissions arising from the construction, operation and decommissioning of the Project and to identify GHG 'hot spots' (i.e. emissions sources likely to generate the largest amount of GHG emissions). This will enable the identification of priority areas for mitigation in line with the principles set out in IEMA Guidance.

5.1.7.2 In line with the World Business Council for Sustainable Development and World Resources Institute GHG Protocol guidelines[15], the GHG assessment will be reported as tonnes of carbon dioxide equivalent (tCO_2e) and will consider the seven Kyoto Protocol gases:

[15] World Business Council for Sustainable Development and World Resources Institute (2001) The GHG Protocol, A Corporate Accounting and Reporting Standard.

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Sulphur hexafluoride (SF_6);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Nitrogen trifluoride (NF_3).

5.1.7.3 Expected GHG emissions arising from the construction activities, embodied carbon in materials and operational emissions of the Project, as well as baseline emissions, will be quantified using a calculation-based methodology as per the following equation, and aligned with the GHG Protocol:

Activity data x GHG emissions factor = GHG emissions

5.1.7.4 Department for Environment, Food and Rural Affairs (DEFRA) 2022 emissions factors[16] and embodied carbon data from the University of Bath Inventory of Carbon and Energy (ICE)[17] are among those that will be used as the primary data sources for calculating GHG emissions.

5.1.7.5 The sensitivity of the receptor (global climate) to increases in GHG emissions is always defined as high as any additional GHG impacts could compromise the UK's ability to reduce its GHG emissions and therefore meet its future 5-year carbon budgets. Also, the extreme importance of limiting global warming to below 2°C this century is broadly asserted by the International Paris Agreement[18] and the Climate Science Community.

5.1.7.6 When evaluating significance of the GHG emissions, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG profile. The significance of a Project's emissions should therefore be based on its net impact over its lifetime, which may be positive, negative or negligible. The crux of significance therefore is not whether a Project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050.

5.1.7.7 The following significance criteria in Table 5.1.4 will be used to determine the projects whole life GHG emissions and how these align with the UK's net zero compatible trajectory. Major adverse or moderate adverse effects and beneficial effects are considered to be significant. Minor adverse and negligible effects are not considered to be significant.

[16] Department for Environment, Food and Rural Affairs (DEFRA) (2022). Conversion Factors Database (2022). [online] Available at: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022.

[17] Circular Economy (2019). Inventory of Carbon and Energy Database. [online] Available at: https://circularecology.com/embodied-carbon-footprint-database.html.

[18] United Nations Framework Convention on Climate Change (UNFCCC) (2015) Paris Agreement. [online] Available at: https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

Table 5.1.4: Significance Criteria

Level of significance	Description
Major adverse	The Project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A Project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.
Moderate adverse	The Project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with the local and national policy goals for projects of this nature. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.
Minor adverse	The Project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.
Negligible	The Project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.
Beneficial	The Project's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

5.1.7.8 The UK carbon budgets are currently only available to 2037 (6th Carbon Budget). Where further carbon budgets are not available (7th, 8th and 9th Carbon Budget periods), these have been projected based on data published by the climate change committee (CCC). Totals for these periods have not been approved or ratified and are not legally binding, but indicative figures can provide valuable context at this stage.

5.1.7.9 Either a quantitative or qualitative lifecycle GHG assessment of the marine habitats will be undertaken during the ES to reflect the expected change in ha of habitats

Climate Change Resilience Assessment

5.1.7.10 The identification and assessment of CCR within EIA is an area of emerging practice. There is no single prescribed format for undertaking such assessments; therefore, the approach adopted to undertaking and reporting the assessment has drawn on good

practice from other similar developments and studies, and is aligned with existing guidance such as that published by IEMA[3].

5.1.7.11 The receptor for the CCR review is the Project itself, including workers, infrastructure, visitors and residents.

5.1.7.12 The CCR Assessment will consider the impact of climate on the Project by identifying likely changes to the climate and potential climate hazards over the life of the Project. The assessment will consider Climate Projections over a 60-year period from the Project's completion and fully operational year.

5.1.7.13 The baseline for the CCR Assessment will consider how resilient the Project is to current and projected future climate hazards. The current baseline will be established by understanding the historic/ current climate in the location of the Project by reviewing historic climate data obtained from the Met Office website[13]. The climate baseline will be developed using historic Met Office data obtained from a meteorological station closest to the Overall Site (Dover Harbour) (Ref. 8-7).

5.1.7.14 The CCR review will provide commentary on how the Project will be resilient to against the predicted future climate baseline using the UK Climate Projections 2018 (UKCP18)[13]. UKCP18 projections for Dover Harbour will be used to examine future climate parameters. This climate projection data will provide a probabilistic indication of how global climate change is likely to affect the Project using defined climate variables and time periods.

5.1.7.15 Climate parameters to be considered in the CCR review during the demolition, construction and operation of the Project include the following:

- extreme weather events;
- flood risk;
- sea level rise (SLR);
- temperature change; and
- rainfall change.

5.1.7.16 The CCR Assessment will qualitatively review the Project's resilience to climate change. This will be completed in liaison with the Project's design team and the other EIA technical disciplines by considering the UKCP18 projections[13] for the geographical location and timeframe of the Project (including demolition, construction and operation).

5.1.7.17 The CCR Assessment will be undertaken for the Project to identify potential climate change impacts on the Project and associated receptors, and to consider their potential consequence and likelihood of occurrence, taking account of the measures incorporated into the design of the Project.

5.1.7.18 Climate change projections for the Project during the enabling works and construction phase will be examined against receptors (including the Project itself and associated users) during this stage. Construction phase receptors of the Project include the workforce, plant, machinery and materials.

5.1.7.19 For the complete and occupied phase of the Project, potential climate change impacts will be identified using relevant projections from UKCP18 (Ref. 8-5) and the CCR review will consider their potential consequence to receptors and likelihood of occurrence, taking account of the measures incorporated into the design of the Project.

Receptors when the Project is complete and occupied may include the Project assets and their operation, maintenance and refurbishment (i.e. pavements, structures, earthworks and drainage, technology assets, etc.); and end-users (i.e. staff and commercial operators etc).

5.1.7.20 The following key terms and definitions relating to the CCR Assessment will be used:

- Climate hazard – a weather or climate related event, which has potential to do harm to environmental or community receptors or assets, for example, increased winter precipitation;
- Climate change impact – an impact from a climate hazard which affects the ability of the receptor or asset to maintain its function or purpose; and
- Consequence – any effect on the receptor or asset resulting from the climate hazard having an impact.

5.1.7.21 The criteria which will be used to determine the likelihood of a climate change hazard occurring are detailed in Table 5.1.5. The event will be defined as the climate event (such as heatwave), while the hazard will be defined as an impact on the Project caused by the climate event (such as overheated electrical equipment).

Table 5.1.5: Description of likelihood of climate change hazard

Likelihood of event	Description (probability of occurrence)
Very likely	90-100% probability that the hazard will occur.
Likely	66-90% probability that the hazard will occur.
Possible, about as likely as not	33-66% probability that the hazard will occur.
Unlikely	0-33% probability that the hazard will occur.
Very unlikely	0-10% probability that the hazard will occur.

5.1.7.22 Engagement will be undertaken with relevant environmental disciplines and the engineering design team to discuss the CCR Assessment and identify mitigation measures for incorporation into the design of the Project.

5.1.7.23 The CCR Assessment is qualitative and will provide commentary on how the Project will be resilient to climate change within the context of current and predicted future climate conditions.

5.1.7.24 Following identification of climate hazards, the likelihood and consequences will be assessed according to Table 5.1.5 and Table 5.1.7 respectively. The categories and descriptions provided below are based on the IEMA Climate Change Resilience and Adaptation guidance[3].

5.1.7.25 The ES will present mitigation measures (based on those identified by each technical discipline) to demonstrate how the Project will be adapted to increase its resilience to future climate conditions.

5.1.7.26 The CCR Assessment will assess the significance of effects by evaluating the combination of the likelihood of the climate-related impact occurring, and the

consequence, as per the risk assessment matrix in Table 5.1.8. The assessment will take into account confirmed design and mitigation measures (referred to as embedded mitigation).

Table 5.1.6: Categories for the likelihood of the climate-related impact occurring

Likelihood category	Description
High	Likelihood of climate hazard occurring is high and impact is always/ almost always going to occur.
Moderate	Likelihood of climate hazard occurring is high and impact occurs often or the likelihood of climate hazard occurring is moderate and impact is likely to occur always/ almost always.
Low	Likelihood of climate hazard occurring is high but impact rarely occurs or the likelihood of climate hazard occurring is moderate and impact sometimes occurs or the likelihood of climate hazard occurring is low and impact is likely to occur always/ almost always.
Negligible	All other eventualities - highly unlikely but theoretically possible.

Table 5.1.7: Description of consequences

Consequence of impact	Description
High	Significant disruption to construction and operations, unable to deliver services, resulting in high financial losses.
Moderate	Disruption to construction and operations and ability to deliver services, resulting in some financial losses/ cost implications.
Low	Minor disruption to construction and operations but does not significantly impact ability to deliver services.
Negligible	Negligible disruption to construction and operations, does not impact ability to deliver services.

Table 5.1.8: Significance of effect matrix (where 'S' is significant and 'NS' is not significant)

		Likelihood of climate-related impact occurring			
		Negligible	**Low**	**Moderate**	**High**
Measure of consequence	**Negligible**	Negligible (NS)	Negligible (NS)	Low (NS)	Low (NS)
	Low	Negligible (NS)	Low (NS)	Low (NS)	Moderate (S)
	Moderate	Low (NS)	Low (NS)	Moderate (S)	High (S)
	High	Low (NS)	Moderate (S)	High (S)	High (S)

5.2.8 Assumptions, Limitations and Uncertainties

5.1.8.1 Where detailed information is not available regarding energy use, types and quantities of materials used, or the embodied carbon of key features of the assets, assumptions will be made based on industry approximations and professional best practice.

5.1.8.2 All assumptions and limitations, including any exclusions, together with assumptions for choices and criteria leading to exclusion of input and output data will be documented as part of the assessment.

5.2 Major Accidents and Disasters

5.2.1 Introduction

5.2.1.1 This chapter considers the potential risk of a major accident or disaster causing a significant environmental effect that may arise relating to the construction, operation, maintenance, or decommissioning of the Project (as described in **Part 1, Chapter 4, Description of the Project**).

5.2.1.2 This assessment for Major Accidents and Disasters is guided by a Primer published by IEMA (2020) called, 'Major Accidents and Disasters in EIA'[19] ('the Primer). The Primer defines the following:

- **Major accident:** Events that threaten immediate or delayed serious environmental effects to human health, welfare and/or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g. train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events.
- **Disaster:** May be a natural hazard (e.g., earthquake) or a man-made/external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident.

5.2.1.3 This chapter considers two aspects: the vulnerability of the Project to a major accident/disaster, and the potential for the Project to cause a major accident.

5.2.1.4 This chapter:

- Identifies the major accidents and disasters topics and events that are proposed to be scoped into the environmental impact assessment and thus included within the Environmental Statement (ES);
- Identifies those major accident and disaster topics and events that are proposed to be scoped out of further assessment, with a justification provided; and
- Define the approach and methodology for identifying potential major accidents and disasters and their assessment, in the context of the Project.

5.2.2 Regulatory and Planning Context

5.2.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. The key legislation, policy, and guidance relevant to the assessment of major accidents and disasters associated with the

[19] Institute of Environmental Management and Assessment (IEMA) (2020). Major Accidents and Disasters in EIA: An IEMA Primer. [online] Available at: https://www.iema.net/resources/reading-room/2020/09/28/major-accidents-and-disasters-in-eia-an-iema-primer#:~:text=Major%20accidents%20and%20disasters%20should,minor%20clean%2Dup%20and%20restoration.

construction, operation, maintenance and decommissioning phases of the Project are presented below.

5.2.2.2 As per the amended EIA Directive (2014/52/EU) it is required to consider major accidents and disasters as part of the EIA process. This is transposed into law by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as 'the EIA Regulations') which state:

'*A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned… Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies*.'

Guidance and Advice Notes

5.2.2.3 The following core guidance documents provide the technical framework for applying a risk management process when dealing with major accidents and disasters in EIA's, in addition to other useful documents which relate to the assessment of risk:

- The International Standards Organizations ISO 311000: 2018 Risk Management – Principles and Guidelines[20]
- Defra, 2011, 'Guidelines for Environmental Risk Assessment and Management[21]
- IEMA, 2020, 'Major Accidents and Disasters in EIA: An IEMA Primer '

5.2.3 Study Area

5.2.3.1 The following factors and associated distances were taken into consideration for setting the initial study area of 20km, in order to capture any adverse consequences caused by other events, on the Project. As there is no specific regulatory guidance or standardised methodology, the preliminary Study Area distances are based on professional judgement. All distances are from the Scoping Boundary illustrated in **Figure 1.1.1 Project Scoping Boundary**:

- Manmade features:
  - Airports, airfields and ports within 10km;
  - Control of Major Accident Hazard facilities within 3km;
  - Major accident hazard pipelines within 1km;
  - Rail infrastructure within 1km;
  - Offshore Wind Farms within 1km;
  - Transmission (gas, electrical, oil/fuels) crossing the Scoping Boundary; and

[20] The International Standards Organizations (ISO) (2018). ISO 311000: 2018 Risk Management – Principles and Guidelines. [online] Available at: https://www.iso.org/standard/65694.html.

[21] Department of Food, Environment and Rural Affairs (DEFRA) (2011). Guidelines for Environmental Risk Assessment and Management Green Leaves III. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69449/pb13670-green-leaves-iii-summary-111107.pdf.

- Shipping lanes crossing the Scoping Boundary.

- Natural features with the potential to create risks within:
  - Dam failure and seismic activity - 5km; and
  - Flood risk and unstable ground conditions - 1km

5.2.4 Baseline Conditions

Baseline Environment

5.2.4.1 The baseline relevant to major accidents and disasters primarily comprises:

- features external to the Project that present a potential source of hazard to the Project itself;
- sensitive environmental receptors at risk of significant effect; and
- identified major accident and disaster risks that currently exist within the local area.

5.2.4.2 .

5.2.4.3 The baseline conditions described for major accidents and disaster events are derived from the following desk study sources:

- Technical chapters of this Scoping Report: **Part 2, (Chapters 2-12)**, **Part 3, (Chapters 2-12)** & **Part 4, (Chapters 2-10)**;
- National Risk Register 2020[22];
- British Geological Survey 'Onshore GeoIndex'[23];
- The Coal Authority Interactive Map[24];
- Health and Safety Executive's Planning Advice Web App[25];
- COMAH 2015 Public Information Search[26]; and
- Google street view maps covering the Scoping Boundary.

5.2.4.4 The baseline conditions are split into three areas:

- potential environmental receptors: receptors that could be vulnerable to a major accident or disaster as a result of the Project;

[22] Cabinet Office (2020). National Risk Register. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/952959/6.6920_CO_CCS_s_National_Risk_Register_2020_11-1-21-FINAL.pdf.

[23] British Geological Survey (BGS) (N/A). Onshore GeoIndex. [online] Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html.

[24] The Coal Authority (N/A). The Coal Authority Interactive Map. [online] Available at: https://mapapps2.bgs.ac.uk/coalauthority/home.html.

[25] Health and Safety Executive (N/A). Health and Safety Executive's Planning Advice Web App. [online] Available at: https://www.hse.gov.uk/landuseplanning/planning-advice-web-app.htm.

[26] Health and Safety Executive (2015). COMAH 2015 Public Information Search. [online] Available at: https://notifications.hse.gov.uk/COMAH2015/Search.aspx.

- nearby major accident installations: potential linkages with other projects that could increase the risk of a major accident within the study area; and
- natural hazards and disasters: a review of existing baseline data relating to natural hazards/disasters, such as flooding or drought, that inform the likelihood of a natural disaster occurring within the study area.

Accident and Disaster Categories

5.2.4.5 Within the study area, the potential major accidents and disaster groups and categories considered are those listed in Table 5.2.1.

Table 5.2.1: Major accidents and disaster groups and categories

Groups	Categories
Natural events	Geophysical
	Hydrological
	Climatological and meteorological
	Biological
Technological or Manmade hazards	Industrial and urban accidents
	Transport accidents
	Pollution accidents
	Utility failures
	Engineering accidents and failures
	Human error/management failure
	Design error
	Sabotage/arson
	Terrorism
	Explosion (chemical, nuclear or other)

Potential Environmental Receptors

5.2.4.6 All potential receptors that could be affected by a major accident or disaster have been described and outlined within the specific environmental topic chapters in **Parts 2, 3 & 4**. Table 5.2.2 signposts the technical chapters and the potential receptors relevant to Major Accidents and Disasters. No additional receptors have been identified outside those set out within the technical chapters.

Table 5.2.2: Signpost to chapters with relevant receptors

Chapter/Appendix	Receptors
Parts 2 and 3 Suffolk Onshore Scheme and Kent Onshore Scheme	
Chapter 2 Landscape and Visual	Designated Sites
Chapter 3 Ecology and Biodiversity	Ecological receptors Notable Habitats (terrestrial and aquatic) Designated Sites
Chapter 4 Cultural Heritage	Designated heritage assets Non-designated heritage assets
Chapter 5 Water Environment	Water resources Watercourses and waterbodies Flood risk
Chapter 6 Geology and Hydrogeology	Groundwater and aquifers Land stability
Chapter 7 Agriculture and Soils	Soil BMV Agricultural Land
Chapter 8 Traffic and Transport	Roads Cycle routes Public rights of way
Chapter 9 Air Quality	Residential receptors Commercial receptors Communities
Chapter 10 Noise and Vibration	
Chapter 11 Socio-economic Recreation and Tourism	
Chapter 12 Health and Wellbeing	
Part 4 Offshore Scheme	
Chapter 2 Physical Environment	Water quality Coastal morphology Seabed morphology
Chapter 3 Benthic Ecology	Intertidal and subtidal benthic ecology
Chapter 4 Fish and Shellfish Ecology	Fish and shellfish
Chapter 5 Marine Mammals	Marine mammals
Chapter 6 Ornithology	Designated sites Bird populations
Chapter 7 Marine Archaeology	Marine archaeology
Chapter 8 Shipping and Navigation	Shipping and navigation
Chapter 9 Commercial Fisheries	Commercial fisheries
Chapter 10 Other Sea Users	Other sea users

Nearby Major Accident Hazard Installations

5.2.4.7 Table 5.2.3 outlines the two sites that fall under the Control of Major Accident Hazard Regulations 2015 (COMAH) within 3km of the Project.

Table 5.2.3: COMAH sites within 3km of Project Scoping Boundary

Operator name	Location	Address	Tier
A E M Limited	Ramsgate	Haine Industrial Estate	**COMAH Lower Tier Operator**
EDF Energy Nuclear Generation Limited	Sizewell B Power Station		**COMAH Lower Tier Operator**

Natural Hazards and Disasters

5.2.4.8 The Primer outlines examples of natural hazards in the UK. These have been used to guide the baseline data collection and assist with determining the likelihood of the identified risk. The main natural hazards that can disrupt infrastructure in the UK are outlined below.

Flooding

5.2.4.9 The Project Scoping Boundary is partly located in Flood Zone 2 & 3 in the Suffolk and Kent Onshore Scheme Scoping Boundaries. The Suffolk Onshore Scheme is situated in the hydrological catchments of the Hundred River and the neighbouring River Fromus. The Kent Onshore Scheme is situated in the hydrological catchment of the River Stour. The River Stour is a designated main river that rises as the Great Stour in Lenham and flows towards and through Canterbury, where it becomes tidal, finally discharging to the sea at Pegwell Bay.

5.2.4.10 With regard to flood risk and drainage, future baseline conditions will be forecasted, drawing on current best practice guidelines. These will consider the likely impacts of climate change on river flows, rainfall intensities, and tidal flood levels/storm surges. Further information on the baseline conditions for the Project can be found in **Part 2, Chapter 5, Water Environment** for the Suffolk Onshore Scheme and **Part 3, Chapter 5 Water Environment** for the Kent Onshore Scheme.

5.2.4.11 For the assessment of the impact of climate change on the future physical environment, the UK guidance and projection of sea level rise and changing storm conditions are applied to the baseline.

5.2.4.12 Guidance on changes in future wind and wave conditions has been provided by the Environment Agency[27]. The guidance states that wind speeds and wave height should be increased by 5% between 1990 and 2055, then by 10% for 2056 to 2115.

5.2.4.13 UKCP18[28] provides the most up-to-date assessment of climate change up to and beyond 2100. Sea level rise data along the UK coastline are available to download from the Met Office UKCP18 website at the grid square. By 2050, sea levels may rise

[27] Environment Agency (2021). Flood Risk Assessments: Climate Change Allowances. [online]. Available at: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

[28] Met Office (2018). UK Climate Projections. [online] Available at: https://www.metoffice.gov.uk/research/approach/collaboration/ukcp.

by 0.25m above 2022 levels at the Kent landfall and the Suffolk landfall. This is estimated for a high emissions scenario (RCP 8.5) in the 95th percentile.

Climate

5.2.4.14 Data sourced from the UK Met Office confirm the highest daily maximum temperature in the UK to be 40.3°C, recorded in Coningsby, Lincolnshire in July 2022. The lowest daily minimum temperature on record in the UK is -27.2°C recorded in Altnaharra, Scotland in December 1995.

5.2.4.15 Further climate information was sourced from the Met Office to help understand the climate of Eastern England where this Project is located:

- mean daily maximum temperatures 6°C to 8°C (winter) and 20°C to 23°C (summer)
- days of air frost per year: Ranges from 30 (coastal areas) to 55 (well inland).

5.2.4.16 Compared to the Lake District, which receives on average about 3000mm of rain a year, much of the surrounding areas of Suffolk and Kent receive less than 700mm per year. Across the region there is, on average, about 30 rain days (rainfall greater than 1mm) in winter (December to February) and less than 25 days in summer (June to August).

5.2.4.17 The occurrence of snow is linked closely to temperature, with falls rarely occurring if the temperature is higher than 4°C, and temperatures below this are generally required for snow to lie for any length of time. The Met Office data indicates that snow falls around 20 days per year in the southeast of eastern England.

5.2.4.18 The National Risk Register states that the UK is likely to experience a trend towards warmer winters and hotter summers (HM Government, 2020). This would also lead to changing rainfall patterns, leading to heavier rainfall. Other extreme weather events such as storms and heavy snowfalls could also be expected as a result of climate change. The National Risk Register expects extreme weather events to become more frequent.

Storms and high winds

5.2.4.19 Being one of the most sheltered parts of the UK, the east of England usually experiences mean wind speeds of around 10 knots. Gales (a mean windspeed of 34 knots or more over 10 consecutive minutes) only occur on average two days a year in Suffolk and Kent.

5.2.4.20 Extreme storms are very rare in the UK; however, storms of a lower magnitude occur particularly during winter, cause issues when they do occur. In February 2020, Storms Ciara, Dennis and Jorge brought devastating floods to large swathes of Wales, northern England and the Midlands. In 2022 Storms Dudley, Eunice and Franklin brought strong winds (122mph as recorded at the needles on the Isle of Wight) and heavy rainfall causing inland flood warnings across northern England and part of Scotland. The Environment Agency estimated that 400 properties were flooded across the country, however mitigation such as temporary flood defences had protected more than 40,000 properties.

Land instability

5.2.4.21 The Kent and Suffolk Scoping Boundaries as described in **Part 1, Chapter 1, Introduction** are both located in areas with gentle to flat topography close to the coast, with agriculture, urban settlements and some hills located further into the scoping boundaries.

5.2.4.22 Earthquakes in the UK are moderately frequent but are unlikely to be powerful enough to inflict severe damage. The BGS acknowledges although the UK is distant from the nearest plate boundary, the Mid-Atlantic Ridge, earthquakes in the UK occur as crustal stresses within the tectonic plates are relieved by movement occurring on pre-existing fault planes. One of the driving forces is regional compression caused by motion of the Earth's tectonic plates and uplift resulting from the melting of the ice sheets that covered many parts of Britain thousands of years ago. The Project Scoping Boundary passes through an area of low seismicity. BGS data indicate that the Project passes through areas with a Peak Ground Acceleration of 0.02 to 0.04g. This is the second lowest of the nine BGS seismicity categories for the UK (BGS, 2022)[29]

Wildfire

5.2.4.23 The UK has a temperate climate that is not usually associated with wildfires; however, wildfires do occur annually. Wildfires generally start from human error, such as discarded cigarettes or barbeques, when ground conditions are dry after extended periods of hot, dry weather, when vegetation may have increased susceptibility to fire.

5.2.5 Scoping Methodology

5.2.5.1 In order to understand the initial risk with regards to major accidents and disasters an initial scoping screening exercise has been undertaken to identify and review the sources outlined in Table 5.2.1 and the results of this scoping exercise are included as **Appendix 5.2.A Major Accidents and Disasters Scoping Table**. The Appendix outlines the potential vulnerability of the Project to the natural, man-made and technological risks and hazards. Each hazard is assessed to identify the risk or interaction that could result in a major accident or disaster.

Establishing the proposed scope of assessment

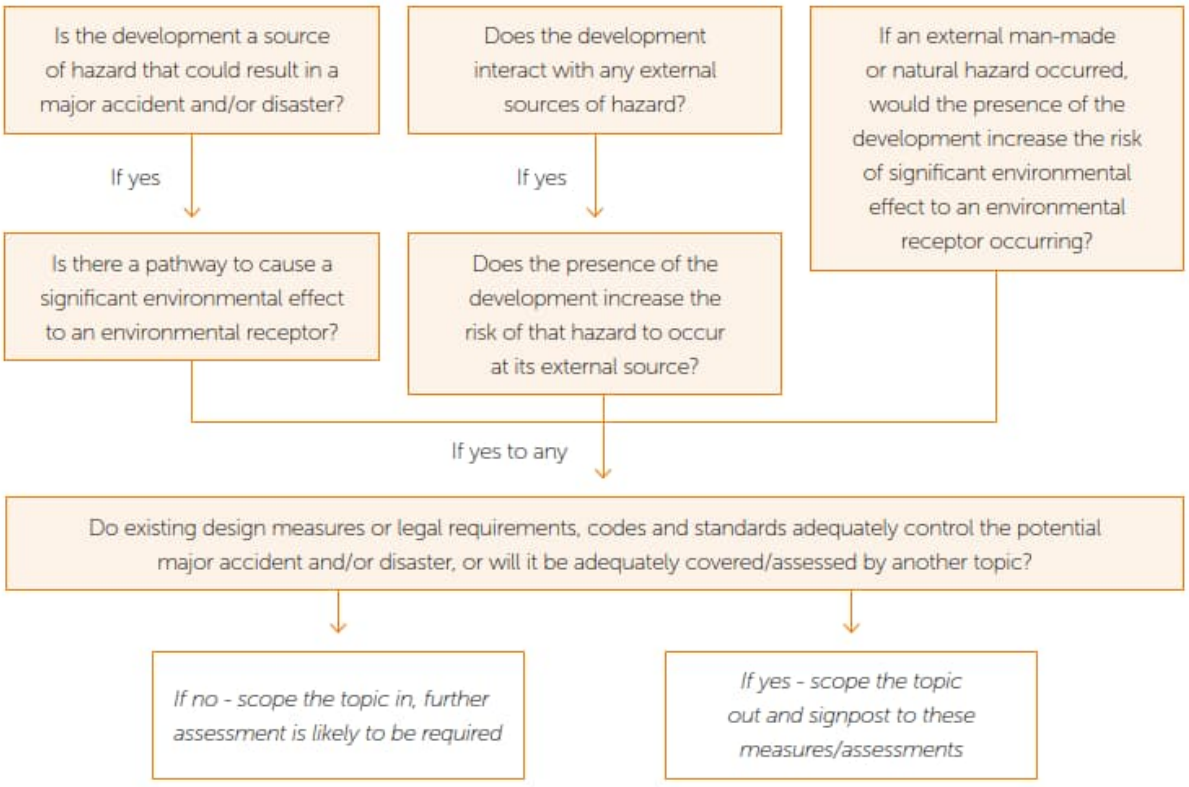
5.2.5.2 This scoping exercise focusses on identifying the potential impact sources (the development itself or other existing hazard sources) and the impact pathways that exist between these and potential receptors, that could lead to a significant environmental effect occurring. It then considers whether existing legal requirements and codes and standards are sufficient to control risks'

5.2.5.3 Each hazard was screened in turn to identify whether the Project is a potential source of hazard that could result in a major accident or disaster, or whether the Project could interact with any external source of hazard. The potential for the Project to result in the potential significant effects described in this section considers the embedded and control and management measures described in the Outline Code of Construction Practice (**Appendix 1.4.A Outline Code of Construction Practice**) and detailed in section 5 of each of the technical chapters in Parts 2, 3 and 4.

[29] British Geological Society (BGS) (2022). Seismic Hazard in the UK. [online] Available at: http://www.earthquakes.bgs.ac.uk/hazard/UKhazard.html.

5.2.5.4 Details of each of these stages are set out in the methodology set out within the Primer in Image 5.2.1 below.

Image 5.2.1 Scoping decision process flow



5.2.6 Potential for Significant Effects

5.2.6.1 The scoping screening exercise presented in **Appendix 5.2.A Major Accidents and Disasters Scoping Table** has not identified any hazard/events that are proposed to be scoped into the ES.

5.2.7 Proposed Assessment Methodology

5.2.7.1 **Appendix 5.2.A Major Accidents and Disasters Scoping Table** does not identify any hazard/events that are proposed to be scoped into the ES. Should an event/hazard need to be scoped in at a later stage this will be assessed using a staged approach as set out below:

- identify the potential risk events related to the major event types;
- screen the risk events;
- define the reasonable worth consequence should the event occur;
- identify all cross-disciplinary impacts;
- identify mitigation measures, management and, if possible, prevention;
- assess the likelihood; and

- determine the risk has been mitigated to as low as reasonably practical and identify any residual risks and their significance.

5.2.7.2 The ES would include a detailed methodology for the assessment of all major accidents and disasters considered, based on the guiding principles outlined above. Any limitations of the assessment of major accidents and disasters would also be clearly presented.

5.2.8 Conclusion

5.2.8.1 **Appendix 5.2.A Major Accidents and Disasters Scoping Table** summarises the hazard/events that are proposed to be scoped into and out of the assessment. No hazard/event is proposed to be scoped into the ES. The scoping screening assessment has shown that the vulnerability of the Project to major accidents and disasters can be mitigated or reduced by the processes and standards in place. It also outlines that the Project is unlikely to generate any potential significant effects on the environment if a major accident or disaster were to occur. The potential effects that are proposed to be scoped out of the assessment are summarised in Table 5.2.4 below.

Table 5.2.4: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
The Project	Potential vulnerability of the project to a major accident or disaster as set out in **Appendix 5.2.A Major Accidents and Disasters Scoping Table**	Construction, operation and maintenance and decommissioning	Scoped out
Receptors listed in Table 5.2.2	Potential for the Project to exacerbate existing hazard as set out in **Appendix 5.2.A Major Accidents and Disasters Scoping Table**	Construction, operation and maintenance and decommissioning	Scoped out

5.3 Combined Effects of the Project

5.2.1 Introduction

5.3.1.1 This chapter presents how the combined effects assessment will consider the potentially significant effects on shared receptors that may arise from the construction, operation, maintenance and decommissioning of the **Project as described in Part 1, Chapter 4, Description of the Project**.

5.3.1.2 This Scoping Report, the subsequent Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) has been and are proposed to be structured into parts covering the Suffolk Onshore Scheme, Kent Onshore Scheme and the Offshore Scheme. This structure is proposed for ease of presentation due to the largely geographically separate nature of the three parts, with limited potential for interrelated effects. It is however noted that the Planning Inspectorates Advice Note Nine Rochdale Envelope (2012) states:

"The ES should not be a series of separate unrelated topic reports. The inter-relationship between aspects of the proposed development should be assessed and careful consideration should be given by the developer to explain how inter-relationships have been assessed in order to address the environmental impacts of the proposal as a whole. It need not necessarily follow that the maximum adverse impact in terms of any one topic impact would automatically result in the maximum potential impact when a number of topic impacts are considered collectively. In addition, individual impacts may not be significant when their inter-relationship is assessed. It will be for the developer to demonstrate that the likely significant impacts of the project have been properly assessed."

5.3.1.3 To address the potential for inter-related effects, it is proposed that the ES will include a combined effects assessment. This document will enable the Planning Inspectorate, in the first instance, and then the Secretary of State, to consider the application for the DCO with regard to the likely effects of the Project as a whole.

5.3.1.4 It is proposed that the combined effects assessment will cover:

- An introduction and explanation of the purpose of the combined effects assessment;
- A summary of the relevant baseline information relating to the Onshore Schemes (Suffolk and Kent) and any relevant residual effects;
- A summary of the relevant baseline information relating to the Offshore Scheme and any relevant residual significant effects;
- An assessment of any predicted effects of the Project that could result over and above the residual effects presented in each of the three parts (combined effects);
- Any additional mitigation required in light of any combined effects in addition to that already proposed in each of the three parts; and
- Residual effects of the Project.

5.2.2 Potential for Combined Effects

5.3.2.1 The boundary of the Suffolk Onshore Scheme is illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary** and is located within the administrative boundary of Suffolk County Council and the East Suffolk District local planning authority area.

5.3.2.2 The Suffolk Onshore Scheme is in an area that is predominantly rural. The settlements of Aldeburgh, Friston, Saxmundham, Leiston, and Knodishall Common are located adjacent to the Suffolk Onshore Scheme Scoping Boundary. The Sizewell nuclear site is located to the north of the Suffolk Onshore Scheme Scoping Boundary and there are two existing 400kV overhead lines that cross the Suffolk Onshore Scheme Scoping Boundary, which connect into Sizewell substation located within the nuclear site.

5.3.2.3 The boundary of the Kent Onshore Scheme is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and is located within the administrative boundary of Kent County Council and the Thanet District Council and Dover District Council local planning authority areas.

5.3.2.4 The Kent Onshore Scheme is in an area which is semi-rural although land use in the areas closest to the coast include Golf Courses and areas of nature conservation. The settlement of Cliffs End is located adjacent to the north of the Kent Onshore SchemeScoping Boundary and the settlement of Minster is also to the north, approximately 350m from the Kent Onshore Scheme Scoping Boundary. Richborough Energy Park and a wastewater treatment works are located adjacent to the south of the Kent Onshore Scheme Scoping Boundary. An existing 400kV overhead line crosses through the far western extent of the Project Scoping Boundary.

5.3.2.5 The boundary of the Offshore Scheme is illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary** and is located wholly within English Territorial Waters and it lies within the East Inshore and South East Inshore Marine Plan areas. The Project Scoping Boundary crosses the Suffolk Coastal Waters, East Anglian Shipping Waters, Eastern English Channel Approaches and the Goodwin Sands and North Dover Strait Marine Character Areas.

5.3.2.6 The Offshore Scheme is located to the west of London Array Offshore Wind Farm and to the east of Thanet, Greater Gabbard and Galloper Offshore Wind Farms.

5.3.2.7 Due to the geographical separation of the Suffolk and Kent Onshore Schemes, there is no potential for a combined effect to result from any of the effects proposed to be assessed within the technical chapters of the two parts. It is therefore proposed that the potential for combined effects between the Suffolk Onshore Scheme and the Kent Onshore Scheme are scoped out.

5.3.2.8 The Suffolk Onshore Scheme and the Kent Onshore Scheme both extend to the mean low water mark as illustrated on **Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary and Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**. The Offshore Scheme extends to the mean high water mark as illustrated on **Figure 1.1.4 Offshore Scheme Scoping Boundary**. The relevant aspects of the intertidal area are therefore included in both the terrestrial (**Part 2 Suffolk Onshore Scheme** and **Part 3 Kent Onshore Scheme**) and the marine (**Part 4 Offshore Scheme**) parts. Where this is the case, there is no potential for a combined effect as the effect is already assessed within the individual technical chapters in each of the parts.

5.3.2.9 The landfalls as described in **Part 1, Chapter 4, Description of the Project** will be assessed in both, onshore and offshore parts. There is no potential for a combined effect from the landfalls as the effects will be assessed within the individual technical chapters in each of the parts.

5.3.2.10 There is the potential that combined effects could conceivably occur where there is a pathway between an onshore and an offshore impact with a shared receptor.

5.3.2.11 Table 5.3.1 identifies all the receptor groups that are proposed to be scoped into the EIA and whether there is a potential theoretical pathway for a combined effect.

Table 5.3.1: Potential for combined effects

Receptor groups	Potential for a combined effect.
Landscape elements	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Seascape character	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Residential receptors	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Commercial receptors	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Designated Sites	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Ecological receptors	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Notable Habitats (terrestrial and aquatic)	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Designated heritage assets	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Non-designated heritage assets	No potential for the onshore and offshore schemes to result in a combined effect beyond those already

Receptor groups	Potential for a combined effect.
	proposed to be assessed in the individual chapters as no theoretical pathway exists.
Water resources (existing abstractions and discharges)	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Watercourses and waterbodies	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Flood risk receptors	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.** .
BMV Agricultural Land	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Agricultural holdings	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Soil	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Public rights of way	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Cycle Routes	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Roads	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Communities	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Geology	**There is a theoretical pathway between onshore and offshore sources of impact that could**

Receptor groups	Potential for a combined effect.
	potentially result in combined effect on receptors within this receptor group.
Groundwater	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Human Health	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Marine Physical Environment	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Benthic Ecology	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Fish and Shellfish Ecology	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Marine Mammals	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Ornithology	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Marine Archaeology	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Shipping and Navigation	No potential for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.
Commercial Fisheries	**There is a theoretical pathway between onshore and offshore sources of impact that could potentially result in combined effect on receptors within this receptor group.**
Other Sea Users	No potential for the onshore and offshore schemes to result in a combined effect beyond those already

Receptor groups	Potential for a combined effect.
	proposed to be assessed in the individual chapters as no theoretical pathway exists.
Greenhouse Gas Emissions	No potential for the onshore and offshore schemes to result in a combined effect as this will be assessed at a Project level as described in **Part 5, Chapter 1 Climate Change**.

5.3.2.12 Where Table 5.3.1 identifies the potential for a combined effect these will be screened within the ES to confirm whether or not a theoretical pathway exists for a combined effect. Where a theoretical pathway exits the source of impact, impact pathway and residual effects will be reviewed within the relevant topic chapters to identify whether there is the potential for a combined effect to occur. Where this is the case an assessment of combined effects will be made and any additional mitigation over and above that already taken into account in determining the individual residual effects will be identified and secured as required.

Sea Link

Environmental Impact Assessment Scoping Report
Volume 2 Appendices

October 2022



nationalgrid

Contents

1.1.A Transboundary Screening Matrix 1

1.4.A Outline Code of Construction Practice (CoCP) 6

1.4.A.1 Introduction 6

1.4.A.2 Construction Programme 7

1.4.A.3 Control and Management Measures 8

1.5.A Inter-Project Cumulative Effects Long List 23

2.4.A Heritage Assets within Suffolk Scoping Boundary 72

3.5.A Heritage Assets within Kent Scoping Boundary 129

5.2.A Major Accidents and Disasters Scoping Table 143

Tables

Table 1.1.A.1: Transboundary screening matrix 1
Table 1.4.A.1: Indicative construction programme 7
Table 1.4.A.2: Control and management measures 9
Table 1.5.A.1: Inter project cumulative effects long list 24
Table 2.4.A.1: Non-designated assets recorded on the Suffolk HER within the Scoping Boundary 72
Table 2.4.A.2: Non-designated assets within the Suffolk Onshore Scoping Boundary (line data) 76
Table 2.4.A.3: Non-designated assets within the Suffolk Onshore Scoping Boundary (area data) 76
Table 2.4.A.4: Non-Designated Heritage Assets within the Suffolk Site 1 Emerging Preference Option Area 92
Table 2.4.A.5: Designated Heritage Assets within 2 km of the Suffolk Site 1 Emerging Preference Option Area 92
Table 2.4.A.6: Non-Designated Heritage Assets within the Suffolk Site 3 Emerging Preference Boundary 93
Table 2.4.A.7: Designated Heritage Assets within 2 km of the Suffolk Site 3 Emerging Preference Option Area 93
Table 2.4.A.8: Designated Heritage Assets within 2 km of the proposed Friston substation 97
Table 2.4.A.9: Heritage Assets within the Suffolk Site 1 Preferred Boundary 99
Table 2.4.A.10: Heritage Assets within the Suffolk Site 1 Alternative Option Area 105
Table 2.4.A.11: Heritage Assets within the Suffolk Site 3 Emerging Preference Option Area 110
Table 2.4.A.12: Heritage Assets within the Suffolk Site 3 Alternative Option 1 Option Area 117
Table 2.4.A.13: Heritage Assets within the Suffolk Site 3 Alternative Option 2 Option Area 123
Table 3.4.A.1: Non-designated assets recorded on the Kent HER within the Scoping Boundary 129
Table 5.2.A.1: Major accidents and disasters scoping table 143

1.1.A Transboundary Screening Matrix

Table 1.1.A.1: Transboundary screening matrix

Criteria and relevant considerations	Resulting of the screening considerations
Characteristics of the development: Size of the development Use of natural resources Production of waste Pollution and nuisances Risk of accidents Use of technologies	The Project is a proposal to reinforce the transmission system in the South East of England and East Anglia. This reinforcement would be approximately 130km – 140km long, comprising of a High Voltage Direct Current (HVDC) link. This would be achieved by reinforcing the network with a HVDC Link between the proposed Friston substation in the Sizewell area of Suffolk to the Richborough to Canterbury overhead line close to Richborough in Kent. All parts of the Project would be located within England and are within English Territorial Waters. The Project would be delivered in compliance with all relevant legislation, consents and permits. The Project is likely to use some resources that are likely to be obtained from the global market. It is envisaged that materials would be obtained locally where possible. It is not likely that any waste nuisances or accidents would extend beyond the English territorial waters. No novel technologies are proposed that have potential for transboundary effects.
Location of development and geographical area: What is the existing use? What is the distance to another European Economic Area (EEA) state? (Name EEA state) What is the extent of the area of a likely impact under the jurisdiction of another EEA state?	The existing land use is largely rural in Suffolk, semi-rural in Kent and wholly within the English territorial waters for the offshore scheme. The Suffolk Onshore Scheme is in an area that is predominantly rural. The settlements of Aldeburgh, Friston, Saxmundham, Leiston, and Knodishall Common are located adjacent to the Project Scoping Boundary. The Sizewell Nuclear Site is located to the north of the Project Scoping Boundary and there are two existing 400kV overhead lines that cross the Project Scoping Boundary. The Kent Onshore Scheme is in an area which is semi-rural although land use in the areas closest to the coast include golf courses and areas of nature conservation. The settlement of Cliffs End is located adjacent to the north of the Project Scoping Boundary and the settlement of Minster approximately 350m from the Project Scoping Boundary also to the north. The Offshore Scheme is located wholly within English Territorial Waters and it lies within the East

	Inshore and South East Inshore Marine Plan areas. The Project Scoping Boundary crosses the Suffolk Coastal Waters, East Anglian Shipping Waters, Eastern English Channel Approaches and the Goodwin Sands and North Dover Strait Marine Character Areas. France is the closet EEA state. The French EEZ boundary is located approximately 25km from the Project Scoping Boundary. It is not envisaged or likely that any works or impacts arising from the Project will extend beyond the jurisdiction of the UK.
Environmental importance: Are particular environmental values (e.g. protected areas – name them) likely to be affected? Capacity of the natural environment. Wetlands, coastal zones, mountain and forest areas, nature reserves and parks, sites within the National Site Network (SAC and SPA), Ramsar sites, Marine Conservation Zones (MCZ), areas where environmental quality standards already exceeded, densely populated areas, landscapes of historical, cultural or archaeological significance.	The Suffolk Onshore Scoping Boundary includes part of the Suffolk Coasts and Heath Area of Outstanding Natural Beauty (AONB) and Sandlings Special Protection Area (SPA). Parts of the Leiston Aldeburgh and Sizewell Marshes Sites of Special Scientific Interest (SSSI) are located within the Suffolk Scoping Boundary. Additionally, to the above, the study area, outside the Suffolk Onshore Scoping Boundary also include the following international and national designations: Minsmere – Walberswick SPA, The Alde-Ore Estuary SPA, The Southern North Sea Special Area of Conservation (SAC), Orfordness-Shingle Street's SAC, Staverton Park & The Thicks, Wantisden SAC, Dew's Ponds SAC, Iken Wood SSSI, Sandlings Forest SSSI, Blaxhall Heath SSSI, Gromford Meadow SSSI. With regards to non-statutory designated sites, the North Warren Royal Society for the Protection of Birds (RSPB) Reserve, Grove Wood/Old World Wood and Great Wood Ancient Woodlands are located within the Suffolk Onshore Scoping Boundary and the Minsmere RSPB Reserve is located outside the Suffolk Onshore Scoping Boundary but within the study area. The Kent Onshore Scoping Boundary includes parts of the Thanet Coast and Sandwich Bay Ramsar and SPA in addition to parts of the Sandwich Bay SAC, Sandwich Bay to Hacklinge Marshes SSSI, Sandwich and Pegwell Bay National Nature Reserve (NNR) and the Southern North Sea SAC. Additionally to the above, the study area, outside the Kent Scoping Boundary also include the following international and national designations: Stodmarch

	SAC, Princes Beachlands LNR and Richborough Castle and Minster Abbey Scheduled Monuments. There is only one non-statutory designated site within the study area; ash Level and South Richborough Pasture Local Wildlife Site (LWS). Parts of the Outer Thames Estuary and Thanet Coast and Sandwich Bay Ramsar and SPAs are located within the Offshore Scoping Boundary as well as parts of the Southern North Sea and the Sandwich Bay SACs. Parts of the Leiston – Aldeburgh and Sandwich Bay to Hacklinge Marshes SSSI as well as Goodwin Sands Marine Conservation Zone (MCZ) are located within the Offshore Scoping Boundary. Two sites, the Margate and Landsands SAC and Kentish Knock MCZ will also be assessed as part of the study area but outside the Offshore Scoping Boundary. The Project is likely to result in localised impacts to landscape, cultural heritage (including archaeology), soils, adjacent landowners and residents, biodiversity (including protected species), and the water environment. These impacts would be mitigated to reduce the significance of any effect. These impacts would not result in impacts to another jurisdiction in any other EEA state.
Potential impacts and carrier: By what means could impacts be spread (i.e. what pathways)?	The pathways by which impacts could be spread are via air, water and land. However, none of the impacts identified associated with the Project are anticipated to extend across the boundary of another jurisdiction.
Extent: What is the likely extent of the impact (geographical area and size of the affected population)?	The extent of the impacts will vary for different Environmental Impact Assessment (EIA) topics. However, no significant effects are anticipated that could impact on another EEA state.
Magnitude: What will the likely magnitude of the change in relevant variables be relative to the status quo, taking into account the sensitivity of the variable?	The magnitude of change will vary for different EIA topics. However, none of the anticipated effects are likely to occur at a magnitude that would impact another EEA state.
Probability: What is the degree of probability of the impact? Is the impact likely to occur as a consequence of normal conditions or	It is very unlikely that effects from the Project would impact on another EEA state during both normal conditions and exceptional situations such as accidents.

exceptional situations such as accidents?	
Duration: Is the impact likely to be temporary, short-term or long-term? Is the impact likely to relate to the construction, operation or decommissioning phase of the activity?	No significant effects are anticipated that could impact on another EEA state.
Frequency: What is likely to be the temporal pattern of the impact?	No significant effects are anticipated that could impact on another EEA state.
Reversibility: Is the impact likely to be reversible or irreversible?	No significant effects are anticipated that could impact on another EEA state.
Cumulative impacts: Are other major developments close by?	There are a number of other proposed developments within the Project Scoping Boundary. A pre-screening exercise and a long list has been produced as part of this Scoping Report (**Appendix 1.5.A Inter Project Cumulative Effects Long List**). The potential cumulative effects will be assessed within the EIA. At present, no significant effects are anticipated that could impact on another EEA state.

1.4.A Outline Code of Construction Practice (CoCP)

1.4.A.1 Introduction

Overview

1.4.A.1.1 The Sea Link Project (hereafter referred to as the 'Project') is a proposal by National Grid Electricity Transmission plc (hereafter referred to as National Grid) to reinforce the transmission network in the South East of England and East Anglia. The Project is required to accommodate additional power flows generated from renewable and low carbon energy generation, as well as additional new interconnection with mainland Europe.

1.4.A.1.2 This reinforcement would be achieved by reinforcing the network with a High Voltage Direct Current (HVDC) Link between the proposed Friston substation in the Sizewell area of Suffolk and the existing Richborough to Canterbury 400kV overhead line close to Richborough in Kent.

1.4.A.1.3 The Project would comprise of the following elements:

- Underground HVAC cable between the proposed Friston substation and a new converter station in Suffolk.
- New converter station in Suffolk.
- Underground HVDC cable between a new converter station in Suffolk and a landfall on the Suffolk coast, either between Aldeburgh and Thorpeness or at Sizewell Gap.
- Marine HVDC cable between a landfall on the Suffolk coast and a landfall in Pegwell Bay in Kent.
- Underground HVDC cable between a landfall in Pegwell Bay and a new converter station in Kent.
- New converter station in Kent.
- A HVAC connection (either by overhead line or underground cables) between a new converter station in Kent and the existing Canterbury to Richborough overhead line.

Purpose of the Code of Construction Practice

1.4.A.1.4 This is the Outline Code of Construction Practice (CoCP) for the Project, which has been produced to support the Environmental Impact Assessment (EIA) Scoping Report. It has been produced to set out control and management measures that will be undertaken during construction of the Project if granted consent. It is designed to support the scoping out of matters within the Scoping Report and future EIA where these would not result in a likely significant effect with control and management measures in place.

1.4.A.1.5 It will be updated as the Project evolves to include additional measures identified through the engineering design, the EIA process and from engagement with

stakeholders. A final CoCP will be submitted as an appendix to the Environmental Statement (ES) as part of the application for development consent. Compliance with the CoCP will be secured by way of a requirement in the Development Consent Order (DCO).

1.4.A.1.6 It is assumed that measures in the CoCP will be in place before undertaking the assessment. This will enable the assessment to be proportionate and focused on the likely significant effects that would be material to the decision. This is in accordance with The Institute of Environmental Management and Assessment's (2016) guidance document, Delivering Quality Development.

1.4.A.1.7 The Project will be delivered in compliance with all relevant legislation, consents and permits. Any statutory requirements listed in this document and industry good practice guidance which has informed each part of the document are not to be seen as exhaustive.

1.4.A.1.8 National Grid will put in place robust procedures to audit and inspect the Project, including its supply chain of contractors, to make sure the control measures set out in the CoCP are adopted when constructing the Project. The CoCP will apply to all areas of the Project delivered pursuant to the DCO, during construction.

1.4.A.1.9 Throughout this document, each standard measure has been assigned a reference number, for example (GG01). This is for ease of cross-reference

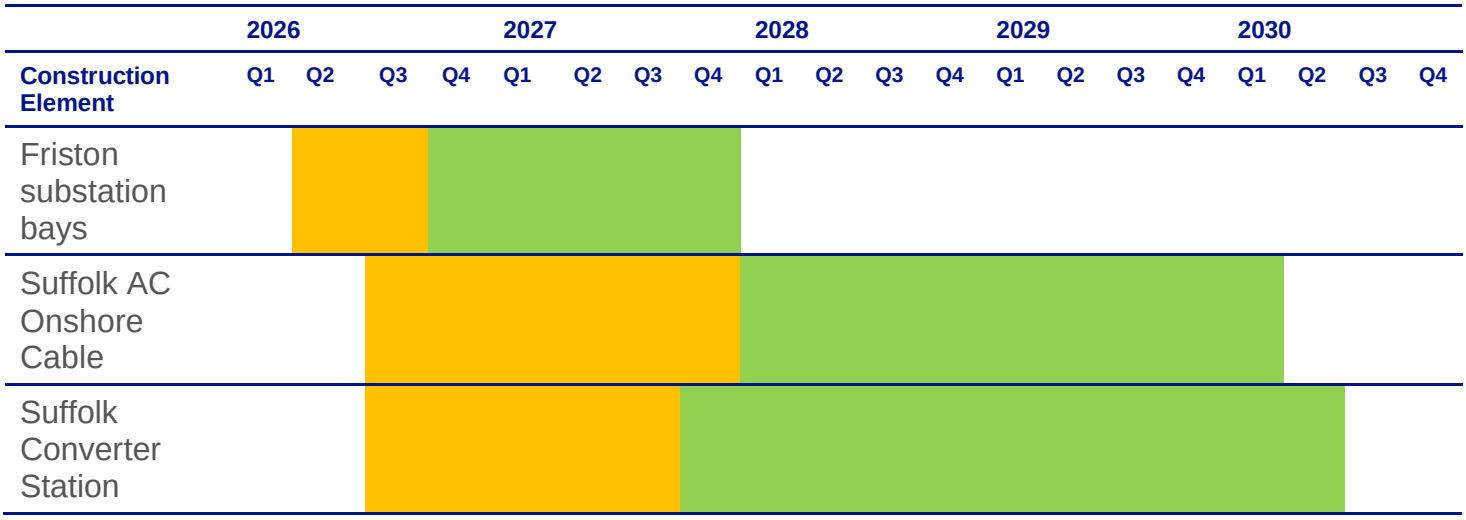
1.4.A.2 Construction Programme

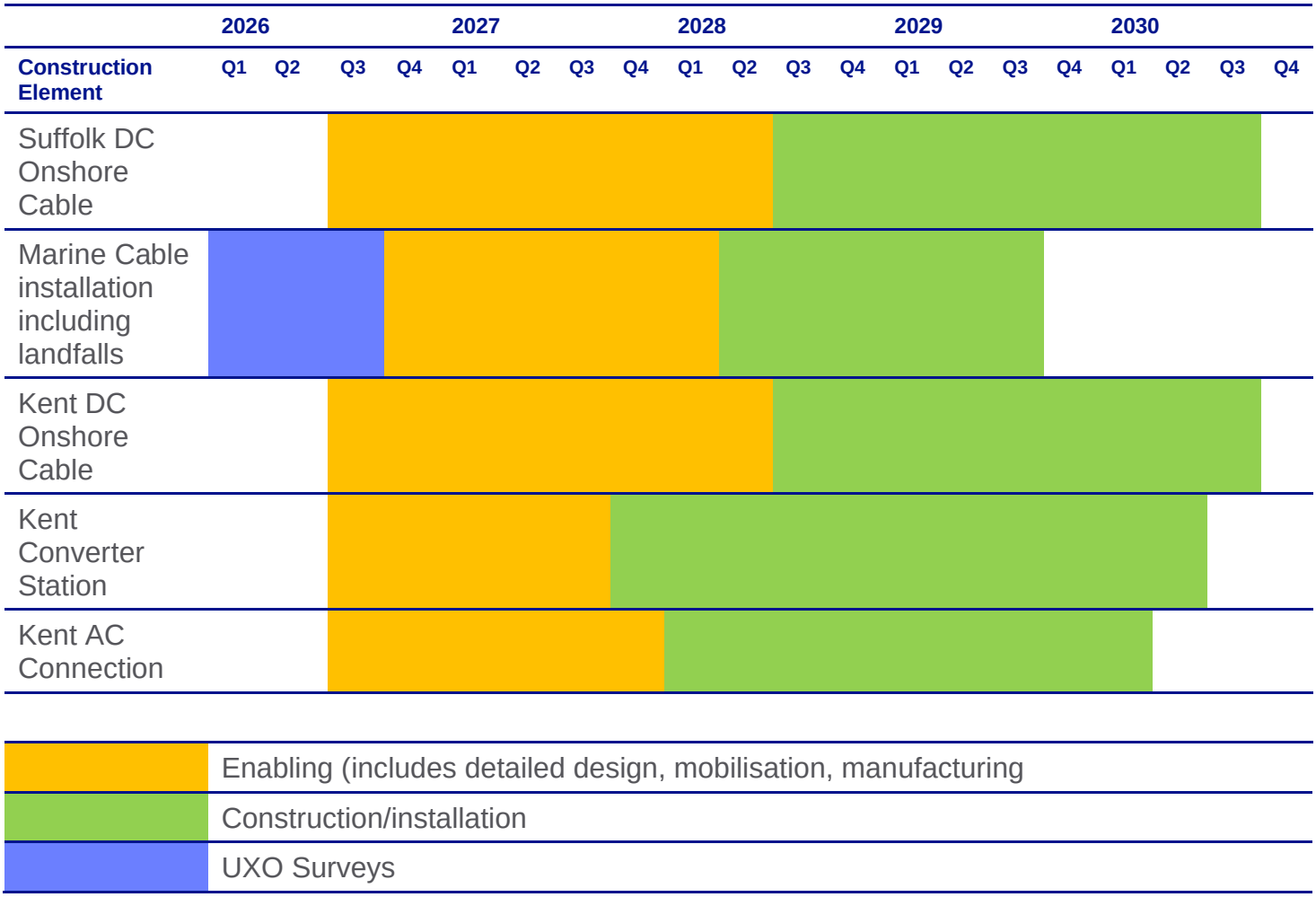
1.4.A.2.1 Subject to gaining development consent, construction works would be expected to start in 2026 and be completed by 2030. Certain advance works (such as archaeological trial trenching or protected species mitigation) may take place in advance of the main construction period.

1.4.A.2.2 The construction schedule will be developed as the Project progresses and will take account of seasonal constraints such as protected species breeding or hibernation seasons and reducing impacts associated with flood zones.

1.4.A.2.3 An indicative construction programme for the Project is presented in Table 1.4.A.1.

Table 1.4.A.1: Indicative construction programme





1.4.A.3 Control and Management Measures

1.4.A.3.1 Control and management measures have been identified that would reduce impacts from the Project on the environment (Table 1.4.A.1). These are generally measures that would normally be implemented on a well-run construction site, but also include a number of good practice measures that have been identified through the scoping work in order to support a proportionate assessment. They also include measures that have typically been employed on other National Grid projects. The contractor(s) will be expected to demonstrate compliance with these measures during construction.

Table 1.4.A.2: Control and management measures

Ref	Control and management measures
	General project commitments
GG01	The project will be run in compliance with all relevant legislation, consents and permits.
GG02	The project design will be compliant with the guidelines and policies relating to electromagnetic fields stated in National Policy Statement EN-5, including the International Commission on Non-Ionizing Radiation Protection guidelines (1998).
GG03	A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP) and a Construction Traffic Management Plan (CTMP) will be produced prior to construction.
GG04	The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans.
GG05	A suitably experienced Environmental Manager will be appointed for the duration of the construction phase. In addition, a qualified and experienced Environmental Clerk of Works will be available during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the CEMP. The Environmental Clerk of Works will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required good practice and mitigation measures. The Environmental Clerk of Works will be supported as necessary by appropriate specialists, including ecologists and arboriculturists.
GG06	Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the project. Topics will include but not be limited to: • pollution prevention and pollution incident response; • dust management and control measures; • location and protection of sensitive environmental sites and features; • adherence to protected environmental areas around sensitive features; • working hours and noise and vibration reduction measures; • working with potentially contaminated materials; • waste management and storage; • flood risk response actions; and

Ref	Control and management measures
	• agreed traffic routes, access points, etc.
GG07	A full record of condition will be carried out (photographic and descriptive) of the working areas that may be affected by the construction activities. This record will be available for comparison following reinstatement after the works have been completed to ensure that the standard of reinstatement at least meets that recorded in the pre-condition survey.
GG08	Land used temporarily will be reinstated where practicable to its pre-construction condition and use. Hedgerows, fences and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, with landowner agreement.
GG09	Where sensitive features are to be retained within or immediately adjacent to the Order Limits, an appropriate protective area will be established using appropriate fencing and signage and will be inspected, repaired and replaced as necessary. The protective areas will be shown on the Retention and Reinstatement Plans contained within the LEMP.
	Construction site setup
GG10	The name and contact details for the project will be displayed at the entrance to all compounds. This will include an emergency number.
GG11	Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.
GG12	Appropriate site layout and housekeeping measures will be implemented by the contractor(s) at all construction sites. This will include but not be limited to: preventing pests and vermin control and treating any infestation promptly, including arrangements for the proper storage and disposal of waste produced on site; • inspecting and collecting any waste or litter found on site; • locating or designing site offices and welfare facilities to limit the overlooking of residential properties; • locating designated smoking/vaping areas to avoid nuisance to neighbours; • managing staff/vehicles entering or leaving site, especially at the beginning and end of the working day; and • managing potential off-site contractor and visitor parking.
GG13	Plant and vehicles will conform to relevant applicable standards for the vehicle type as follows: • Euro 4 (NOx) for petrol cars, vans and minibuses;

Ref	Control and management measures
	• Euro 6 (NOx and PM) for diesel cars, vans and minibuses; and • Euro VI (NOx and PM) for lorries, buses, coaches and Heavy Goods Vehicles (excluding specialist abnormal indivisible loads). Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so.
GG14	Materials and equipment will not be moved or handled unnecessarily. When loading and unloading materials from vehicles, including cable drums and excavated materials, drop heights will be limited.
GG15	Fuels, oils and chemicals will be stored responsibly, away from sensitive water receptors. Where practicable, they will be stored >15m from watercourses, ponds and groundwater dependent terrestrial ecosystems. Where it is not practicable to maintain a >15m distance, additional measures will be identified. All refuelling, oiling and greasing of construction plant and equipment will take place above drip trays and also away from drains as far as is reasonably practicable. Vehicles and plant will not be left unattended during refuelling. Appropriate spill kits will be made easily accessible for these activities. Potentially hazardous materials used during construction will be safely and securely stored including use of secondary containment where appropriate. Stored flammable liquids such as diesel will be protected either by double walled tanks or stored in a bunded area with a capacity of 110% of the maximum stored volume. Spill kits will be located nearby.
GG16	Runoff across the site will be controlled through a variety of methods including header drains, buffer zones around watercourses, on-site ditches, silt traps and bunding. There will be no intentional discharge of site runoff to ditches, watercourses, drains or sewers without appropriate treatment and agreement of the appropriate authority (except in the case of an emergency).
GG17	Wash down of vehicles and equipment will take place in designated areas within construction compounds. Wash water will be prevented from passing untreated into watercourses and groundwater. Appropriate measures will include use of sediment traps.
GG18	Wheel washing will be provided at each main compound access point on to the highway. An adequate supply of water will be made available at these locations at all times. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits.
GG19	Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression where appropriate.
GG20	Bonfires and the burning of waste material will be prohibited.
GG21	Construction lighting will be of the lowest luminosity necessary to safely perform each task. It will be designed, positioned and directed to reduce the intrusion into adjacent properties, protected species and habitats.

Ref	Control and management measures
GG22	A Site Waste Management Plan (SWMP) will be developed prior to construction. The contractor(s) will maintain and monitor the SWMP throughout the construction phase and oversee that any sub-contractor(s) adhere to the SWMP. The SWMP will set out, in an auditable manner, how waste will be reduced, reused, managed and disposed of in accordance with the waste hierarchy. Dedicated areas will be identified on the construction plans to allow materials and wastes to be segregated at source, reducing the risk of damage or contamination.
GG23	An Emergency Action Plan will be developed for the construction phase which will outline procedures to be implemented in case of unplanned events, including but not limited to site flooding and pollution incidents.
GG24	Stone pads will be installed in areas where heavy equipment, such as cranes and piling rigs, are to be used. The stone pads will provide stable working areas and will reduce disturbance to the ground. The stone pad area will be stripped of the topsoil, which will be stored and reinstated in accordance with the soil management measures contained in the CEMP.
GG25	Working areas will be appropriately fenced. The type of fencing installed will depend on the area to be fenced and will take into consideration the level of security required in relation to the surrounding land and public access, rural or urban environment and arable or stock farming. For some locations the fence used may also serve to provide acoustic and visual screening of the work sites and reduce the potential for disturbance of users in the surrounding areas. Fencing will be regularly inspected and maintained and removed as part of the demobilisation unless otherwise specified.
GG26	Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use to raise any concerns or complaints about the project. All construction-related complaints will be logged by the contractor(s) in a complaints register, together with a record of the responses given and actions taken.
	Landscape and visual
LV01	The contractor(s) will retain vegetation where practicable. Where vegetation is lost and trees cannot be replaced in situ due to the restrictions associated with land rights required for operational safety, native shrub planting approved by National Grid will be used as a replacement, in accordance with the outline vegetation reinstatement plans included within the LEMP.
LV02	The contractor(s) will apply the relevant protective principles set out in British Standard (BS) 5837:2012: Trees in relation to design, demolition and construction. This will be applied to trees within the Order Limits which will be preserved through the construction phase, and to trees outside of the Order Limits where such measures do not hinder or prevent the use of the relevant working width for construction. All works to high grade trees, including trees under Tree Preservation Orders and veteran trees, will be undertaken or supervised by a suitably qualified arboriculturist.
LV03	A five-year aftercare period will be established for all reinstatement and mitigation planting.

Ref	Control and management measures
	Ecology and biodiversity
B01	The contractor(s) will comply with relevant protected species legislation. Appropriate licences will be obtained where necessary from Natural England for all works affecting protected species as identified by the Environmental Statement and through pre-construction surveys. All applicable works will be undertaken in accordance with the relevant requirements and conditions set out in those licences.
B02	The assumption will be that vegetation with the potential to support breeding birds will not be removed during the breeding bird season (March to August inclusive). If any works become necessary during the breeding bird season, works will be supervised by an Environmental Clerk of Works. Appropriate protection measures will be put in place should active nests be found. These will include exclusion zones around active nests until chicks fledge or nests become inactive as determined by monitoring by the Environmental Clerk of Works.
B03	Where there will be a risk of animal entrapment, a means of escape will be installed into all excavations left open overnight.
B04	To control the spread of invasive weeds in accordance with the Wildlife and Countryside Act 1981, any plant or machinery that has been used in areas infested with invasive species (both terrestrial and aquatic), such as Japanese knotweed and Himalayan balsam, will be thoroughly cleaned. Water used to clean vehicles will be controlled to prevent the spread of the plant (through seeds, rhizomes, fragments, etc.). The area will be cordoned off to prevent any inadvertent spreading.
B05	All habitats suitable for common reptiles will be subject to two-stage habitat manipulation that will take place between mid-March and mid-October. Firstly, vegetation will be cut to approximately 150mm (with the arisings removed) under the supervision of an Environmental Clerk of Works and the site left for a minimum of two days to allow reptiles to naturally disperse from the area. Secondly, vegetation will be cleared down to ground level under the supervision of an Environmental Clerk of Works. Vegetation will be cleared using appropriate equipment based on the type of vegetation to be removed, the area affected, and the risk of mortality or injuring reptiles. Construction works could commence immediately after completion of the second stage. Reptile hibernacula will be retained and protected during construction where practicable. If unavoidable, the removal of vegetation and groundworks at hibernacula will be timed to avoid the hibernation season (late October to early March). Replacement hibernacula and refugia will be provided.
B06	Alternative roost structures (bat boxes) will be provided (with landowner consent) on retained trees within the Order Limits or areas outside of the Order Limits agreed with landowners. Three boxes will be provided for each tree with moderate bat roost potential to be felled. Five boxes will be provided for each tree with high bat roost potential to be felled.
B07	Where the works require the crossing or removal of hedgerows, the gap will be reduced to a width required for safe working. Where hedge removals are necessary, ‘dead hedging’ should be used, where practicable, in the interim periods to retain connectivity during construction. Dead hedging can comprise vegetation arisings or artificial provision, such as willow

Ref	Control and management measures
	screening panels or Heras fencing covered in camouflage netting. New hedgerow planting will contain native, woody species of local provenance.
	Cultural heritage
H01	Locations of known archaeological interest/value, or areas where archaeological work is planned, will be signposted/fenced off to avoid unintentional damage.
H02	Where a previously unknown heritage asset is discovered, or a known heritage asset proves to be more significant than foreseen at the time of application, the project will inform the local planning authority and will agree a solution that protects the significance of the new discovery, so far as is practicable, within the project parameters.
	Water environment
W01	All works within main rivers or ordinary watercourses will be in accordance with a method approved under environmental permits issued under the Environmental Permitting Regulations or the protective provisions of the DCO for the benefit of the Environment Agency and the Lead Local Flood Authorities.
W02	For open cut watercourse crossings and installation of vehicle crossing points, good practice measures will include but not be limited to: • where practicable, reducing the working width for open cut crossings of a main or ordinary watercourse whilst still providing safe working; • installation of a pollution boom downstream of open cut works; • the use and maintenance of temporary lagoons, tanks, bunds, silt fences or silt screens as required; • have spill kits and straw bales readily available at all crossing points for downstream emergency use in the event of a pollution incident; • the use of all static plant such as pumps in appropriately sized spill trays; • prevent refuelling of any plant or vehicle within 15m of a watercourse; • prevent storing of soil stockpiles within 15m of a main river; • inspect all plant prior to work adjacent to watercourses for leaks of fuel or hydraulic fluids; and • reinstating the riparian vegetation and natural bed of the watercourse, using the material removed when appropriate, on completion of the works and compacting as necessary. If additional material is required, appropriately sized material of similar composition will be used.

Ref	Control and management measures
W03	Riverbank and in-channel vegetation will be retained where not directly affected by installation works. Natural substrate will be provided through temporary watercourse crossings box culverts.
W04	Where watercourses are to be crossed by construction traffic, measures to be applied include the use of 'flume' pipes or temporary spanned bridges. Once the flume pipe is installed, the area above the flume pipe will be backfilled and construction mats placed over the backfilled area to permit the passage of plant, equipment, materials and people. Flume pipes will be sized to reflect the span width and the estimated flow characteristics of the watercourse under peak flow conditions and kept free from debris. Where used, temporary bridges will be designed specifically to consider the span length and the weight and size of plant and equipment that will cross the bridge.
W05	The contractor(s) will comply with all relevant consent conditions or DCO provisions regarding de-watering and other discharge activities. This will particularly be with regard to volumes and discharge rates and will include discharges to land, water bodies or third-party drains/sewers.
W06	Where new or additional surfacing is required on any access tracks and compound areas, these will be permeable surfaces where ground conditions allow. The project will incorporate appropriate surface water drainage measures into its final design for the haul roads and access tracks so that they do not lead to a significant increase in flood risk. Temporary haul routes within Flood Zone 3 and areas of high and medium risk of flooding from surface water will be removed at the end of the construction phase and the ground surface will be reinstated to pre-project levels. No construction materials should be stored within Flood Zone 3 and areas of high and medium risk of flooding from surface water.
W07	The contractor(s) will subscribe to the Environment Agency's Floodline service, which provides advance warning of potential local flooding events, and subscribe to the Met Office's Weather Warnings email alerts system and any other relevant flood warning information. The contractor(s) will implement a suitable flood risk action plan, which will include appropriate evacuation procedures should a flood occur or be forecast.
W08	Active private water supplies will be identified with landowners through the landowner discussions. Appropriate measures will be considered during construction. In the event of a landowner or tenant reporting that installation activities have affected their private water supplies, an initial response will be provided within 24 hours. Where the installation works have affected a private water supply, an alternative water supply will be provided, as appropriate.
W09	In the event of a significant spill during construction, all relevant landowners/tenants will be contacted within 24 hours, within 250m of the spill, to determine if there are any private water supplies that might be affected; an assessment of the likelihood of groundwater contamination reaching identified private water supplies will be undertaken, and where a private water supply is judged likely to be affected, an alternative water supply will be provided, as appropriate.

Ref	Control and management measures
W10	Where a main river is crossed by a trenchless crossing, the cables will be laid at least 1m below the hard bed level of the river and will remain at or below this level for a distance of not less than 3m from the brink of the riverbank before rising at a slope no greater than 1 vertical in 1.5 horizontal. Marker posts shall also be positioned on each bank of the river to indicate the location of the under-crossing and the nature of the works.
	Geology and hydrogeology
GH01	Intrusive ground investigations and assessment will be undertaken prior to construction which will inform appropriate geotechnical design in relation to the site/structure specific ground conditions including ground instability/adverse ground conditions
GH02	Construction methods such as appropriate piling techniques (if required) to minimise the risk of mixing of aquifer bodies through the creation of new. This includes the provision of a Foundation Works Risk Assessment (FWRA), which would be undertaken once the proposed foundation solutions are known, in accordance with EA guidance 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination' (EA, 2001).
GH03	Use of appropriate occupational health and safety measures e.g. Personal Protective Equipment (PPE), and statutory health and safety compliance (e.g. compliance with the Confined Spaces Regulations, 1997 in relation to ground gas from working in confined spaces/trenches) to minimise the risks associated with anticipated/unexpected contamination. Based on risk assessment informed by site specific information.
GH04	Appropriate training of construction and maintenance workers in the handling and use of potentially hazardous substances and the associated risks.
GH05	All use and storage of chemicals to be undertaken in accordance with EA Pollution Prevention Guideline (PGG) notes, and controlled and monitored under the Construction and Environmental Management Plan (CEMP) and general construction site good environmental and waste management procedures.
GH06	The control of earthworks or materials movement (including any re-use of materials) under appropriate Environmental Permits, exemptions or CL:AIRE 'The definition of Waste: The development industry Code of Practice (2011).
GH07	Any temporary dewatering activities during construction will be undertaken in accordance with EA guidance, and if required, an Abstraction Licence and Environmental Permit (for the discharge) and will be limited to the depth and time required to facilitate construction activities.
GH08	A protocol for dealing within any unexpected contamination.
	Agriculture and soils
AS01	Soil management measures will be included within the CEMP. Measures will include but not be limited to the following:

Ref	Control and management measures
	• the soil resources present; • how topsoil and subsoil will be stripped and stockpiled; • suitable conditions for when handling soil will be undertaken, for example avoiding handling of waterlogged soil; • indicative soil storage locations; • how soil stockpiles will be designed taking into consideration site conditions and the nature/composition of the soil; • specific measures for managing sensitive soils; • suitable protective surfacing where soil stripping can be avoided, based on sensitivity of the environment and proposed works; • approach to reinstating soil that has been compacted, where required; and • details of measures required for soil restoration.
AS02	Where land is being returned to agricultural use, the appropriate soil conditions (for example through the replacement of stripped layers and the removal of any compaction) will be recreated. This will be achieved to a depth of 1.2m (or the maximum natural soil depth if this is shallower) except over buried cables where the reinstated soil depth will be approximately 1.1m.
AS03	Access to and from residential, commercial, community and agricultural land uses will be maintained throughout the construction period or as agreed through the landowner discussions. This may require signed diversions or temporary restrictions to access. The means of access to affected properties, facilities and land parcels will be communicated to affected parties at the start of the project, with any changes communicated in advance of the change being implemented. Where field-to-field access points require alteration as a result of construction, alternative field access will be provided in consultation with the landowner/occupier.
AS04	Existing water supplies for livestock will be identified pre-construction. Where supplies will be lost or access compromised by construction works, temporary alternative supplies will be provided. Water supplies will be reinstated following construction.
AS05	Consultation with affected landowners will be carried out to investigate the current extent of land drainage. A scheme of pre-construction land drainage will be designed with the intent of maintaining the efficiency of the existing land drainage system and to assist in maintaining the integrity of the working area during construction. The project may include a system of ‘cut-off’ drains which feed into a new header drain and the project will also take into account surface water runoff measures.

Ref	Control and management measures
AS06	Should animal bones be discovered during construction, which may indicate a potential burial site, works will cease, and advice will be sought from the Animal Health Regional Office on how to proceed, relevant to the origin and age of the materials found.
AS07	All movement of plant and vehicles between fields will cease in the event of a notification by the Department for Environment, Food and Rural Affairs (Defra) of a disease outbreak in the vicinity of the site that requires the cessation of activities. Advice will be sought from Defra in order to develop suitable working methods required to reduce the biosecurity risk associated with the continuation of works.
AS08	Clay bungs or other vertical barriers will be constructed within trench excavations where deemed necessary by a suitably experienced person, to prevent the creation of preferential drainage pathways.
	Traffic and transport
TT01	The CTMP will set out measures to reduce route and journey mileage to and from and around site, and prevent nuisance to the residents, businesses and the wider community caused by parking, vehicle movements and access restrictions. It will also provide suitable control for the means of access and egress to the public highway and set out measures for the maintenance and upkeep of the public highway. The plan will also identify access for emergency vehicles. It will also set out measures to reduce safety risks through construction vehicle and driver quality standards and measures to manage abnormal loads.
TT02	The contractor(s) will implement a monitoring and reporting system to check compliance with the measures set out within the CTMP. This will include the need for a GPS tracking system to be fitted to Heavy Goods Vehicles to check for compliance with authorised construction routes. The contractor(s) will also be expected to monitor the number of construction vehicles between the site and the strategic road network. Deviations from the authorised routes or changes to traffic levels that are higher than the CTMP assumptions will require discussion of the need for additional mitigation measures with highways authorities.
TT03	All designated Public Rights of Way (PRoWs) will be identified, and any potential temporary closures applied for/detailed in the DCO. All designated PRoWs crossing the working area will be managed with access only closed for short periods while construction activities occur. Any required temporary diversions will be clearly marked at both ends with signage explaining the diversion, the duration of the diversion and a contact number for any concerns.
	Noise and vibration
NV01	Construction working will be undertaken within the agreed working hours set out within the DCO. Best practicable means to reduce construction noise will be set out within the CEMP.
	General project commitments (marine)
GM01	Designated (and as minimal as possible) anchoring areas and protocols shall be employed during

Ref	Control and management measures
	marine operations to minimise physical disturbance of the seabed
GM02	As-built locations of cable and external protection will be supplied to UKHO (Admiralty) and Kingfisher (KIS-ORCA)
GM03	An offshore Construction Environmental Management Plan (CEMP) including an Emergency Spill Response Plan and Waste Management Plan, Marine Pollution Contingency Plan (MPCP), Shipboard Oil Pollution Emergency Plan (SOPEP) and a dropped objects procedure will be produced prior to installation
	Landfall and vessel set up
LVS01	All project vessels shall adhere to the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention) (IMO, 2017)
LVS02	All project vessels must comply with the International Regulations for Preventing Collisions at Sea (1972) (IMO, 2019a), regulations relating to International Convention for the Prevention of Pollution from Ships (the MARPOL Convention 73/78) (IMO, 2019e) with the aim of preventing and minimising pollution from ships and the international Convention for the Safety of Life at Sea (SOLAS, 1974).
LVS03	An installation machine failure contingency plan will be produced prior to installation
LVS04	All oil, fuel and chemical spills will be reported to the MMO Marine Pollution response team
LVS05	Drilling fluids required for trenchless operations will be carefully managed to minimise the risk of breakouts into the marine environment. Specific avoidance measures would include: • the use of biodegradable drilling fluids (PLONOR substances) where practicable, • drilling fluids will be tested for contamination to determine possible reuse or disposal; and • If disposal is required drilling fluids would be transported by a licensed courier to a licensed waste disposal site.
	Marine physical environment
MPE01	During the course of cable route clearance, specific activities will be completed to remove items from the seabed. Out of Service cables will be removed as per industry guidelines, larger debris including lost fishing gear will be removed prior to cable installation and a pre-lay grapnel run will be completed to ensure smaller debris is removed. In the event that abandoned, lost or discarded fishing gear ('ALDFG') is encountered, it may be necessary in certain circumstances to bring ALDFG onto the vessel deck. In these instances, marked ALDFG will be returned to the local MMO/ Inshore Fisheries and Conservation Authority (IFCA) for onward retrieval by the owner of the marked gear, in line with existing best practice. Not all

Ref	Control and management measures
	gear (particularly ‘active’ gear) is marked; if necessary to bring onto the vessel deck, unmarked gear will be disposed of via conventional onshore waste channels.
MPE02	Cables will be buried to a target depth of 1.0m to 2.0m for the majority of the route, depending on a number of factors including sediment type and sediment mobility.
MPE03	Cable protection features (e.g. rock placement, mattresses and grout bags) will be installed only where considered necessary for the safe operation of the Project.
	Benthic ecology
BE01	A biosecurity plan will be produced for the project, following the latest guidance on INNS from the GB non-native species secretariat.
BE02	All project vessels shall adhere to the International Maritime Organisation (IMO) Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (Biofouling Guidelines 2011).
BE03	Cable installation will be carried out on a 24-hour basis in order to reduce the overall installation time and associated disturbance of ecological receptors.
	Marine mammals
MM01	Adherence to JNCC guidelines, where appropriate, regarding the minimisation of impacts from underwater sound generated from known project activities of piling, geophysical surveys, and UXO detonation
	Ornithology
O01	The CoCP and CEMP will outline the best practice mitigation measures required to be implemented during construction. This would include measures to prevent accidental spillages from occurring and to minimise disturbance of sediments.
	Marine archaeology
	A Written Scheme of Investigation (WSI) including a Protocol for Archaeological Discoveries (PAD) will be agreed and implemented. Unavoidable impacts to potential archaeological receptors would be addressed through a series of agreed control and management measures to deal with the discoveries once impacts have occurred. These measures would be outlined in a WSI and would be in place throughout the construction, operation, maintenance and decommissioning phases. The WSI would address unavoidable impacts associated with the worst-case scenario (Rochdale Envelope) in accordance with archaeological best practice. The WSI would be agreed by the Archaeological Curator via the Regulator prior to works commencing. A project-specific PAD will be established to support the reporting of unexpected archaeological material during the lifetime of the Project. Impact to unexpected archaeological material is reduced by promptly receiving archaeological advice and undertaking recording and/or conserving any objects that have been disturbed. Additional investigation of features

Ref	Control and management measures
	with an uncertain identity or archaeological value can often mean their true nature and value can be better understood. A PAD reduces the impact on the marine historic environment by enabling Project staff to report their finds in a manner that is convenient and effective. Any additional marine geophysical survey, diver or ROV survey footage that takes place within the area will be assessed by a suitably qualified marine geophysicist or marine archaeologist, as appropriate. If an archaeologically important site is subsequently discovered during Project works, a temporary exclusion zone (TEZ) will be established to allow for further investigation to take place. The TEZ would then be re-evaluated, removed or expanded, based on the results of further investigations
MA02	A Written Scheme of Investigation (WSI) will also include offsetting of archaeological impact where necessary through the completion of a palaeo-environmental assessment of deposits of high geoarchaeological potential which may be disturbed.
MA03	The project will be run in compliance with all relevant legislation, consents and permits, for example the Marine and Coastal Access Act 2009, Protection of Military Remains 1986, Merchant Shipping Act 1995, Protection of Wrecks Act 1973 and Ancient Monuments and Archaeological Areas Act 1979.
MA04	Locations of known marine archaeological interest/value within the marine environment will be avoided by all marine vessels by the implementation of AEZs.
MA05	Where a previously unknown heritage asset is discovered, or a known heritage asset proves to be more significant than foreseen at the time of application, the project will inform the MMO, as advised by Historic England, and will agree a solution that protects the significance of the new discovery, so far as is practicable, within the project parameters.
	Shipping and navigation
SN01	A risk based burial approach will be used where cables will be buried to a target depth of 1.0m to 2.0m for the majority of the route, assessing cable protection risk factors such as sediment type, sediment mobility, fishing activity, shipping movements and anchor deployment along the route
SN02	Relevant information will be communicated to other sea users via Notices to Mariners (NtM), Radio Navigation Warnings Navigational Telex (NAVTEX) and/or broadcast warnings.
SN03	All Project vessels will display appropriate marks and lights and will always broadcast their status on AIS.
SN04	Temporary aids to navigation will be used as required to guide vessels around areas of installation activity
SN05	A compass deviation report will be produced prior to installation
SN06	Guard vessel(s), using RADAR with Automatic RADAR Plotting Aid (ARPA) to monitor vessel activity and predict possible interactions, will be employed to work alongside the installation vessel(s) during cable installation works.
	Commercial fisheries

Ref	Control and management measures
CF01	Cables will be buried to a target depth of 1m to 2m for the majority of the route to minimise risk of interaction with fishing gear
CF02	A Fisheries Liaison Officer (FLO) and fisheries working group(s) will be maintained throughout installation to ensure project information is effectively disseminated, dialogue is maintained with the commercial fishing industry and access to home ports is maintained during the main fishing season.
CF03	Timings of any temporary areas of exclusion from fishing grounds will be clearly communicated via a notice to mariners.
	Other sea users
OSU01	Crossing agreements will be agreed with aggregate extraction, cable and pipeline owners. The crossing agreement describes the rights and responsibilities of the parties and also the design of the crossing. Crossing design will be in line with industry standards, using procedures and techniques agreed with the cable and pipeline owners.
OSU02	Timely and efficient communication will be given to sea users in the area via Notices to Mariners, Kingfisher Bulletins, Navigational Telex (NAVTEX and Navigational Areas (NAVAREA) warnings.

1.5.A Inter-Project Cumulative Effects Long List

Table 1.5.A.1: Inter project cumulative effects long list

ID	Application ref (where applicable)	Planning Authority	Project and location	X	Y	Within the Suffolk Onshore Scheme ZOI	Within the Kent Onshore Scheme ZOI	Within the Offshore Scheme ZOI	Description	Distance from Suffolk Scoping Boundary (km)	Distance from Kent Scoping Boundary (km)	Distance from Offshore Scoping Boundary (km)	Application status	Date of application	Tier	Progress to Stage 2?
1	EN10012	Planning Inspectorate	Development Consent Order for the Sizewell C Nuclear Power Station	647136	263389	Yes	No	Yes	The Sizewell C Project	0.72	N/A	0.5	Approved	27/05/2020	1	Yes
2	MC/19/3015	MMO	NeuConnect - Offshore Interconnector between UK and Germany	587011	174705	No	No	Yes	NeuConnect - Offshore interconnector between UK and Germany	N/A	N/A	0	Approved	22/10/2020	1	Yes
3	MC/20/0031	MMO	GridLink - Offshore Interconnector between UK and France	581135	172009	No	No	Yes	GridLink - Offshore interconnector between UK and France	N/A	N/A	0	Approved	7th January 2020	1	Yes
4	N/A	Planning Inspectorate	North Falls Offshore Wind Farm - The offshore project area lies within the Outer Thames Estuary	622595	217983	No	No	Yes	Wind farm being proposed within the Outer Thames Estuary	N/A	N/A	0	Pre-Application	Application expected 01/06/2023	2	Yes
5	EN010077	Planning Inspectorate	East Anglia ONE North Offshore Windfarm - Southern North Sea approx. 36km from the Suffolk Coast. Onshore cable route connecting to onshore substation	647700	260640	No	No	Yes	Construction and operation of up to 67 wind turbine generators with associated onshore and offshore development. Onshore development includes a cable route to connect the windfarm to the onshore substation.	N/A	N/A	0	Approved	25/10/2019	1	Yes
6	EN010078	Planning Inspectorate	East Anglia TWO Offshore Windfarm - Southern North Sea approx. 32.6km from the Suffolk Coast. Onshore cable route connecting to onshore substation	647699	260631	Yes	No	Yes	An offshore wind farm which could consist of up to 75 turbines, generators and associated infrastructure, with an installed capacity of up to 900MW	1.62	N/A	0	Approved	25/10/2019	1	Yes
7	N/A	Planning Inspectorate	Nautilus - Offshore interconnector between UK and Belgium	643143	262220	Yes	No	Yes	Proposed second Interconnector between Great Britain and Belgium. It would create a new 1.4 gigawatts (GW) high voltage direct current (HVDC) electricity link	0.66	N/A	0	Pre-Application	Application expected Q2 2023	3	Yes
8	EN010084	Planning Inspectorate	Thanet Extension Offshore Windfarm	634375	163170	No	Yes	Yes	An offshore wind generating station of up to 340 Megawatts formed as an extension to the existing operational Thanet Offshore Wind Farm in waters	N/A	0.17	0.18	Refused	21/11/2019	1	No application refused

									adjacent to the entrance to the Thames estuary in Kent, connecting to the shore at Pegwell Bay							
9	**N/A**	**Planning Inspectorate**	**Five Estuaries Offshore Windfarm**			**No**	**No**	**Yes**	**Five Estuaries is an offshore wind farm to generate in excess of 300MW. The project will be comprised of (but not limited to): an offshore wind farm, including wind turbine generators and associated foundations and array cables; transmission infrastructure, including offshore substations and associated foundations, offshore and onshore export cables (underground), including associated transition bays and jointing bays, an onshore substation, and connection infrastructure into the National electricity Transmission System.**	**N/A**	**N/A**	**0**	**Pre-Application**	**Application expected Q3 2023**	**2**	**Yes**
10	**TR020002**	**Planning Inspectorate**	**Manston Airport**	**633031**	**165832**	**No**	**Yes**	**No**	**Reopen and develop Manston Airport**	**N/A**	**1.80**	**N/A**	**Approved on re determination**	**18/08/2022**	**1**	**Yes**
11	**EN010056**	**Planning Inspectorate**	**East Anglia THREE Offshore Windfarm - Offshore approx. 69km from Port of Lowestoft.**	**635058**	**239047**	**No**	**No**	**Yes**	**Construction and operation of up to 172 wind turbine generators with associated onshore and offshore development. Onshore development includes a cable route to connect the windfarm to the onshore substation.**	**N/A**	**N/A**	**0**	**Approved**	**07/08/2017**	**1**	**Yes**
12	F/TH/22/0953	Thanet	Land south of Millennium Way Broadstairs Kent	637042	167595	No	Yes	No	Erection of a two storey 66-bed care home (Use Class C2) with associated services, car parking and landscaping with access onto Northwood Road following demolition of existing building	N/A	4.02	N/A	Awaiting decision	07/07/2022	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
13	F/TH/22/0649	Thanet	St Peters Presbytery 117 Canterbury Road Westgate On Sea Kent CT8 8NW	632207	169724	No	Yes	No	Erection of part 3storey / part 4 storey building to provide 38 Retirement Living apartments for older persons, with associated communal facilities, parking and landscaping.	N/A	5.65	N/A	Awaiting decision	06/05/2022	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
14	F/TH/22/0642	Thanet	Land southwest of the Nightingales Ramsgate Road MARGATE Kent	635949	169306	No	Yes	No	Erection of 3-storey building to accommodate 8.No 2-bed and 2.No 3-bed self-contained flats, and commercial unit to provide health service use (use class E(e)) at ground floor level, together with associated access, landscaping, parking, bin and cycle stores.	N/A	5.46	N/A	Awaiting decision	05/05/2022	1	No. Nature, scale and location of development not likely to generate significant cumulative effects

15	F/TH/22/0573	Thanet	Land at Manston Road RAMSGATE Kent	635870	165797	No	Yes	No	Erection of 90 residential units (Use Class C3) consisting of 12No 1bed, 24No 2bed, 47No 3bed and 7No 4bed dwellings with associated access, parking and landscaping including play area	N/A	2.25	N/A	Awaiting decision	21/04/2022	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
16	**OL/TH/22/0414**	**Thanet**	**Land on the North Side of Foxborough Lane RAMSGATE Kent**	**631286**	**165007**	**No**	**Yes**	**No**	**Outline planning application for the erection of up to 115 dwellings with all matters reserved except for access**	**N/A**	**1.01**	**N/A**	**Awaiting decision**	**21/03/2022**	**1**	**Yes**
17	**F/TH/21/1671**	**Thanet**	**Land south of Canterbury Road West RAMSGATE Kent**	**634320**	**164923**	**No**	**Yes**	**No**	**Erection of 145 dwellings, with open space, landscaping, access and associated infrastructure.**	**N/A**	**0.79**	**N/A**	**Awaiting decision**	**25/10/2021**	**1**	**Yes**
18	F/TH/21/1853	Thanet	Grenham Lodge Manston Road RAMSGATE Kent CT12 5BT	634639	166169	No	Yes	No	Erection of 16no. two storey dwellings comprising of 4no. four-bed dwellings and 12no. three-bed dwellings.	N/A	2.07	N/A	Awaiting decision	29/11/2021	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
19	F/TH/21/1422	Thanet	Phase 5A land north of Haine Road Broadstairs And West Of Nash Road MARGATE Kent	636147	167840	No	Yes	No	Erection of 38 residential units consisting of 10No 1bed and 28No 2bed flats (Use Class C3) together with a Community Hall Building (Use Class F2[b]), associated access, amenity space and parking	N/A	4.18	N/A	Awaiting decision	09/09/2021	Tier 1	No. Nature, scale and location of development not likely to generate significant cumulative effects
20	F/TH/21/0688	Thanet	2 - 12 Harold Road MARGATE Kent	636608	171059	No	Yes	No	Erection of a four storey building containing 26No. 2 bed flats and 8No. 3 bed flats and erection of 3No. 3 storey 4 bed terraced houses, with associated parking, access and landscaping works following demolition of the existing commercial buildings	N/A	7.33	N/A	Awaiting decision	30/04/2021	1	No. Nature and scale of development not likely to generate significant cumulative effects
21	F/TH/21/0671	Thanet	Land to the north of Fairlawn Road and the west of Northwood Road Broadstairs Kent	637029	167486	No	Yes	No	Erection of 12No 3-bed dwellings, 26No 4-bed dwellings, 3No 1-bed flats, and 3No 2-bed flats, together with associated access, parking and landscaping, following demolition of existing structures.	N/A	3.91	N/A	Awaiting decision	28/04/2022	1	No. Nature and scale of development not likely to generate significant cumulative effects
22	F/TH/21/0582	Thanet	Land on the East Side of Nash Road MARGATE Kent CT9 4LD	636268	168011	No	Yes	No	Erection of four, three and two storey building containing 51No apartments for over 55's and guest apartment, communal facilities, access, parking and landscaping	N/A	4.39	N/A	Decided	12/04/2021	1	No. Nature and scale of development not likely to generate significant cumulative effects
23	F/TH/21/0417	Thanet	Land at New Haine Road RAMSGATE Kent	636199	167963	No	Yes	No	Hybrid planning application comprising outline planning with all matters reserved (except for access) for up to 322no. residential dwellings with associated open space, infrastructure and earthworks; and full planning for 178no. residential dwellings (Phase 1) with associated open space,	N/A	4.31	N/A	Decided	18/03/2021	1	No. Nature and scale of development not likely to generate significant cumulative effects

									equipped play area, landscaping, parking, infrastructure and earthworks						
24	F/TH/20/1726	Thanet	Bowling Centre Ethelbert Crescent MARGATE Kent CT9 2DY	636174	171278	No	Yes	No	Erection of a five-storey building accommodating 8 two-bedroom apartments and 2 three-bedroom apartments and two leisure units (Use Class E(d)) at ground floor following part demolition of the existing bowling alley	N/A	7.41	N/A	Decided	15/12/2020	1	No. Nature and scale of development not likely to generate significant cumulative effects
25	F/TH/20/1525	Thanet	Stephens Haine Road RAMSGATE Kent CT12 5ES	635751	166134	No	Yes	No	Erection of 115no. dwellings comprising a mix of 2, 3 and 4-bed houses, and 1 and 2 bed-apartments, with vehicular access from Haine Road, together with associated highway infrastructure works, parking, and landscaping Open for comment icon	N/A	2.51	N/A	Awaiting decision	13/11/2020	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
26	F/TH/20/0873	Thanet	254 - 258 Northdown Road MARGATE Kent CT9 2PX	636628	170828	No	Yes	No	Erection of 4-storey building (and part three storey, part single storey rear extension) with basement level to accommodate 40no. bedroom hotel (use class C1) with restaurant at ground floor and basement level, and associated parking to rear	N/A	7.12	N/A	Decided	10/07/2020	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
27	F/TH/20/0832	Thanet	Eastport Motors 314 Margate Road RAMSGATE Kent CT12 6AN	637009	166932	No	Yes	No	Erection of part three storey, part two storey building containing 9No 2-bed and 1No studio self contained flats following demolition of existing building	N/A	3.36	N/A	Decided	30/06/2020	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
28	F/TH/20/0802	Thanet	2 - 12 Harold Road MARGATE Kent	636608	171059	No	Yes	No	Erection of part 5 storey, part 4 storey building including accommodation in roof space containing 41No. 1, 2 and 3 bed flats together with 4No. 3 storey 4 bed terraced houses with associated parking, access and landscaping following demolition of existing commercial buildings	N/A	7.33	N/A	Decided	24/06/2020	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
29	F/TH/20/0768	Thanet	Land rear of 19 To 23 Harold Road And 9 To 15 Albion Road MARGATE Kent	636429	171100	No	Yes	No	Erection of 14No. dwellings consisting of 4No. 2-bed two storey terraced houses, 7No. 3-bed and 2No. 4-bed three storey terraced houses, and 1No. 2 bed single storey detached bungalow, together with associated parking, access and landscaping	N/A	7.31	N/A	Decided	17/06/2020	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
30	**F/TH/20/0648**	**Thanet**	**Stonelees Golf Course Ebbsfleet Lane RAMSGATE Kent CT12 5DJ**	**633419**	**162997**	**No**	**Yes**	**No**	**Erection of 10 No. detached and 10 No. semi-detached 2-storey holiday homes together with single storey site office/reception building,**	**N/A**	**0.08**	**N/A**	**Awaiting decision**	**18/05/2020**	**1**	**Yes**

									parking and landscaping. Open for comment icon							
31	F/TH/20/0585	Thanet	Fairfield Manor Fairfield Road BROADSTAIRS Kent CT10 2JY	638198	167933	No	Yes	No	Erection of 5 storey building consisting of 30No 1bed and 22No 2bed retirement flats with associated communal facilities, creation of new access onto Fairfield Rd, parking and landscaping following demolition of existing buildings	N/A	4.65	N/A	Decided	04/05/2020	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
32	F/TH/20/0123	Thanet	Land north of Fairlawn Road RAMSGATE Kent	637017	167465	No	Yes	No	Erection of 4no. 4-bed and 6no. 3-bed dwellings together with associated access and landscaping	N/A	3.88	N/A	Decided	29/01/2020	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
33	F/TH/19/1531	Thanet	Ramsgate Social Club Elms Avenue RAMSGATE Kent CT11 9BD	637982	164824	No	Yes	No	Erection of part 4 storey part 3 storey building with excavated basement level, to accommodate 12No 2-bed flats, 2No 3-bed maisonettes and function room (sui-generis) with associated parking and access following demolition of existing club house	N/A	1.93	N/A	Decided	11/11/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
34	F/TH/19/1465	Thanet	6 North Foreland Road BROADSTAIRS Kent CT10 3NJ	639882	169562	No	Yes	No	Erection of 5No part 3-storey part 4-storey buildings (including basement parking) to provide 34No. 2-bed self contained flats, with associated landscaping and access.	N/A	6.85	N/A	Decided	30/10/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
35	F/TH/19/1389	Thanet	20 - 26 Albion Place RAMSGATE Kent CT11 8HQ	638532	164892	No	Yes	No	Erection of part 5 storey part 4 storey building with basement to accommodate 4No. 2 bed self-contained maisonettes, 8No. 2 bed self-contained flats and 1No. 5 bed single dwelling, and erection of 4 storey 5 bed single dwelling with basement with existing external walls and internal party wall retained at 20 Albion Place, following demolition of existing 4 storey building with basement 21-26 Albion Place and partial demolition of 20 Albion Place, together with external alterations to 20 Albion Place, alterations and extension to roof and alterations to parking arrangement at rear	N/A	2.42	N/A	Decided	14/10/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
36	F/TH/19/1231	Thanet	Land northeast of The Length St Nicholas at Wade BIRCHINGTON Kent	626943	166580	No	Yes	No	Erection of 34No. dwellings, together with associated landscaping, parking and access.	N/A	4.47	N/A	Decided	11/09/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects

37	F/TH/19/1025	Thanet	The Orb Inn 243 Ramsgate Road MARGATE Kent CT9 4EU	635940	169186	No	Yes	No	Erection of 10No 2 bed flats, 2No 3 bed maisonettes and 2No 1 bed flats with associated access, parking and landscaping following demolition of existing building	N/A	5.34	N/A	Decided	25/07/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
38	F/TH/19/0889	Thanet	Former Westonville Garage Canterbury Road MARGATE Kent	634307	170442	No	Yes	No	Erection of a part 3-storey, part 4-storey, and part 5-storey building comprising 15no. 2-bed self-contained flats and 3no. 1-bed self-contained flats, with basement parking	N/A	6.26	N/A	Decided	26/06/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
39	F/TH/19/0813	Thanet	Land formerly used as Club Union Convalescent Home Reading Street BROADSTAIRS Kent	638742	169649	No	Yes	No	Erection of 24no. dwellings with associated vehicular access from Reading Street and Convent Road, pedestrian access from Astor Road, parking and landscaping	N/A	6.44	N/A	Decided	12/06/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
40	F/TH/19/0663	Thanet	St Peters Prestbytery 117 Canterbury Road Westgate on Sea Kent CT8 8NW	632328	169734	No	Yes	No	Erection of a four storey building for a mixed use development comprising 751 sq m of commercial office use on the ground floor (use class B1) together with 2No one-bedroom, 8No two-bedroom and 4No three-bedroom apartments on first, second and third floors (use class C3) with associated parking, access and landscaping following demolition of existing building.	N/A	5.66	N/A	Decided	15/05/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
41	F/TH/19/0497	Thanet	Land on the south side of Dane Road MARGATE Kent	636052	170789	No	Yes	No	Erection of 2no. 3/4 storey buildings to accommodate 39No. 2-bed and 9No. 1-bed self-contained flats, with associated parking, landscaping, and vehicular access onto Dane Road	N/A	6.90	N/A	Decided	10/04/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
42	F/TH/19/0438	Thanet	Land between Manston Road and Preston Road, Adjoining Manston Green Industries Manston Ramsgate Kent	634719	166319	No	Yes	No	Mixed use residential and business development comprising 28 dwellings, (24no. 3-bed and 4no. 4-bed), 1,013sqm of office floor space (Use Class B1) and a detached building incorporating a shop and cafe, together with associated access roads, paths and vehicle parking	N/A	2.24	N/A	Decided	03/04/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
43	F/TH/19/0323	Thanet	Land on the north side of Stirling Way RAMSGATE Kent	636366	166584	No	Yes	No	Erection of 23no. 2 storey dwellings and a 3-storey building accommodating 15No. self-contained flats together with associated parking and landscaping	N/A	2.97	N/A	Awaiting decision	12/03/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects

44	**F/TH/19/0173**	**Thanet**	**Hoo Farm 147 Monkton Road Minster RAMSGATE Kent CT12 4JB**	**629864**	**164902**	**No**	**Yes**	**No**	**Erection of 23 no. dwellings following the demolition of existing buildings, with associated parking, open space and landscaping.**	**N/A**	**1.56**	**N/A**	**Decided**	**12/02/2019**	**1**	**Yes**
45	F/TH/18/1755	Thanet	19 Royal Road RAMSGATE Kent CT11 9LE	637819	164589	No	Yes	No	Erection of 9no. 3-storey 3-bed terraced dwellings, conversion and external alterations to former chapel to 5no. 2 bed self-contained flats, including insertion of windows and doors, together with associated landscaping following demolition of existing extensions and buildings to rear	N/A	1.66	N/A	Decided	02/01/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
46	F/TH/18/1717	Thanet	Bowling Centre Ethelbert Crescent MARGATE Kent CT9 2DY	636168	171294	No	Yes	No	Erection of a five storey building to accommodate 10No 2 Bed and 3No 3 Bed self-contained flats together with altered fire escape route and exit doors via Cliftonville Court following part demolition of existing bowling alley	N/A	7.42	N/A	Decided	18/12/2018	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
47	F/TH/18/1665	Thanet	25 Osborne Road BROADSTAIRS Kent CT10 2AF	639005	167759	No	Yes	No	Erection of 2no. 3-storey buildings containing 10no. 2-bed self contained flats, and erection of 1no. 2-storey 3-bed dwelling, with associated parking following demolition of existing building	N/A	4.85	N/A	Decided	07/12/2018	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
48	F/TH/18/1655	Thanet	Fairfield Manor Fairfield Road BROADSTAIRS Kent CT10 2JY	638082	167661	No	Yes	No	Erection of 1No. five-storey building and 1No. four-storey building with basement/undercroft parking, containing 56 No. self-contained flats (37 x 2 bed and 19 x 1 bed) together with new vehicle access from Fairfield Road, associated works and landscaping, following demolition of existing care home.	N/A	4.35	N/A	Decided	05/12/2018	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
49	F/TH/18/1109	Thanet	14 Suffolk Avenue Westgate on Sea Kent CT8 8JG	631935	169359	No	Yes	No	Change of use from light industrial (use class B2) to residential (use class C3) with erection of 12No. 2 bedroom dwellings, 8no. 2 bedroom maisonettes, and 3No. 1 bedroom dwellings, with associated parking and landscaping, following demolition of existing office building, showroom buildings and manufacturing/storage buildings	N/A	5.27	N/A	Decided	02/08/2018	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
50	F/TH/18/1038	Thanet	The Elms Social Club Elms Avenue RAMSGATE Kent CT11 9BD	637974	164819	No	Yes	No	Erection of 5-storey building with part single storey, to accommodate 12No 2-bed flats, 2No 3-bed maisonettes and function room (sui-generis) with associated parking and access following demolition of existing club house	N/A	1.92	N/A	Decided	19/07/2018	1	No. Nature, scale and location of development not likely to generate significant cumulative effects

51	F/TH/18/0642	Thanet	8 Beach Avenue BIRCHINGTON Kent CT7 9JS	629858	169552	No	Yes	No	Erection of a three-storey building to provide 12No two-bedroom flats with access and parking following demolition of existing bungalow	N/A	5.77	N/A	Decided	03/05/2018	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
52	F/TH/18/0568	Thanet	Land on the west side of Nash Court Road MARGATE Kent	635655	169320	No	Yes	No	Erection of 10No 3 and 4 Bedroom Houses with associated parking	N/A	5.38	N/A	Decided	20/04/2018	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
53	F/TH/18/0430	Thanet	Land rear of 163 To 173 Pegwell Road RAMSGATE Kent	636424	164480	No	Yes	No	Erection of 9No 4 bedroom dwellings and 1No 5 bedroom dwelling with associated parking and access	N/A	0.86	N/A	Decided	23/03/2018	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
54	F/TH/18/0145	Thanet	Former Holly Tree PH and the Old Coach House 382 and 392 Northdown Road MARGATE Kent CT9 3PG	637370	170679	No	Yes	No	Erection of a part 3 part 4 storey building comprising 24 No 2 bed and 11 No 1 bed flats and micro-pub together with 3 No detached dwellings with associated parking and landscaping following demolition of existing fire damaged remains of the Holly Tree PH (No 382) and The Old Coach House (No 392)	N/A	7.12	N/A	Decided	26/01/2018	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
55	F/TH/18/0142	Thanet	Land formerly used as Club Union Convalescent Home Reading Street BROADSTAIRS Kent	638990	169560	No	Yes	No	Erection of 25no. dwellings, with associated vehicular access from Reading Street and Convent Road, pedestrian access from Astor Road, with off street parking and landscaping	N/A	6.45	N/A	Decided	25/01/2018	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
56	F/TH/17/1788	Thanet	Land northwest of former Seabathing Hospital Canterbury Road MARGATE Kent	634386	170446	No	Yes	No	Erection of 10No 2 bedroom dwellings with associated parking, access and landscaping.	N/A	6.26	N/A	Decided	20/12/2017	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
57	F/TH/17/1508	Thanet	81 - 85 High Street RAMSGATE Kent	638122	165124	No	Yes	No	Erection of a 4 storey building to provide 6No. 1 bedroom and 8No 2 bedroom self contained flats	N/A	2.23	N/A	Decided	10/10/2017	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
58	F/TH/17/1407	Thanet	Dane Valley Arms Dane Valley Road MARGATE Kent CT9 3RZ	637160	637160	No	Yes	No	Redevelopment of site for the erection of two,three and four storey buildings containing 5no. 1-bed flats, 5no. 2-bed flats, 5no. 3-bed houses, 2no. 4-bed houses with associated parking,	N/A	5.96	N/A	Decided	22/09/2017	1	No. Nature, scale and location of development not likely to generate significant

									bin and cycle storage, together with micro pub on the ground floor following demolition of existing buildings							cumulative effects
59	F/TH/17/1231	Thanet	Fard Industries Limited 237 Ramsgate Road MARGATE Kent CT9 4BL	635913	169223	No	Yes	No	Erection of 2No. buildings containing 13no. 2-bed flats and 1no. 3-bed flat following demolition of existing garage	N/A	5.37	N/A	Decided	21/08/2017	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
60	F/TH/17/1125	Thanet	7 - 9 Addington Road MARGATE Kent CT9 1NH	635668	170790	No	Yes	No	Erection of part three, part four storey building comprising 12No. 2-bed flats together with erection of rear boundary wall and single storey bin store enclosures	N/A	6.80	N/A	Decided	28/07/2017	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
61	F/TH/21/0801	Thanet	Land north of Maple Leaf Business Park Maple Leaf Business Park Monkton Kent	631583	166375	No	Yes	No	Erection of 16no. general industrial units (Use Class B2) with associated parking and access	N/A	2.29	N/A	Decided	18 /05/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects
62	R/TH/20/1733	Thanet	Garden Cottage Minster Road Monkton RAMSGATE Kent CT12 4BA	631132	166345	No	Yes	No	Application for reserved matters for appearance and landscaping pursuant to outline application ref: TH/20/1051 as a variation of condition 5 attached to Planning Permission OL/TH/19/0290, for the erection of a perfumery manufacturing facility, offices, warehousing, associated parking and site access, following demolition of existing dwelling	N/A	2.34	N/A	Decided	16/12/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
63	F/TH/20/0616	Thanet	Land west of Invicta Way Ramsgate Kent	631274	166403	No	Yes	No	Erection of 22 No two storey mixed use commercial units	N/A	2.36	N/A	Decided	12/05/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
64	F/TH/20/0303	Thanet	Land east of Columbus Avenue RAMSGATE Kent	631546	166392	No	Yes	No	Erection of 26No. general industrial units, associated parking and access road.	N/A	2.31	N/A	Decided	27/07/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
65	OL/TH/19/0290	Thanet	Garden Cottage Minster Road Monkton RAMSGATE Kent CT12 4BA	631132	166345	No	Yes	No	Outline application for the erection of a perfumery manufacturing facility, offices, warehousing, associated parking and site access including layout and scale, following demolition of existing dwelling	N/A	2.34	N/A	Decided	05/03/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
66	F/TH/18/1747	Thanet	Land east of Columbus Avenue RAMSGATE Kent	631546	166392	No	Yes	No	Erection of 35No. general industrial units, associated parking and access road.	N/A	2.31	N/A	Decided	21/12/2018	1	No. nature, scale and location of development not

															likely to generate significant cumulative effects
67	F/TH/18/1185	Thanet	Land east of Columbus Avenue RAMSGATE Kent	631546	166392	No	Yes	No	Erection of 18No. general industrial units, associated parking and access road	N/A	2.31	N/A	Decided	21/08/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects
68	F/TH/18/0637	Thanet	Land west of Invicta Way Ramsgate Kent	631274	166403	No	Yes	No	Erection of 2 storey building for manufacturing timber products (use class B2)	N/A	2.36	N/A	Decided	02/05/2018	1	No. Nature and scale of development not likely to generate significant cumulative effects
69	F/TH/18/0549	Thanet	Lockwoods Yard The Grove Westgate On Sea Kent CT8 8AS	632637	169969	No	Yes	No	Erection of part two storey/part three storey/part four storey 1200 sqm extension of light industrial use (Class B1) to the Eastern and Northern perimeters with associated parking and landscaping together with the demolition of the existing paint store.	N/A	5.91	N/A	Decided	18/04/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects
70	F/TH/18/0093	Thanet	Land on west side of the Loop Manston Ramsgate Kent	631620	166513	No	Yes	No	Erection of 9No. industrial units, together with associated external works	N/A	2.43	N/A	Decided	16/01/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects
71	F/TH/17/1756	Thanet	Land west of Invicta Way Ramsgate Kent	631260	166392	No	Yes	No	Erection of a concrete batching plant with workshop, office, storage units and concrete bays associated parking (Phase 1) together with erection of 10 commercial units with associated parking (Phase 2)	N/A	2.35	N/A	Decided	12/12/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
72	F/TH/17/1589	Thanet	Land east of Columbus Avenue RAMSGATE Kent	631457	166411	No	Yes	No	Erection of 19No. general industrial units, associated parking and access road.	N/A	2.34	N/A	Decided	30/10/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
73	F/TH/17/1169	Thanet	Land east of Columbus Avenue RAMSGATE Kent	631457	166411	No	Yes	No	Erection of 3No. general industrial units, 1No two storey office unit, access road and associated parking.	N/A	2.34	N/A	Decided	09/08/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
74	F/TH/17/1056	Thanet	Mushroom Farm Manston Road MARGATE Kent CT9 4LT	633711	166856	No	Yes	No	Change of use of land and existing buildings along with the erection of 4No industrial buildings for mixed use as use classes B1, B2 and B8 with associated landscaping bund and car parking areas.	N/A	2.68	N/A	Decided	18/07/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
75	F/TH/17/1063	Thanet	Land east of Columbus Avenue RAMSGATE Kent	631409	166428	No	Yes	No	Erection of 22 No. general industrial units, associated parking and access road.	N/A	2.36	N/A	Decided	18/07/2017	1	No. nature, scale and location of development not

															likely to generate significant cumulative effects
76	OL/TH/20/1435	Thanet	Land at New Haine Road RAMSGATE Kent	636231	167041	No	Yes	No	Hybrid application for outline permission (phase 2) for the erection of 54no. commercial units (Use Class E(g)), with all matters reserved, except access and; full application (phase 1) for the erection of up to 132no. commercial units (Use Class E(g)), and cafe (Use Class E(b)), within 1no. 2-storey building and 2no. part 2-storey, part 3-storey buildings, with associated parking and landscaping, and vehicular access onto New Haine Road.	N/A	3.43	N/A	Decided	27/10/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
77	F/TH/22/0824	Thanet	Chapel House Thorne Hill Minster RAMSGATE Kent CT12 5DS	633370	164922	No	Yes	No	Variation of condition 10 of planning permission F/TH/21/0965 for the "Change of use of existing main building to wedding/function venue with accommodation together with associated development including; erection of single storey pitched roof function room, together with erection of 8no. single storey guest / visitor lodges, formation of parking area, alteration to access (north), associated operational development, including alterations to existing buildings and landscaping" to allow alterations to opening hours Open for comment icon	N/A	0.85	N/A	Awaiting decision	15/06/2022	1	No. Nature and scale of development not likely to generate significant cumulative effects
78	F/TH/22/0732	Thanet	53 - 57 High Street MARGATE Kent CT9 1DX	635319	170866	No	Yes	No	Change of use from retail (Use Class E(a)) to a digital technology and education campus (Use Class F1a) with ancillary cafe facilities and co-working / studio space, cycle storage, refuse storage together with installation of plant at roof level, and elevational refurbishments Open for comment icon	N/A	6.80	N/A	Awaiting decision	25/05/2022	1	No. Nature and scale of development not likely to generate significant cumulative effects
79	**F/TH/22/0579**	**Thanet**	**Richborough Energy Park Sandwich Road RAMSGATE Kent CT13 9NL**	**633242**	**162232**	**No**	**Yes**	**No**	**Extension of electricity battery storage facility to provide additional 249mw capacity including electrical plant and equipment, alterations to land levels, landscaping and associated works, following removal of existing wind turbine, site clearance and levelling Open for comment icon**	**N/A**	**0.68**	**N/A**	**Awaiting decision**	**22/04/2022**	**1**	**Yes**
80	F/TH/22/0051	Thanet	Land adjacent to Birchington Vale Caravan Park Shottendane Road Birchington Kent	632307	168091	No	Yes	No	Change of use of land for the stationing of static holiday caravans and associated works Open for comment icon	N/A	4.02	N/A	Awaiting decision	13/01/2022	1	No. nature, scale and location of development not likely to generate significant

																cumulative effects
81	F/TH/21/1480	Thanet	Queen Elizabeth the Queen Mothers Hospital St Peters Road MARGATE Kent CT9 4AN	635927	169647	No	Yes	No	Erection of a single storey front extension with ramp, two storey inner courtyard extension, creation of new car park adjacent to existing staff car park and Nightingales, reconfiguration of existing car parks with new crossing and associated landscaping	N/A	5.78	N/A	Decided	21/09/2021	1	No. Nature and scale of development not likely to generate significant cumulative effects
82	F/TH/21/1099	Thanet	Land on the northwest side of Star Lane MARGATE Kent	636043	168026	No	Yes	No	Variation of condition 2 of planning permission F/TH/19/1310 for the erection of a three storey building to accommodate a 78 bed care home (use class C2) include landscaping, access and car parking, to allow for alterations to external materials, parking provision, site layout, and internal configuration.	N/A	4.30	N/A	Decided	12/07/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects
83	F/TH/21/0965	Thanet	Chapel House Thorne Hill Minster RAMSGATE Kent CT12 5DS	633373	164919	No	Yes	No	Change of use of existing main building to wedding/function venue with accommodation together with associated development including; erection of single storey pitched roof function room, together with erection of 8no. single storey guest / visitor lodges, formation of parking area, alteration to access (north), associated operational development, including alterations to existing buildings and landscaping.	N/A	0.85	N/A	Decided	15/06/2021	1	No. Nature and scale of development not likely to generate significant cumulative effects
84	F/TH/20/1296	Thanet	Hornby Hobbies Unit H1 - H2 Enterprise Road MARGATE Kent CT9 4JX	636248	168653	No	Yes	No	Change of use of warehouse (Building H2) and part of Hornby factory building (Building H1) (Use Classes B1, B2 and B8) to museum (Use Class F.1) with associated car parking, following alterations to red bricked building to create main entrance with lantern extension to roof and ramped access, following demolition of security building, alterations to windows within warehouse building to include glazed doors and addition of polycarbonate panelling, addition of ramp and stairs to front to access lower ground level exhibition space and cafe area, installation of louvres on rear and side elevations of Hornby factory building to provide ventilation for car park	N/A	4.96	N/A	Decided	29/09/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects

85	F/TH/20/1065	Thanet	Land on the northwest side of Star Lane MARGATE Kent	636055	168057	No	Yes	No	Variation of condition 2 of planning permission F/TH/19/1310 for the erection of a three storey building to accommodate a 78 bed care home (use class C2) include landscaping, access and car parking to allow reduction in units from 78 to 75 and associated works to design and layout	N/A	4.33	N/A	Decided	17/08/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
86	F/TH/20/0714	Thanet	Margate Football Ground Hartsdown Road MARGATE Kent CT9 5QZ	634872	170003	No	Yes	No	Erection of 120 bed hotel and ancillary facilities including restaurant, new stands, studio spaces, cafe, club shop, club offices and car parking	N/A	5.87	N/A	Decided	03/06/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
87	F/TH/20/0657	Thanet	Former Police Station and former Magistrates Court House Cavendish Street RAMSGATE Kent	638211	164978	No	Yes	No	Erection of bin store, cycle store and 2no. cycle racks, substation and enclosure, and water tank	N/A	2.21	N/A	Decided	19/05/2020	1	No. Nature and scale of development not likely to generate significant cumulative effects
88	F/TH/19/1310	Thanet	Land on the northwest side of Star Lane MARGATE Kent	636080	168040	No	Yes	No	Erection of a three storey building to accommodate a 78 bed care home (use class C2) include landscaping, access and car parking	N/A	4.33	N/A	Decided	30/09/2019	1	No. Nature and scale of development not likely to generate significant cumulative effects
89	F/TH/19/1291	Thanet	Birchington Vale Caravan Park Shottendane Road Birchington Kent CT7 0HD	632310	168112	No	Yes	No	Change of use of land from touring and tent camping area to stationing of static caravans and associated works	N/A	4.04	N/A	Decided	26/09/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
90	F/TH/19/0959	Thanet	Queen Elizabeth the Queen Mothers Hospital Ramsgate Road MARGATE Kent CT9 4BG	635931	169645	No	Yes	No	Installation of ground mounted 400kW solar array to the north east of The Nightingales	N/A	5.77	N/A	Decided	09/07/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
91	F/TH/18/1593	Thanet	16 - 22 Godwin Road MARGATE Kent CT9 2HG	636493	171135	No	Yes	No	Change of use to Hotel (use class C1) together with the erection of third floor rear extensions and replacement roof Open for comment icon	N/A	7.36	N/A	Awaiting decision	15/11/2018	1	No. Nature and scale of development not likely to generate significant cumulative effects
92	F/TH/18/1053	Thanet	43 - 49 Marine Terrace MARGATE Kent	635038	170615	No	Yes	No	Erection of 124 bedroom hotel (use class C1) with associated restaurant/bar, gymnasium, meeting spaces, and rooftop bar together with 1No retail/restaurant (use classes A1/A3) at ground floor following demolition of existing buildings	N/A	6.50	N/A	Decided	24/07/2018	1	No. Nature and scale of development not likely to generate significant cumulative effects
93	F/TH/18/0507	Thanet	Hartsdown Academy George V Avenue MARGATE Kent CT9 5RE	634453	169915	No	Yes	No	Erection of part two/part three storey teaching block together with single storey extension to sports hall with associated	N/A	5.74	N/A	Decided	09/04/2018	1	No. nature, scale and location of development not likely to generate

									ancillary works and landscaping following demolition of 5 existing buildings.							significant cumulative effects
94	F/TH/18/0432	Thanet	Land Adjacent Birchington Vale Caravan Park Shottendane Road Birchington Kent	632304	168111	No	Yes	No	Change of use of land for the stationing of static holiday caravans and associated works	N/A	4.04	N/A	Decided	26/03/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects
95	F/TH/18/0291	Thanet	Bethesda Medical Centre Palm Bay Avenue MARGATE Kent CT9 3NR	637076	171378	No	Yes	No	Erection of extensions to enlarge existing medical centre to provide medical and community facilities comprising a two storey extension to front of existing building with alterations to entrance, a two-storey extension to eastern end of building with plant room within roof, installation of solar panels to roof slopes and creation of new pedestrian and vehicular access, together with 46 parking spaces to front and rear and use of adjacent land for the provision of an additional 54 spaces, with associated structures, enclosures and landscaping.	N/A	7.78	N/A	Decided	27/02/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects
96	F/TH/17/1662	Thanet	Margate Football Ground Hartsdown Road MARGATE Kent CT9 5QZ	634876	170009	No	Yes	No	Application for the removal of condition 1 of planning consent F/TH/11/0428 The erection of mixed use development, comprising a football stadium, an 80 bed hotel, fitness club, children's club, children's play area, theme bar, conference and banqueting suites, hospitality boxes, admin offices, boardroom for the football club, 10 five a sides & one full size all weather pitch & associated parking and landscaping	N/A	5.88	N/A	Decided	17/11/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
97	F/TH/17/1397	Thanet	Dock Hereditament and Premises Port of Ramsgate Royal Harbour Approach Ramsgate Kent CT11 9FT	637834	164204	No	Yes	No	Change of use of land to a 90 space lorry and coach park for a temporary period of 24 months	N/A	1.48	N/A	Decided	21/09/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
98	F/TH/17/1145	Thanet	29 Ethelbert Crescent MARGATE Kent CT9 2DU	636287	171309	No	Yes	No	Erection of seven storey hotel (C1 Use Class), comprising 117no. bedrooms, restaurant provision on the ground floor, and basement parking	N/A	7.47	N/A	Decided	02/08/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
99	F/TH/17/1141	Thanet	Former Ramsgate Swimming Pool Newington Road RAMSGATE Kent CT11 0QX	637026	165463	No	Yes	No	Variation of conditions 2, 6 and 13 of planning approval F/TH/15/0006 'Erection of 2 storey fire station and training centre, with associated 2 storey training structures and vehicular parking following demolition of	N/A	1.92	N/A	Decided	02/08/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects

									existing building' to allow for alterations to boundary treatment, together with provision and use of an emergency generator.							
100	**22/00245**	**Dover**	**Goshall Valley East Street Ash Kent**	**630074**	**158743**	**No**	**Yes**	**No**	**Environmental Impact Assessment - Scoping Opinion for a proposed solar farm**	**N/A**	**3.79**	**N/A**	**Scoping**	**01/04/2022**	**2**	**Yes**
101	22/00205	Dover	Land on the south side of Archers Court Road Whitfield Kent	630786	145209	No	Yes	No	Outline application for the erection of up to 28 dwellings (30% affordable) (with all matters reserved except access) (including demolition of 14 Archers Court Road)	N/A	16.86	N/A	Awaiting decision	26/01/2022	1	No. nature, scale and location of development not likely to generate significant cumulative effects
102	22/00366	Dover	Semmering the Avenue Temple Ewell CT16 3AW	629063	144389	No	Yes	No	Erection of a two storey building with ground floor car port/home office and first floor annexe for ancillary use with associated parking	N/A	17.87	N/A	Decided	11/03/2022	1	No. nature, scale and location of development not likely to generate significant cumulative effects
103	PE/18/00139	Dover	Site at Barwick Road Dover CT17 0TJ	629841	142025	No	Yes	No	Erection of 210 dwellings	N/A	20.11	N/A	Unknown	Unknown		No. Proposed development is outside the ZOI
104	19/00615	Dover	Lydden Hill Race Circuit Wootton CT4 6ET	623846	146876	No	Yes	No	Demolition of existing Circuit Offices and erection of replacement building comprising VIP Centre and additional use of the circuit for non-race activities and construction of new access road from existing access in Geddinge Lane	N/A	17.19	N/A	Unknown	Unknown	1	No. nature, scale and location of development not likely to generate significant cumulative effects
105	17/00602	Dover	Shelvin Farm Shelvin Wootton CT4 6RL	622680	147510	No	Yes	No	Erection of an agricultural multi-purpose building	N/A	17.20	N/A	Decided	19/05/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
106	20/00679	Dover	Land on the northwest side of Archers Court Road Whitfield Kent	630859	145360	No	Yes	No		N/A	16.70	N/A	Decided	09/09/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
107	22/00029	Dover	Phase 1C Whitfield Urban Extension Archers Court Road Whitfield	630899	145311	No	Yes	No	Reserved Matters application for the approval of layout, scale, landscaping, internal access arrangements and appearance for 249 dwellings pursuant to outline planning Permission DOV/10/01010	N/A	16.75	N/A	Awaiting decision	10/01/2022	1	No. nature, scale and location of development not likely to generate significant cumulative effects
108	**20/00540**	**Dover**	**Field southwest of Solton Manor Farm the Lane Guston Kent**	**630899**	**145311**	**No**	**Yes**	**No**	**Request for EIA Screening Opinion for proposed solar farm**	**N/A**	**16.75**	**N/A**	**Decided**	**22/05/2020**	**2**	**Yes**

109	19/01241	Dover	Woodpecker Court 45 Wigmore Lane Eythorne CT15 4BF	628126	149994	No	Yes	No	Retrospective application for the change of use of land and the erection of 5no. buildings for use as 2no. classrooms, tool and machine storage, toilet block, including change of use of adjacent land for educational use and erection of a woodland classroom (updated documentation and amended description)	N/A	12.63	N/A	Decided	09/10/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
110	20/00179	Dover	Site of former Snowdown Colliery Sandwich Road Snowdown Kent	628697	150092	No	Yes	No	Environmental Impact Assessment: Mixed Use Development	N/A	12.37	N/A	Decided	19/02/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
111	21/00340	Dover	Manor Farm Willow Woods Road Little Mongeham Deal Kent CT14 0HR	633277	150984	No	Yes	No	Screening opinion - proposed creation of an airfield, ancillary buildings and glamping pods	N/A	11.12	N/A	Decided	28/02/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects
112	21/00255	Dover	Land opposite 423 To 459 Dover Road Walmer	636611	149585	No	Yes	No	Reserved Matters application pursuant to Outline permission DOV/17/00487 for the details of appearance, landscaping, layout and scale for the erection of 85 dwellings	N/A	12.85	N/A	Decided	17/02/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects
113	21/01683	Dover	Site at cross Road Deal CT14 9LA	636146	150562	No	Yes	No	Reserved matters application for the details of layout, scale, landscaping and appearance for the erection of 100 dwellings pursuant to outline planning permission DOV/20/01125	N/A	11.86	N/A	Awaiting decision	02/11/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects
114	21/01822	Dover	Land on the West Side Of Cross Road Deal CT14 9LA	636138	150560	No	Yes	No	Outline planning application for the erection of up to 140 dwellings including affordable housing, with public open space, landscaping, and vehicular access (all matters reserved except for access)	N/A	11.86	N/A	Awaiting decision	02/11/221	1	No. nature, scale and location of development not likely to generate significant cumulative effects
115	19/00895	Dover	Land to the rear of Freemens Way Freemens Way Deal	636799	151286	No	Yes	No	Erection of 88 no. dwellings, equipped play area, sports field with 8 no. 15m high lighting columns, erection of club house, associated car parking, hard and soft landscaping (amended documents)	N/A	11.16	N/A	Decided	24/07/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
116	PE/18/00082	Dover	Land off Sandwich Road Sholden Deal	634501	153742	No	Yes	No	Erection of 300-400 dwellings, provision of formal and informal open space, new boundary landscaping.	N/A	8.66	N/A	Decided	19/02/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
117	20/00180	Dover	Land at Betteshanger Park Sandwich Road Sholden Deal CT14 0BF	635257	153995	No	Yes	No	Request for EIA Screening Opinion	N/A	8.48	N/A	Decided	19/02/2020	1	No. nature, scale and location of development not likely to generate significant

															cumulative effects
118	PE/18/00149	Dover	The Old Lorry Farm Shop Sandwich Road Hacklinge Northbourne Deal CT14 0AR	634553	153697	No	Yes	No	Creation of a holiday park with associated access, landscaping and parking.	N/A	8.72	N/A	Unknown	Unknown	1	No. nature, scale and location of development not likely to generate significant cumulative effects
119	21/00504	Dover	Land at Gore Lane Eastry Kent	630482	154918	No	Yes	No	Reserved matters application for the details of, internal access, appearance, landscaping, layout, and scale for the erection of 50no. dwellings and the discharge of conditions 6, 7, 9, 10, 12, 13, 14, 24 and 30 pursuant to Outline application DOV/19/00574.	N/A	7.26	N/A	Decided	30/03/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects
120	19/01362	Dover	Summerfield Nurseries Barnsole Road Staple CT3 1LD	627806	156255	No	Yes	No	Erection of 11no. detached dwellings, 6no. affordable houses, garages, cycle/bin stores, vehicular access and associated parking (existing buildings to be demolished)	N/A	7.07	N/A	Decided	08/11/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
121	20/00439	Dover	Preston Village Hall Mill Lane Preston CT3 1HB	625133	160935	No	Yes	No	Erection of a village hall, creation of additional parking, bicycle parking, soft and hand landscaping and installation of new school safety barrier (existing village hall to be demolished)	N/A	5.26	N/A	Unknown	Unknown	1	No. nature, scale and location of development not likely to generate significant cumulative effects
122	21/01045	Dover	Land to the south of River Stour Ramsgate Road Sandwich Kent	615975	166541	No	Yes	No	Creation of a ground based photovoltaic solar farm, inverters, sub-stations, security fencing, access, infrastructure and associated works	N/A	14.33	N/A	Decided	25/06/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects
123	CA/22/00869	Canterbury	Land south of Greenhill Road Herne Bay Kent	615527	155390	No	Yes	No	Reserved matters application for the approval of appearance, landscaping, layout and scale for the erection of a single-storey community building, MUGA and sports playing pitches with associated car parking, earthworks, fencing, drainage and associated ancillary works pursuant to outline planning permission CA//17/02907/OUT.	N/A	16.34	N/A	Awaiting decision	20/04/2022	1	No. nature, scale and location of development not likely to generate significant cumulative effects
124	CA/22/00700	Canterbury	Land south and east of Nackington Road Canterbury Kent	617231	166678	No	Yes	No	Outline application for proposed residential development for up to 200 dwellings, open space and associated infrastructure, with all matters reserved apart from site access.	N/A	13.15	N/A	Awaiting decision	03/05/2022	1	No. nature, scale and location of development not likely to generate significant cumulative effects

125	CA/22/00577	Canterbury	Land at Herne Bay Golf Course Thanet Way A2990 Herne CT6 7PG	617213	166678	No	Yes	No	Non-material amendment to planning permission CA//18/02369/RES for the Application for approval of access, appearance, landscaping, layout and scale for phase 5, comprising 109 dwellings of the redevelopment of the former Herne Bay Golf Course pursuant to outline planning permission CA/16/00378/VAR; to allow condition 3 to be reworded so that the play area can be delivered prior to the occupation of the 60th dwelling on the phase.	N/A	13.17	N/A	Decided	14/03/2022	1	No. nature, scale and location of development not likely to generate significant cumulative effects
126	CA/22/00578	Canterbury	Herne Bay Golf Club Thanet Way Herne Bay Kent	620276	161894	No	Yes	No	Non-material amendment to planning permission CA/20/00101/RES for the Application for approval of access, appearance, landscaping, layout and scale for Phase 6A of the redevelopment of the former Herne Bay Golf Course pursuant to outline planning permission CA/16/00378/VAR; to allow condition 3 to be reworded so that the play area can be delivered prior to the occupation of the 55th dwelling on the phase.	N/A	9.71	N/A	Decided	28/03/2022	1	No. nature, scale and location of development not likely to generate significant cumulative effects
127	CA/21/02797	Canterbury	Land to the south of Island Road (A28) Former Chislet Colliery Hersden Westbere	612574	155941	No	Yes	No	Reserved matters application for phase 1 comprising access into the site together with associated infrastructure and landscaping pursuant to outline planning permission CA//16/00673/OUT.	N/A	18.77	N/A	Awaiting decision	18/11/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects
128	CA/21/02719	Canterbury	Land north of Cockering Road Thanington Without Kent	612561	155937	No	Yes	No	Application for the approval for access, appearance, layout and scale of phase 1 incorporating 60 dwellings of a mixed use development comprising up to 400 dwellings in a mix of sizes, types and tenures including affordable housing, up to 3,716 sqm of commercial space (use class B1), a community building or leisure centre (Use classes D1-D2) of up to 200 sqm, new highway infrastructure including spine road with accesses onto Milton Manor Road and Cockering Road and a network of internal roads, footpaths and cycle route, provision of no less than 18 hectares of open space, associated landscaping, utilities infrastructure, sustainable drainage system and earthworks. All matters reserved. pursuant to outline	N/A	18.78	N/A	Awaiting decision	09/11/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects

									planning permission CA//17/00519/OUT							
129	CA/21/02426	Canterbury	Land north of Thanet Way Whitstable Kent	609381	164221	No	Yes	No	Reserved Matters application for Phase 3 comprising 108 residential dwellings including affordable units and associated works, landscaping, parking, open space and servicing, pursuant to outline planning permission CA/15/01296	N/A	20.55	N/A	Decided	06/10/2021	1	No. Proposed development is outside the ZOI
130	CA/21/02244	Canterbury	Grasmere Gardens land south of the Ridgeway Chestfield	609388	164187	No	Yes	No	Application for the approval of appearance, landscaping, layout, scale and internal circulation for Phases 2 and 3 including the erection of 160 dwellings, 3,500 sqm of commercial floorspace, along with provision of all associated infrastructure, MUGA and parking, pursuant to outline planning permission CA//17/00469/OUT.	N/A	20.54	N/A	Decided	13/09/2021	Tier 1	No. Proposed development is outside the ZOI
131	CA/21/01798	Canterbury	Land at Cockering Road Thanington CT4 7BH	612959	166172	No	Yes	No	Application for the approval of appearance, landscaping, layout and scale pursuant to planning permission CA//18/00346/VAR for a 60 bed nursing home.	N/A	17.21	N/A	Awaiting decision	15/07/2021	1	No. nature, scale, and location of development not likely to generate significant cumulative effects
132	CA/21/01800	Canterbury	Strode Farm Lower Herne Road Herne Herne Bay Kent CT6 7NH	612607	155939	No	Yes	No	Reserved matters application for the approval of appearance, access, landscaping, layout and scale for development of Phase A consisting of 128 residential units, 207 square metres of commercial floorspace, and provision of the first phase of the Herne Relief Road, alongside the provision of all associated infrastructure, parking, servicing, landscaping, utilities, and open space, pursuant to outline planning permission CA/15/01317/OUT.	N/A	18.74	N/A	Decided	27/07/2021	1	No. nature, scale, and location of development not likely to generate significant cumulative effects
133	CA/21/01797	Canterbury	Land off Cockering Road Thanington	617402	165966	No	Yes	No	Application for the approval of appearance, landscaping, layout and scale pursuant to CA//18/00346/VAR, for the employment area comprising 4,000 sq metres of business use.	N/A	12.81	N/A	Awaiting decision	04/08/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects

134	CA/21/01597	Canterbury	Land off Cockering Road Thanington	612537	155944	No	Yes	No	Application for the approval of appearance, landscaping, layout and scale for phase 3 comprising 184 dwellings pursuant to outline planning permission CA/18//00346/VAR.	N/A	18.80	N/A	Awaiting decision	24/06/2021	1	No. nature, scale, and location of development not likely to generate significant cumulative effects
135	CA/21/01278	Canterbury	Land south of Greenhill Road Herne Bay Kent	612619	155975	No	Yes	No	Reserved matters application for the approval of site accesses from Thornden Wood Road and Greenhill Road and a connecting link road pursuant to outline planning permission CA//17/02907/OUT.	N/A	18.72	N/A	Decided	17/05/2021	1	No. nature, scale, and location of development not likely to generate significant cumulative effects
136	CA/21/01277	Canterbury	Land south of Greenhill Road Herne Bay Kent	615940	166545	No	Yes	No	Reserved matters application for the approval of appearance, access, landscaping, layout and scale for residential development consisting of 450 dwellings (including affordable), together with associated open space, drainage, infrastructure, earthworks and site accesses from Thornden Wood Road and Greenhill Road and a connecting link road pursuant to outline planning permission CA//17/02907/OUT.	N/A	14.37	N/A	Decided	17/05/2021	1	No. nature, scale, and location of development not likely to generate significant cumulative effects
137	CA/21/01244	Canterbury	Cockering Farm Cockering Road Thanington Without CT1 3UR	615924	166543	No	Yes	No	Application for the approval of reserved matters in relation to earthworks pursuant of conditions 1 and 10 for a mixed use development comprising up to 400 dwellings in a mix of sizes, types and tenures including affordable housing, up to 3,716 sqm of commercial space (use class B1), a community building or leisure centre (Use classes D1-D2) of up to 200 sqm, new highway infrastructure including spine road with accesses onto Milton Manor Road and Cockering Road and a network of internal roads, footpaths and cycle route, provision of no less than 18 hectares of open space, associated landscaping, utilities infrastructure, sustainable drainage system and earthworks. All matters reserved pursuant to outline planning permission CA//17/00519/OUT	N/A	14.38	N/A	Decided	13/05/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects
138	CA/21/01136	Canterbury	Hoplands Farm Island Road Hersden Canterbury Kent CT3 4HQ	613497	156018	No	Yes	No	Application for approval of reserved matters relating to access, appearance, landscaping, layout and scale for the provision of a Business Campus comprising approximately 5,400sqm (GIA)	N/A	17.89	N/A	Awaiting decision	04/05/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects

									pursuant to outline planning permission CA/16/00404/OUT.							
139	CA/21/00829	Canterbury	Land off Cockering Road Thanington	620710	161996	No	Yes	No	Application for approval of reserved matters of appearance, landscaping, layout and scale for Phase 2 for 210 dwellings pursuant to CA/18/00346 Variation of conditions 03 & 31 of planning permission CA/15/01479/OUT (outline permission for mixed use development of up to; 750 residential units, 4,000 m2 of business use, 1,000 m2 of retail/service uses, 5,000 m2 of residential institutions, including hospice and nursing home, 2,000 m2 of community and leisure uses; primary school; extended westbound slip road on the A2, accesses to Cockering Road; internal roads, footpaths and cycle routes; plus new planting and landscaping. All matters reserved except access).	N/A	9.27	N/A	Awaiting decision	08/04/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects
140	CA/21/00765	Canterbury	Land at and adjacent to Cockering Farm Thanington Without Canterbury	612573	155895	No	Yes	No	Application for approval of the reserved matter of access for the spine road pursuant to CA//17/00519/OUT outline application for a mixed use development comprising up to 400 dwellings in a mix of sizes, types and tenures including affordable housing, up to 3,716 sqm of commercial space (use class B1), a community building or leisure centre (Use classes D1-D2) of up to 200 sqm, new highway infrastructure including spine road with accesses onto Milton Manor Road and Cockering Road and a network of internal roads, footpaths and cycle route, provision of no less than 18 hectares of open space, associated landscaping, utilities infrastructure, sustainable drainage system and earthworks. All matters reserved pursuant to outline planning permission.	N/A	18.79	N/A	Awaiting decision	15/04/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects
141	CA/21/00158	Canterbury	Land at Hillborough south of Highfields Avenue Beltinge Herne Bay	612655	155933	No	Yes	No	Outline application for up to 350 dwellings and associated infrastructure with all matters reserved except access.	N/A	18.70	N/A	Awaiting decision	21/01/2021	1	No. nature, scale and location of development not likely to generate significant cumulative effects

142	CA/20/02826	Canterbury	Land at Sturry/Broad Oak Sturry	619553	167672	No	Yes	No	Outline application (with all matters reserved) for the development of up to 630 houses and associated community infrastructure comprising primary school, community building, public car park and associated amenity space, access, parking and landscaping; and detailed/full application for the construction of part of the Sturry Link Road and a local road from the Sturry Link Road to Shalloak Road.	N/A	11.29	N/A	Decided	14/12/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
143	CA/20/02627	Canterbury	Land at and adjacent to Cockering Farm Thanington Without Kent	616850	161179	No	Yes	No	Application for the approval of appearance, access, landscaping, layout and scale for phases 1 & 2 consisting of 176 dwellings together with new highway infrastructure, footpaths and cycle route, provision of public open space, associated landscaping, utilities infrastructure, sustainable drainage system and earthworks pursuant to outline planning permission CA/17/00519.	N/A	13.20	N/A	Awaiting decision	27/11/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
144	CA/20/02505	Canterbury	Land at Giles Lane Giles Lane Canterbury Kent CT2 7LR	612924	156166	No	Yes	No	The proposed development to provide 935 purpose-built student accommodation comprising 144 cluster flats, 1 double-bed unit and 132 studios, arranged in 5 blocks ranging from three to six storeys; replacement two-storey squash building, single-storey sports pavilion, new footpaths, highways improvements to include widening of Giles Lane, new access points off Giles Lane, provision of parking, cycle spaces and green infrastructure, following demolition of existing residential properties and office building.	N/A	18.36	N/A	Awaiting decision	10/11/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
145	CA/20/02436	Canterbury	Land north of Thanet Way Whitstable	613536	159543	No	Yes	No	Reserved Matters application for part Phase 1 and Phase 2 comprising 213 residential dwellings and associated works, landscaping, parking, open space and servicing, together with details of the strategic infrastructure (including roads, levels and drainage) within Phase 3, pursuant to outline planning permission CA/15/01296	N/A	16.76	N/A	Decided	10/11/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
146	CA/20/01878	Canterbury	Howe Barracks Littlebourne Road Canterbury	609328	164137	No	Yes	No	Application for approval of reserved matters relating to access, landscaping, scale, layout and appearance for the development of sports pitches, comprising a grass football pitch and 2 No. all weather 3G mini	N/A	20.60	N/A	Decided	26/08/2020	1	No. Proposed development is outside the ZOI

									soccer pitches and a neighbourhood equipped area of play with associated car parking, landscaping and earthworks pursuant to outline planning permission CA/14/01230/FUL.							
147	CA/20/01777	Canterbury	Land north of Cockering Road Thanington Land at and adjacent to Cockering Farm Thanington	617923	158140	No	Yes	No	Variation of conditions 6 (approved plans), 7 (phasing plan), 8 (masterplan), 11 (open Space Strategy) and 28 (Spine Road) of Outline planning permission CA//17/00519/OUT for a mixed use development comprising up to 400 dwellings, up to 3,716 sqm of commercial space, a community building or leisure centre of up to 200 sqm, new highway infrastructure including spine road with accesses onto Milton Manor Road and Cockering Road and a network of internal roads, footpaths and cycle route, and provision of no less than 18 hectares of open space; to allow relocation and alteration of the approved western access from roundabout to a T junction, together with associated re-alignment of the spine road.	N/A	12.99	N/A	Decided	17/08/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
148	CA/20/01680	Canterbury	Land off Cockering Road Thanington	612464	155867	No	Yes	No	Application for approval of reserved matters of access, appearance, landscaping, layout and scale for Phase 1B for 87 dwellings pursuant to CA//18/00346 Variation of conditions 03 & 31 of planning permission CA/15/01479/OUT (outline permission for mixed use development of up to; 750 residential units, 4,000 m2 of business use, 1,000 m2 of retail/service uses, 5,000 m2 of residential institutions, including hospice and nursing home, 2,000 m2 of community and leisure uses; primary school; extended westbound slip road on the A2, accesses to Cockering Road; internal roads, footpaths and cycle routes; plus new planting and landscaping. All matters reserved except access).	N/A	18.90	N/A	Decided	04/08/2020	Tier 1	No. nature, scale and location of development not likely to generate significant cumulative effects
149	CA/20/01369	Canterbury	Hoplands Farm Island Road Hersden Westbere CT3 4HQ	612374	155861	No	Yes	No	Application for approval of reserved matters relating to access, landscaping, scale, layout and appearance for the erection of medical centre with associated parking and landscaping, pursuant to outline planning permission CA/16/00404/OUT.	N/A	18.99	N/A	Decided	01/07/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects

150	CA/20/01188	Canterbury	Hoplands Farm Island Road Hersden Canterbury Kent CT3 4HQ	620044	161747	No	Yes	No	Application for approval of reserved matters for Phases 4 and 5 and part of Phase 3 relating to access, landscaping, scale, layout and appearance for the erection of 72 dwellings, including affordable housing, open space, ecological corridors, play area, allotments, parking, highways infrastructure, WWTW and utilities pursuant to outline planning permission CA/16/00404/OUT.	N/A	9.96	N/A	Decided	22/06/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
151	CA/20/00819	Canterbury	Pilgrims Hospice Saxon Fields	620623	161951	No	Yes	No	Application for approval of reserved matters of access, appearance, landscaping, layout and scale for: a two-storey building comprising a 16-bed hospice, day care and ancillary training facilities, ancillary storage buildings, associated parking and landscaping; pursuant to CA/18/00346/VAR.	N/A	9.36	N/A	Decided	17/04/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
152	CA/20/00678	Canterbury	Hoplands Farm Island Road Hersden Canterbury Kent CT3 4HQ	613787	158125	No	Yes	No	Application for the approval of reserved matters relating to access, appearance, landscaping, layout and scale for the creation of open space, playground and ecological area on phase 3 and part of phase 1a pursuant to outline planning permission CA//16/00404/OUT.	N/A	16.88	N/A	Decided	25/03/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
153	CA/20/00101	Canterbury	Herne Bay Golf Club Thanet Way Herne Bay Kent	620482	161963	No	Yes	No	Application for approval of access, appearance, landscaping, layout and scale for Phase 6A of the redevelopment of the former Herne Bay Golf Course pursuant to outline planning permission CA//16/00378/VAR.	N/A	9.50	N/A	Decided	15/01/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
154	CA/20/00074	Canterbury	Land at and adjacent to Cockering Farm Thanington	617048	168223	No	Yes	No	Variation of conditions 06 (approved plans) and 07 (phasing plan) of planning permission CA//17/00519/OUT for a mixed use development comprising up to 400 dwellings, up to 3,716 sqm of commercial space (use class B1), a community building or leisure centre (Use classes D1-D2) of up to 200 sqm, new highway infrastructure a network of internal roads, footpaths and cycle route. All matters reserved; to allow realignment of spine road and alterations to proposed Milton Manor Road junction.	N/A	13.82	N/A	Decided	10/01/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects

155	CA/19/10360	Canterbury	Land north of Thanet Way Thanet Way Whitstable Kent	612740	156260	No	Yes	No	Variation of condition 27 of planning permission CA/15/01296/OUT for outline planning application (with all matters reserved except for access) for the demolition of existing buildings and the erection of up to 400 dwellings including affordable housing, extension to Duncan Down, green infrastructure, multi-use games area, parking, access and associated infrastructure and other ancillary works to allow housing development to be carried out concurrently with the construction of the new roundabout.	N/A	18.50	N/A	Decided	11/12/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
156	CA/19/10078	Canterbury	Hoplands Farm Island Road Hersden Canterbury Kent CT3 4HQ	609305	164049	No	Yes	No	Application for approval of reserved matters for part of Phase 2, relating to access, appearance, layout, landscaping and scale for the erection of apprenticeship centre (D1 use class) with associated external work area and parking, pursuant to outline planning permission CA/16/00404/OUT.	N/A	20.62	N/A	Decided	22/11/2019	1	No. Proposed development is outside the ZOI
157	CA/19/10015	Canterbury	Phase 3 Royal Parade Land at Howe Barracks Littlebourne Road Canterbury Kent	620957	161951	No	Yes	No	Application for the approval of appearance, access, landscaping, layout and scale for residential development consisting of 7 dwellings, together with allotments, associated parking, landscaping, earthworks and supporting infrastructure of reserved matters phase 3 of outline planning permission for the demolition of all but three of the Barracks buildings and the redevelopment of the site for up to 500 dwellings with new formal and informal public spaces and landscaping together with revised access from Littlebourne Road, new parking to Littlebourne Road and a road link connecting Littlebourne Road with Chaucer Road/Military Road, pursuant to outline planning permission CA/14/01230/FUL.	N/A	9.03	N/A	Awaiting decision	28/10/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects

158	CA/19/10011	Canterbury	Phase 3 Royal Parade Land at Howe Barracks Littlebourne Road Canterbury Kent	617582	157856	No	Yes	No	Application for the approval of appearance, access, landscaping, layout and scale for residential development consisting of 122 dwellings (including affordable housing), together with associated parking, landscaping, earthworks and supporting infrastructure of reserved matters phase 3 of outline planning permission for the demolition of all but three of the Barracks buildings and the redevelopment of the site for up to 500 dwellings with new formal and informal public spaces and landscaping together with revised access from Littlebourne Road, new parking to Littlebourne Road and a road link connecting Littlebourne Road with Chaucer Road/Military Road, pursuant to outline planning permission CA/14/01230/FUL.	N/A	13.41	N/A	Awaiting decision	28/10/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
159	CA//19/02047	Canterbury	Land rear of 51 Rough Common Road Rough Common Harbledown CT2 9DL	617550	157855	No	Yes	No	Outline application for 34 no. dwellings, comprising of 7 no. self build plots, including access, enlargement of side and rear dormers along with alterations to front gable to existing property.	N/A	13.44	N/A	Decided	16/10/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
160	CA//19/01777	Canterbury	Land off Cockering Road Thanington	612846	159328	No	Yes	No	Variation of conditions 01 (approved drawings) and 17 (samples of materials) of planning permission CA//17/02719/RES for the application for approval of Phase 1 reserved matters for appearance, landscaping, layout and scale for; 269 dwellings; 400 m2 of commercial (classes A1 - A5), 150 m2 cricket pavillion and associated pitch, areas of formal and informal open space, children's play areas and utlilities pursuant to outline planning permission CA/15/01479/OUT; to allow superseding of approved materials strategy plan.	N/A	17.48	N/A	Decided	12/09/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
161	CA//19/01737	Canterbury	Howe Barracks Littlebourne Road Canterbury	612554	155907	No	Yes	No	Variation of condition 01 (drawings) of planning permission CA/17/00786/RES for the reserved matters application for the creation of parkland, including landscaping, footpaths/cycleways, parkland entrances, pond, SUDs feature, equipped play including other recreational equipment, picnic area, earthworks including earth mounding and sculpting,	N/A	18.80	N/A	Decided	30/08/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects

									associated parkland furniture and engineering works; to allow changes to lighting and tarmac appearance.							
162	CA//19/01463	Canterbury	Northgate Garage Northgate Canterbury CT1 1FW	617611	157852	No	Yes	No	Proposed erection of 35 self-contained flats with underground parking and access, following demolition of the existing building.	N/A	13.39	N/A	Awaiting decision	23/07/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
163	CA//19/00765	Canterbury	Hoplands Farm Island Road Hersden CT3 4HQ	620920	161918	No	Yes	No	Application for approval of reserved matters relating to access, appearance, landscaping, layout and scale for the erection of 176 no. dwellings on Phases 1A, 1B and 3 pursuant to outline planning permission CA/16/00404/OUT.	N/A	9.07	N/A	Decided	25/04/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
164	CA//19/00116	Canterbury	Parham Student Village: 8-13 Albert Mews 105 Sturry Road; 1-4 Riverdale House Sturry Road; 1-3 Parham Close Parham Road; 1-12 Becket Mews Parham Close	615855	158945	No	Yes	No	Change of use from existing student accommodation at 8-13 Albert Mews, 105 Sturry Road, Canterbury to C3 residential dwellings; change of use from existing student accommodation at 1-4 Riverdale House, Sturry Road, Canterbury to C3 residential dwellings; change of use from existing student accommodation at 1-3 Parham Close, Parham Road, Canterbury to C3 residential dwellings with alterations to convert two end terrace properties into 2 no. one-bedroom and 2 no. two-bedroom flats including new and amended door openings; and change of use from existing student accommodation at 1-12 Becket Mews, Parham Close to C3 residential dwellings.	N/A	14.66	N/A	Decided	21/01/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
165	CA//18/02573	Canterbury	Howe Barracks Littlebourne Road Canterbury	615855	158945	No	Yes	No	Reserved matters application for the Ecology Corridor including the creation of new landscape and ecological features, community orchards and associated infrastructure and earthworks.	N/A	14.66	N/A	Decided	20/12/2018	Tier 1	No. nature, scale and location of development not likely to generate significant cumulative effects
166	CA//18/02369	Canterbury	Land at Herne Bay Golf Course Thanet Way A2990 Herne CT6 7PG	617602	157847	No	Yes	No	Application for approval of access, appearance, landscaping, layout and scale for phase 5, comprising 109 dwellings of the redevelopment of the former Herne Bay Golf Course pursuant to outline planning permission CA/16/00378/VAR.	N/A	13.40	N/A	Decided	22/11/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects

167	CA//18/01664	Canterbury	Land north of Thanet Way Whitstable	617791	166838	No	Yes	No	Reserved Matters application for Phase 1 comprising 138 residential dwellings and associated works, landscaping, parking, open space and servicing, together with details of the extension to Duncan Down including landscaping, multi-use games area and allotments.	N/A	12.66	N/A	Decided	15/08/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects
168	CA//18/01305	Canterbury	Land North of Popes Lane Sturry CT2 0JZ	609233	164016	No	Yes	No	Outline application for up to 140 dwellings including access.	N/A	20.69	N/A	Decided	25/06/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects
169	CA//18/00910	Canterbury	Howe Barracks Littlebourne Road Canterbury CT1 1TD	617483	161310	No	Yes	No	Phase 2 reserved matters including access, appearance, landscaping, layout and scale of planning permission CA/14/01230/FUL for residential development consisting of 200 dwellings (including affordable housing) together with associated parking, landscaping and supporting infrastructure.	N/A	12.56	N/A	Decided	16/05/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects
170	CA//18/00868	Canterbury	Broad Oak Farm Sweechgate Broad Oak Sturry CT2 0QR	616736	157743	No	Yes	No	Hybrid planning application comprising: detailed/full application for development of 456 residential dwellings comprising 402 houses and 54 flats, with associated open space, landscaping, car parking, access and other infrastructure (following demolition of 52 Shalloak Road, existing agricultural buildings and structures); and outline application (with all matters reserved) for development of a commercial area with up to 212sqm of Class A1 and up to 593sqm of Class B1 use.	N/A	14.24	N/A	Decided	08/05/218	1	No. nature, scale and location of development not likely to generate significant cumulative effects
171	CA//18/00346	Canterbury	Land off Cockering Road Thanington Without	616835	161463	No	Yes	No	Variation of conditions 03 & 31 of planning permission CA/15/01479/OUT (outline permission for mixed use development of up to; 750 residential units, 4,000 m2 of business use, 1,000 m2 of retail/service uses, 5,000 m2 of residential institutions, including hospice and nursing home, 2,000 m2 of community and leisure uses; primary school; extended westbound slip road on the A2, accesses to Cockering Road; internal roads, footpaths and cycle routes; plus new planting and landscaping. All matters reserved except access) to allow: relocation of; the employment area, the nursing home, a proportion of	N/A	13.18	N/A	Decided	14/07/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects

									the housing, reduced local centre footprint; increase the height of the hospice; updated cricket pavilion pitch area; and updated internal access routes.							
172	CA//17/02913	Canterbury	Hoplands Farm Island Road Westbere	613147	155840	No	Yes	No	Application for approval of reserved matters relating to access, appearance, landscaping, layout and scale for the erection of 176 no. dwellings on Phases 1A, 1B and 3 pursuant to outline planning permission CA/16/00404/OUT.	N/A	18.28	N/A	Decided	22/12/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
173	CA//17/02907	Canterbury	Land south of Greenhill Road Herne Bay	620018	161746	No	Yes	No	Planning application for a mixed use development including up to 450 dwellings comprising: Detailed proposals for the change of use of agricultural land to outdoor sports playing pitches (for use by Briary School). Outline application for up to 450 dwellings with all matters reserved also including community facilities, a link road, pedestrian and cycle links, sustainable urban design drainage measures, landscaped bund/earthworks and boundary treatments, public open space, highway-related and utilities infrastructure.	N/A	9.98	N/A	Decided	15/01/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects
174	CA//17/02719	Canterbury	Land off Cockering Road Thanington	615938	166547	No	Yes	No	Application for approval of Phase 1 reserved matters for appearance, landscaping, layout and scale for; 269 dwellings; 400 m2 of commercial (classes A1 - A5), 150 m2 cricket pavillion and associated pitch, areas of formal and informal open space, children's play areas and utlilities pursuant to outline planning permission CA/15/01479/OUT.	N/A	14.37	N/A	Decided	23/02/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects
175	CA//17/02455	Canterbury	Hoplands Farm Island Road Hersden Westbere CT3 4HQ	612580	155906	No	Yes	No	Application for the approval of access in Phase 1 for a neighbourhood extension for the creation of up to 250 houses including affordable housing, neighbourhood centre (comprising Class A1 foodstore (400sq.m), Class D1 medical centre (380sq.m), Class D1 dentist (150sq.m), Class A1 pharmacy (150sq.m), Class D1 nursery (120sq.m) and Class	N/A	18.78	N/A	Decided	01/12/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects

									A1 convenience retail (360sq.m)), commercial estate (comprising Class B1 business floorspace (up to 5572sq.m), Class D1 apprenticeship centre (616sq.m) and Class D1/D2 community building (up to 672sq.m)), parish parkland and associated access, parking, amenity space and landscaping pursuant to outline planning permission CA/16/00404/OUT.							
176	CA//17/01383	Canterbury	Land at Sturry/Broad Oak Sturry	620876	162006	No	Yes	No	Outline application (with all matters reserved) for the development of up to 650 houses and associated community infrastructure comprising primary school, community building, public car park and associated amenity space, access, parking and landscaping; and detailed/full application for the construction of part of the Sturry Link Road and a local road from the Sturry Link Road to Shalloak Road.	N/A	9.10	N/A	Decided	12/07/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
177	CA//17/00519	Canterbury	Land at and adjacent to Cockering Farm Thanington	616923	161185	No	Yes	No	Outline application for a mixed use development comprising up to 400 dwellings in a mix of sizes, types and tenures including affordable housing, up to 3,716 sqm of commercial space (use class B1), a community building or leisure centre (Use classes D1-D2) of up to 200 sqm, new highway infrastructure including spine road with accesses onto Milton Manor Road and Cockering Road and a network of internal roads, footpaths and cycle route, provision of no less than 18 hectares of open space, associated landscaping, utilities infrastructure, sustainable drainage system and earthworks. All matters reserved.	N/A	13.13	N/A	Decided	0310/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
178	CA/20/02267	Canterbury	Bullockstone Road South of Thanet Way Herne Bay Kent	616926	161171	No	Yes	No	Road improvements comprising the widening and realigning of Bullockstone Road and the construction of two new roundabouts to replace the existing junctions between Bullockstone Road / Lower Herne Road and Bullockstone Road / Canterbury Road.	N/A	13.13	N/A	Decided	11/011/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
179	CA/20/02204	Canterbury	Land to the south of Thanet Way (A299) and west of Thornden Wood Road Herne Bay Kent CT6 7NU	616899	165959	No	Yes	No	Installation of a ground mounted photovoltaic (PV) solar energy generation system, associated infrastructure, security measures (including CCTV) and landscaping.	N/A	13.30	N/A	Decided	02/10/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects

180	CA/20/01679	Canterbury	46-47 High Street Canterbury Kent CT1 2SD	615359	165505	No	Yes	No	Partial demolition, change of use, extension and refurbishment of existing buildings and erection of new buildings between two to five stories in height, to provide mixed-use development comprising 33 self-contained units of accommodation, 32 services apartments, retail, restaurant and office space and community facilities, together with a new pedestrian retail arcade and market hall, public squares and public realm, pedestrian access, ancillary vehicular and service access, servicing, disabled parking area, soft and hard landscaping.	N/A	14.73	N/A	Awaiting decision	04/08/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
181	CA/19/10419	Canterbury	Herne Bay Household Waste and Recycling Centre Westbrook Lane Herne Bay Kent CT6 8DD	614887	157778	No	Yes	No	Proposed hydrogen electrolysis production facility with associated storage, parking, landscaping, fencing, fuelling, access and laying of power cable.	N/A	15.95	N/A	Decided	16/01/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
182	CA/19/10411	Canterbury	Reculver Caravan Park Reculver Lane Herne Bay Kent CT6 6SU	615532	167134	No	Yes	No	Proposed siting of 64 no. glamping pods together with conversion and alteration of existing building to form 3 no. holiday lets, reception/office and toilet block with associated hardstanding, parking and landscaping.	N/A	14.91	N/A	Decided	15/01/2020	1	No. nature, scale and location of development not likely to generate significant cumulative effects
183	CA//19/01769	Canterbury	Seasalter Levels Seasalter Lane Seasalter Whitstable CT5 4BS	622659	169268	No	Yes	No	Proposed erection of gates and fences, installation of piping and formation of scrapes.	N/A	9.44	N/A	Decided	24/09/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
184	CA//19/01398	Canterbury	Land at Middle Pett Farm Pett Bottom Road Bishopsbourne.	609065	164585	No	Yes	No	Proposed retention of existing polytunnels.	N/A	20.89	N/A	Decided	31/07/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
185	CA//19/00707	Canterbury	Alberta Caravan Park Faversham Road Seasalter Whitstable CT5 4BJ	616752	153363	No	Yes	No	Proposed use of land to accommodate 91 static holiday caravans.	N/A	16.39	N/A	Decided	12/04/2019	1	No. nature, scale and location of development not likely to generate significant cumulative effects
186	CA//19/00526	Canterbury	Land north of Highstreet Road Waterham Whitstable	608048	164566	No	Yes	No	Proposed construction of polytunnels and water storage tanks following demolition of building.	N/A	21.90	N/A	Decided	25/03/2019	1	No. Proposed development is outside the ZOI
187	CA//19/00352	Canterbury	Podlinge Farm Ashenfield Road Waltham CT4 5SP	607148	162771	No	Yes	No	Change of use from agricultural to equine together with single-storey stable building, single-storey agricultural barn, creation of sand school and associated access and drainage.	N/A	22.76	N/A	Decided	11/03/2019	1	No. Proposed development is outside the ZOI

188	CA//19/00012	Canterbury	Nickle Farm Ashford Road Chartham CT4 7PF	609665	147044	No	Yes	No	Proposed controlled atmosphere fruit store.	N/A	25.87	N/A	Decided	04/01/2019	1	No. Proposed development is outside the ZOI
189	CA//18/02551	Canterbury	Wincheap Park & Ride Ten Perch Road Canterbury CT1 3TQ	609248	155664	No	Yes	No	Proposed extension to existing park and ride facility to provide an additional 228 parking spaces, replacement terminal building, reconfiguration to access, together with fencing, lighting, landscaping and cycle storage.	N/A	21.97	N/A	Decided	18/12/2018	1	No. Proposed development is outside the ZOI
190	CA//18/01948	Canterbury	Land at Highland Court Farm Coldharbour Lane Bekesbourne CT4 5HN	613772	156959	No	Yes	No	Hybrid planning application for mixed use development for leisure, commercial and tourism uses comprising: (1) A detailed planning application for a centre for sporting excellence (to include sports pitches, changing rooms, clubhouse and floodlights), business innovation centre, food and drinks hub and leisure hub; with access and associated highways works. (2) An outline planning application (with all matters reserved) for business uses, food and drinks hub, innovation centre, home farm centre, artisan offices, mixed use court and holiday homes; plus associated access, landscaping, parking and drainage infrastructure.	N/A	17.28	N/A	Decided	01/10/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects
191	CA//18/00620	Canterbury	Franciscan International Study Centre Giles Lane Blean CT2 7NA	619583	153730	No	Yes	No	Proposed change of use from residential institution to student accommodation together with erection of 3 no. two and three-storey buildings comprising student accommodation, two-storey front extension to main block for use as student accommodation together with landscaping, provision of associated parking and alterations to access following partial demolition of existing buildings.	N/A	13.97	N/A	Decided	29/03/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects
192	CA//18/00557	Canterbury	Woodside Wood Radfall Ride Chestfield CT5 3EW	613544	159581	No	Yes	No	Proposed additional use of woodland for the purpose of a forest school educational facility, including retrospective use of land for the siting of a mobile unit for use ancillary to the forest school and siting of mobile WC trailer.	N/A	16.74	N/A	Decided	25/04/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects
193	CA//18/00235	Canterbury	Land at A2 A28 & Ten Perch Road Wincheap Canterbury	613413	164241	No	Yes	No	Construction of a new eastbound (coastbound) A2 off slip, associated reconfiguration of both Ten Perch Road and the Ten Perch Road/A28 junction, modified footpath/cycle routes, ground re-profiling, lighting, surface water attenuation features and landscaping.	N/A	16.53	N/A	Decided	31/01/2018	1	No. nature, scale and location of development not likely to generate significant cumulative effects

194	CA//17/02225	Canterbury	Bridge Place Country Club Bridge Place Bridge CT4 5LF	613718	156755	No	Yes	No	Proposed two-storey extension to provide additional hotel guest bedrooms and restaurant, change of use of the coachhouse and erection of seven single-storey huts to provide additional guest suites, change of use of the lodge to provide ancillary accommodation, erection of detached garage, greenhouse and plant room/store together with internal alterations and revised parking.	N/A	17.40	N/A	Decided	05/10/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
195	CA//17/02125	Canterbury	Nickle Farm Nickle Lane Chartham	618110	153898	No	Yes	No	Proposed erection of polytunnels.	N/A	14.99	N/A	Decided	14/09/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
196	CA//17/02092	Canterbury	Canterbury Riverside Kingsmead Road and Sturry Road Canterbury CT1 1SZ	615383	158501	No	Yes	No	Proposed multiplex cinema, 8no single-storey bar/restaurant units, five-storey building comprising 3no retail units with student accommodation (111 bed) above, 1no part four, part six-storey building for purpose built student accommodation (382 bed), 1no five-storey building comprising 54 flats, 1no three-storey building comprising 17 flats, 16no two-storey dwellings, 1no three, four and five -storey building comprising 102 flats with associated public realm, access alterations, car parking, riverside walkway and 'launch' with canoe store (following demolition of existing buildings).	N/A	15.25	N/A	Decided	11/09/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
197	CA//17/02079	Canterbury	Land at Bridge Road Bridge CT4 5AL	617232	154322	No	Yes	No	Proposed erection of polytunnels.	N/A	15.44	N/A	Decided	08/09/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
198	CA//17/02081	Canterbury	Land at Goose Farm Broad Oak Sturry CT2 0QL	616145	161537	No	Yes	No	Proposed erection of polytunnels.	N/A	13.85	N/A	Decided	08/09/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects
199	CA//17/01722	Canterbury	Woodside Wood Radfall Ride Chestfield	613391	164334	No	Yes	No	Proposed additional use of woodland for the purpose of a Forest School educational facility, including retrospective use of land for the siting of a mobile unit for use ancillary to the Forest School, and siting of mobile WC trailer. Re-submission.	N/A	16.55	N/A	Decided	16/10/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects

200	CA//17/01866	Canterbury	Land at Hillborough Sweechbridge Road Herne Bay	620897	167592	No	Yes	No	Planning application for a mixed use development including up to 900 dwellings comprising: Detailed proposals for the erection of 193 new dwellings, 1 no. Local Equipped Area of Play (LEAP), a new vehicular access (via priority junction) onto Sweechbridge Road (north), provision of realigned vehicular access to Sweechbridge Road (south), new westbound on slip to, and modified westbound off-slip from, A299 Thanet Way to Heart in Hand Road, upgraded alignment of May Street, associated internal roads/footpaths/cycleways, sustainable drainage system, earthworks, public open space, landscaping (inc woodland) and street lighting. Outline application for up to 707 additional dwellings with all matters reserved except access (excluding internal circulation) also including: up to 33,000 sq.m. of employment/commercial floorspace with associated parking spaces comprising employment units (within Use Class B1(a), B1 (c) B2 and B8) (27,000 sqm) and a 80 no. bed care-home (Use Class C2) (4,500 sq.m.); local shopping facilities including a convenience store (Use Class A1) (up to 500 sq.m.) and 3 no. retail units (Use Class A1/ A2 / A3 or A5) (up to 300 sq.m.); a new community centre (including changing rooms and car parking) (Use Class D1) (up to 550 sq.m.) with associated car parking; land for a two-form entry Primary School with associated parking, drop-off/pick-up provision and open space; new public open space including 1 no. Local Equipped Area of Play (LEAP), allotments and 2 no. playing pitches; landscaping; ecological mitigation; sustainable drainage system; earthworks, including new landscaped bund alongside Thanet Way (A299); improvement works to the existing May Street road network including enabling work within the public highway over May Street Bridge to provide a southbound vehicular access, and the necessary services and	N/A	10.04	N/A	Decided	16/08/2017	1	No. nature, scale and location of development not likely to generate significant cumulative effects

									utilities infrastructure, associated internal roads, footpaths and cycleways to facilitate movement within the site including access to Altira B						
201	DC/20/4545/EIA	East Suffolk	ABP Lowestoft Lowestoft Suffolk	653647	292993	No	No	No	EIA Scoping Opinion - Lowestoft Eastern Energy Facility	29.68	N/A	N/A	Decided	10/11/2020	1	No. Proposed development is outside the ZOI
202	**DC/20/4846/EIA**	**East Suffolk**	**B-17 Solar Farm Parham Airfield Parham Suffolk**	**632996**	**260873**	**Yes**	**No**	**No**	**EIA Screening Opinion - Proposed Solar Energy Scheme**	**6.53**	**N/A**	**N/A**	**Scoping**	**27/11/202**	**2**	**Yes**
203	DC/22/1046/EIA	East Suffolk	Bawdsey Reservoir Site Ferry Road Bawdsey Suffolk	633790	238352	No	No	No	EIA Screening Opinion - Proposed winter storage reservoir	22.09	N/A	N/A	Unknown	16/03/2022	2	No. Proposed development is outside the ZOI
204	DC/19/1610/EIA	East Suffolk	Beccles & Worlingham Garden Neighbourhood Darby Road Beccles Suffolk	642554	289110	No	No	No	Environmental Impact Assessment Screening Opinion - mixed use including residential development , formal and informal open space and ancillary surface water drainage features	24.07	N/A	N/A	Decided	16/04/2019	1	No. Proposed development is outside the ZOI
205	DC/18/4428/FUL	East Suffolk	Bernard Matthews Scalesbrook Lane Holton Halesworth Suffolk IP19 8NJ	640185	278775	Yes	No	No	Erection of a new chicken processing factory	13.85	N/A	N/A	Permitted	26/10/2018	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
206	DC/19/1726/EIA	East Suffolk	Blackheath Poultry Farm Bartholomews Lane Wenhaston With Mells Hamlet Suffolk	641429	275064	Yes	No	No	Screening Opinion request for removal of existing structures and major site improvements to include two replacement poultry sheds and ancillary structures.	10.03	N/A	N/A	Unknown	26/04/2019	2	No. Nature, scale and location of development not likely to generate significant cumulative effects
207	DC/22/0194/EIA	East Suffolk	Blue Barn Farm Capel Hall Lane Trimley St Martin Felixstowe Suffolk IP11 0RB	628768	237739	No	No	No	EIA - A balanced cut and fill earth moving operation to create an irrigation reservoir. No materials to be brought onto or leave site. Why necessary for agriculture: Blue Barn Farm is under new owner ship, investment is ongoing to expand root vegetable production on the light land. The existing reservoir is only able to provide irrigation for less than half the farm. The Felixstowe Hydrocycle has allowed more water availability, this must be reservoir stored. Why designed for agriculture: The farm has a network of underground irrigation mains which are pressurized by a pump house at the existing reservoir. The new reservoir will siphon water down to the existing pump house, no additional pumping infrastructure or power will be required.	25.02	N/A	N/A	Unknown	18/01/2022	1	No. Proposed development is outside the ZOI

208	DC/18/2995/FUL	East Suffolk	Blyth River Gravel Pit Heath Road Wenhaston With Mells Hamlet Suffolk IP19 9BZ	642052	276080	Yes	No	No	Full planning for change of use of the site to provide holiday lodge accommodation and associated leisure activities.	11.03	N/A	N/A	Permitted	31/07/2018	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
209	DC/20/1722/FUL	East Suffolk	Boyton Marshes Nature Reserve The Street Boyton Suffolk IP12 3LR	638848	247434	Yes	No	No	The creation of a 30 hectare freshwater scrape (two hydrological units) for key SPA breeding species and potential European colonising species. By the lowering of the natural field surface to create standing water and a mosaic of islands. Water levels to be controlled by simple sluice structures and new feature enclosed by an anti-predator combination electric fence.	11.74	N/A	N/A	Permitted	07/05/2020	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
210	DC/22/0306/EIA	East Suffolk	Brightwell Hall Farm Brightwell Street Brightwell Ipswich Suffolk IP10 0BE	625034	243414	No	No	No	EIA Screening Opinion - Proposed spring water reservoir	23.08	N/A	N/A	Scoping	24/06/2022	2	No. Proposed development is outside the ZOI
211	DC/17/3823/EIA	East Suffolk	Broadland Sands Holiday Park Coast Road Corton Lowestoft Suffolk NR32 5LG	653729	298551	No	No	No	EIA Screening Opinion - Extension of existing caravan park for the stationing of static caravans, creation of access and associated external works, car parking and landscaping.	34.99	N/A	N/A	Unknown	01/09/2017	2	No. Proposed development is outside the ZOI
212	DC/18/1239/EIA	East Suffolk	Carlton Meres Country Park Carlton Lane Kelsale Cum Carlton Saxmundham Suffolk IP17 2QP	636550	264992	Yes	No	No	Demolition of the existing reception building and Extention to the existing clubhouse and swimming pool. The extension of the existing Caravan Park for the stationing of static caravans, creation of access and associated external works, car parking and landscaping - Request for Environmental Impact assessment, Screening opinion	3.19	N/A	N/A	Decided	22/03/2018	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
213	DC/21/0767/EIA	East Suffolk	Carlton Park Industrial Estate Main Road Kelsale Cum Carlton Suffolk IP17 2NL	636556	264991	Yes	No	No	EIA Screening Opinion - Erection of 11 no. commercial units consisting of Class E (office and cafe / restaurant), B2 (light industrial) and B8 (storage and distribution) uses.	3.19	N/A	N/A	Scoping	16/02/2021	2	No. Nature, scale and location of development not likely to generate significant cumulative effects
214	DC/17/3178/FUL	East Suffolk	CEFAS Pakefield Road Lowestoft Suffolk NR33 0HT	654142	291148	No	No	No	Demolition of former grand hotel building (Class B1) and ancillary buildings (Class B8). Redevelopment to provide new 3 storey office building (Class B1) with ancillary parking, landscape and access. Refurbishment of existing 4 storey laboratory building (Class B1) to provide new plant equipment to roof, new roof and facade alterations. Demolition of boundary walls. Outline	28.13	N/A	N/A	Permitted	24/07/2017	1	No. Proposed development is outside the ZOI

									application for public pavilion for restaurant and visitor centre use.						
215	DC/19/1386/EIA	East Suffolk	Coastal Defence Works Bawdsey Beach Bawdsey Manor Bawdsey Suffolk	633131	238051	No	No	No	Proposed works to the coastal defences	22.64	N/A	N/A	Decided	01/04/2019	1	No. Proposed development is outside the ZOI
216	DC/19/1532/VOC	East Suffolk	Easton Farm Park Sanctuary Bridge Road Easton Suffolk IP13 0EQ	627707	258441	Yes	No	No	Variation of Conditions No 2, 6, 7, 12, 14 of DC/18/2956/VOC (Variations of Conditions 2, 3, 6, 12, 16, 17 on DC/15/3165/FUL)	12.19	N/A	N/A	Permitted	29/04/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
217	DC/21/4289/EIA	East Suffolk	Felixstowe Ferry Recovery Works Ferry Road Felixstowe Suffolk	632892	237712	No	No	No	EIA Screening Opinion - Felixstowe Ferry Recovery Works	23.05	N/A	N/A	Decided	13/09/2021	1	No. Proposed development is outside the ZOI
218	DC/19/4343/EIA	East Suffolk	Felixstowe Road Haulage Yard Felixstowe Road Stratton Hall Suffolk	620694	241921	No	No	No	EIA Screening Opinion - Proposed Haulage Yard	27.19	N/A	N/A	Scoping	06/11/2019	2	No. Proposed development is outside the ZOI
219	DC/21/2929/EIA	East Suffolk	Field 350m southeast Of Home Farm Capel St Andrew Woodbridge Suffolk IP12 3LR	638218	247746	Yes	No	No	EIA Screening Opinion - A balanced cut and fill earthmoving operation to create an irrigation reservoir. The London Clay underlying the site will be engineered into a water tight lining. No materials are brought to or removed from site.	11.70	N/A	N/A	Scoping	15/06/2021	2	No. Nature, scale and location of development not likely to generate significant cumulative effects
220	DC/18/4818/EIA	East Suffolk	High Lodge Haw Wood Hinton Suffolk IP17 3QT	643058	272252	Yes	No	No	Change of use of part of golf course to land for the siting of holiday lodges	7.21	N/A	N/A	Unknown	21/11/2018		No. Nature, scale and location of development not likely to generate significant cumulative effects
221	**DC/20/3142/FUL**	**East Suffolk**	**High Lodge Leisure Darsham Road Hinton Blythburgh Saxmundham Suffolk IP17 3QT**	**643451**	**269725**	**Yes**	**No**	**No**	**Redevelopment of golf course and vacant paddock land for the siting of 170 holiday lodges, 3 tree houses, new Facilities Building, Maintenance and Housekeeping Building, car parking and associated highway works.**	**4.69**	**N/A**	**N/A**	**Permitted**	**08/09/2020**	**1**	**Yes**
222	DC/19/2666/FUL	East Suffolk	Kesgrave Quarry Sinks Pit Kesgrave Suffolk IP5 2PE	622832	246355	No	No	No	Construction of 2 No. new buildings and use of land for vehicle and plant hire operator(s) comprising offices, workshops, associated parking, drainage infrastructure etc to allow for the hire, storage, sale, maintenance and servicing of vehicles, plant, machinery and equipment	22.56	N/A	N/A	Permitted	03/07/2019	1	No. Proposed development is outside the ZOI

223	DC/21/1079/VOC	East Suffolk	Kesgrave Quarry Sinks Pit Kesgrave Suffolk IP5 2PE	622797	246351	No	No	No	Variation of Conditions 6, 7, 8 & 10 of DC/19/2666/FUL - Construction of 2 No. new buildings and use of land for vehicle and plant hire operator(s) comprising offices, workshops, associated parking, drainage infrastructure etc to allow for the hire, storage, sale, maintenance and servicing of vehicles, plant, machinery and equipment. - Variation to operating hours.	22.58	N/A	N/A	Awaiting decision	05/03/2021	1	No. Proposed development is outside the ZOI
224	DC/22/1347/EIA	East Suffolk	Kittiwake Artificial Nesting Structure at Port of Lowestoft Hamilton Road Lowestoft Suffolk	655311	293205	No	No	No	EIA Screening Opinion - Kittiwake Artificial Nesting Structure	30.48	N/A	N/A	Scoping	04/04/2022	2	No. Proposed development is outside the ZOI
225	DC/18/3685/VOC	East Suffolk	Land adjacent to Ellough Airfield Benacre Road Ellough Beccles Suffolk NR34 7XD	644793	288369	No	No	No	Variation of Condition No.4 of DC/12/1113/FUL - Installation of a 30MW solar farm and associated infrastructure - Proposed that condition 4 be amended to read: "The planning permission hereby granted is for a period from the date of this decision until the date occurring 40 years after the date of commencement of the development hereby permitted. Written notification of the date of commencement shall be given to the Local Planning Authority no later than 14 days after the event."	23.37	N/A	N/A	Permitted	05/09/2018	1	No. Proposed development is outside the ZOI
226	DC/22/0991/FUL	East Suffolk	Land adjacent to Mill Farm Thomas Avenue Trimley St Mary Suffolk IP11 0YS	628125	236917	No	No	No	Erection of 50 dwellings with associated landscaping, open space, access, drainage and parking	26.06	N/A	N/A	Awaiting decision	10/03/2022	1	No. Proposed development is outside the ZOI
227	DC/20/5239/EIA	East Suffolk	Land adjacent to Reeve Lodge High Road Trimley St Martin Suffolk	627520	237232	No	No	No	EIA Screening Opinion - Outline planning permission (all matters reserved except access) for the erection of up to 139 new homes (including provision of up to 46 affordable homes), land for a 2-form entry primary school with pre-school, open space, SUDS and all associated infrastructure provision	26.13	N/A	N/A	Scoping	23/12/2020	2	No. Proposed development is outside the ZOI
228	**DC/21/3254/FUL**	**East Suffolk**	**Land and buildings at Croft Farm Hulver Lane Snape Suffolk IP17 1QU**	**638766**	**259237**	**Yes**	**No**	**No**	**Change of use for agricultural land and part of an existing agricultural building to a touring caravan site for up to 30 caravans and associated facilities including toilets, showers and a guest reception.**	**2.29**	**N/A**	**N/A**	**Permitted**	**13/07/2021**	**1**	**Yes**
229	DC/21/2575/EIA	East Suffolk	Land at Corporation Farm Drunkards Lane Falkenham Ipswich Kirton IP10 0PT	628074	239581	No	No	No	EIA Screening Opinion - Proposed reservoir.	23.89	N/A	N/A	Scoping	26/05/2021	2	No. Proposed development is outside the ZOI

230	DC/22/1453/EIA	East Suffolk	Land at Ipswich Road Newbourne Suffolk	626530	242984	No	No	No	EIA Screening Opinion - Proposed development of a solar farm and associated infrastructure	22.30	N/A	N/A	Decided	11/04/2022	1	No. Proposed development is outside the ZOI
231	DC/21/0607/EIA	East Suffolk	Land at Oakes Farm Beccles Road Carlton Colville Suffolk	649495	290109	No	No	No	EIA Screening Opinion - approximately 20.75 for sports pitches/open space/parkland, approximately 5.4 ha of residential development (gross) and approximately 3.5 ha of commercial development.	25.74	N/A	N/A	Awaiting decision	08/02/2021	1	No. Proposed development is outside the ZOI
232	DC/22/1346/EIA	East Suffolk	Land at Pakefield Holiday Park Arbor Lane Lowestoft Suffolk NR33 7BE	653653	289872	No	No	No	EIA Screening Opinion - The extent of the proposals are shown on the enclosed Masterplan (Drawing No. 290 - 04 P2 at 1:500 A1). This layout plan illustrates the proposed siting and arrangement of the development described above, comprising the siting of 91 static holiday and lodge caravans, a new central facilities complex, associated hardstanding and landscaping throughout. The proposed development has in fact been reviewed by East Suffolk Council as part of their pre-application advice service (DC/21/4683/PREAPP). The pre-application advice provided by East Suffolk Council had regard to the proposed level of development and material planning considerations, such as landscape impact, flood risk and ecology. Whilst the description of the scheme has not changed and still comprises those 4 aspects of development outlined above, there have been some internal amendments and alterations to the scheme's layout since this advice request was made. In particular, the new central facilities building has been centralised on the eastern element of the application site, with the static and lodge caravan development reconfigured accordingly. This new layout of the scheme is shown upon the Proposed Site Masterplan submitted with this screening request.	26.76	N/A	N/A	Scoping	04/04/2022	2	No. Proposed development is outside the ZOI
233	**DC/21/5550/FUL**	**East Suffolk**	**Land at Park Farm Loudham Hall Road Loudham Woodbridge Suffolk IP13 0NW**	**631237**	**254611**	**Yes**	**No**	**No**	**Erection of a solar photovoltaic (PV) array, with a total export capacity of up to 21 MW. Each of the solar panels will be mounted on a fixed panel system. The panels are covered by high transparency solar glass with an anti-reflective coating which minimises glare and glint, while aiding in the**	**10.79**	**N/A**	**N/A**	**Awaiting decision**	**10/12/2021**	**1**	**Yes**

								maximum absorption of the available sunlight. The panels are dark grey/blue in colour and are mounted on a frame of anodized aluminium alloy and galvanized steel.						
234	**DC/19/4987/EIA**	**East Suffolk**	**Land at Rock Barracks Heath Road Woodbridge Suffolk IP12 3LZ**	**632867**	**248579**	**Yes**	**No**	**No**	**EIA Screening Opinion - Photovoltaic PV Solar Park of approximately 1.5MW along with associated PV equipment.**	**13.87**	**N/A**	**N/A**	**Scoping**	**23/12/2019**	**2**	**Yes**
235	DC/20/4692/EIA	East Suffolk	Land at the Former Deben High School Site Garrison Lane Felixstowe Suffolk	629856	234895	No	No	No	EIA Screening Option - Proposed development of 61 dwellings and leisure facilities by East Suffolk Council.	26.94	N/A	N/A	Scoping	19/11/2020	2	No. Proposed development is outside the ZOI
236	DC/20/1671/VOC	East Suffolk	Land at Tower Road Gisleham Lowestoft Suffolk NR33 7ND	652394	286678	No	No	No	Variation of Condition No.14 of DC/17/2538/VOC Variation of Condition Nos. 2, 13 & 17 of DC/15/5066/FUL - Demolition of existing buildings and structures and redevelopment to provide 4 retail units, 1 Cafe unit and 1 flexible retail/restaurant unit with associated car parking, servicing, landscaping public realm and pedestrian and vehicular access - The removal of the mezzanine from Unit 4 (this results in the loss of 372 sq m of retail space); The addition of a mezzanine in Unit 2 of 186 sqm; The sub division of Unit 5 into 3 separate retail units (5a, 5b & 5c); Also minor amendments to plans. Variation to Unit 4 to alow a wider range of goods to be sold.	23.33	N/A	N/A	Permitted	05/05/2020	1	No. Proposed development is outside the ZOI
237	DC/19/3042/EIA	East Suffolk	Land at Victoria Mill Road Framlingham Suffolk IP13 9DW	628447	263192	Yes	No	No	Screening opinion request for residential development of up to 50 dwellings, including on site affordable housing and/or custom build/self build units and public open space.	10.77	N/A	N/A	Scoping	26/07/2019	2	No. Nature, scale and location of development not likely to generate significant cumulative effects
238	DC/18/3988/EIA	East Suffolk	Land Behind Velda Close Lowestoft Suffolk	652558	290642	No	No	No	EIA Screening Opinion - Request for a Fluvial Scheme	27.10	N/A	N/A	Scoping	19/09/2018	2	No. Proposed development is outside the ZOI
239	DC/20/2821/EIA	East Suffolk	Land between High Street and Chapel Lane Pettistree Suffolk	630205	255689	Yes	No	No	EIA Screening Opinion - residential development of 136 homes	10.99	N/A	N/A	Awaiting decision	28/07/2020	2	No. Nature, scale and location of development not likely to generate significant cumulative effects

240	DC/18/4644/VOC	East Suffolk	Land east of Adastral Park Martlesham Heath Martlesham Suffolk	624870	245134	No	No	No	Variation of condition 34 of DC/17/1435/OUT - Outline planning permission for up to 2000 dwellings, an employment area of c0.6ha (use Class B1), primary local centre comprising use Classes A1,A2, A3, A4, A5, B1, C3, D1, D20, secondary centre9comprising possible use Classes A1, A3 and A4), a school, green infrastructure (including Suitable Accessable Natural Greenspace (SANGs)), outdoor play ares, sports ground and allotments/community orchards0, public footpaths and cycleways, vehicle accesses and associated infrastructure.	21.99	N/A	N/A	Permitted	11/02/2019	1	No. Proposed development is outside the ZOI
241	DC/21/4329/EIA	East Suffolk	Land north of Conway Close And Swallow Close Felixstowe Suffolk	631291	236294	No	No	No	EIA Scoping Opinion request - Create up to 150 new homes, associated infrastructure and open space	25.05	N/A	N/A	Decided	16/09/2021	1	No. Proposed development is outside the ZOI
242	DC/20/1690/EIA	East Suffolk	Land off Howlett Way Trimley St Martin Suffolk	627696	237481	No	No	No	Screening Opinion - Proposed residential development at land off Howlett Way	25.82	N/A	N/A	Awaiting decision	05/05/2020	1	No. Proposed development is outside the ZOI
243	DC/18/2774/ARM	East Suffolk	Land south and east of Adastral Park Martlesham Heath Martlesham Suffolk	624790	245143	No	No	No	Approval of reserved matters - site entrance and boulevard comprising the detail of the following elements: the new junction with the A12; the entrance to the site, including the new entrance feature / acoustic bund along the A12 boundary; the new boulevard from the site entrance to the junction with the eastern spine road; the new western spine road and new junction with the Ipswich Road, incorporating measures required by Condition 43 of DC/17/1435/OUT; the landscaping to the entrance and zone along the boulevard / spine road; the new drainage to the boulevard and spine road, including pumping station off the Ipswich Road, in the valley corridor; the new incoming utility supplies along the route of the boulevard and spine road - on DC/20/1234/VOC.	22.04	N/A	N/A	Permitted	03/07/2018	1	No. Proposed development is outside the ZOI
244	DC/22/2371/FUL	East Suffolk	Land south of Bungay Road Barsham Suffolk	640796	289760	No	No	No	Extension of Barsham Water Treatment Works comprising a storage reservoir, new treatment buildings, associated infrastructure, temporary access and landscaping. Open for comment icon	24.74	N/A	N/A	Awaiting decision	13/06/2022	1	No. Proposed development is outside the ZOI
245	**DC/21/4044/EIA**	**East Suffolk**	**Land south of Darsham Station Main Road Darsham Suffolk**	**640539**	**269673**	**Yes**	**No**	**No**	**EIA Screening Opinion - Proposed residential development of up to 110 dwellings**	**4.85**	**N/A**	**N/A**	**Scoping**	**25/08/2021**	**2**	**Yes**

246	DC/19/4170/ARM	East Suffolk	Land south of Hall Lane Oulton Suffolk	651876	294792	No	No	No	Approval of Reserved Matters - DC/01/0977/OUT - Outline Application for a mixed use development comprising of residential, neighbourhood shopping centre, community hall, primary school, play areas and country park	30.87	N/A	N/A	Permitted	24/10/2019	1	No. Proposed development is outside the ZOI
247	DC/21/3327/EIA	East Suffolk	Land to the east of A1093 And North Of Chapel Road Bucklesham Suffolk	625757	241664	No	No	No	Solar farm, comprising an array of ground-mounted solar panels and ancillary infrastructure including inverters, transformer units, electrical infrastructure, switchgear, storage and welfare cabins, security fencing, CCTV and a temporary construction compound	23.78	N/A	N/A	Unknown	12/07/2021		No. Proposed development is outside the ZOI
248	**DC/21/1001/FUL**	**East Suffolk**	**Land to the north and south of New Road east of Silverlace Green Parham Suffolk**	**631761**	**260461**	**Yes**	**No**	**No**	**Construction and operation of a solar farm together with all associated works, equipment and necessary infrastructure**	**7.81**	**N/A**	**N/A**	**Permitted**	**01/03/2021**	**1**	**Yes**
249	DC/20/2643/EIA	East Suffolk	Land to the West Of Chapel Road Grundisburgh Suffolk	622524	250291	No	No	No	Environmental Impact Assessment - Residential development of 80 homes	20.37	N/A	N/A	Unknown	16/07/2020		No. Proposed development is outside the ZOI
250	DC/20/3362/FUL	East Suffolk	Land west of Chapel Road Grundisburgh Suffolk	622574	250299	No	No	No	Full Planning Application for the erection of 70 dwellings, including affordable dwellings, together with public open space, roads, accesses, parking, garages, drainage and associated infrastructure	20.32	N/A	N/A	Awaiting decision	01/09/2020		No. Proposed development is outside the ZOI
251	DC/19/0398/EIA	East Suffolk	Land west of Copperwheat Avenue Reydon Suffolk	649475	277815	Yes	No	No	EIA Screening Opinion - Proposed residential development	14.03	N/A	N/A	Unknown	25/01/2019	2	No. Nature, scale and location of development not likely to generate significant cumulative effects
252	DC/21/3671/EIA	East Suffolk	Land west of Ellough Road Beccles Suffolk	643819	289059	No	No	No	EIA Screening Opinion - Garden neighbourhood	24.02	N/A	N/A	Decided	31/07/2021	1	No. Proposed development is outside the ZOI
253	**DC/21/2387/EIA**	**East Suffolk**	**Land west of Sandpit House and Sewage Pumping Station Loudham Hall Road Pettistree Suffolk**	**632344**	**265829**	**Yes**	**No**	**No**	**EIA Screening Opinion - Proposed development of a 21 MWp Solar PV Development**	**7.38**	**N/A**	**N/A**	**Scoping**	**14/05/2021**	**2**	**Yes**
254	DC/18/2886/EIA	East Suffolk	Lowestoft FRMP Tidal Defences Hamilton Road And Battery Green Road Lowestoft Suffolk	655269	293198	No	No	No	EIA Screening Opinion - For a tidal flood barrier across Lake Lothing entrance, flood defences in the Outer Harbour downstream of the proposed tidal flood barrier and property level resilience measures to be installed at properties at several locations throughout Lowestoft	30.45	N/A	N/A	Scoping	11/07/2018	2	No. Proposed development is outside the ZOI
255	DC/22/1204/EIA	East Suffolk	Moors Farm Shingle Street Hollesley Suffolk	636724	243592	Yes	No	No	EIA Screening Opinion - Water fill irrigation reservoir	16.10	N/A	N/A	Scoping	28/03/2022	2	No. Nature, scale and location of development not likely to generate

															significant cumulative effects
256	DC/21/1712/OUT	East Suffolk	Newnham Business Park Saxtead Road Framlingham Suffolk IP13 9RE	627280	264053	Yes	No	No	Hybrid planning application seeking outline planning permission for the creation of a phased employment area for office, studio, workshop and light industrial and storage units comprising B1, B2 and B8 use classes (previously approved ref. DC/16/4370/OUT) and retrospective full planning approval for attenuation works and construction of new vehicular access as completed on land known as Newnham Business Park, Saxtead Road, Framlingham, Suffolk	11.98	N/A	N/A	Permitted	08/04/2021	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
257	DC/21/3486/FUL	East Suffolk	Orwell Crossing Truck Stop A14 Nacton East Bound Nacton Heath Ipswich Suffolk IP10 0DD	621354	241237	No	No	No	Erection of buildings for use within Classes B2 and B8 together with access and servicing arrangements, vehicle parking, landscaping and associated works.	27.24	N/A	N/A	Awaiting decision	21/07/2021	1	No. Proposed development is outside the ZOI
258	DC/20/4761/FUL	East Suffolk	Parcel of land to north of Falcon Inn Road Wrentham Suffolk NR34 7NH	647303	284140	Yes	No	No	Conservation and Fishing Pond	19.45	N/A	N/A	Permitted	07/12/2020	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
259	DC/21/4254/EIA	East Suffolk	Part land east of Wash Lane and west of Cucumber Lane Beccles Suffolk	643219	288429	No	No	No	EIA Screening Opinion - development of part of a new garden neighbourhood. This parcel known as 'Land West of Oak Lane' will principally comprise of approximately 34.73ha of land for a range of residential dwellings (Use Class C3) to cater for market and affordable needs.	23.39	N/A	N/A	Decided	10/09/2021	1	No. Proposed development is outside the ZOI
260	DC/17/4964/EIA	East Suffolk	Part land South of Chediston Street Halesworth Suffolk	638011	277241	Yes	No	No	EIA Screening Opinion - For up to 200 dwellings to include car parking, open space provision with associated infrastructure and access	12.83	N/A	N/A	Unknown	16/11/2017	2	No. Nature, scale and location of development not likely to generate significant cumulative effects
261	DC/18/2098/EIA	East Suffolk	Part land west side of London Road Beccles Suffolk	642071	288830	No	No	No	EIA Screening Opinion - Proposed Residential Development of up to 280 Homes	23.78	N/A	N/A	Unknown	18/05/2018	2	No. Proposed development is outside the ZOI
262	DC/19/1432/ARM	East Suffolk	Part of 4126 Wood Lane Oulton Suffolk	651279	294690	No	No	No	Approval of Reserved Matters of DC/01/0977/OUT - Outline Application for a mixed use development comprising of residential, neighbourhood shopping centre, community hall, primary school, play areas and country park - Access,	30.62	N/A	N/A	Refused	11/04/2019	1	No. Proposed development is outside the ZOI

									Appearance, Landscaping, Layout and Scale						
263	**DC/22/2276/EIA**	**East Suffolk**	**Proposed Reservoir at Grange Farm Yoxford Road Westelton Suffolk**	**643797**	**268962**	**Yes**	**No**	**No**	**EIA Screen Opinion - Proposed Reservoir.**	**3.94**	**N/A**	**N/A**	**Awaiting decision**	**06/06/2022**	**1**	**Yes**
264	DC/20/5252/VOC	East Suffolk	Riduna Park Station Road Melton Woodbridge Suffolk IP12 1QT	628650	250480	Yes	No	No	Variation of Condition 13 of C/09/0584 - Development of two storey business units to include offices, workshops, coffee shop/cafe & associated external works, off site highway works.	15.50	N/A	N/A	Permitted	24/12/2022	1	No. Nature and scale of development not likely to generate significant cumulative effects
265	DC/20/2546/EIA	East Suffolk	Rose Farm Rose Farm Lane Framlingham Woodbridge Suffolk IP13 9PT	627181	264511	Yes	No	No	EIA Screening Opinion - To provide winter water storage for crop irrigation	12.13	N/A	N/A	Unknown	08/07/2020	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
266	**DC/18/2794/EIA**	**East Suffolk**	**Saxmundham To Peasenhall Water Mains Installation Suffolk**	**636000**	**269248**	**Yes**	**No**	**No**	**Installation of approximately 7.7 kilometres of 250mm diameter pipeline between Lodgewood Water Tower in Peasenhall and Saxmundham Water Tower.**	**6.74**	**N/A**	**N/A**	**Unknown**	**03/07/2018**	**1**	**Yes**
267	DC/19/1289/EIA	East Suffolk	Sinks Pit Main Road Kesgrave Suffolk IP5 2PE	622783	246038	No	No	No	Environmental Impact Assessment Scoping Opinion the erection of 2 new buildings and use of land for vehicle and plant hire operator(s) comprising offices, workshops, associated parking, drainage infrastructure etc to allow for the hire, storage, sale, maintenance and servicing of vehicles, plant, machinery and equipment.	22.81	N/A	N/A	Decided	26/03/2019	1	No. Proposed development is outside the ZOI
268	DC/21/2289/EIA	East Suffolk	Site at Former Crown Nursery High Street Ufford Suffolk IP13 6EL	629290	252775	Yes	No	No	Environmental Impact Assessment - Proposed Development of 2.67ha of land of which 1.04ha is to be developed with a built form of 13no. units of commercial floorspace all comprising uses within Class E of the Use Classes Order 1987 (as amended).	13.46	N/A	N/A	Unknown	10/05/2021	2	No. Nature, scale and location of development not likely to generate significant cumulative effects
269	**DC/17/4188/EIA**	**East Suffolk**	**Site SSP12 Rendlesham Suffolk**	**633651**	**252912**	**Yes**	**No**	**No**	**Screening opinion - erection of up to 75 dwellings.**	**10.40**	**N/A**	**N/A**	**Unknown**	**02/10/2017**	**2**	**Yes**

270	DC/19/1637/FUL	East Suffolk	Sizewell B Power Station Complex and Adjoining Land Sizewell Power Station Road Sizewell Leiston Suffolk IP16 4UR	647136	263389	Yes	No	No	1. In outline, comprising a Visitor Centre (maximum 2,000sq.m GEA) and a maximum of 9,500sq.m (GEA) of floorspace to provide administration, storage, welfare and canteen facilities with all matters reserved apart from access. 2. In full, for the demolition of the existing Outage Store, Laydown Area, Operations Training Centre, Technical Training Facility, Visitor Centre, and Rosery Cottage garage; removal of technical training and pool car park (63 spaces), Coronation Wood car park (21 spaces), Visitor Centre car park (16 spaces) and northern outage car park (576 spaces); meantime use of the Technical Training Centre as an interim Visitor Centre followed by its demolition; and erection of new (all floorspace in GEA) Outage Store (2,778sq.m), Laydown Area (11,990sq.m) including New Western Access Road, Yardman's Office (23sq.m), Training Centre (4,032sq.m), Rosery Cottage garage (30sq.m), Replacement Car Park (2,363sq.m) providing 112 spaces, and Outage Car Park (15,525sq.m) providing (576 spaces) including new access road (and alternative access to bridleway), footpath and amended junction at Sizewell Gap; and associated landscaping earthworks/recontouring, tree felling and boundary treatment.	0.72	N/A	0.88	Permitted	18/04/2019	1	Yes
271	DC/20/4646/FUL	East Suffolk	Sizewell B Sizewell Power Station Complex and Adjoining Land Sizewell Power Station Road Sizewell Leiston Suffolk IP16 4UR	647136	263389	Yes	No	No	Hybrid application seeking outline planning permission, with all matters reserved, for up to 9,500 square metres Gross External Area (GEA) to provide administration, storage, welfare and canteen facilities and a visitor centre of up to 1,000 square metres GEA. Detailed planning permission is sought for demolition of some existing structures and redevelopment to include a training centre and interim visitor centre, an outage store, lay down area, car and cycle parking, landscaping,	0.72	N/A	0.88	Permitted	16/11/2020	1	Yes

									associated infrastructure (including utilities, plant and highway works), tree felling and other relevant works.							
272	DC/21/5408/EIA	East Suffolk	Sizewell C Sizewell Power Station Road Sizewell Leiston Suffolk	647136	263389	Yes	No	No	Formal screening opinion pursuant to Regulation 6 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended)1 (herein referred to as the EIA Regulations) in relation to a proposed development on land north of the Sizewell B Power station, Sizewell, Leiston. The proposed development comprises two types of geotechnical trials, these being: (i) ground anchor trials; and (ii) deep soil mixing trials, both located within the proposed Sizewell C power stations main platform area (herein referred to as the Proposed Development). The trials will be undertaken to inform the geotechnical design development for the enabling works of the proposed Sizewell C power station. The Proposed Development is located within the ESC's administrative boundary.	0.72	N/A	0.88	Unknown	01/12/2021	1	Yes
273	DC/20/0902/OUT	East Suffolk	Suffolk Constabulary Force Headquarters Portal Avenue Martlesham Heath Martlesham Suffolk IP5 3QS	624197	246060	No	No	No	Outline Application (Some Matters Reserved) - Demolition and removal of all necessary existing buildings and structures to enable the residential development for up to 300no. new dwellings, with access from Portal Avenue, associated open space and landscaping, drainage and infrastructure. Open for comment icon	21.78	N/A	N/A	Awaiting decision	27/02/2020	1	No. Proposed development is outside the ZOI
274	DC/17/4967/EIA	East Suffolk	The Clubhouse Waldringfield Golf Club Newbourne Road Waldringfield Suffolk	626626	244953	No	No	No	Demolition and clearance of existing buildings and redevelopment of site for a mix of holiday let accommodation, residential dwellings and over 55s residential accommodation together with, landscaping and the continued use of existing points of access from Newbourne Road	20.87	N/A	N/A	Unknown	21/11/2017	1	No. Proposed development is outside the ZOI

275	DC/19/3275/EIA	East Suffolk	Thorington Gravel Pit London Road Thorington Suffolk	642029	274159	Yes	No	No	Request for screening opinion of proposed holiday park development within the FCC environment thorington landholding	9.11	N/A	N/A	Unknown	20/08/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
276	DC/21/3251/FUL	East Suffolk	Thorington Quarry London Road Thorington Suffolk IP17 3QZ	642245	273254	Yes	No	No	Construction and operation of a Holiday Park comprising holiday lodges, reception and amenities building and ancillary infrastructure.	8.21	N/A	N/A	Unknown	20/12/2021	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
277	**DC/21/5515/FUL**	**East Suffolk**	**Town Farm Town Farm Lane Kelsale Cum Carlton Saxmundham Suffolk IP17 2RJ**	**639129**	**266934**	**Yes**	**No**	**No**	**Erection of 21 MW Solar PV Development with associated equipment and ecological improvement works on Land at Town Farm, Town Hall Lane, Kelsale cum Carlton, IP17 2RJ**	**3.13**	**N/A**	**N/A**	**Awaiting decision**	**05/01/2022**	**1**	**Yes**
278	**DC/21/2943/EIA**	**East Suffolk**	**Town Farm Town Farm Lane Kelsale Cum Carlton Suffolk**	**639277**	**266865**	**Yes**	**No**	**No**	**Screening Opinion - The erection of a 21MWp Solar PV Development**	**2.98**	**N/A**	**N/A**	**Unknown**	**17/06/2021**	**2**	**Yes**
279	**DC/21/4643/EIA**	**East Suffolk**	**UKZ139 BC Wissett Solar Farm Grays Lane Wissett Suffolk**	**635802**	**279849**	**Yes**	**No**	**No**	**EIA Screening Opinion - Proposed solar photovoltaic (PV) farm, with battery energy storage**	**16.04**	**N/A**	**N/A**	**Unknown**	**08/10/2021**	**2**	**Yes**
280	DC/19/3089/VOC	East Suffolk	Unit 1 Riduna Park Station Road Melton Suffolk IP12 1QT	628672	250481	Yes	No	No	Variation of Condition 15 (Opening Hours), on Application C/09/0584 (Development of two storey business units to include offices, workshops, coffee shop/cafe and associated external works and off-site highway work) in relation to Unit 1, Riduna Park only.	15.49	N/A	N/A	Permitted	06/08/2019	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
281	DC/19/4506/VOC	East Suffolk	Unit 18 Riduna Park Station Road Melton Woodbridge Suffolk IP12 1QT	628602	250484	Yes	No	No	Variation of Condition No.15 of C/09/0584 - Development of two storey business units to include offices, workshops, coffee shop/cafe & associated external works, off site highway works. - Extension to permitted open hours to Unit 18.	15.53	N/A	N/A	Permitted	18/11/2019	Tier 1	No. Nature, scale and location of development not likely to generate significant cumulative effects
282	DC/21/3728/VOC	East Suffolk	Unit 3 Gateway Retail Park Tower Road Lowestoft Gisleham Suffolk NR33 7NG	653111	289496	No	No	No	Variation of Condition No. 5 of DC/20/1671/VOC- Variation of Condition No.14 of DC/17/2538/VOC Variation of Condition Nos. 2, 13 & 17 of DC/15/5066/FUL - Demolition of existing buildings and structures and redevelopment to provide 4 retail units, 1 Cafe unit and 1 flexible retail/restaurant unit with associated car parking, servicing, landscaping public realm and pedestrian and vehicular access - The removal of the mezzanine from Unit 4 (this results in the loss of 372 sq m of retail space); The addition	26.22	N/A	N/A	Permitted	05/08/2021	1	No. Proposed development is outside the ZOI

									of a mezzanine in Unit 2 of 186 sqm; The sub division of Unit 5 into 3 separate retail units (5a, 5b & 5c); Also minor amendments to plans. Variation to Unit 4 to alow a wider range of goods to be sold.						
283	DC/18/0290/EIA	East Suffolk	Water Treatment Works Barsham Hill Barsham Suffolk	641289	288940	No	No	No	EIA Screening Opinion - Replacement water treatment works	23.90	N/A	N/A	Unknown	18/01/2018	2	No. Proposed development is outside the ZOI
284	DC/17/4171/FUL	East Suffolk	Wenhaston Quarry Heath Road Wenhaston With Mells Hamlet Halesworth IP19 9BZ	641095	276682	Yes	No	No	Full planning for change of use of the site to provide holiday lodge accommodation and associated leisure activities	11.67	N/A	N/A	Refused	30/09/2017	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
285	**DC/21/00022**	**Mid Suffolk**	**Brundish Manor The Street Brundish Woodbridge Suffolk IP13 8BL**	**626083**	**270941**	**Yes**	**No**	**No**	**Full Planning Application - Change of Use of land and siting 180No (45kw) photovoltaic array in paddock.**	**15.23**	**N/A**	**N/A**	**Granted**	**04/01/2021**	**1**	**Yes**
286	DC/20/01603	Mid Suffolk	Wilby Coronation Hall Brundish Road Wilby Suffolk	624255	271997	Yes	No	No	Planning Application - Installation of a Sewage Treatment Plant.	17.34	N/A	N/A	Granted	21/04/2020	1	No. Nature, scale and location of development not likely to generate significant cumulative effects
287	**N/A**	**Planning Inspectorate**	**EuroLink - Offshore interconnector between UK and The Netherlands**	**647585**	**262200**	**Yes**	**No**	**Yes**	**Proposed second link to the Netherlands of 1.4GW by 2030. Current proposal for interconnector / hybrid - windconnector**	**0**	**N/A**	**0**	**Pre-Application**	**N/A**	**3**	**Yes**
288	**N/A**	**Planning Inspectorate**	**Reinforcement of the transmission system between Norwich and Tilbury.**			**Yes**	**No**	**No**	**The East Anglia Green Energy Enablement (GREEN) project is a proposal to build a new high voltage network of 150km line reinforcement between Norwich, Bramford and Tilbury.**	**24**	**N/A**	**N/A**	**Pre-Application**	**N/A**	**3**	**Yes. Whilst outside the ZOI there is potential for an overlap of the largest study areas of the two projects. This will be reviewed once more information is available.**
289	**ENQ/2021/00097**	**MMO**	**Hanson Aggregates Marine Ltd Area 528**			**No**	**No**	**Yes**	**This is an aggregate exploration and option area located immediately to the eat of the offshore scoping boundary. Hanson Aggregate Ltd are looking to apply for a marine licence to allow for aggregate extraction from this area.**	**N/A**	**N/A**	**0.5**	**Pre-Application**	**N/A**	**Tier 3**	**Yes**

2.4.A Heritage Assets within Suffolk Scoping Boundary

Table 2.4.A.1: Non-designated assets recorded on the Suffolk HER within the Scoping Boundary

ID	Description/summary	Period	Grid ref
MSF14283	Findspot of a Medieval silver groat of Heinrich V. Silver groat of Heinrich V, Archbishop of Bremen 1463-96. Formerly recorded as LCS MISC.	Medieval	TM 44315 63865
MSF33081	7 Roman coins and 1 med coin. 7 Roman copper alloy coins and 1 medieval silver coin.	Roman to Medieval	TM 42600 61100
MSF21604	Cropmarks of uncertain archaeological significance. Cropmarks of uncertain archaeological significance have been recorded from aerial photographs. They comprise what has been interpreted as a causewayed ring ditch surrounded by an oval boundary. Their archaeological significance is doubtful.	Unknown	TM 45791 63462
MSF21600	Cropmarks of uncertain archaeological significance. Cropmarks of uncertain archaeological significance have been recorded from aerial photographs. They comprise what has been interpreted as a causewayed ring ditch, together with other, unspecified cropmarks, possibly tracks. Their archaeological significance is not known.	Unknown	TM 45895 63191
MSF21583	Cropmarks of uncertain archaeological significance. Cropmarks of uncertain archaeological significance have been recorded from aerial photographs. They have been interpreted as a causewayed ring ditch of possible Bronze Age date, and possible undated field boundaries. They were not recognised in a subsequ	Bronze Age?	TM 46758 62597
MSF21585	Cropmarks of uncertain archaeological significance. Cropmarks of uncertain archaeological significance have been recorded from aerial photographs. They have been interpreted as a causewayed ring ditch of possible Bronze Age date. They were not recognised in a subsequent survey of aerial photographs for the area.	Bronze Age?	TM 46878 62587
MSF21592	Cropmarks of uncertain archaeological significance. Cropmarks of uncertain	Bronze Age?	TM 46206 62610

	archaeological significance have been recorded from aerial photographs. They have been interpreted as a causewayed ring ditch of unknown but possibly Bronze Age date. They were not recognised in a subsequent survey of aerial photog		
MSF21597	Cropmarks of uncertain archaeological significance. Cropmarks of uncertain archaeological significance have been recorded from aerial photographs. They have been interpreted as a possible enclosure, possible ring ditches and possible trackways of unknown date. They were not recognised in a subsequent surveys.	Unknown	TM 46189 63076
MSF21602	Cropmarks of uncertain archaeological significance. Cropmarks of uncertain archaeological significance have been recorded from aerial photographs. They have been interpreted as a semi-circular ring ditch of unknown but possibly Bronze Age date. They were not recognised in a subsequent survey of aerial photos.	Bronze Age?	TM 46287 62628
MSF21593	Cropmarks of uncertain archaeological significance. Cropmarks of uncertain archaeological significance have been recorded from aerial photographs. They have been interpreted as an incomplete causewayed ring ditch of unknown but possibly Bronze Age date. They were not recognised in a subsequent survey of a	Bronze Age?	TM 46156 62604
MSF21618	Cropmarks of uncertain archaeological significance. Cropmarks of uncertain archaeological significance have been recorded from aerial photographs. They have been interpreted as possible field boundaries of unknown date. They were not recognised in a subsequent survey of aerial photographs for this area an	Unknown	TM 45900 62700
MSF21631	Cropmarks of uncertain archaeological significance. Cropmarks of uncertain archaeological significance have been recorded from aerial photographs. They have been interpreted as possible field boundaries of unknown date. They were not recognised in a subsequent survey of aerial photographs for this area.	Unknown	TM 45500 62800
MSF21582	Findspot of a glass bead of unknown date. One glass bead found, date unknown.	Unknown	TM 46822 62640

MSF2328	Findspot of a Roman bronze head-stud brooch. Bronze head-stud brooch (C2) found in Knodishall area 1973. Formerly recorded as KND MISC	Roman	TM 42500 61500
MSF22680	Harrow Farm, Harrow Lane. Sub-square enclosure indicated by cropmark.	Unknown	TM 42400 64610
MSF21619	Medieval artefact scatter of coarseware and one Prehistoric flint gritted sherd. Medieval coarseware, plus one possible prehistoric flint gritted sherd(?). Formerly recorded as LCS MISC.	Medieval	TM 45900 62700
MSF21596	Medieval artefact scatter of coarseware pottery sherds. Majority of pottery found was Med coarseware, there was one stray find of a Rom sherd.	Medieval	TM 46093 62981
MSF21586	Medieval artefact scatter of coarseware pottery. Medieval coarseware pottery found.	Medieval	TM 46519 62578
MSF21580	Medieval artefact scatter of coarseware sherds. C13/C14 coarseware sherds.	Medieval	TM 46825 62643
MSF21598	Medieval artefact scatter of coarseware sherds. Fifteen Med coarseware sherds found.	Medieval	TM 45758 63107
MSF21590	Medieval artefact scatter of pottery sherds, including Thetford ware and coarseware. One Thetford-type ware sherd and medieval coarseware found.	Medieval	TM 46174 62571
MSF22553	Medieval deer park, Leiston. Deer park listed in Domesday survey, location unknown, Previously LCS Misc.	Early Medieval	TM 45500 63500
MSF35355	Milestone on the A1094. Milestone on the A1094 at Rushmere Lodge Farm.	Post-Medieval	TM 42885 59016
MSF27693	Milestone on the A1094. Milestone on the A1094 at South Warren Golf Course.	Post-Medieval	TM 44269 58209
MSF26867	Mill Piece (tithe). Approximate location of former windmill suggested by 'Mill Piece' name in tithe (S1)(R1). Formerly recorded as LCS MISC.	Medieval to IPS: Post-Medieval	TM 45200 61600
MSF27742	Negative evaluation Aldringham Court, Aldringham cum Thorpe.	Unknown	TM 44510 60590
MSF31502	OUTLINE RECORD: Georchaeological boreholes at Aldhurst Farm, Leiston.	Unknown	TM 45000 63450
MSF38065	OUTLINE RECORD: Area 8 Sizewell C GRR Aldhurst Land (SGL) GEO (CAS) EVAL.	Unknown	TM 45180 63673
MSF30770	OUTLINE RECORD: CROPMARKS - MOAT?.	Unknown	TM 43390 64430
MSF30769	OUTLINE RECORD: CROPMARKS - PIT ALIGNMENT.	Unknown	TM 43610 64720

MSF38064	OUTLINE RECORD: Green Rail Route Area 5 (also labled as Area 7 and Mellen Land) Sizewell C (SGL) GEO (CAS) EVL.	Unknown	TM 44134 63890
MSF33557	OUTLINE RECORD: Medieval pottery scatter (BACKLOG).	Unknown	TM 40500 63800
MSF38723	OUTLINE RECORD: Sizewell C Leiston GRR Poll Land (SGL) GEO (CAS) EVAL.	Unknown	TM 45060 63855
MSF21599	Post-Medieval artefact scatter of pottery sherds. Thirteen Post-Medieval sherds found (S1)(S2).	Post-Medieval	TM 45758 63107
MSF21581	Prehistoric artefact scatter of flint flakes, including pot boiler flints and scrapers. Several flint flakes and others were found, including some pot boiler flints and scrapers.	Prehistoric	TM 46824 62642
MSF21587	Prehistoric artefact scatter of pot boiler flints and worked flints. Several pot boiler flints and other worked flints found.	Prehistoric	TM 46516 62575
MSF21589	Prehistoric artefact scatter of worked flint, including pot boiler flints and scrapers. Prehistoric worked flint including pot boiler flints and scrapers.	Prehistoric	TM 46171 62571
MSF21595	Prehistoric artefact scatter of worked flints, pot boiler flints and scrapers. A number of worked flints including two pot boiler flints and scrapers.	Prehistoric	TM 46093 62981
MSF21591	World War II building debris. Large amount of modern building debris noted on this field, probably World War II.	Modern	TM 46174 62573

Table 2.4.A.2: Non-designated assets within the Suffolk Onshore Scoping Boundary (line data)

MonUID	Description/summary	Period	Grid ref
MXS18775	Linear bank, visible as an earthwork to the south of Valley Grange.	Unknown	TM 44254 58152
MXS18774	Linear banks, of unknown date, visible on the golf course at South Warren. Formerly ADB 037.	Unknown	TM 44607 58064
MSF35003	Aldeburgh branch railway line.	Post-Medieval	TM 42461 63328

Table 2.4.A.3: Non-designated assets within the Suffolk Onshore Scoping Boundary (area data)

MonUID	Description/summary	Period	Grid ref
MSF19482	Great Wood. Ancient Woodlands.	Unknown	TM 43761 59483
MSF19483	Grove Wood / Old World Wood. Ancient Woodlands.	Unknown	TM 41812 61034
MSF21037	The Mear (1783); The Meare C16 & 1976); The Meer (1817); The Haven (1837). Large mere shown as 'The Meare' in the C16/17; 'The Mear' in 1783; 'The Meer' in 1817; much reduced as 'The Haven' in 1837.	Medieval & Post-Medieval	TM 46587 58727
MSF16640	Hazlewood Common. World War II anti-aircraft obstructions, visible as earthworks on Hazlewood Common.	Modern	TM 43436 58383
MXS18767	Possible curvilinear enclosure, unknown date. Curvilinear enclosure, of unknown date, visible as a cropmark northwest of Chapel Farm. Possibly a chalk ring associated with the nearby airfield.	Modern	TM 44265 59240
MXS18768	World WarII anti- tank obstacle. World War II anti-tank obstacle from Hazlewood Marshes to The Fens (c.2.5km), visible as earthworks in 1943 but levelled by 1953.	Modern	TM 44940 58485
MXS18772	A possible World War II strongpoint including trenches and barbed wire. A possible World War II strongpoint including trenches and barbed wire, visible north of Round Hill. Formerly ADB 035	Modern	TM 44295 57998
MXS18773	World War II anti-aircraft obstructions. World War II anti-aircraft obstructions on the fairways of the golf course at South Warren.	Modern	TM 44492 58108
MXS18773	World War II anti-aircraft obstructions. World War II anti-aircraft obstructions on the fairways of the golf course at South Warren.	Modern	TM 44708 58032
MXS18773	World War II anti-aircraft obstructions. World War II anti-aircraft obstructions on the fairways of the golf course at South Warren.	Modern	TM 44802 57953

MXS18773	World War II anti-aircraft obstructions. World War II anti-aircraft obstructions on the fairways of the golf course at South Warren.	Modern	TM 44902 57959
MXS18773	World War II anti-aircraft obstructions. World War II anti-aircraft obstructions on the fairways of the golf course at South Warren.	Modern	TM 45033 58031
MXS18773	World War II anti-aircraft obstructions. World War II anti-aircraft obstructions on the fairways of the golf course at South Warren.	Modern	TM 45000 57919
MXS18776	Four Post-Medieval quarries, visible as earthworks. Four probably post-Medieval quarries, visible as earthworks south of Valley Grange.	Post-Medieval	TM 44053 58191
MXS18778	World War II 'Diver' HAA battery. World War II 'Diver' HAA battery, visible immediately north of Eight Acre Covert.	Modern	TM 44898 58533
MXS18779	Quarry, visible as an earthwork north of Eight Acre Covert. Quarry, of unknown date, visible as an earthwork north of Eight Acre Covert. Formerly ADB 039	Unknown	TM 44906 58454
MXS18780	Three Post-Medieval quarries. Three probably post-Medieval quarries (one recorded as a 'clay pit') by Chapel Farm.	Post-Medieval	TM 44575 58849
MXS18781	Six Post-Medieval quarry pits, one labelled sand pit. Six probably post-Medieval quarry pits, visible as earthworks north and east of Grange Farm	Post-Medieval	TM 44066 58812
MXS18782	Hazlewood Aerodrome. Site of World War I airfield, visible as earthworks and a surviving building.	Modern	TM 43839 58891
MXS18783	Thee Post-Medieval quarry pits. Three quarries, possibly post-Medieval, visible immediately north and east of Hazlewood Hall Farm.	Post-Medieval	TM 43479 58929
MXS18783	Thee Post-Medieval quarry pits. Three quarries, possibly post-Medieval, visible immediately north and east of Hazlewood Hall Farm.	Post-Medieval	TM 43423 58922
MXS18783	Thee Post-Medieval quarry pits. Three quarries, possibly post-Medieval, visible immediately north and east of Hazlewood Hall Farm.	Post-Medieval	TM 43558 58851
MXS18785	Post-medieval WW2 bomb crater and emplacement. World War II emplacements visible as earthworks on Hazlewood Common. Formerly FRS 012	Modern	TM 43469 58222
MXS18786	Post-medieval WW2 trench, tank trap, military training site. World War II ditch, probably for training purposes, is visible as an earthwork on Hazlewood Common. Formerly FRS 012	Modern	TM 43444 58295

MXS19698	World War II anti-tank ditch. A World War II anti-tank ditch in Leiston and Aldringham cum Thorpe parish	Modern	TM 47121 61795
MXS19701	World War II strongpoint and a possible experimental radar station. World War II strongpoint and a possible experimental radar station in Leiston parish	Modern	TM 47467 62524
MXS19702	Quarry pit of unknown date. A quarry pit of unknown date, Leiston	Unknown	TM 46954 62396
MXS19705	A World War II seafront strongpoint. A World War II seafront strongpoint in Aldringham cum Thorpe parish	Modern	TM 47553 62295
MXS19733	Post-Medieval Sea bank, Aldeburgh. Post-Medieval Sea bank, Aldeburgh	Post-Medieval	TM 46676 59105
MXS19734	Early Post-Medieval relict sea banks. Relict sea banks, probably early post-Medieval date, in Aldeburgh parish	Post-Medieval	TM 46447 58212
MXS19735	World War II anti-tank ditches. World War II anti-tank ditches in Aldeburgh	Modern	TM 46824 58918
MXS19736	Remains of a footbridge crossing The Haven leading to Haven House. Remains of a footbridge crossing The Haven leading to Haven House, Aldeburgh	Post-Medieval to Modern	TM 46846 58762
MXS19737	A World War II strongpoint surrounded by a minefield. A World War II strongpoint surrounded by a minefield, Aldringham cum Thorpe	Modern	TM 46821 58175
MXS19739	World War II anti-aircraft ditches. World War II anti-aircraft ditches, Aldeburgh.	Modern	TM 46380 58764
MXS19739	World War II anti-aircraft ditches. World War II anti-aircraft ditches, Aldeburgh.	Modern	TM 46456 58579
MXS19739	World War II anti-aircraft ditches. World War II anti-aircraft ditches, Aldeburgh.	Modern	TM 46438 58467
MXS19739	World War II anti-aircraft ditches. World War II anti-aircraft ditches, Aldeburgh.	Modern	TM 46655 58596
MXS19740	Two probable World War II bomb craters. Two probable World War II bomb craters, Aldeburgh	Modern	TM 46663 58307
MXS19741	Probable Post-Medieval field boundaries to the north of Brick Kiln Cottage. Probable Post-Medieval field boundaries to the north of Brick Kiln Cottage, Aldeburgh	Medieval and Post-Medieval	TM 46038 58366
MXS19742	A World War II strongpoint and group of bomb craters. A World War II strongpoint and group of bomb craters in Aldeburgh parish	Modern	TM 46279 58487
MXS19743	A World War II strongpoint adjacent to Brick Kiln cottage. A World War II strongpoint adjacent to Brick Kiln cottage, Aldeburgh	Modern	TM 46051 58325

MXS19744	World War II 'Diver' HAA battery. A World War II Heavy Anti-Aircraft Artillery battery in Aldeburgh	Modern	TM 45841 58407
MXS19745	Post-Medieval brick- earth quarry pit. A brick-earth quarry pit of probable post-Medieval date, Aldeburgh	Post-Medieval	TM 45941 58255
MXS19746	Post-Medieval path or track. A path or track of probable post-Medieval date, Aldeburgh	Post-Medieval and Modern	TM 45415 58116
MXS19747	Post-Medieval clay extraction pit. Post-Medieval clay extraction pit, Aldeburgh	Post-Medieval and Modern	TM 45797 57958
MXS19748	World War II 'Diver' HAA battery. A World War II Heavy Anti-Aircraft Artillery site, Aldeburgh	Modern	TM 45952 57740
MXS19752	Post-Medieval relict sea- bank. A relict sea-bank of post-Medieval date, Aldeburgh	Post-Medieval	TM 46535 58322
MXS19838	An extensive length of World War II beach scaffolding. An extensive length of World War II beach scaffolding running south from Aldringham cum Thorpe parish	Modern	TM 46842 57859
MXS19856	World War II anti-invasion beach defences. World War II anti-invasion beach defences near Sizewell village, Leiston	Modern	TM 47562 62817
MXS19858	World War II anti-invasion coastal defences. World War II anti-invasion coastal defences from Sizewell village to Sizewell Hall, Leiston	Modern	TM 47607 62205
MXS19861	A c. 3.5km long row of World War II anti-tank cubes from Aldeburgh to Thorpness. A circa 3.5km long row of Second World War anti-tank cubes from Aldeburgh to Thorpeness.	Modern	TM 46813 58098
MXS19863	World War II anti-tank cubes. World War II anti-tank cubes, Aldeburgh.	Modern	TM 46769 58294
MSF21392	Modern ship's mast mounted in a metal sheath, possibly a lookout post. Old ship's mast mounted in metal sheath. Metal footholds set into mast to aid climbing. Sited near old huts and boat winches of fisherman. Lookout?	Unknown	TM 47596 62646
MSF22813	Fristonmoor; Buxlow. Small mapped enclosure with a scatter of Medieval pottery (20 sherds).	Post-Medieval and Modern	TM 41203 61803
MSF22814	Littlemoor Farm, Fristonmoor; Buxlow. An enclosed area formerly (on C19 maps) containing 4 dwellings, now demolished.	Post-Medieval	TM 41254 61732
MSF22815	Old Kiln Field; Kiln Field; Buxlow. Field names and brick debris suggesting brickworks.	Post-Medieval	TM 41571 61784
MSF11502	Moor Farm; High House Farm. About 20 sherds C13/C14 pottery (coarseware cooking pot and	Medieval	TM 40965 61708

	glazed jug) and a fragment of Rhenish lava millstone revealed in builders' construction trench (S1).		
MSF12593	Small smock mill, Thorpe Road. Remains of a small smock mill, built in 1800 by Collins of Melton.	Post-Medieval and Modern	TM 46790 58296
MSF13936	Two bowl barrows on Aldringham Green. Scheduled (with ARG 001) Monument - one of three tumuli situated on Aldringham Green - also see ARG 013.	Bronze Age	TM 44737 60848
MSF13937	Aldringham Green. One of three Scheduled round barrows on Aldringham Green - also see ARG 001 & ARG 012.	Bronze Age	TM 44700 60856
MSF14092	Agricultural pit of negligible archaeological significance. A pit, probably relating to Post-Medieval or modern agricultural activity and of negligible archaeological significance, is visible as an earthwork and soilmark on aerial photographs. It had been recorded previously as a possible enclosure.	Post-Medieval and Modern	TM 45131 61661
MSF14095	Half of a ring ditch or circular enclosure of unknown date, visible as a cropmark. Semi-circular cropmark, possibly surviving half of ring ditch or small circular enclosure, diameter approximately 50m.	Unknown	TM 41779 60783
MSF16193	Small rectangular(?) enclosure, possibly open ended to NE. Small rectangular(?) enclosure, possibly open ended to NE.	Unknown	TM 40580 62080
MSF16196	Medieval artefact scatter. Med pottery scatter & one short cross silver penny (of Henry II?).	Medieval	TM 45006 60455
MSF16888	Post-Medieval bridge. Site of bridge as shown on Hodskinson's map of 1783 (S1), crossing the Hundred River.	Post-Medieval	TM 44694 60594
MSF16889	Post-Medieval bridge shown on Hodskinson's map. Bridge shown crossing a small stream on Hodskinson's map (S1).	Post-Medieval	TM 45456 63481
MSF17577	Little Moor Farm; Buxlow Parsonage. Rectangular moated site of former Buxlow parsonage on the south edge of the former Friston Moor (common).	Medieval and Post-Medieval	TM 41193 61664
MSF2306	Aldringham Green Round Barrow; Two bowl barrows, Aldringham Green. Scheduled (together with ARG 012) Monument - round barrow.	Unknown	TM 44706 60813
MSF2524	Gorse Hill. Thirteen amphorae (carrot shaped variety) found in front of house parallel to road on E, location not precise (S1).	Roman	TM 45809 58313
MSF2530	Hazlewood Church; Church of St Mary. Hazlewood Church, in ruins by 1600, the	Medieval	TM 44774 59077

	Churchyard remained in use until circa 1700, at Domesday there were two churches in Aldeburgh - ? Aldeburgh and Hazlewood (see also ADB 223)		
MSF2532	Gorse Hill. Flint scatter - flakes and scrapers, probably Neo.	Neolithic	TM 45612 58416
MSF2538	Roman artefact scatter. Pottery and half a melon bead (possibly mislocated and should be within ADB 014 area).	Roman	TM 46002 58405
MSF2539	Medieval scatter of pottery and red burnt clay. Scatter of pottery and red burnt clay (S1).	Medieval	TM 45785 58496
MSF2540	Golf Course. Collared urn rim, found buried upside down, containing cremated bones, in bunker on golf course.	Bronze Age	TM 44820 58137
MSF2544	The Red House. Barbed and tanged flint arrowhead found in the garden of the Red House, from a heap of soil left over from the building of a garage in 1970 (S1).	Bronze Age	TM 45411 57903
MSF4001	Cropmarks of undated field boundaries. Cropmarks of undated field boundaries, and perhaps other features, are visible on aerial photographs.	Unknown	TM 44810 63081
MSF14096	Buxlow; Buxton. 1753: Symbol for `church or chapel in ruins' on Bowen's map of Suffolk at `Buxton', N of Friston church (S1).	Medieval	TM 41391 60614
MSF17578	Friston Moor. Friston Moor, a former common.	Medieval	TM 40766 61666
MSF2325	Knodishall Common; Coldfair Green. Tumuli, one large and eight small in two rows E - W.	Unknown	TM 43175 60852
MSF2543	Gorse Hill (Rom). Scatter of Rom pottery now in Ipswich museum.	Roman	TM 45767 58458
MSF2552	Gorse Hill (Med). Pottery scatter.	Medieval	TM 45767 58458
MSF2330	Large simple rectangular inhabited moat at Hill Farm. Large simple rectangular inhabited moat at Hill Farm.	Medieval	TM 39804 61764
MSF2331	NE of Hill Farm C19 decoy or flight pond, not part of a moat. NE of Hill Farm C19 decoy or flight pond, not part of a moat.	Post-Medieval	TM 39977 62038
MSF23623	Cross with ring ditch, probably from a former post mill, visible as cropmarks. Cropmark of cross within ring ditch, probably from former post-mill (S1). On NE facing slope.	Medieval	TM 42647 61096
MSF25256	EDF Access, Sizewell Power Station. Monitoring of test pits revealed evidence of a channel, pond or wet hollow in the south of LCS 160 containing a	Medieval	TM 47189 62669

	sherd of medieval pottery, a small quantity of unstratified medieval pottery.		
MSF25696	Knodishall Coldfair Green historic settlement; St Andrews Green; Coldford Green (1783). Indicative area of the historic settlement of Knodishall surrounding Coldfair (or St Andrews) Green. Named Coldford Green on Hodskinson's 1783 map.	Medieval and Post-Medieval	TM 43376 60998
MSF25683	Aldringham historic settlement core (Med). Indicative area of the historic settlement core of Aldringham.	Medieval and Post-Medieval	TM 44636 60979
MSF26453	Aldringham Green. Medieval Green.	Medieval	TM 44665 60961
MSF26002	Suffolk square pillbox. Suffolk square pillbox.	Modern	TM 41745 59673
MSF16639	Possible ring ditch of unknown date. Circular cropmark, possibly a ring ditch, of unknown date, is visible on Hazlewood Common.	Unknown	TM 43234 58559
MSF16638	Possible ring ditch of unknown date. Circular cropmark, possibly a ring ditch, of unknown date, is visible on Hazlewood Common.	Unknown	TM 43265 58554
MXS18777	Ring ditch and possible round barrow site, unknown date. Possible round barrow site, visible between Grange Farm and Valley Grange	Bronze Age	TM 44010 58509
MSF24054	Small finds assemblage. During a monitoring visit a fire-cracked flint, a sherd of Roman and a sherd of medieval pot were found, all unstratified.	Early Neolithic to Medieval	TM 44670 58933
MSF29478	Medieval Settlement at Sizewell, Leiston. Medieval Settlement with evidence of industrial activity on edge of Settlement	Early Neolithic to Medieval	TM 47213 62654
MSF33455	Fragmentary cropmarks of possible medieval settlement. Fragmentary cropmarks of possible medieval settlement are visible on aerial photographs to the north of St Andrew’s Church, Aldringham cum Thorpe.	Medieval	TM 45014 60469
MSF33606	Possible gun emplacement for 'Diver' HAA site. Parchmarks of four possible former gun emplacements which may have been associated with the 'Diver' HAA site to the east (SHER ADB 200) are visible on aerial photographs to the west of Leiston Road, Aldeburgh.	Post-Medieval to Modern	TM 45042 59039
MSF33594	Possible soilmark enclosure. An undated possible enclosure is visible as faint soilmarks on aerial photographs on land to the east of Leiston Road, Aldeburgh.	Roman	TM 45983 58636
MSF33592	Possible cropmark enclosure. An undated possible cropmark enclosure is visible as faint cropmarks	Roman	TM 45649 58431

	on aerial photographs on land to the east of Leiston Road, Aldeburgh.		
MSF33591	Fragmentary linear cropmarks. Undated fragmentary linear ditches are visible as faint cropmarks on aerial photographs on land to the north of South Warren golf course, Aldeburgh.	Unknown	TM 45181 58367
MSF33426	Site of possible Bronze Age round barrow or medieval to Post-Medieval mill mound, The Walks. The site of a possible Bronze Age round barrow or medieval to post-Medieval mill mound is visible as a soil and cropmark on aerial photographs.	Early Bronze Age and Post-Medieval	TM 46599 62312
MSF33424	Earthworks of linear and rectilinear boundaries of unknown date, The Walks, Aldringham Common. Linear and rectilinear boundaries of unknown date are visible as earthworks on aerial photographs of The Walks, Aldringham Common.	Unknown	TM 46476 62253
MSF33429	Site of Second World War Diver anti-aircraft battery. A Second World War Diver anti-aircraft battery is visible as structures and earthworks on aerial photographs. The site was dismantled at the end of the war but parts of the trackways still survive, as may some of the hardstandings.	Modern	TM 46548 62017
MSF33430	Linear earthwork banks on Broom Covert. Linear earthwork banks, perhaps post-Medieval boundaries, are visible on aerial photographs of heathland at Broom Covert. They are in part followed by modern land divisions depicted on Ordnance Survey maps.	Post-Medieval and Modern	TM 46347 63010
MSF33431	Site of fragmentary cropmarks of unknown date and significance. Fragmentary cropmarks, of uncertain date and archaeological significance, are visible on aerial photographs. They could represent former field boundaries and/or enclosures, and perhaps part of a trackway.	Unknown	TM 46107 62855
MSF33433	Site of fragmentary cropmarks of unknown date and significance. Fragmentary cropmarks, of uncertain date and archaeological significance, are visible on aerial photographs. They could represent former field boundaries.	Unknown	TM 46058 62293
MSF33434	Site of fragmentary cropmarks of unknown date and significance. Fragmentary cropmarks, of uncertain date and archaeological significance, are visible on aerial photographs. They could represent former field boundaries.	Unknown	TM 45791 62363
MSF33436	Site of fragmentary cropmarks of unknown date and significance. Faint and fragmentary rectilinear cropmarks, of uncertain date and archaeological significance, are visible on aerial photographs.	Unknown	TM 45486 63017

MSF33438	Site of Leiston Very High Frequency (VHF) Fixer Station. A World War Two direction finding (D/F) station (or a similar type of communications/navigation site), which remained in use into the Cold War period under the Rotor programme, is visible as a group of structures, connected by pathways, on aerial photogr	Modern	TM 45835 61789
MSF33442	Site of two probable First World War pillboxes. Two probable First World War pillboxes are visible as extant buildings (since levelled) on aerial photographs.	Modern	TM 45849 62507
MSF33448	Site of one or more Second World War slit trenches. One or more Second World War slit trenches are visible as earthworks on aerial photographs taken between 1944 and 1946. They were probably outlying defences for Leiston, and perhaps also the Diver anti-aircraft battery (LCS 185) located a short distance	Modern	TM 45622 63111
MSF33439	Site of Second World War military training area and/or defended locality. A Second World War military site, perhaps used for training and/or as a defended locality, is visible as earthworks and structures on aerial photographs. There is potential for some elements to still survive, as the eastern part of the site – Broom Cov	Modern	TM 46333 62982
MSF33440	Second World War training area and/or strong point. A Second World War training area and/or strong point is visible as earthworks and structures on 1940s aerial photographs. Recent photographs indicate that while much of the site was dismantled before the end of the war, some earthworks probably still sur	Modern	TM 46529 62375
MSF33444	Site of undated boundary on Leiston Common. An undated linear bank, probably a former boundary, is visible as an earthwork on Leiston Common on aerial photographs taken in 1946. It has since been levelled.	Medieval and Post-Medieval	TM 45654 63440
MSF31925	Site of Second World War (and/or possibly First World War) military training site, Leiston Common. The site of a Second World War (and/or possibly First World War) military training site on Leiston Common is visible as earthworks and barbed wire on 1940s aerial photographs.	Modern	TM 45870 63451
MSF31923	Site of Second World War Diver battery. The site of a Second World War Diver battery has been recorded on Leiston Common, and is visible on 1940s aerial photographs as surviving and removed structures, a building or hut (since removed) and earthworks (now levelled).	Modern	TM 45801 63319

MSF31922	Site of Second World War Auxiliary Unit Operational Base, Leiston Common. The site of a Second World War Auxiliary Unit Operational Base has been recorded on Leiston Common, and is visible as an earthwork on aerial photographs. However, see too LCS 164 for an alternative location for this site.	Modern	TM 45825 63502
MSF2531	Extensive cropmark site. A series of field boundaries and possible fragmentary settlement features are visible as cropmarks on aerial photographs on land to the south and east of Crag Pit Nurseries, Aldeburgh.	Medieval to Post-Medieval	TM 45964 57997
MSF16194	Second World War anti-glider ditches and military training activity on The Walks, Aldringham Common. An extensive network of Second World War anti-glider ditches is visible as earthworks on aerial photographs of The Walks, Aldringham Common. Traces of Second World War (and perhaps earlier) military training activity is also visible, as the earthworks of	Modern	TM 46379 61508
MSF21588	Multi-period cropmarks of probable field boundaries and enclosures. Multi-period cropmarks of probable field boundaries and enclosures are visible on aerial photographs. They are undated, but more than one phase is apparent. An Iron Age to Roman date for some of the cropmarks is plausible.	Early Iron Age to Roman	TM 46531 62607
MSF21594	Site of Second World War Diver anti-aircraft battery. A Second World War Diver anti-aircraft battery is visible as structures on aerial photographs. The site is now arable and there is no evidence that any elements survive; an evaluation in the area of the site noted large amounts of modern building materia	Post-Medieval to Second World War	TM 46182 62565
MSF34510	A World War II Anti-tank ditch. A World War II Anti-tank ditch, Aldeburgh (formerly MXS19751).	Modern	TM 46686 57833
MSF34510	A World War II Anti-tank ditch. A World War II Anti-tank ditch, Aldeburgh (formerly MXS19751).	Modern	TM 46479 57813
MSF33815	Bronze Age/Early Iron Age settlement activity at Land south of Red House Lane, Leiston (Excavation pending). Middle-late Bronze Age to early Iron Age settlement activity identified by field boundaries, possible roundhouses, pits in a ditched enclosure and urned cremation.	Middle Bronze Age to Post-Medieval	TM 45000 61777
MSF29484	Late Prehistoric and Romano-British agricultural activity at Galloper offshore Wind Farm. Features, mostly ditches with some pits, consistent with small scale Late Prehistoric and Romano-British activity probably relating to farming practices.	Roman	TM 46647 62704

MSF16637	Ring ditch and possible round barrow, both of unknown date. Possible round barrow site, visible as a ring ditch and potential mound, of unknown date, east of Horseshoe Covert.	Bronze Age	TM 43120 58667
MSF37237	Land to the east of Aldeburgh Road, Aldringham Cum Thorpe. Possible multiphase medieval-post-medieval rectilinear field system and several Early Iron Age features.	Early Iron Age to Post-Medieval	TM 44649 61214
MSF38516	Farmstead: Chapel Barn. Chapel Barn field barn visible on 1st Ed OS map. L-plan courtyard field barn in a field containing the remains of a medieval church (ADB 005). The field barn has been demolished and replaced with a modern working farm.	Medieval	TM 44552 58948
MSF38519	Farmstead: Crag Pit Farm. Crag Pit Farm visible on 1st Ed OS map is a regulard courtyard H plan farmstead with the farm house set apart from the working buildings. The farmstead is set to the south of a private road. There has been partial loss of working buildings.	Post-Medieval	TM 45834 58126
MSF39277	Farmstead: Bull's Hall Farm. Bull's Hall Farm is a farmstead visible on the 1st Ed OS map. The farmstead is laid out in a regular F-plan with the farmhouse detached and set away from the yard. The farmstead sits alongside a private track in an isolated location.i	Post-Medieval	TM 42648 60396
MSF39278	Farmstead: Park Farm. Park Farm is a farmstead visible on the 1st Ed OS map. The farmstead is laid out in a regular L-plan with buildings to the third side and additional detached elements. The farmhouse is detached and set away from the yard.	Post-Medieval	TM 42708 59581
MSF39281	Farmstead: Rushmere Lodge Farm. Rushmere Lodge Farm is a farmstead visible on the 1st Ed OS map. The farmstead is laid out in a multi yard pattern with F-plan, and L-plan elements and further detached buildings. The farmhouse is detached and set away from the yard.	Post-Medieval	TM 42769 59115
MSF39282	Farmstead: Hazelwood Hall Farm. Hazelwood Hall Farm is a farmstead visible on the 1st Ed OS map. The farmstead is laid out in a regular U-plan with the farmhouse detached and set away from the yard. The farmstead sits alongside a public road in an isolated location.	Post-Medieval	TM 43464 58806
MSF39283	Farmstead: Grange Farm. Grange Farm is a farmstead visible on the 1st Edition OS map. The farmstead is laid out in a regular L-plan with additional detached elements and the farmhouse	Post-Medieval	TM 43916 58699

	set away from the yard. The farmstead sits alongside a private track in an isolated location.		
MSF34410	Chapel Barn Farm, Aldeburgh (ADLHS) FW. The Aldeburgh & District Local History Society (ADLHS) have been conducting fieldwalking adjacent to the ruined St Mary's Church near Aldeburgh (ALD 005). Finds include prehistoric flints, Roman/ Saxon/ medieval/post-med pottery.	Early Bronze Age to Post-Medieval	TM 44708 59127
MSF39512	Farmstead: High House Farm (Fristonmoor). Fristonmoor is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a regular F-plan with additional detached elements. The farmhouse is detached and set away from the yard. The farmstead is set alongside a private track in an isolated position.	Post-Medieval	TM 40977 61701
MSF39513	Farmstead: Little Moor Farm. Little Moor Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a loose courtyard. The farmstead sits alongside a private track in an isolated location. All working buildings have been lost.	Post-Medieval	TM 41234 61678
MSF39514	Farmstead: Clouting's Farm. Clouting's Farm is a farmstead visible on the 1st Ed Os Map. The farmstead is laid out in a regular L-plan with the farmhouse detached and set away from the yard. The farmstead sits alongside a private track in an isolated location.	Post-Medieval	TM 41147 62072
MSF39519	Farmstead: Peartree Farm. Peartree Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a regular L-plan with buildings to the third side. The farmhouse is detached and set away from the yard. The farmstead sits alongside a public road in an isolated location.	Post-Medieval	TM 41803 61648
MSF39520	Farmstead: Manor Farm. Manor Farm is a farmstead visible on the 1st Ed Os Map. The farmstead is laid out in a full regular courtyard plan with the farmhouse detached and set away from the yard. The farmstead sits alongside a public road in an isolated location.	Post-Medieval	TM 42114 61304
MSF39522	Farmstead: Billeaford Hall. Billeaford Hall is a farmstead visible on the 1st Ed OS map. The farmstead is laid out in a multi-yard pattern with U-plan and L-plan features. The farmhouse is detached and set away from the yard. The farmstead sits alongside a public road in an isolated location.	Post-Medieval	TM 43318 60228
MSF39551	Farmstead: Sizewell Farm. Sizewell Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a linear plan with additional	Post-Medieval	TM 47158 62395

	detached elements. The farmhouse is detached and set away from the yard. The farmstead sits alongside a public road in an isolated location.		
MSF39552	Farmstead: Hawsell's Farm. Hawsell's Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a regular U-plan with additional detached elements. The farmhouse is detached and set away from the yard. The farmstead sits alongside a private track in an isolated location.	Post-Medieval	TM 45478 61799
MSF39553	Farmstead: Crown Farm. Crown Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a regular E-plan with additional detached elements. The farmhouse is detached and set away from the yard. The farmstead sits alongside a public road in an isolated location.	Post-Medieval	TM 45886 62447
MSF39554	Farmstead: Common Farm. Common Farm is a farmstead visible on the 1st Ed Os Map. The farmstead is laid out in a regular U-plan with the farmhouse detached and set away from the yard. The farmstead sits alongside a public road in an isolated location.	Post-Medieval	TM 45622 63226
MSF39867	Field Barn: Unnamed Field Barn. An unnamed field barn visible on the 1st Ed Os map. The barn sits alongside a private track in an isolated location. The barn has been completely lost.	Post-Medieval	TM 40433 62170
MSF39868	Farmstead: Redhouse Farm. Redhouse Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a linear plan with additional detached elements. The farmhouse is detached and set away from the yard. The farmstead sits alongside a public road in an isolated location.	Post-Medieval	TM 40419 61687
MSF39869	Farmstead: Hill Farm. Hill Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a regular U-plan with additional detached elements. The farmhouse is detached and set away from the yard. The farmstead sits alongside a private track in an isolated location.	Post-Medieval	TM 39847 61804
MSF39869	Farmstead: Hill Farm. Hill Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a regular U-plan with additional detached elements. The farmhouse is detached and set away from the yard. The farmstead sits alongside a private track in an isolated location.	Post-Medieval	TM 39787 61760
MSF39917	Farmstead: Trust Farm (Town Farm). Town Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a regular T-plan with additional detached elements. The farmstead sits	Post-Medieval	TM 40491 62616

	alongside a private track in an isolated location. Only the farmhouse remains.		
MSF43261	North Warren, Aldeburgh. Warren.	Medieval	TM 45284 59323
MSF43262	Thorpe and Aldringham Commons. Common Land.	Medieval	TM 46409 61034
MSF43263	Sizewell Common. Common Land	Medieval	TM 47343 61978
MSF43411	Dry Common, Leiston. Common, visible on Hodskinson's Map 1783.	Medieval	TM 45989 63492
MSF43412	Wet Common, Leiston. Common, visible on Hodskinson's Map 1783.	Medieval	TM 46752 63994
MSF43261	North Warren, Aldeburgh. Warren	Medieval	TM 44578 60372
MSF43519	Coastal Heath, Leiston. Common, visible 1880s	Medieval	TM 47586 63942
MSF43589	Friston Green/Blackheath. Green visible on Hodskinson's Map of 1783.	Medieval	TM 41424 59715
MSF22764	Theberton airfield; Leiston airfield; Saxmundham airfield. Former mainly military airfield, in use between 1934 and 1965.	Modern	TM 42816 64346
MSF22765	Buxlow Forest (1783); The Forest; Whin Cover. Site of former ancient (?) woodland shown and named as Buxlow Forest in 1783.	Medieval to Post-Medieval	TM 42641 64782
MSF11524	Medieval artefact scatter of pottery. (Med). Scatter of Med (& Rom) pottery found on field surface by farmer (S1)(S2).	Medieval	TM 44989 63631
MSF11525	Abbey Road. Scatter of red tile over most of field surface (S1).	Unknown	TM 44418 63814
MSF11526	Abbey Lane. Scatter of metalwork found by farmer, includes groat and cut halfpenny and `many Nuremberg tokens' (S1).	Medieval	TM 44251 63872
MSF12096	Roman artefact scatter of pottery. (Rom). Finds scatter of Med & Rom pottery found by farmer during ploughing and subsequent walking.	Roman	TM 44989 63631
MSF12097	Medieval artefact scatter. Finds scatter identified whilst farming, and subsequent random walking.	Medieval	TM 44878 63573
MSF806	Near Brick Kiln Farm, Leiston, (Mesolithic). Two Mesolithic mace heads one with hole not completely bored through.	Mesolithic	TM 45008 63319
MSF19469	Great Wood. Ancient Woodlands	Unknown	TM 39588 62931
MSF25178	Moat Farm. Area of cropmarks showing online on 'Flash Earth' (July 2011). Possible fish ponds SW of the farm.	Unknown	TM 43142 64927

MSF2340	Leiston Abbey, Abbey Farm. Founded 1182 on a site about 2 miles away nearer the sea (see LCS 002) as a Premonstratensian house, dedicated to the Blessed Virgin, by Ranulf de Glanville, Henry II's chief Justicier. listed building scheduled.	Medieval	TM 44457 64189
MSF26807	Burnt flint mound. Extensive scatter of heavily burnt flints adjacent to a small stream.	Unknown	TM 44940 63558
MSF26812	Brick works. Brick works, kilns, pug mill and drying sheds and extraction pit shown on 1880's map.	Post-Medieval	TM 44454 63168
MSF26809	Six medieval pennies. Two silver Henry II pennies found 1994 and in 2006 a further hoard of six Henry II pennies (1163-1167) were found.	Medieval	TM 44885 63681
MSF33446	Site of cropmarks of uncertain archaeological significance and unknown date, possibly relating to a prehistoric barrow. Site of cropmarks visible on aerial photographs of uncertain archaeological significance and unknown date, but comprising a possible oval mound, a ring ditch, a substantial flanking ditch and possible pits.	Early Neolithic to Late Bronze Age	TM 45054 63652
MSF33445	Site of possible double ring ditch of uncertain significance and date. A possible double ring ditch of uncertain archaeological significance and date is visible as a cropmark on aerial photographs. If a genuine archaeological feature, its size and topographic position would support its interpretation as the remains of a Bronze Age burial.	Bronze Age	TM 45158 63612
MSF33447	Site of vague cropmarks of unknown date and significance. Vague and fragmentary cropmarks of unknown date and significance are visible on aerial photographs.	Unknown	TM 44980 63384
MSF31920	Extensive area of Second World War military training activity. Evidence of Second World War military training activity is visible on aerial photographs as earthworks and disturbed ground spread across an extensive area of Leiston, including part of Dunwich Forest and Kenton Hills.	Modern	TM 45483 63834
MSF31543	Possible practice trench and undated ditches at Aldhurst Farm. Possible practice trench and undated ditches identified during evaluation trenching at Aldhurst Farm	Post-Medieval to Modern	TM 45006 63482
MSF35810	Medieval ditches, Abbey View Lodges, Leiston. Evaluation identified medieval ditches and a modern pit.	Medieval	TM 44387 63694
MSF39545	Farmstead: Hill Farm. Hill Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a regular F-plan with additional detached elements. The farmhouse is detached	Post-Medieval	TM 43997 64446

	and set away from the yard. The farmstead sits alongside a private track in an isolated location.		
MSF39546	Farmstead: Aldhurst Farm (Rookwood Farm). Rookwood Farm is a farmstead visible on the 1st Ed Os Map. The farmstead is laid out in a loose courtyard plan and sits alongside a public road in an isolated location. There has been a partial loss of working buildings.	Post-Medieval	TM 43977 63957
MSF39555	Farmstead: Works Farm. Works Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a full regular courtyard with additional detached elements. The farmstead sits alongside a private track in an isolated location.	Post-Medieval	TM 44684 63217
MSF39914	Farmstead: Wardspring Farm. Wardspring Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a regular U-plan with the farmhouse detached and set away from the yard. The farmstead is set alongside a private track in an isolated location.	Post-Medieval	TM 40421 63388
MSF39950	Farmstead: Hill Farm. Hill Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a regular F-plan, a further U-plan, and additional detached elements. The farmhouse is detached and set away from the yard. i	Post-Medieval	TM 42172 64132
MSF39951	Farmstead: Moat Farm (Mustard's Farm). Mustard's Farm is a farmstead visible on the 1st Ed Os map. The farmstead is laid out in a regular U-plan with additional detached elements. The farmhouse is detached and set away from the yard. The farmstead sits alongside a public road in an isolated location.	Post-Medieval	TM 43195 65072

Table 2.4.A.4: Non-Designated Heritage Assets within the Suffolk Site 1 Emerging Preference Option Area

Asset ID	Site/description	Period	Grid Reference
MSF19482	Great Wood	Unknown	TM 43760 59482
MXS18782	Hazlewood Aerodrome	First World War to 20th century	TM 43838 58891

Table 2.4.A.5: Designated Heritage Assets within 2 km of the Suffolk Site 1 Emerging Preference Option Area

Asset ID	Site/description	Period	Grid Reference
1215751	DUFFIELD HOUSE. **Grade II listed building.**	Post-Medieval	TM 41313 60260
1215755	CHERRY TREE FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 43805 61071
1216081	BILLEAFORD HALL. **Grade II listed building.**	Post-Medieval	TM 43308 60202
1216388	TWO ADJOINING FARM BUILDINGS IMMEDIATELY SOUTH WEST OF CHERRY TREE FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 43790 61057
1287747	ROMANY'S REST. **Grade II listed building.**	Post-Medieval	TM 43614 61089

Table 2.4.A.6: Non-Designated Heritage Assets within the Suffolk Site 3 Emerging Preference Boundary

Asset ID	Site Description	Period	Grid Reference
MSF19469	Great Wood.	Unknown	TM 39588 62931

Table 2.4.A.7: Designated Heritage Assets within 2 km of the Suffolk Site 3 Emerging Preference Option Area

Asset ID	Site/description	Period	Grid ref
1215749	BUXLOW MANOR. **Grade II* listed building.**	Post-Medieval	TM 41071 63232
1268184	CHURCH OF ST JOHN BAPTIST. **Grade II* listed building.**	Medieval	TM 38900 62941
1278252	CHURCH OF ST MARY MAGDALENE. **Grade II* listed building.**	Medieval	TM 39095 61594
1365996	THE BEECHES INCLUDING STABLE BLOCK. **Grade II* listed building.**	Post-Medieval	TM 38590 63395
1030866	THE LIMES. **Grade II listed building.**	Post-Medieval	TM 38518 61817
1215743	LITTLE MOOR FARM. **Grade II listed building.**	Post-Medieval	TM 41228 61678
1216049	HIGH HOUSE FARM. **Grade II listed building.**	Post-Medieval	TM 40965 61696
1231179	WOOD FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 39369 62492
1231182	BRIAR COTTAGE. **Grade II listed building.**	Post-Medieval	TM 38827 61200
1231296	HILL FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 39802 61758
1231300	STERNFIELD HOUSE. **Grade II listed building.**	Post-Medieval	TM 39145 61583
1231328	SANDY COTTAGE. **Grade II listed building.**	Post-Medieval	TM 38818 61188
1231355	THATCHED COTTAGE. **Grade II listed building.**	Post-Medieval	TM 39242 61446
1258312	GARDEN COTTAGE. **Grade II listed building.**	Post-Medieval	TM 38605 61827

1268158	BEECH LAWN COTTAGE. **Grade II listed building.**	Post-Medieval	TM 38597 62978
1268159	BEECH LAWN HOUSE INCLUDING ORANGERY TO REAR. **Grade II listed building.**	Post-Medieval	TM 38595 62967
1268160	IVY HOUSE. **Grade II listed building.**	Post-Medieval	TM 38596 62954
1268161	16, SOUTH ENTRANCE. **Grade II listed building.**	Post-Medieval	TM 38574 62909
1268162	MONKS COTTAGES. **Grade II listed building.**	Post-Medieval	TM 38589 62855
1268163	THE WHITE HOUSE. **Grade II listed building.**	Post-Medieval	TM 38578 62838
1268164	CROWN HOUSE. **Grade II listed building.**	Post-Medieval	TM 38584 62826
1268178	HURTS HALL. **Grade II listed building.**	Post-Medieval	TM 38958 62544
1268179	1-15, ALBION STREET. **Grade II listed building.**	Post-Medieval	TM 38475 63136
1268180	10 AND 12, ALBION STREET. **Grade II listed building.**	Post-Medieval	TM 38434 63114
1268181	CHANTRY COTTAGES. **Grade II listed building.**	Post-Medieval	TM 38543 63033
1268182	14 AND 16, CHANTRY ROAD. **Grade II listed building.**	Post-Medieval	TM 38526 63034
1268183	CHURCH HOUSE. **Grade II listed building.**	Post-Medieval	TM 38846 62992
1268185	FAIRFIELD HOUSE EAST, FAIRFIELD HOUSE SOUTH, BROOK FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 38421 63488
1268186	2, HIGH STREET. **Grade II listed building.**	Post-Medieval	TM 38649 63031
1268187	6, 6A AND 8, HIGH STREET. **Grade II listed building.**	Post-Medieval	TM 38656 63057
1268188	10, HIGH STREET. **Grade II listed building.**	Post-Medieval	TM 38660 63069
1268189	HOLLY LODGE. **Grade II listed building.**	Post-Medieval	TM 38693 63061
1268190	WHITE HART HOTEL. **Grade II listed building.**	Post-Medieval	TM 38674 63100

1268191	23, HIGH STREET. **Grade II listed building.**	Post-Medieval	TM 38657 63116
1268192	25 AND 27, HIGH STREET. **Grade II listed building.**	Post-Medieval	TM 38661 63128
1268193	26, 26A AND 26B, HIGH STREET. **Grade II listed building.**	Post-Medieval	TM 38689 63151
1268194	28 AND 30, HIGH STREET. **Grade II listed building.**	Post-Medieval	TM 38687 63185
1268195	BELL HOTEL. **Grade II listed building.**	Post-Medieval	TM 38663 63155
1268196	33, HIGH STREET (See details for further address information) . **Grade II listed building.**	Post-Medieval	TM 38671 63173
1268197	35, HIGH STREET. **Grade II listed building.**	Post-Medieval	TM 38675 63179
1268198	39, HIGH STREET. **Grade II listed building.**	Post-Medieval	TM 38669 63202
1278159	STERNFIELD HALL. **Grade II listed building.**	Post-Medieval	TM 39050 61355
1278167	1 AND 2, THE STREET. **Grade II listed building.**	Post-Medieval	TM 39216 61447
1278253	8-10, CHURCH HILL. **Grade II listed building.**	Post-Medieval	TM 38873 61701
1278254	START FARM. **Grade II listed building.**	Post-Medieval	TM 39220 61442
1278255	34 AND 35, THE STREET. **Grade II listed building.**	Post-Medieval	TM 39226 61423
1287772	PATTLE'S FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 41565 62176
1365982	46, HIGH STREET. **Grade II listed building.**	Post-Medieval	TM 38669 63245
1365983	ASHFORD HOUSE. **Grade II listed building.**	Post-Medieval	TM 38692 63166
1365984	MARKET HALL, FRONT STEPS AND ATTACHED RAILINGS. **Grade II listed building.**	Post-Medieval	TM 38648 63142
1365985	OLD BANK HOUSE INCLUDING RAILINGS TO FRONT. **Grade II listed building.**	Post-Medieval	TM 38640 63166
1365986	4 AND 6, MARKET PLACE. **Grade II listed building.**	Post-Medieval	TM 38651 63180
1365987	7 AND 7A, MARKET PLACE. **Grade II listed building.**	Post-Medieval	TM 38666 63188

1365988	8, MARKET PLACE. **Grade II listed building.**	Post-Medieval	TM 38647 63191
1365989	16, MARKET PLACE. **Grade II listed building.**	Post-Medieval	TM 38632 63232
1365990	WINGFIELD HOUSE. **Grade II listed building.**	Post-Medieval	TM 38631 63170
1365991	9, 11, 15 AND 19, MARKET PLACE. **Grade II listed building.**	Post-Medieval	TM 38656 63218
1365992	17, MARKET PLACE. **Grade II listed building.**	Post-Medieval	TM 38659 63227
1365993	21 AND 23, MARKET PLACE. **Grade II listed building.**	Post-Medieval	TM 38650 63234
1365994	LYNWOOD HOUSE. **Grade II listed building.**	Post-Medieval	TM 38583 63348
1365995	VARLEY HOUSE. **Grade II listed building.**	Post-Medieval	TM 38558 63411
1365997	FAIRFIELD PREPARATORY SCHOOL. **Grade II listed building.**	Post-Medieval	TM 38541 63425
1365998	24, NORTH ENTRANCE. **Grade II listed building.**	Post-Medieval	TM38539 63544
1365999	BROOK COTTAGE. **Grade II listed building.**	Post-Medieval	TM 38535 63593
1366000	POST MILL ROUNDHOUSE. **Grade II listed building.**	Post-Medieval	TM 38262 63123
1366002	PRIORY HOUSE. **Grade II listed building.**	Post-Medieval	TM 38610 63004
1458741	Sternfield War Memorial. **Grade II listed building.**	Post-Medieval	TM 39089 61580

Non-Designated Heritage Assets 2km of the proposed Friston substation

1.4.A.3.2 No non-designated assets have been recorded on the HER, although it is known that a number of assets/sites were identified as part of the archaeological works undertaken for other schemes. These have not yet been added to the HER.

Table 2.4.A.8: Designated Heritage Assets within 2 km of the proposed Friston substation

Asset ID	Site/description	Period	Grid Ref
1006040	Church Common round barrows. **Scheduled Monument.**	Prehistoric	TM 40304 59318
1215741	Friston Post Mill. **Grade II* listed building.**	Post-Medieval	TM 41131 60114
1215745	CHURCH OF ST LAWRENCE. **Grade II* listed building.**		TM 42592 61952
1215749	BUXLOW MANOR. **Grade II* listed building.**	Post-Medieval	TM 41071 63232
1278252	CHURCH OF ST MARY MAGDALENE. **Grade II* listed building.**	Medieval	TM 39095 61594
1287646	LEISTON HOUSE FARMHOUSE. **Grade II* listed building.**	Post-Medieval	TM 42829 62928
1287864	CHURCH OF ST MARY. **Grade II* listed building.**	Medieval	TM 41350 60488
1215743	LITTLE MOOR FARM. **Grade II listed building.**	Post-Medieval	TM 41228 61678
1215744	WOODSIDE FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 41233 60626
1215751	DUFFIELD HOUSE. **Grade II listed building.**	Post-Medieval	TM 41313 60260
1215909	Friston Hall. **Grade II listed building.**	Post-Medieval	TM 40511 60309
1216049	HIGH HOUSE FARM. **Grade II listed building.**	Post-Medieval	TM 40965 61696
1216066	FRISTON HOUSE. **Grade II listed building.**	Post-Medieval	TM 40927 60734
1216081	BILLEAFORD HALL. **Grade II listed building.**	Post-Medieval	TM 43308 60202
1227893	WESTHOUSE FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 41723 63402
1231179	WOOD FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 39369 62492

1231296	HILL FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 39802 61758
1231300	STERNFIELD HOUSE. **Grade II listed building.**	Post-Medieval	TM 39145 61583
1231355	THATCHED COTTAGE. **Grade II listed building.**	Post-Medieval	TM 39242 61446
1278159	STERNFIELD HALL. **Grade II listed building.**	Post-Medieval	TM 39050 61355
1278167	1 AND 2, THE STREET. **Grade II listed building.**	Post-Medieval	TM 39216 61447
1278254	START FARM. **Grade II listed building.**	Post-Medieval	TM 39220 61442
1278255	34 AND 35, THE STREET. **Grade II listed building.**	Post-Medieval	TM 39226 61423
1287532	CROSSING FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 42506 63335
1287747	ROMANY'S REST. **Grade II listed building.**	Post-Medieval	TM 43614 61089
1287772	PATTLE'S FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 41565 62176
1287793	KNODISHALL PLACE. **Grade II listed building.**	Post-Medieval	TM 42600 62120
1287969	GATE AND GATE PIERS 15 METRES NORTH EAST OF FRISTON HALL. **Grade II listed building.**	Post-Medieval	TM 40519 60324
1287971	NUMBERS 1 AND 2 (CHURCH WALLS), NUMBER 3 AND NUMBER 4 (CHURCH WALLS COTTAGE). **Grade II listed building.**	Post-Medieval	TM 41302 60463
1435814	Friston War Memorial. **Grade II listed building.**	Post-Medieval	TM 41372 60483
1458639	Knodishall War Memorial. **Grade II listed building.**	Post-Medieval	TM 42572 61946
1458741	Sternfield War Memorial. **Grade II listed building.**	Post-Medieval	TM 39089 61580

Table 2.4.A.9: Heritage Assets within the Suffolk Site 1 Preferred Boundary

Asset ID	Site Description	Period	Grid Reference
127721	BILLEAFORD HALL. **Grade II Listed Building.**	Post-Medieval	TM 43308 60202
131038	GORSEHILL. **Grade II Listed Building.**	Post-Medieval	TM 45642 58312
MSF33081	7 Roman coins and 1 med coin	Roman to Medieval	TM 42600 61100
MSF27693	Milestone on the A1094	Post-Medieval	TM 44269 58210
MSF35355	Milestone on the A1094	Post-Medieval	TM 42885 59017
MSF2328	Findspot of a Roman bronze head-stud brooch	Roman	TM 42500 61500
MXS18774	Linear banks, of unknown date, visible on the golf course at South Warren.	Unknown	TM 44470 58088
MXS18775	Linear bank, visible as an earthwork to the south of Valley Grange.	Unknown	TM 44254 58152
MSF35003	Aldeburgh branch railway line	19th century to IPS: Modern	TM 46071 57929
MSF19482	Great Wood	Unknown	TM 43760 59482
MSF19483	Grove Wood / Old World Wood	Unknown	TM 41812 61033
MSF21037	The Mear (1783); The Meare C16 & 1976); The Meer (1817); The Haven (1837)	Medieval to IPS: Post-Medieval	TM 46586 58726
MSF16640	Hazlewood Common	Second World War	TM 43436 58382
MXS18767	Possible curvilinear enclosure, unknown date	First World War to 20th century	TM 44265 59240
MXS18768	World WarII anti- tank obstacle.	Second World War	TM 44940 58484
MXS18772	A possible World War II strongpoint including trenches and barbed wire.	Second World War	TM 44295 57997
MXS18773	World War II anti-aircraft obstructions.	Second World War	TM 44491 58108
MXS18773	World War II anti-aircraft obstructions.	Second World War	TM 44708 58031

MXS18773	World War II anti-aircraft obstructions.	Second World War	TM 44801 57953
MXS18773	World War II anti-aircraft obstructions.	Second World War	TM 44902 57958
MXS18773	World War II anti-aircraft obstructions.	Second World War	TM 45033 58030
MXS18773	World War II anti-aircraft obstructions.	Second World War	TM 45000 57919
MXS18776	Four Post-Medieval quarries, visible as earthworks.	Post-Medieval	TM 44053 58190
MXS18778	World War II 'Diver' HAA battery.	Second World War	TM 44898 58533
MXS18779	Quarry, visible as an earthwork north of Eight Acre Covert.	Unknown	TM 44906 58454
MXS18780	Three Post-Medieval quarries.	Post-Medieval	TM 44575 58849
MXS18781	Six Post-Medieval quarry pits, one labelled sand pit	Post-Medieval	TM 44065 58811
MXS18782	Hazlewood Aerodrome	First World War to 20th century	TM 43838 58891
MXS18783	Thee Post-Medieval quarry pits	Post-Medieval	TM 43478 58929
MXS18783	Thee Post-Medieval quarry pits	Post-Medieval	TM 43422 58921
MXS18783	Thee Post-Medieval quarry pits	Post-Medieval	TM 43558 58850
MXS18784	Post-medieval clay pit, visible as an earthwork	Post-Medieval	TM 43589 58207
MXS18785	Post-medieval WW2 bomb crater and emplacement	Second World War	TM 43469 58221
MXS18786	Post-medieval WW2 trench, tank trap, military training site	Second World War	TM 43444 58294
MXS19733	Post-Medieval sea bank, Aldeburgh.	Post-Medieval	TM 46675 59105
MXS19734	Early Post-Medieval relict sea banks.	Post-Medieval	TM 46447 58212
MXS19735	World War II anti-tank ditches.	Second World War	TM 46823 58917

MXS19736	Remains of a footbridge crossing The Haven leading to Haven House.	Post-Medieval to Second World War	TM 46846 58761
MXS19737	A World War II strongpoint surrounded by a minefield.	Second World War	TM 46821 58175
MXS19739	World War II anti-aircraft ditches.	Second World War	TM 46380 58764
MXS19739	World War II anti-aircraft ditches.	Second World War	TM 46456 58579
MXS19739	World War II anti-aircraft ditches.	Second World War	TM 46437 58467
MXS19739	World War II anti-aircraft ditches.	Second World War	TM 46654 58596
MXS19740	Two probable World War II bomb craters.	Second World War	TM 46662 58306
MXS19741	Probable Post-Medieval field boundaries to the north of Brick Kiln Cottage.	Medieval to IPS: Post-Medieval	TM 46038 58366
MXS19742	A World War II strongpoint and group of bomb craters.	Second World War	TM 46278 58486
MXS19743	A World War II strongpoint adjacent to Brick Kiln cottage.	Second World War	TM 46050 58324
MXS19744	World War II 'Diver' HAA battery.	Second World War	TM 45841 58406
MXS19745	Post-Medieval brick- earth quarry pit.	Post-Medieval	TM 45941 58255
MXS19746	Post-Medieval path or track.	Post-Medieval to IPS: Modern	TM 45415 58115
MXS19747	Post-Medieval clay extraction pit.	Post-Medieval to IPS: Modern	TM 45796 57958
MXS19748	World War II 'Diver' HAA battery.	Second World War	TM 45952 57739
MXS19752	Post-Medieval relict sea- bank.	Post-Medieval	TM 46535 58321
MXS19838	An extensive length of World War II beach scaffolding.	Second World War	TM 46842 57858
MXS19861	A c. 3.5km long row of World War II anti-tank cubes from Aldeburgh to Thorpness.	Second World War	TM 46813 58098
MXS19863	World War II anti-tank cubes.	Second World War	TM 46769 58293

MSF22814	Littlemoor Farm, Fristonmoor; Buxlow	Post-Medieval	TM 41254 61732
MSF22815	Old Kiln Field; Kiln Field; Buxlow	Post-Medieval	TM 41571 61784
MSF12593	Small smock mill, Thorpe Road	19th century to 20th century	TM 46789 58296
MSF14095	Half of a ring ditch or circular enclosure of unknown date, visible as a cropmark.	Unknown	TM 41778 60782
MSF2524	Gorse Hill	Roman	TM 45809 58312
MSF2530	Hazlewood Church; Church of St Mary	Medieval	TM 44774 59077
MSF2532	Gorse Hill	Neolithic	TM 45612 58415
MSF2538	Roman artefact scatter.	Roman	TM 46002 58404
MSF2539	Medieval scatter of pottery and red burnt clay.	Medieval	TM 45784 58496
MSF2540	Golf Course	Bronze Age	TM 44820 58136
MSF2544	The Red House	Bronze Age	TM 45411 57902
MSF14096	Buxlow; Buxton	Medieval	TM 41391 60614
MSF2325	Knodishall Common; Coldfair Green	Unknown	TM 43175 60852
MSF2543	Gorse Hill (Rom)	Roman	TM 45767 58457
MSF2552	Gorse Hill (Med)	Medieval	TM 45767 58457
MSF23623	Cross with ring ditch, probably from a former post mill, visible as cropmarks.	Medieval	TM 42646 61096
MSF25696	Knodishall Coldfair Green historic settlement; St Andrews Green; Coldford Green (1783)	Medieval to IPS: Post-Medieval	TM 43376 60997
MSF26002	Suffolk square pillbox	Second World War	TM 41745 59673
MSF16639	Possible ring ditch of unknown date	Unknown	TM 43234 58558
MSF16638	Possible ring ditch of unknown date	Unknown	TM 43264 58554

MXS18777	Ring ditch and possible round barrow site, unknown date	Bronze Age	TM 44010 58509
MSF24054	Small finds assemblage	Early Neolithic to Medieval	TM 44669 58932
MSF33606	Possible gun emplacement for 'Diver' HAA site	Post-Medieval to Second World War	TM 45042 59039
MSF33594	Possible soilmark enclosure	Roman	TM 45982 58635
MSF33592	Possible cropmark enclosure	Roman	TM 45648 58431
MSF33591	Fragmentary linear cropmarks	Unknown	TM 45180 58366
MSF2531	Extensive cropmark site.	Medieval to IPS: Post-Medieval	TM 45964 57997
MSF34510	A World War II Anti-tank ditch	Second World War	TM 46686 57833
MSF34510	A World War II Anti-tank ditch	Second World War	TM 46478 57813
MSF16637	Ring ditch and possible round barrow, both of unknown date	Bronze Age	TM 43120 58667
MSF38516	Farmstead: Chapel Barn	Medieval	TM 44551 58947
MSF38519	Farmstead: Crag Pit Farm	19th century	TM 45833 58125
MSF39277	Farmstead: Bull's Hall Farm	19th century	TM 42647 60395
MSF39278	Farmstead: Park Farm	19th century	TM 42707 59580
MSF39281	Farmstead: Rushmere Lodge Farm	19th century	TM 42769 59115
MSF39282	Farmstead: Hazelwood Hall Farm	19th century	TM 43463 58805
MSF39283	Farmstead: Grange Farm	19th century	TM 43916 58699
MSF34410	Chapel Barn Farm, Aldeburgh (ADLHS) FW	Early Bronze Age to IPS: Post-Medieval	TM 44708 59127
MSF39513	Farmstead: Little Moor Farm	19th century	TM 41233 61677

MSF39519	Farmstead: Peartree Farm	19th century	TM 41803 61647
MSF39520	Farmstead: Manor Farm	19th century	TM 42114 61303
MSF39522	Farmstead: Billeaford Hall	17th century to 19th century	TM 43318 60228
MSF43261	North Warren, Aldeburgh	Medieval	TM 44577 60372
MSF43589	Friston Green/Blackheath	Medieval	TM 41424 59715

Table 2.4.A.10: Heritage Assets within the Suffolk Site 1 Alternative Option Area

Asset ID	Site/description	Period	Grid Ref
1011378	Two bowl barrows on Aldringham Green. **Scheduled Monument.**	Prehistoric	TM 44711 60854
1215788	ELM TREE FARMHOUSE. **Grade II listed.**		TM 44693 61098
1216081	BILLEAFORD HALL. **Grade II listed.**		TM 43308 60202
1393143	ALDRINGHAM COURT. **Grade II listed.**		TM 44559 60592
MSF21580	Medieval artefact scatter of coarseware sherds. (Med)	Medieval	TM 46826 62643
MSF21581	Prehistoric artefact scatter of flint flakes, including pot boiler flints and scrapers. (Preh)	Prehistoric	TM 46825 62643
MSF21582	Findspot of a glass bead of unknown date. (Un)	Unknown	TM 46822 62640
MSF21583	Cropmarks of uncertain archaeological significance	Unknown	TM 46759 62598
MSF21585	Cropmarks of uncertain archaeological significance	Unknown	TM 46879 62588
MSF21586	Medieval artefact scatter of coarseware pottery. (Med)	Medieval	TM 46520 62579
MSF21587	Prehistoric artefact scatter of pot boiler flints and worked flints. (Preh)	Prehistoric	TM 46517 62576
MSF21589	Prehistoric artefact scatter of worked flint, including pot boiler flints and scrapers. (Preh)	Prehistoric	TM 46171 62571
MSF21590	Medieval artefact scatter of pottery sherds, including Thetford ware and coarseware. (Med)	Medieval	TM 46174 62571
MSF21591	World War II building debris. (PMed)	Modern	TM 46174 62574
MSF21592	Cropmarks of uncertain archaeological significance	Unknown	TM 46206 62610
MSF21593	Cropmarks of uncertain archaeological significance	Unknown	TM 46156 62604
MSF21602	Cropmarks of uncertain archaeological significance	Unknown	TM 46288 62629
MSF26867	Mill Piece (tithe)	Medieval and Post-Medieval	TM 45200 61600

MSF33081	7 Roman coins and 1 med coin	Roman to Medieval	TM 42600 61100
MSF2328	Findspot of a Roman bronze head-stud brooch	Roman	TM 42500 61500
MSF27742	Negative evaluation Aldringham Court, Aldringham cum Thorpe	Unknown	TM 44510 60590
MSF35003	Aldeburgh branch railway line	Post-Medieval	TM 46157 60547
MSF19482	Great Wood	Unknown	TM 43760 59482
MSF19483	Grove Wood / Old World Wood	Unknown	TM 41812 61033
MXS18782	Hazlewood Aerodrome	First World War to 20th century	TM 43838 58891
MXS19698	World War II anti-tank ditch.	Second World War	TM 47120 61794
MXS19701	World War II strongpoint and a possible experimental radar station.	Second World War to Cold War	TM 47466 62523
MXS19702	Quarry pit of unknown date.	Unknown	TM 46954 62396
MXS19705	A World War II seafront strongpoint.	Second World War	TM 47553 62295
MXS19856	World War II anti-invasion beach defences.	Second World War	TM 47561 62817
MXS19858	World War II anti-invasion coastal defences.	Second World War	TM 47607 62205
MSF21392	Modern ship's mast mounted in a metal sheath, possibly a lookout post.	Unknown	TM 47596 62646
MSF22814	Littlemoor Farm, Fristonmoor; Buxlow	Post-Medieval	TM 41254 61732
MSF22815	Old Kiln Field; Kiln Field; Buxlow	Post-Medieval	TM 41571 61784
MSF13936	Two bowl barrows on Aldringham Green	Bronze Age	TM 44737 60848
MSF13937	Aldringham Green	Bronze Age	TM 44699 60856
MSF14092	Agricultural pit of negligible archaeological significance	Post-Medieval to IPS: Modern	TM 45131 61661

MSF14095	Half of a ring ditch or circular enclosure of unknown date, visible as a ropmark.	Unknown	TM 41778 60782
MSF16196	Medieval artefact scatter.	Medieval	TM 45005 60455
MSF16888	Post-Medieval bridge.	18th century to 19th century	TM 44693 60594
MSF2306	Aldringham Green Round Barrow; Two bowl barrows, Aldringham Green	Unknown	TM 44705 60813
MSF14096	Buxlow; Buxton	Medieval	TM 41391 60614
MSF2325	Knodishall Common; Coldfair Green	Unknown	TM 43175 60852
MSF23623	Cross with ring ditch, probably from a former post mill, visible as cropmarks.	Medieval	TM 42646 61096
MSF25256	EDF Access, Sizewell Power Station	Medieval	TM 47189 62669
MSF25696	Knodishall Coldfair Green historic settlement; St Andrews Green; Coldford Green (1783)	Medieval to IPS: Post-Medieval	TM 43376 60997
MSF25683	Aldringham historic settlement core (Med)	Medieval to IPS: Post-Medieval	TM 44635 60979
MSF26453	Aldringham Green	Medieval	TM 44665 60960
MSF26002	Suffolk square pillbox	Second World War	TM 41745 59673
MSF29478	Medieval Settlement at Sizewell, Leiston	Early Neolithic to Medieval	TM 47213 62654
MSF33455	Fragmentary cropmarks of possible medieval settlement	Medieval	TM 45013 60469
MSF33426	Site of possible Bronze Age round barrow or medieval to Post-Medieval mill mound, The Walks	Early Bronze Age to IPS: Post-Medieval	TM 46599 62312
MSF33424	Earthworks of linear and rectilinear boundaries of unknown date, The Walks, Aldringham Common	Unknown	TM 46475 62252
MSF33429	Site of Second World War Diver anti-aircraft battery	Second World War	TM 46548 62017
MSF33430	Linear earthwork banks on Broom Covert	Post-Medieval to IPS: Modern	TM 46347 63010
MSF33433	Site of fragmentary cropmarks of unknown date and significance	Unknown	TM 46057 62292

MSF33434	Site of fragmentary cropmarks of unknown date and significance	Unknown	TM 45791 62362
MSF33438	Site of Leiston Very High Frequency (VHF) Fixer Station	Second World War to Cold War	TM 45834 61789
MSF33442	Site of two probable First World War pillboxes	First World War	TM 45849 62506
MSF33439	Site of Second World War military training area and/or defended locality	Second World War	TM 46333 62982
MSF33440	Second World War training area and/or strong point	Second World War	TM 46529 62375
MSF16194	Second World War anti-glider ditches and military training activity on The Walks, Aldringham Common	20th century to IPS: Modern	TM 46379 61507
MSF21588	Multi-period cropmarks of probable field boundaries and enclosures	Early Iron Age to Roman	TM 46530 62606
MSF21594	Site of Second World War Diver anti-aircraft battery	Post-Medieval to Second World War	TM 46182 62565
MSF33815	Bronze Age/Early Iron Age settlement activity at Land south of Red House Lane, Leiston (Excavation pending)	Middle Bronze Age to IPS: Post-Medieval	TM 44999 61777
MSF29484	Late Prehistoric and Romano-British agricultural activity at Galloper offshore Wind Farm	Roman	TM 46646 62704
MSF37237	Land to the east of Aldeburgh Road, Aldringham Cum Thorpe.	Early Iron Age to IPS: Post-Medieval	TM 44649 61213
MSF39277	Farmstead: Bull's Hall Farm	19th century	TM 42647 60395
MSF39278	Farmstead: Park Farm	19th century	TM 42707 59580
MSF39513	Farmstead: Little Moor Farm	19th century	TM 41233 61677
MSF39519	Farmstead: Peartree Farm	19th century	TM 41803 61647
MSF39520	Farmstead: Manor Farm	19th century	TM 42114 61303
MSF39522	Farmstead: Billeaford Hall	17th century to 19th century	TM 43318 60228
MSF39551	Farmstead: Sizewell Farm	19th century	TM 47158 62394

MSF39552	Farmstead: Hawsell's Farm	19th century	TM 45478 61798
MSF39553	Farmstead: Crown Farm	19th century	TM 45885 62446
MSF43262	Thorpe and Aldringham Commons	Medieval	TM 46409 61034
MSF43263	Sizewell Common	Medieval	TM 47343 61978
MSF43261	North Warren, Aldeburgh	Medieval	TM 44577 60372
MSF43519	Coastal Heath, Leiston	Medieval	TM 47585 63942
MSF43589	Friston Green/Blackheath	Medieval	TM 41424 59715

Table 2.4.A.11: Heritage Assets within the Suffolk Site 3 Emerging Preference Option Area

Asset ID	Site/description	Period	Grid Ref
1215743	LITTLE MOOR FARM. **Grade II listed building.**	Post-Medieval	TM 41228 61678
1216049	HIGH HOUSE FARM. **Grade II listed building.**	Post-Medieval	TM 40965 61696
1216081	BILLEAFORD HALL. **Grade II listed building.**	Post-Medieval	TM 43308 60202
1231296	HILL FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 39802 61758
1269753	GORSEHILL. **Grade II listed building.**	Post-Medieval	TM 45642 58312
MSF33081	7 Roman coins and 1 med coin	Roman to Medieval	TM 42600 61100
MSF27693	Milestone on the A1094	Post-Medieval	TM 44269 58210
MSF35355	Milestone on the A1094	Post-Medieval	TM 42885 59017
MSF2328	Findspot of a Roman bronze head-stud brooch	Roman	TM 42500 61500
MXS18774	Linear banks, of unknown date, visible on the golf course at South Warren.	Unknown	TM 44470 58088
MXS18775	Linear bank, visible as an earthwork to the south of Valley Grange.	Unknown	TM 44254 58152
MSF35003	Aldeburgh branch railway line	19th century to IPS: Modern	TM 46071 57929
MSF19482	Great Wood	Unknown	TM 43760 59482
MSF19483	Grove Wood / Old World Wood	Unknown	TM 41812 61033
MSF21037	The Mear (1783); The Meare C16 & 1976); The Meer (1817); The Haven (1837)	Medieval to IPS: Post-Medieval	TM 46586 58726
MSF16640	Hazlewood Common	Second World War	TM 43436 58382
MXS18767	Possible curvilinear enclosure, unknown date	First World War to 20th century	TM 44265 59240
MXS18768	World WarII anti- tank obstacle.	Second World War	TM 44940 58484

MXS18772	A possible World War II strongpoint including trenches and barbed wire.	Second World War	TM 44295 57997
MXS18773	World War II anti-aircraft obstructions.	Second World War	TM 44491 58108
MXS18773	World War II anti-aircraft obstructions.	Second World War	TM 44708 58031
MXS18773	World War II anti-aircraft obstructions.	Second World War	TM 44801 57953
MXS18773	World War II anti-aircraft obstructions.	Second World War	TM 44902 57958
MXS18773	World War II anti-aircraft obstructions.	Second World War	TM 45033 58030
MXS18773	World War II anti-aircraft obstructions.	Second World War	TM 45000 57919
MXS18776	Four Post-Medieval quarries, visible as earthworks.	Post-Medieval	TM 44053 58190
MXS18778	World War II 'Diver' HAA battery.	Second World War	TM 44898 58533
MXS18779	Quarry, visible as an earthwork north of Eight Acre Covert.	Unknown	TM 44906 58454
MXS18780	Three Post-Medieval quarries.	Post-Medieval	TM 44575 58849
MXS18781	Six Post-Medieval quarry pits, one labelled sand pit	Post-Medieval	TM 44065 58811
MXS18782	Hazlewood Aerodrome	First World War to 20th century	TM 43838 58891
MXS18783	Thee Post-Medieval quarry pits	Post-Medieval	TM 43478 58929
MXS18783	Thee Post-Medieval quarry pits	Post-Medieval	TM 43422 58921
MXS18783	Thee Post-Medieval quarry pits	Post-Medieval	TM 43558 58850
MXS18785	Post-medieval WW2 bomb crater and emplacement	Second World War	TM 43469 58221
MXS18786	Post-medieval WW2 trench, tank trap, military training site	Second World War	TM 43444 58294
MXS19733	Post-Medieval sea bank, Aldeburgh.	Post-Medieval	TM 46675 59105
MXS19734	Early Post-Medieval relict sea banks.	Post-Medieval	TM 46447 58212

MXS19735	World War II anti-tank ditches.	Second World War	TM 46823 58917
MXS19736	Remains of a footbridge crossing The Haven leading to Haven House.	Post-Medieval to Second World War	TM 46846 58761
MXS19737	A World War II strongpoint surrounded by a minefield.	Second World War	TM 46821 58175
MXS19739	World War II anti-aircraft ditches.	Second World War	TM 46380 58764
MXS19739	World War II anti-aircraft ditches.	Second World War	TM 46456 58579
MXS19739	World War II anti-aircraft ditches.	Second World War	TM 46437 58467
MXS19739	World War II anti-aircraft ditches.	Second World War	TM 46654 58596
MXS19740	Two probable World War II bomb craters.	Second World War	TM 46662 58306
MXS19741	Probable Post-Medieval field boundaries to the north of Brick Kiln Cottage.	Medieval to IPS: Post-Medieval	TM 46038 58366
MXS19742	A World War II strongpoint and group of bomb craters.	Second World War	TM 46278 58486
MXS19743	A World War II strongpoint adjacent to Brick Kiln cottage.	Second World War	TM 46050 58324
MXS19744	World War II 'Diver' HAA battery.	Second World War	TM 45841 58406
MXS19745	Post-Medieval brick- earth quarry pit.	Post-Medieval	TM 45941 58255
MXS19746	Post-Medieval path or track.	Post-Medieval to IPS: Modern	TM 45415 58115
MXS19747	Post-Medieval clay extraction pit.	Post-Medieval to IPS: Modern	TM 45796 57958
MXS19748	World War II 'Diver' HAA battery.	Second World War	TM 45952 57739
MXS19752	Post-Medieval relict sea- bank.	Post-Medieval	TM 46535 58321
MXS19838	An extensive length of World War II beach scaffolding.	Second World War	TM 46842 57858
MXS19861	A c. 3.5km long row of World War II anti-tank cubes from Aldeburgh to Thorpness.	Second World War	TM 46813 58098

MXS19863	World War II anti-tank cubes.	Second World War	TM 46769 58293
MSF22813	Fristonmoor; Buxlow	Medieval to IPS: Post-Medieval	TM 41203 61803
MSF22814	Littlemoor Farm, Fristonmoor; Buxlow	Post-Medieval	TM 41254 61732
MSF22815	Old Kiln Field; Kiln Field; Buxlow	Post-Medieval	TM 41571 61784
MSF11502	Moor Farm; High House Farm	Medieval	TM 40964 61707
MSF12593	Small smock mill, Thorpe Road	19th century to 20th century	TM 46789 58296
MSF14095	Half of a ring ditch or circular enclosure of unknown date, visible as a ropmark.	Unknown	TM 41778 60782
MSF16193	Small rectangular(?) enclosure, possibly open ended to NE.	Unknown	TM 40580 62079
MSF17577	Little Moor Farm; Buxlow Parsonage	Medieval to IPS: Post-Medieval	TM 41192 61663
MSF2524	Gorse Hill	Roman	TM 45809 58312
MSF2530	Hazlewood Church; Church of St Mary	Medieval	TM 44774 59077
MSF2532	Gorse Hill	Neolithic	TM 45612 58415
MSF2538	Roman artefact scatter.	Roman	TM 46002 58404
MSF2539	Medieval scatter of pottery and red burnt clay.	Medieval	TM 45784 58496
MSF2540	Golf Course	Bronze Age	TM 44820 58136
MSF2544	The Red House	Bronze Age	TM 45411 57902
MSF14096	Buxlow; Buxton	Medieval	TM 41391 60614
MSF17578	Friston Moor	Medieval	TM 40765 61666
MSF2325	Knodishall Common; Coldfair Green	Unknown	TM 43175 60852
MSF2543	Gorse Hill (Rom)	Roman	TM 45767 58457

MSF2552	Gorse Hill (Med)	Medieval	TM 45767 58457
MSF2330	Large simple rectangular inhabited moat at Hill Farm.	Medieval	TM 39803 61763
MSF2331	NE of Hill Farm C19 decoy or flight pond, not part of a moat.	19th century to 20th century	TM 39976 62038
MSF23623	Cross with ring ditch, probably from a former post mill, visible as cropmarks.	Medieval	TM 42646 61096
MSF25696	Knodishall Coldfair Green historic settlement; St Andrews Green; Coldford Green (1783)	Medieval to IPS: Post-Medieval	TM 43376 60997
MSF26002	Suffolk square pillbox	Second World War	TM 41745 59673
MSF16639	Possible ring ditch of unknown date	Unknown	TM 43234 58558
MSF16638	Possible ring ditch of unknown date	Unknown	TM 43264 58554
MXS18777	Ring ditch and possible round barrow site, unknown date	Bronze Age	TM 44010 58509
MSF24054	Small finds assemblage	Early Neolithic to Medieval	TM 44669 58932
MSF33606	Possible gun emplacement for 'Diver' HAA site	Post-Medieval to Second World War	TM 45042 59039
MSF33594	Possible soilmark enclosure	Roman	TM 45982 58635
MSF33592	Possible cropmark enclosure	Roman	TM 45648 58431
MSF33591	Fragmentary linear cropmarks	Unknown	TM 45180 58366
MSF2531	Extensive cropmark site.	Medieval to IPS: Post-Medieval	TM 45964 57997
MSF34510	A World War II Anti-tank ditch	Second World War	TM 46686 57833
MSF34510	A World War II Anti-tank ditch	Second World War	TM 46478 57813
MSF16637	Ring ditch and possible round barrow, both of unknown date	Bronze Age	TM 43120 58667
MSF38516	Farmstead: Chapel Barn	Medieval	TM 44551 58947

MSF38519	Farmstead: Crag Pit Farm	19th century	TM 45833 58125
MSF39277	Farmstead: Bull's Hall Farm	19th century	TM 42647 60395
MSF39278	Farmstead: Park Farm	19th century	TM 42707 59580
MSF39281	Farmstead: Rushmere Lodge Farm	19th century	TM 42769 59115
MSF39282	Farmstead: Hazelwood Hall Farm	19th century	TM 43463 58805
MSF39283	Farmstead: Grange Farm	19th century	TM 43916 58699
MSF34410	Chapel Barn Farm, Aldeburgh (ADLHS) FW	Early Bronze Age to IPS: Post-Medieval	TM 44708 59127
MSF39512	Farmstead: High House Farm (Fristonmoor)	17th century to 19th century	TM 40977 61700
MSF39513	Farmstead: Little Moor Farm	19th century	TM 41233 61677
MSF39514	Farmstead: Clouting's Farm	19th century	TM 41146 62072
MSF39519	Farmstead: Peartree Farm	19th century	TM 418v03 61647
MSF39520	Farmstead: Manor Farm	19th century	TM 42114 61303
MSF39522	Farmstead: Billeaford Hall	17th century to 19th century	TM 43318 60228
MSF39867	Field Barn: Unnamed Field Barn	19th century	TM 40432 62170
MSF39868	Farmstead: Redhouse Farm	19th century	TM 40418 61686
MSF39869	Farmstead: Hill Farm	17th century to 19th century	TM 39847 61804
MSF39869	Farmstead: Hill Farm	17th century to 19th century	TM 39786 61760
MSF43261	North Warren, Aldeburgh	Medieval	TM 45284 59322
MSF43261	North Warren, Aldeburgh	Medieval	TM 44577 60372

MSF43589	Friston Green/Blackheath	Medieval	TM 41424 59715
MSF19469	Great Wood	Unknown	TM 39588 62931

Table 2.4.A.12: Heritage Assets within the Suffolk Site 3 Alternative Option 1 Option Area

Asset ID	Site/description	Period	Grid Ref
1014520	Leiston Abbey (second site) and moated site. **Scheduled Monument.**	Medieval	TM 44456 64188
1215743	LITTLE MOOR FARM. **Grade II listed building.**	Post-Medieval	TM 41228 61678
1216049	HIGH HOUSE FARM. **Grade II listed building.**	Post-Medieval	TM 40965 61696
1231179	WOOD FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 39369 62492
1231296	HILL FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 39802 61758
MSF21580	Medieval artefact scatter of coarseware sherds. (Med)	Unknown	TM 46826 62643
MSF21581	Prehistoric artefact scatter of flint flakes, including pot boiler flints and scrapers. (Preh)	Unknown	TM 46825 62643
MSF21582	Findspot of a glass bead of unknown date. (Un)	Unknown	TM 46822 62640
MSF21583	Cropmarks of uncertain archaeological significance	Unknown	TM 46759 62598
MSF21585	Cropmarks of uncertain archaeological significance	Unknown	TM 46879 62588
MSF21586	Medieval artefact scatter of coarseware pottery. (Med)	Unknown	TM 46520 62579
MSF21587	Prehistoric artefact scatter of pot boiler flints and worked flints. (Preh)	Unknown	TM 46517 62576
MSF21589	Prehistoric artefact scatter of worked flint, including pot boiler flints and scrapers. (Preh)	Unknown	TM 46171 62571
MSF21590	Medieval artefact scatter of pottery sherds, including Thetford ware and coarseware. (Med)	Unknown	TM 46174 62571
MSF21591	World War II building debris. (PMed)	Unknown	TM 46174 62574
MSF21592	Cropmarks of uncertain archaeological significance	Unknown	TM 46206 62610
MSF21593	Cropmarks of uncertain archaeological significance	Unknown	TM 46156 62604
MSF21595	Prehistoric artefact scatter of worked flints, pot boiler flints and scrapers. (Preh)	Unknown	TM 46093 62981

MSF21596	Medieval artefact scatter of coarseware pottery sherds. (Med)	Unknown	TM 46093 62981
MSF21597	Cropmarks of uncertain archaeological significance	Unknown	TM 46190 63076
MSF21598	Medieval artefact scatter of coarseware sherds. (Med)	Unknown	TM 45759 63108
MSF21599	Post-Medieval artefact scatter of pottery sherds. (PMed)	Unknown	TM 45759 63108
MSF21600	Cropmarks of uncertain archaeological significance	Unknown	TM 45896 63192
MSF21602	Cropmarks of uncertain archaeological significance	Unknown	TM 46288 62629
MSF21604	Cropmarks of uncertain archaeological significance	Unknown	TM 45791 63463
MSF21618	Cropmarks of uncertain archaeological significance	Unknown	TM 45900 62700
MSF21619	Medieval artefact scatter of coarseware and one Prehistoric flint gritted sherd	Medieval	TM 45900 62700
MSF21631	Cropmarks of uncertain archaeological significance	Unknown	TM 45500 62800
MSF22553	Medieval deer park, Leiston	IPS: Early Medieval to Unknown	TM 45500 63500
MSF22680	Harrow Farm, Harrow Lane	Unknown	TM 42400 64610
MSF14283	Findspot of a Medieval silver groat of Heinrich V. (Med)	Medieval	TM 44315 63865
MSF30769	OUTLINE RECORD: CROPMARKS - PIT ALIGNMENT	Unknown	TM 43610 64720
MSF30770	OUTLINE RECORD: CROPMARKS - MOAT?	Unknown	TM 43390 64430
MSF31502	OUTLINE RECORD: Georchaeological boreholes at Aldhurst Farm, Leiston	Unknown	TM 45000 63450
MSF33557	OUTLINE RECORD: Medieval pottery scatter (BACKLOG)	Unknown	TM 40500 63800
MSF38064	OUTLINE RECORD: Green Rail Route Area 5 (also labled as Area 7 and Mellen Land) Sizewell C (SGL) GEO (CAS) EVL	Unknown	TM 44134 63890
MSF38065	OUTLINE RECORD: Area 8 Sizewell C GRR Aldhurst Land (SGL) GEO (CAS) EVAL	Unknown	TM 45180 63674

MSF38723	OUTLINE RECORD: Sizewell C Leiston GRR Poll Land (SGL) GEO (CAS) EVAL	Unknown	TM 45060 63855
MSF35003	Aldeburgh branch railway line	Post-Medieval	TM 42461 63328
MSF19483	Grove Wood / Old World Wood	Unknown	TM 41812 61033
MXS19698	World War II anti-tank ditch.	Second World War	TM 47120 61794
MXS19701	World War II strongpoint and a possible experimental radar station.	Second World War to Cold War	TM 47466 62523
MXS19702	Quarry pit of unknown date.	Unknown	TM 46954 62396
MXS19705	A World War II seafront strongpoint.	Second World War	TM 47553 62295
MXS19856	World War II anti-invasion beach defences.	Second World War	TM 47561 62817
MXS19858	World War II anti-invasion coastal defences.	Second World War	TM 47607 62205
MSF21392	Modern ship's mast mounted in a metal sheath, possibly a lookout post.	Unknown	TM 47596 62646
MSF22813	Fristonmoor; Buxlow	Medieval to IPS: Post-Medieval	TM 41203 61803
MSF22814	Littlemoor Farm, Fristonmoor; Buxlow	Post-Medieval	TM 41254 61732
MSF22815	Old Kiln Field; Kiln Field; Buxlow	Post-Medieval	TM 41571 61784
MSF11502	Moor Farm; High House Farm	Medieval	TM 40964 61707
MSF16193	Small rectangular(?) enclosure, possibly open ended to NE.	Unknown	TM 40580 62079
MSF16889	Post-Medieval bridge shwon on Hodskinson's map.	18th century to 19th century	TM 45456 63480
MSF17577	Little Moor Farm; Buxlow Parsonage	Medieval to IPS: Post-Medieval	TM 41192 61663
MSF4001	Cropmarks of undated field boundaries	Unknown	TM 44810 63081
MSF14096	Buxlow; Buxton	Medieval	TM 41391 60614
MSF17578	Friston Moor	Medieval	TM 40765 61666

MSF2330	Large simple rectangular inhabited moat at Hill Farm.	Medieval	TM 39803 61763
MSF2331	NE of Hill Farm C19 decoy or flight pond, not part of a moat.	19th century to 20th century	TM 39976 62038
MSF25256	EDF Access, Sizewell Power Station	Medieval	TM 47189 62669
MSF29478	Medieval Settlement at Sizewell, Leiston	Early Neolithic to Medieval	TM 47213 62654
MSF33426	Site of possible Bronze Age round barrow or medieval to Post-Medieval mill mound, The Walks	Early Bronze Age to IPS: Post-Medieval	TM 46599 62312
MSF33424	Earthworks of linear and rectilinear boundaries of unknown date, The Walks, Aldringham Common	Unknown	TM 46475 62252
MSF33429	Site of Second World War Diver anti-aircraft battery	Second World War	TM 46548 62017
MSF33430	Linear earthwork banks on Broom Covert	Post-Medieval to IPS: Modern	TM 46347 63010
MSF33431	Site of fragmentary cropmarks of unknown date and significance	Unknown	TM 46107 62854
MSF33433	Site of fragmentary cropmarks of unknown date and significance	Unknown	TM 46057 62292
MSF33434	Site of fragmentary cropmarks of unknown date and significance	Unknown	TM 45791 62362
MSF33436	Site of fragmentary cropmarks of unknown date and significance	Unknown	TM 45485 63016
MSF33442	Site of two probable First World War pillboxes	First World War	TM 45849 62506
MSF33448	Site of one or more Second World War slit trenches	Second World War	TM 45622 63111
MSF33439	Site of Second World War military training area and/or defended locality	Second World War	TM 46333 62982
MSF33440	Second World War training area and/or strong point	Second World War	TM 46529 62375
MSF33444	Site of undated boundary on Leiston Common	Medieval to IPS: Post-Medieval	TM 45653 63439
MSF31925	Site of Second World War (and/or possibly First World War) military training site, Leiston Common	First World War to Second World War	TM 45869 63451
MSF31923	Site of Second World War Diver battery	Second World War	TM 45801 63318

MSF31922	Site of Second World War Auxiliary Unit Operational Base, Leiston Common	Second World War	TM 45824 63501
MSF16194	Second World War anti-glider ditches and military training activity on The Walks, Aldringham Common	20th century to IPS: Modern	TM 46379 61507
MSF21588	Multi-period cropmarks of probable field boundaries and enclosures	Early Iron Age to Roman	TM 46530 62606
MSF21594	Site of Second World War Diver anti-aircraft battery	Post-Medieval to Second World War	TM 46182 62565
MSF29484	Late Prehistoric and Romano-British agricultural activity at Galloper offshore Wind Farm	Roman	TM 46646 62704
MSF39512	Farmstead: High House Farm (Fristonmoor)	17th century to 19th century	TM 40977 61700
MSF39513	Farmstead: Little Moor Farm	19th century	TM 41233 61677
MSF39514	Farmstead: Clouting's Farm	19th century	TM 41146 62072
MSF39519	Farmstead: Peartree Farm	19th century	TM 41803 61647
MSF39551	Farmstead: Sizewell Farm	19th century	TM 47158 62394
MSF39553	Farmstead: Crown Farm	19th century	TM 45885 62446
MSF39554	Farmstead: Common Farm	19th century	TM 45621 63226
MSF39867	Field Barn: Unnamed Field Barn	19th century	TM 40432 62170
MSF39868	Farmstead: Redhouse Farm	19th century	TM 40418 61686
MSF39869	Farmstead: Hill Farm	17th century to 19th century	TM 39847 61804
MSF39869	Farmstead: Hill Farm	17th century to 19th century	TM 39786 61760
MSF39917	Farmstead: Trust Farm (Town Farm)	19th century	TM 40491 62616
MSF43262	Thorpe and Aldringham Commons	Medieval	TM 46409 61034
MSF43263	Sizewell Common	Medieval	TM 47343 61978

MSF43411	Dry Common, Leiston	Medieval	TM 45989 63491
MSF43412	Wet Common, Leiston	Medieval	TM 46751 63994
MSF43519	Coastal Heath, Leiston	Medieval	TM 47585 63942
MSF22764	Theberton airfield; Leiston airfield; Saxmundham airfield	20th century to Cold War	TM 42815 64345
MSF22765	Buxlow Forest (1783); The Forest; Whin Cover	Medieval to IPS: Post-Medieval	TM 42641 64781
MSF11524	Medieval artefact scatter of pottery. (Med)	Medieval	TM 44989 63631
MSF11525	Abbey Road	Unknown	TM 44418 63814
MSF11526	Abbey Lane	Medieval	TM 44251 63872
MSF12096	Roman artefact scatter of pottery. (Rom)	Roman	TM 44989 63631
MSF12097	Medieval artefact scatter.	Medieval	TM 44877 63572
MSF806	Near Brick Kiln Farm, Leiston, (Mesolithic)	Mesolithic	TM 45007 63319
MSF19469	Great Wood	Unknown	TM 39588 62931
MSF25178	Moat Farm	Unknown	TM 43142 64927
MSF2340	Leiston Abbey, Abbey Farm.	Medieval	TM 44456 64188
MSF26807	Burnt flint mound	Unknown	TM 44940 63557
MSF26812	Brick works	Post-Medieval	TM 44453 63168
MSF26809	Six medieval pennies	12th century	TM 44884 63681
MSF33446	Site of cropmarks of uncertain archaeological significance and unknown date, possibly relating to a prehistoric barrow	Early Neolithic to Late Bronze Age	TM 45054 63652
MSF33445	Site of possible double ring ditch of uncertain significance and date	Bronze Age	TM 45157 63612

MSF33447	Site of vague cropmarks of unknown date and significance	Unknown	TM 44980 63384
MSF31920	Extensive area of Second World War military training activity	First World War to Second World War	TM 45482 63833
MSF31543	Possible practice trench and undated ditches at Aldhurst Farm	Post-Medieval to IPS: Modern	TM 45005 63482
MSF35810	Medieval ditches, Abbey View Lodges, Leiston	Medieval	TM 44387 63694
MSF39545	Farmstead: Hill Farm	16th century to 19th century	TM 43997 64446
MSF39546	Farmstead: Aldhurst Farm (Rookwood Farm)	19th century	TM 43976 63956
MSF39555	Farmstead: Works Farm	19th century	TM 44683 63216
MSF39914	Farmstead: Wardspring Farm	19th century	TM 40421 63387
MSF39918	Farmstead: Wood Farm	17th century to 19th century	TM 39370 62527
MSF39950	Farmstead: Hill Farm	17th century to 19th century	TM 42171 64132
MSF39951	Farmstead: Moat Farm (Mustard's Farm)	17th century to 19th century	TM 43194 65071

Table 2.4.A.13: Heritage Assets within the Suffolk Site 3 Alternative Option 2 Option Area

Asset ID	Site/description	Period	Grid Ref
1011378	Two bowl barrows on Aldringham Green. **Scheduled Monument.**	Prehistoric	TM 44711 60854
1215743	LITTLE MOOR FARM. **Grade II listed building.**	Post-Medieval	TM 41228 61678
1215788	ELM TREE FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 44693 61099
1216049	HIGH HOUSE FARM. **Grade II listed building.**	Post-Medieval	TM 40965 61696
1216081	BILLEAFORD HALL. **Grade II listed building.**	Post-Medieval	TM 43308 60202
1231179	WOOD FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 39369 62492

1231296	HILL FARMHOUSE. **Grade II listed building.**	Post-Medieval	TM 39802 61758
1393143	ALDRINGHAM COURT. **Grade II listed building.**	Post-Medieval	TM 44560 60592
MSF21580	Medieval artefact scatter of coarseware sherds. (Med)	Unknown	TM 46826 62643
MSF21581	Prehistoric artefact scatter of flint flakes, including pot boiler flints and scrapers. (Preh)	Unknown	TM 46825 62643
MSF21582	Findspot of a glass bead of unknown date. (Un)	Unknown	TM 46822 62640
MSF21583	Cropmarks of uncertain archaeological significance	Unknown	TM 46759 62598
MSF21585	Cropmarks of uncertain archaeological significance	Unknown	TM 46879 62588
MSF21586	Medieval artefact scatter of coarseware pottery. (Med)	Unknown	TM 46520 62579
MSF21587	Prehistoric artefact scatter of pot boiler flints and worked flints. (Preh)	Unknown	TM 46517 62576
MSF21589	Prehistoric artefact scatter of worked flint, including pot boiler flints and scrapers. (Preh).	Unknown	TM 46171 62571
MSF21590	Medieval artefact scatter of pottery sherds, including Thetford ware and coarseware. (Med).	Unknown	TM 46174 62571
MSF21591	World War II building debris. (PMed).	Unknown	TM 46174 62574
MSF21592	Cropmarks of uncertain archaeological significance.	Unknown	TM 46206 62610
MSF21593	Cropmarks of uncertain archaeological significance.	Unknown	TM 46156 62604
MSF21602	Cropmarks of uncertain archaeological significance.	Unknown	TM 46288 62629
MSF26867	Mill Piece (tithe).	Medieval to IPS: Post-Medieval	TM 45200 61600
MSF33081	7 Roman coins and 1 med coin.	Roman to Medieval	TM 42600 61100
MSF2328	Findspot of a Roman bronze head-stud brooch.	Roman	TM 42500 61500
MSF27742	Negative evaluation Aldringham Court, Aldringham cum Thorpe.	Unknown	TM 44510 60590
MSF35003	Aldeburgh branch railway line.	Post-Medieval	TM 46157 60547

MSF19482	Great Wood	Unknown	TM 43760 59482
MSF19483	Grove Wood / Old World Wood	Unknown	TM 41812 61033
MXS18782	Hazlewood Aerodrome	First World War to 20th century	TM 43838 58891
MXS19698	World War II anti-tank ditch.	Second World War	TM 47120 61794
MXS19701	World War II strongpoint and a possible experimental radar station.	Second World War to Cold War	TM 47466 62523
MXS19702	Quarry pit of unknown date.	Unknown	TM 46954 62396
MXS19856	World War II anti-invasion beach defences.	Second World War	TM 47561 62817
MXS19858	World War II anti-invasion coastal defences.	Second World War	TM 47607 62205
MSF21392	Modern ship's mast mounted in a metal sheath, possibly a lookout post.	Unknown	TM 47596 62646
MSF22813	Fristonmoor; Buxlow	Medieval to IPS: Post-Medieval	TM 41203 61803
MSF22814	Littlemoor Farm, Fristonmoor; Buxlow	Post-Medieval	TM 41254 61732
MSF22815	Old Kiln Field; Kiln Field; Buxlow	Post-Medieval	TM 41571 61784
MSF11502	Moor Farm; High House Farm	Medieval	TM 40964 61707
MSF13936	Two bowl barrows on Aldringham Green	Bronze Age	TM 44737 60848
MSF13937	Aldringham Green	Bronze Age	TM 44699 60856
MSF14092	Agricultural pit of negligible archaeological significance	Post-Medieval to IPS: Modern	TM 45131 61661
MSF14095	Half of a ring ditch or circular enclosure of unknown date, visible as a ropmark.	Unknown	TM 41778 60782
MSF16193	Small rectangular(?) enclosure, possibly open ended to NE.	Unknown	TM 40580 62079
MSF16196	Medieval artefact scatter.	Medieval	TM 45005 60455
MSF16888	Post-Medieval bridge.	18th century to 19th century	TM 44693 60594

MSF17577	Little Moor Farm; Buxlow Parsonage	Medieval to IPS: Post-Medieval	TM 41192 61663
MSF2306	Aldringham Green Round Barrow; Two bowl barrows, Aldringham Green	Unknown	TM 44705 60813
MSF14096	Buxlow; Buxton	Medieval	TM 41391 60614
MSF17578	Friston Moor	Medieval	TM 40765 61666
MSF2325	Knodishall Common; Coldfair Green	Unknown	TM 43175 60852
MSF2330	Large simple rectangular inhabited moat at Hill Farm.	Medieval	TM 39803 61763
MSF2331	NE of Hill Farm C19 decoy or flight pond, not part of a moat.	19th century to 20th century	TM 39976 62038
MSF23623	Cross with ring ditch, probably from a former post mill, visible as cropmarks.	Medieval	TM 42646 61096
MSF25256	EDF Access, Sizewell Power Station	Medieval	TM 47189 62669
MSF25696	Knodishall Coldfair Green historic settlement; St Andrews Green; Coldford Green (1783)	Medieval to IPS: Post-Medieval	TM 43376 60997
MSF25683	Aldringham historic settlement core (Med)	Medieval to IPS: Post-Medieval	TM 44635 60979
MSF26453	Aldringham Green	Medieval	TM 44665 60960
MSF26002	Suffolk square pillbox	Second World War	TM 41745 59673
MSF29478	Medieval Settlement at Sizewell, Leiston	Early Neolithic to Medieval	TM 47213 62654
MSF33455	Fragmentary cropmarks of possible medieval settlement	Medieval	TM 45013 60469
MSF33426	Site of possible Bronze Age round barrow or medieval to Post-Medieval mill mound, The Walks	Early Bronze Age to IPS: Post-Medieval	TM 46599 62312
MSF33424	Earthworks of linear and rectilinear boundaries of unknown date, The Walks, Aldringham Common	Unknown	TM 46475 62252
MSF33429	Site of Second World War Diver anti-aircraft battery	Second World War	TM 46548 62017
MSF33430	Linear earthwork banks on Broom Covert	Post-Medieval to IPS: Modern	TM 46347 63010

MSF33433	Site of fragmentary cropmarks of unknown date and significance	Unknown	TM 46057 62292
MSF33434	Site of fragmentary cropmarks of unknown date and significance	Unknown	TM 45791 62362
MSF33438	Site of Leiston Very High Frequency (VHF) Fixer Station	Second World War to Cold War	TM 45834 61789
MSF33442	Site of two probable First World War pillboxes	First World War	TM 45849 62506
MSF33439	Site of Second World War military training area and/or defended locality	Second World War	TM 46333 62982
MSF33440	Second World War training area and/or strong point	Second World War	TM 46529 62375
MSF16194	Second World War anti-glider ditches and military training activity on The Walks, Aldringham Common	20th century to IPS: Modern	TM 46379 61507
MSF21588	Multi-period cropmarks of probable field boundaries and enclosures	Early Iron Age to Roman	TM 46530 62606
MSF21594	Site of Second World War Diver anti-aircraft battery	Post-Medieval to Second World War	TM 46182 62565
MSF33815	Bronze Age/Early Iron Age settlement activity at Land south of Red House Lane, Leiston (Excavation pending)	Middle Bronze Age to IPS: Post-Medieval	TM 44999 61777
MSF29484	Late Prehistoric and Romano-British agricultural activity at Galloper offshore Wind Farm	Roman	TM 46646 62704
MSF37237	Land to the east of Aldeburgh Road, Aldringham Cum Thorpe.	Early Iron Age to IPS: Post-Medieval	TM 44649 61213
MSF39277	Farmstead: Bull's Hall Farm	19th century	TM 42647 60395
MSF39278	Farmstead: Park Farm	19th century	TM 42707 59580
MSF39512	Farmstead: High House Farm (Fristonmoor)	17th century to 19th century	TM 40977 61700
MSF39513	Farmstead: Little Moor Farm	19th century	TM 41233 61677
MSF39514	Farmstead: Clouting's Farm	19th century	TM 41146 62072
MSF39519	Farmstead: Peartree Farm	19th century	TM 41803 61647

MSF39520	Farmstead: Manor Farm	19th century	TM 42114 61303
MSF39522	Farmstead: Billeaford Hall	17th century to 19th century	TM 43318 60228
MSF39551	Farmstead: Sizewell Farm	19th century	TM 47158 62394
MSF39552	Farmstead: Hawsell's Farm	19th century	TM 45478 61798
MSF39553	Farmstead: Crown Farm	19th century	TM 45885 62446
MSF39867	Field Barn: Unnamed Field Barn	19th century	TM 40432 62170
MSF39868	Farmstead: Redhouse Farm	19th century	TM 40418 61686
MSF39869	Farmstead: Hill Farm	17th century to 19th century	TM 39847 61804
MSF39869	Farmstead: Hill Farm	17th century to 19th century	TM 39786 61760
MSF43262	Thorpe and Aldringham Commons	Medieval	TM 46409 61034
MSF43263	Sizewell Common	Medieval	TM 47343 61978
MSF43261	North Warren, Aldeburgh	Medieval	TM 44577 60372
MSF43519	Coastal Heath, Leiston	Medieval	TM 47585 63942
MSF43589	Friston Green/Blackheath	Medieval	TM 41424 59715
MSF19469	Great Wood	Unknown	TM 39588 62931
MSF39918	Farmstead: Wood Farm	17th century to 19th century	TM 39370 62527

3.5.A Heritage Assets within Kent Scoping Boundary

Table 3.4.A.1: Non-designated assets recorded on the Kent HER within the Scoping Boundary

ID	Grid Ref	Period	Description	Type
MKE10031	TR 33630 63899	Late Iron Age	Iron Age coins, Cottington Hill, Minster	FINDSPOT
MKE10032	TR 33570 63899	Iron Age	Copper Celtic coin, Cottington Hill, Minster	FINDSPOT
MKE10033	TR 33660 63899	Late Iron Age	Gaulish Iron Age coins, Cottington Hill, Minster	FINDSPOT
MKE10034	TR 33599 63899	Late Iron Age	Late Iron Age coin, Cottington Hill, Minster	FINDSPOT
MKE10035	TR 33679 63899	Late Iron Age	Late Iron Age coin, Cottington Hill, Minster	FINDSPOT
MKE10036	TR 33730 63899	Late Iron Age	Iron Age coin, Cottington Hill, Minster	FINDSPOT
MKE10037	TR 33599 63899	Late Iron Age	Late Iron Age coin, Cottington Hill, Minster	FINDSPOT
MKE104171	TR 34034 64000	Unknown	'Anlage unbekannter Art'	Unknown
MKE104172	TR 33996 64114	Unknown	'Scheinwerfer-Batterie'	Unknown
MKE108903	TR 33121 63393	Roman	Roman silver spoon	FINDSPOT
MKE114034	TR 33353 63496	Unknown	Hoard	FINDSPOT
MKE115840	TR 34177 64049	Early Neolithic to Post Medieval	Possible ditches and enclosures, west of Earlsmead Crescent	DITCH?; ENCLOSURE?
MKE15864	TR 33699 63899	Medieval to Post Medieval	Prehistoric finds and Tudor remains, Cottington Hill, Minster parish	WALL
MKE15873	TR 32449 63450	Unknown	Undated burials, Weatherlees Hill, Minster Marshes, Minster	BURIAL
MKE15874	TR 33450 63450	Late Bronze Age	Bronze Age hoard, Cottington Hill, Minster	Hoard

MKE15875	TR 33850 63619	Late Bronze Age to Early Iron Age	Prehistoric midden material, Cottington Hill, Minster	MIDDEN
MKE15983	TR 33200 63000	Early Bronze Age to Medieval	Multiperiod occupation, Ebbsfleet farm	SETTLEMENT; Hoard; SETTLEMENT; SETTLEMENT; SETTLEMENT
MKE21076	TR 33894 64000	Roman	Romano-British drainage ditches, hearth and two inhumations	DITCH; HEARTH; INHUMATION
MKE21077	TR 33509 63494	Roman	Romano British Landscape, inhumation burial and possible WW11 anti-aircraft station	ENCLOSURE; DITCH; INHUMATION; PIT
MKE35138	TR 34036 64156	Post Medieval	SAINT AUGUSTINE'S CROSS	CROSS; SITE; COMMEMORATIVE MONUMENT; CROSS
MKE39272	TR 34131 64046	Modern	COASTAL BATTERY, Pegwell Bay	COASTAL BATTERY; SLIT TRENCH; BANK (EARTHWORK); MILITARY BUILDING; MACHINE GUN POST; NISSEN HUT; ANTI AIRCRAFT GUN EMPLACEMENT; PATH; BARBED WIRE ENTANGLEMENT; MACHINE GUN POST; MILITARY BUILDING
MKE39400	TR 34178 63788	Modern	PILLBOX	PILLBOX
MKE43326	TR 32762 63851	Unknown	Rectangular crop mark	ENCLOSURE
MKE56547	TR 19463 58495	Post Medieval	Ashford & Margate Railway	RAILWAY
MKE56550	TR 33063 57722	Post Medieval to Modern	Deal Branch Railway	RAILWAY
MKE73930	TR 33299 63499	Late Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE73931	TR 33299 63499	Late Iron Age	Iron Age silver coin	FINDSPOT

MKE73932	TR 33299 63499	Late Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE73933	TR 33299 63499	Early Iron Age to Roman	Iron Age copper alloy coin	FINDSPOT
MKE73934	TR 33299 63499	Late Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE73935	TR 33299 63499	Late Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE73936	TR 33299 63499	Late Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE73937	TR 33299 63499	Middle Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE73938	TR 33399 63899	Late Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE73940	TR 33000 64000	Medieval	Medieval copper alloy brooch	FINDSPOT
MKE73946	TR 33399 63400	Late Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE73947	TR 33399 63400	Late Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE73948	TR 33399 63400	Late Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE73949	TR 33399 63400	Late Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE73950	TR 33399 63400	Late Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE73972	TR 32300 64000	Roman to Early Medieval or Anglo-Saxon	Roman copper alloy buckle	FINDSPOT
MKE73974	TR 32200 63900	Medieval	Medieval lead weight	FINDSPOT
MKE74042	TR 33399 63400	Middle Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74167	TR 33399 63400	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74168	TR 33399 63400	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74169	TR 33399 63400	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74170	TR 33399 63400	Iron Age	Iron Age copper alloy coin	FINDSPOT

MKE74171	TR 33399 63400	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74172	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74173	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74174	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74175	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74176	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74179	TR 33399 63400	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74181	TR 33399 63400	Iron Age	Iron Age silver coin	FINDSPOT
MKE74273	TR 33299 63499	Iron Age	Iron Age silver coin	FINDSPOT
MKE74278	TR 33399 63400	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74286	TR 33399 63899	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74287	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74288	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74355	TR 33000 64000	Iron Age	Iron Age gold coin	FINDSPOT
MKE74401	TR 33399 63400	Iron Age	Iron Age silver coin	FINDSPOT
MKE74416	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74417	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74418	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74419	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74420	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74421	TR 33299 63499	Iron Age	Iron Age silver coin	FINDSPOT

MKE74422	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74423	TR 33299 63499	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74426	TR 33190 63229	Iron Age	Iron Age silver coin	FINDSPOT
MKE74453	TR 32800 63800	Iron Age	Iron Age copper alloy coin	FINDSPOT
MKE74461	TR 32050 63980	Iron Age	Iron Age gold coin	FINDSPOT
MKE76083	TR 28494 63308	Medieval	Abbot's Wall	SEA DEFENCES
MKE76084	TR 34030 62912	Medieval	Boarded Groin	SEA DEFENCES
MKE76498	TR 34000 63999	Early Medieval or Anglo-Saxon	Early Denarial silver early penny ('sceat'), Cliffsend, Ramsgate	FINDSPOT
MKE76499	TR 34000 63999	Early Medieval or Anglo-Saxon	A plated imitation? Anglo-Saxon silver early penny ('sceat'), Cliffsend, Ramsgate	FINDSPOT
MKE78429	TR 33199 63000	Late Bronze Age	Late Bronze Age Hoard, Ebbsfleet Farm	Hoard
MKE78430	TR 33224 63036	Early Iron Age to Middle Iron Age	Early/Middle Iron Age site, Weatherlees Hill Waste Treatment Works	OCCUPATION LAYER; PIT; GULLY
MKE78431	TR 33253 63056	Medieval to Post Medieval	Medieval/Post Medieval features, Weatherlees Hill Waste Treatment Works	DITCH; PIT
MKE78432	TR 33276 63072	Early Iron Age to Middle Iron Age	Animal burial, Weatherlees Hill Waste Treatment Works	ANIMAL BURIAL
MKE78433	TR 33345 63096	Medieval	Medieval pit, Weatherlees Waste Treatment Works	PIT
MKE78764	TR 33329 63089	Late Bronze Age to Early Iron Age	Late Bronze Age/Early Iron Age activity, Weatherlees Wastewater Treatment works	DITCH; STRUCTURE; POST HOLE; HEARTH?; PIT; GULLY
MKE8054	TR 31250 62940	Medieval	Abbot's Wall, Monkton, Minster and Sandwich	SEA DEFENCES
MKE8058	TR 34369 63940	Early Medieval or Anglo-Saxon	St Augustine'S Well	WELL

MKE8059	TR 33270 63080	Bronze Age	Bronze Age founder's hoard, Ebbsfleet Farm, Minster parish	Hoard
MKE8060	TR 33000 63000	Roman	Roman bronze toga pin (fibula), Ebbsfleet, Minster parish	FINDSPOT
MKE8062	TR 33000 64000	Iron Age	Iron Age coin, Sevenscore, Minster parish	FINDSPOT
MKE8075	TR 31980 63780	Unknown	Possible building and burials, Clapper Hill, Minster	BURIAL?; BUILDING?
MKE8084	TR 30900 63100	Roman	Possible cremation burial site, Minster Sewage Works, Minster	BURIAL; CREMATION CEMETERY?
MKE8106	TR 33340 63319	Post Medieval to Modern	Modern trench, Ebbsfleet, Minster parish	SLIT TRENCH
MKE8107	TR 32600 63600	Unknown	Sub-circular mound earthwork/cropmark, Minster Marshes	MOUND
MKE8108	TR 31358 63214	Unknown	Sub-circular mound earthwork/cropmarks, near Minster Sewage Works	MOUND
MKE8109	TR 31350 63390	Unknown	Sub-circular mound earthwork/cropmark, near Minster Sewage Works	MOUND
MKE8113	TR 33392 63301	Early Bronze Age to Roman	Multi period site on Cottington Hill, Minster parish	BURIAL; SETTLEMENT; VILLA
MKE8114	TR 33799 63899	Roman	Romano-British pits and associated materials, Cottington Hill, Minster parish	PIT
MKE8115	TR 33499 63599	Early Medieval or Anglo-Saxon to Medieval	Early medieval/medieval pit, Cottington Hill, Minster parish	PIT
MKE8118	TR 33799 64099	Late Iron Age to Roman	Romano-British occupation site, Cliffs End, Minster parish	SETTLEMENT
MKE86895	TR 30801 63167	Post-Medieval	Marsh Farm	FARMSTEAD
MKE86923	TR 31951 63329	Post Medieval	Sheepwash on Minster Marsh	FARMSTEAD
MKE86924	TR 32163 63576	Post-Medieval	Sheepwash on Minster Marsh	FARMSTEAD
MKE86974	TR 33210 63057	Post Medieval	Ebbsfleet Farm	FARMSTEAD

MKE89564	TR 34376 63674	Modern	Anti tank pimples, Pegwell Bay	ANTI TANK PIMPLE
MKE91586	TR 33975 64098	Post Medieval	Linear earthwork features south west of Saint Augustine's Cross	SHEEP DIP?
MKE91586	TR 33959 64103	Post Medieval	Linear earthwork features south west of Saint Augustine's Cross	SHEEP DIP?
MKE91780	TR 34057 64139	Early Medieval or Anglo-Saxon	Reputed site of St Augustine's Oak, 30m south-east of St Augustine's Cross.	SITE
MKE91795	TR 33500 63800	Unknown	2 parallel curving linear cropmarks west of Cottington Hill, possibly accompanied by pits. Formerly a plantation.	LINEAR FEATURE
MKE91798	TR 33900 63400	Unknown	Parallel linear features running north-east to south-west south of St Augustine's Golf Course	LINEAR FEATURE
MKE91799	TR 33000 62900	Unknown	Complex palaeochannels north of Weatherlees Water Treatment Works	PALAEOCHANNEL
MKE91803	TR 33879 63480	Unknown	Palaeochannels and drainage ditches visible as cropmarks and on aerial photographs between Ebbsfleet and St Augustine's Golf Course	PALAEOCHANNEL; DRAINAGE DITCH
MKE91810	TR 32895 63161	Unknown	Parallel north-east to south-west cropmark features, north-west of Weatherless Water Treatment Works, visible in 1946 aerial photographs	LINEAR FEATURE
MKE91813	TR 33150 63150	Unknown	Circular cropmark, possibly a barrow, immediately north of Ebbsfleet Farm	FEATURE
MKE91815	TR 33800 63900	Unknown	Cropmark suggests sub-rectilinear enclosure with circular disturbance or structure in north-east corner, located at Cottington Hill	ENCLOSURE
MKE91825	TR 34170 63830	Post Medieval	The Boarded Groin medieval land reclamation earthwork, Ebbsfleet.	DRAINAGE SYSTEM?
MKE91826	TR 34365 63844	Post Medieval	Redundant drainage ditches visible on historic mapping and aerial photographs	DRAINAGE DITCH
MKE91837	TR 33600 64100	Unknown	Cropmark of a probable small pit, just west of intersection of Cottington Road and railway	CHALK PIT?
MKE91838	TR 33350 63600	Unknown	Cropmarks of 5 probable small pits on Thanet Sands in a north-	PIT

			south line on the eastern side, just west of intersection of Cottington Road and railway	
MKE91866	TR 33277 63058	Late Bronze Age	Late bronze age field system, enclosures, structures, cremation burials and hoards, Ebbsfleet Farm Cottages	DITCH; ENCLOSURE; BOUNDARY DITCH; POST BUILT STRUCTURE; GULLY; POST HOLE; Hoard
MKE91870	TR 33296 63058	Late Iron Age to Roman	Late iron age / early Roman enclosure ditches, Ebbsfleet Farm Cottages	BOUNDARY DITCH; GULLY; POST BUILT STRUCTURE; DEFENDED ENCLOSURE
MKE91873	TR 33307 63097	Medieval	Medieval ditch and metalled trackway, Ebbsfleet Farm Cottages	TRACKWAY; DITCH
MKE91877	TR 33234 63003	Late Iron Age to Roman	Late iron age / early Roman ditches found at Weatherlees WWTW Pond	DEFENDED ENCLOSURE; PIT; DITCH; DITCH
MKE91882	TR 33244 62986	Medieval	Medieval field system found at Weatherlees WWTW Pond	FIELD SYSTEM; PIT; DITCH; ENCLOSURE
MKE91885	TR 33296 63112	Late Bronze Age	Late bronze age field system near Weatherlees Farm	DITCH; FIELD SYSTEM
MKE91887	TR 33302 63115	Late Iron Age to Roman	Late iron age / early Roman ditches near Weatherlees Farm	DITCH; PIT
MKE91888	TR 33286 63122	Medieval	Probable late medieval well near Weatherlees Farm	WELL?
MKE91892	TR 33276 63314	Neolithic	Neolithic subsoils and struck flints, Ebbsfleet Farm Cottages	BURIED SOIL HORIZON?
MKE91892	TR 33281 63366	Neolithic	Neolithic subsoils and struck flints, Ebbsfleet Farm Cottages	BURIED SOIL HORIZON?
MKE91894	TR 33298 63345	Late Mesolithic to Early Neolithic	Late mesolithic / early neolithic flint working floor, Ebbsfleet Farm Cottages	LITHIC WORKING SITE?
MKE91895	TR 33325 63466	Neolithic	Neolithic polished stone axe, Ebbsfleet Farm Cottages	FINDSPOT?
MKE91896	TR 33309 63364	Neolithic	Neolithic unfinished stone axe, Ebbsfleet Farm Cottages	FINDSPOT?

MKE91898	TR 33269 63244	Early Neolithic	Shallow pits and postholes of probable early neolithic date, Ebbsfleet Farm Cottages	PIT; POST HOLE
MKE91899	TR 33297 63301	Early Bronze Age to Roman	Bronze Age to early iron age activity, Ebbsfleet Farm Cottages	PIT; DITCH; HOLLOW WAY; CREMATION BURIAL; ENCLOSURE; DITCH; BOUNDARY DITCH; WELL; ROUND HOUSE (DOMESTIC); GRUBENHAUS; INHUMATION CEMETERY
MKE91899	TR 33303 63420	Early Bronze Age to Roman	Bronze Age to early iron age activity, Ebbsfleet Farm Cottages	PIT; DITCH; HOLLOW WAY; CREMATION BURIAL; ENCLOSURE; DITCH; BOUNDARY DITCH; WELL; ROUND HOUSE (DOMESTIC); GRUBENHAUS; INHUMATION CEMETERY
MKE91899	TR 33295 63375	Early Bronze Age to Roman	Bronze Age to early iron age activity, Ebbsfleet Farm Cottages	PIT; DITCH; HOLLOW WAY; CREMATION BURIAL; ENCLOSURE; DITCH; BOUNDARY DITCH; WELL; ROUND HOUSE (DOMESTIC); GRUBENHAUS; INHUMATION CEMETERY
MKE91909	TR 33267 63183	Medieval to Post Medieval	Medieval or post medieval field system, Ebbsfleet Farm Cottages	FIELD SYSTEM
MKE91910	TR 33470 63694	Early Bronze Age to Roman	Bronze Age to Roman activity Cottington Hill, discovered during East Kent Access Route excavations 2009-2011	FIELD SYSTEM; ENCLOSURE; PIT; OVEN?; POST BUILT STRUCTURE; CREMATION; PIT;

				ROUND HOUSE (DOMESTIC); PIT; WELL?; INHUMATION
MKE91910	TR 33388 63597	Early Bronze Age to Roman	Bronze Age to Roman activity Cottington Hill, discovered during East Kent Access Route excavations 2009-2011	FIELD SYSTEM; ENCLOSURE; PIT; OVEN?; POST BUILT STRUCTURE; CREMATION; PIT; ROUND HOUSE (DOMESTIC); PIT; WELL?; INHUMATION
MKE91910	TR 33356 63498	Early Bronze Age to Roman	Bronze Age to Roman activity Cottington Hill, discovered during East Kent Access Route excavations 2009-2011	FIELD SYSTEM; ENCLOSURE; PIT; OVEN?; POST BUILT STRUCTURE; CREMATION; PIT; ROUND HOUSE (DOMESTIC); PIT; WELL?; INHUMATION
MKE91910	TR 33557 63782	Early Bronze Age to Roman	Bronze Age to Roman activity Cottington Hill, discovered during East Kent Access Route excavations 2009-2011	FIELD SYSTEM; ENCLOSURE; PIT; OVEN?; POST BUILT STRUCTURE; CREMATION; PIT; ROUND HOUSE (DOMESTIC); PIT; WELL?; INHUMATION
MKE91911	TR 33602 63846	Bronze Age	Two early bronze age double ring ditches at Cottington Hill, discovered during East Kent Access Route excavations 2009-2011	RING DITCH; PIT; DITCH
MKE91912	TR 33796 64100	Early Iron Age to Early Medieval or Anglo-Saxon	Bronze Age to Saxon activity Cottington Hill, discovered during East Kent Access Route excavations 2009-2011, zone 9	FIELD SYSTEM; PIT; PIT; HEARTH?
MKE91916	TR 33734 64122	Early Medieval or Anglo-Saxon	Saxon settlement, discovered during East Kent Access Route excavations 2009-2011, zone 9	GRUBENHAUS; DITCH
MKE97070	TR 33353 63496	Roman	Roman Silver coin hoard	FINDSPOT
MKE97458	TR 32866 62669	Later Prehistoric	Prehistoric ditches and pits, Richborough	DITCH; PIT; DITCH

MKE97608	TR 36341 68160	Early Neolithic to Late Bronze Age	Neolithic to Bronze Age Activity along the Margate to Broadstairs Pipe Installation	ENCLOSURE; POST HOLE; BARROW?; RING DITCH; DITCH; PIT; TRACKWAY
MKE97609	TR 36341 68160	Late Iron Age to Medieval	Late Iron Age to Roman occupation, pipeline installation between Margate and Broadstairs.	DITCH; PIT; HOLLOW WAY?; CREMATION CEMETERY; DITCH; DITCH; PIT; INHUMATION CEMETERY; OVEN; GRAVE; PIT; POST HOLE; TREE THROW
MKE97610	TR 36341 68160	Early Medieval or Anglo-Saxon to Medieval	Anglo-Saxon and Medieval features, Margate to Broadstairs pipeline installation.	BUILDING; BAKERY; WALL; DITCH; GULLY; PIT
MKE98884	TR 34385 64052	Late Bronze Age	Late Bronze Age circular enclosure and peripheral rectangular enclosures, Cliffsend	CIRCULAR ENCLOSURE; RECTANGULAR ENCLOSURE
MKE98895	TR 34313 64059	Early Iron Age to Middle Iron Age	Bronze to Iron Age ditches and middens, south of Cottington Road, Cliffsend	DITCH; MIDDEN
MKE98899	TR 34411 63999	Medieval	Medieval features, south of Cottington Road, Cliffsend	DITCH
MWX43173	TR 35020 63817	Modern	WWII post alignment in the intertidal zone of Pegwell Bay, west of Ramsgate.	POST ALIGNMENT; ANTI SEAPLANE OBSTACLE; ANTI BOAT LANDING OBSTACLE; ANTI LANDING OBSTACLE; ANTI LANDING CABLE
MWX43182	TR 34452 63552	Modern	WWII beach scaffolding, Pegwell Bay	BEACH SCAFFOLDING
MWX43183	TR 34176 63100	Modern	WWII coastal defence measure in form of wire obstacle, Pegwell Bay	BEACH DEFENCE; ANTI LANDING CABLE
MWX43185	TR 34025 62925	Modern	WWII anti-tank blocks along the coastline of Pegwell Bay, extending south to a possible pillbox	ANTI TANK BLOCK; PILLBOX?

MWX43187	TR 34403 63815	Modern	WWII bomb crater, St Augustine's Golf Course, Pegwell Bay	BOMB CRATER
MWX43188	TR 34533 63897	Modern	WWII barbed wire, Pegwell Bay	BARBED WIRE ENTANGLEMENT
MWX43189	TR 34575 63824	Modern	WWII coastal defence feature comprising beach fencing, Pegwell Bay	FENCE; ANTI BOAT LANDING OBSTACLE
MWX43190	TR 34275 63983	Modern	WWII defensive features, Cliffsend, Pegwell Bay	SLIT TRENCH; MACHINE GUN POST; BARBED WIRE ENTANGLEMENT
MWX43191	TR 34167 63847	Modern	WWII defensive features, St Augustine's Golf Course, Pegwell Bay	SLIT TRENCH; MACHINE GUN POST; MOUND; PILLBOX
MWX43192	TR 34283 63964	Modern	WWII anti-aircraft battery, St Augustine's Golf Course, Pegwell Bay	SLIT TRENCH; DEFENCE WORK; ROAD; ANTI AIRCRAFT BATTERY; ANTI AIRCRAFT GUN EMPLACEMENT; BANK (EARTHWORK); MILITARY BUILDING
MWX43282	TR 33525 59739	Modern	Weatherlees Siding, Richborough Port	RAILWAY SIDING
MWX43334	TR 30533 62907	Unknown	Haystack stance, Minster Marshes	STACK STAND
MWX43335	TR 30732 62903	Unknown	Haystack stance, Minster Marshes	STACK STAND
MWX43337	TR 30734 62544	Modern	WWII enhanced drainage, Ash Levels	DEFENCE WORK; BANK (EARTHWORK); BANK (EARTHWORK); BANK (EARTHWORK); BANK (EARTHWORK); BANK (EARTHWORK)
MWX43337	TR 31920 62365	Modern	WWII enhanced drainage, Ash Levels	DEFENCE WORK; BANK (EARTHWORK);

				BANK (EARTHWORK); BANK (EARTHWORK); BANK (EARTHWORK); BANK (EARTHWORK)
MWX43337	TR 31372 62500	Modern	WWII enhanced drainage, Ash Levels	DEFENCE WORK; BANK (EARTHWORK); BANK (EARTHWORK); BANK (EARTHWORK); BANK (EARTHWORK); BANK (EARTHWORK)
MWX43342	TR 31490 62881	Modern	WWII enhanced drainage, Minster Marshes	DEFENCE WORK; BANK (EARTHWORK)
MWX43343	TR 31104 62604	Medieval to Post Medieval	Possible flood bank, Ash Levels	BANK (EARTHWORK); FLOOD DEFENCES
MWX43344	TR 31107 62738	Medieval to Post Medieval	Water management features, Ash Levels	FLOOD DEFENCES; BANK (EARTHWORK); DITCH; BANK (EARTHWORK)
MWX43353	TR 30955 62895	Modern	WWII bomb craters south of Boxlees Hill, Minster Marshes	BOMB CRATER
MWX43354	TR 31082 62972	Modern	WWII bomb craters south of Boxlees Hill, Minster Marshes	BOMB CRATER
MWX43355	TR 31079 62896	Unknown	WWII bomb crater south of Boxlees Hill, Minster Marshes	BOMB CRATER
MWX43356	TR 31033 62648	Unknown	Hay stack stance, Ash Levels	STACK STAND
MWX43357	TR 31300 62689	Unknown	Hay stack stance, Ash Levels	STACK STAND
MWX43358	TR 31497 62699	Unknown	Hay stack stance, Ash Levels	STACK STAND
MWX43359	TR 31380 62558	Unknown	Hay stack stance, Ash Levels	STACK STAND
MWX43360	TR 31454 62474	Unknown	Hay stack stance, Ash Levels	STACK STAND

MWX43362	TR 31435 62355	Medieval to Post Medieval	Hay stack stance, Ash Levels	STACK STAND
MWX43368	TR 31572 62656	Medieval to Post Medieval	Enclosure and boundary features, Ash Level.	BANK (EARTHWORK); ENCLOSURE
MWX43369	TR 31576 62939	Unknown	Possible drainage channel, Minster Marshes.	WATER CHANNEL
MWX43370	TR 31713 62950	Unknown	Possible flood bank, Minster Marshes	FLOOD DEFENCES
MWX43371	TR 31715 62865	Medieval to Post Medieval	Possible flood bank, Minster Marshes.	BANK (EARTHWORK)
MWX43372	TR 31763 62903	Medieval to Modern	Probable WWII Stop Line, Minster Marshes	DITCH; STOP LINE; BANK (EARTHWORK)
MWX43373	TR 31977 62557	Medieval to Post Medieval	Boundary features and possible flood bank, east of Minster Sluice, River Stour	FLOOD DEFENCES; BANK (EARTHWORK); DITCH
MWX43376	TR 31846 62218	Medieval to Post Medieval	Hay stack stance, Ash Level	STACK STAND
MWX43377	TR 32022 62358	Unknown	Hay stack stances, Ash Level	STACK STAND
MWX43387	TR 33027 62887	Medieval to Modern	Probable WWII Stop Line, Ebbsfleet to St Augustine's Well	DITCH; STOP LINE; BANK (EARTHWORK)
MWX43388	TR 34065 63478	Modern	Possibe pillbox, St Augustine's Golf Course	BUILDING
MWX43487	TR 33301 60950	Modern	Richborough Port	MILITARY DEPOT; PORT
MWX43720	TR 34695 63806	Post Medieval to Modern	Rifle range, Cliffsend	RIFLE RANGE

5.2.A Major Accidents and Disasters Scoping Table

Table 5.2.A.1: Major accidents and disasters scoping table

Major event group	Major event category	Major event type	Basis of decision to scope in/out	Proposed to be Scoped in?
Natural Hazards	Geophysical	Earthquakes	Earthquakes in the UK are moderately frequent but are unlikely to be powerful enough to inflict severe damage. The British Geological Society (BGS) acknowledges although the UK is distant from the nearest plate boundary, the Mid-Atlantic Ridge, earthquakes in the UK occur as crustal stresses within the tectonic plates are relieved by movement occurring on pre-existing fault planes. One of the driving forces is regional compression caused by motion of the Earth's tectonic plates and uplift resulting from the melting of the ice sheets that covered many parts of Britain thousands of years ago. The Project is not considered to be vulnerable to earthquakes of the level experienced in the UK. It is also unlikely to trigger earthquakes.	No
Natural Hazards	Geophysical	Volcanic Activity	According to the National Risk Register – 2020, there are a number of volcanoes across Europe that could affect the UK, especially volcanoes in Iceland (such as Bárðarbunga and Eyjafjallajökull) due to their proximity to the UK and because there are frequent eruptions. Due to prevailing winds, they have potential to blow ash and gas towards the UK. It is highly unlikely that an ash cloud could significantly impact on any aspect of the Project.	No
Natural Hazards	Geophysical	Landslides	The BGS is the definitive source of landslide information in Great Britain. The National Landslide Database shows there have been two landslides recorded within the Kent Scoping Boundary one within the Suffolk Scoping Boundary.	No

			The Project's topography is relatively flat with gently undulating land. The Project does not involve the formation of deep cuts/high embankments. In designing the Project to applicable standards, resources and receptors would not be put at a greater risk as a consequence of the Project.	
Natural Hazards	Geophysical	Sinkholes	The superficial and bedrock geology within the Project Scoping Boundary is described in **Part 2, Chapter 6, Geology and Hydrogeology**, for the Suffolk Onshore Scheme, **Part 3, Chapter 6, Geology and Hydrogeology**, for the Kent Onshore Scheme and **Part 4, Chapter 2, Physical Processes** for the Offshore Scheme. Due to the nature of the superficial and bedrock geology within the Project Scoping Boundary sinkholes are unlikely.	No
Natural Hazards	Geophysical	Tsunamis	N/A - The Project is not located in a tsunami risk zone.	No
Natural Hazards	Hydrology	Tidal Flooding	The baseline environment in relation to flooding is presented in **Part 2, Chapter 5, Water Environment** for the Suffolk Onshore Scheme and **Part 3, Chapter 5, Water Environment** for the Kent Onshore Scheme. With regards to both the Suffolk Onshore Scheme and the Kent Onshore Scheme the proposed converter stations would be outside of the floodplain and will incorporate appropriate post construction surface water management and land drainage systems which would result in negligible effects and are therefore proposed to be scoped out of the ES. There is no pathway for operational cables or overhead lines to impact on tidal flooding. Flood risk is proposed to be scoped in for both the Suffolk and Kent Onshore Schemes during construction, maintenance and decommissioning of the Project. The ES will be supported by a Flood	No
Natural Hazards	Hydrology	Fluvial Flooding		No
Natural Hazards	Hydrology	Pluvial Flooding		No
Natural Hazards	Hydrology	Groundwater Flooding		No

			Risk Assessment (FRA). The detailed scope of the FRA will be agreed with relevant stakeholders but the construction, maintenance and decommissioning of The Project is not likely to lead to any increased risk of a major accident or disaster from all types of flooding.	
Natural Hazards	Hydrology	Avalanches	N/A - Avalanches are not considered relevant given the location of the Project.	No
Natural Hazards	Climatological and Meteorological	Cyclones, hurricanes, typhoons, storms and gales	Cyclones, hurricanes, typhoons do not typically occur in the UK. Storms and gales could result in damage to the converter stations. However, they will be designed in line with UK standards which take into account environmental conditions including exposure to UK weather conditions. The risk is not significantly different to other similar infrastructure in the locality.	No
Natural Hazards	Climatological and Meteorological	Thunderstorms	This type of event could result in lightning strikes to temporary elevated structures during construction (e.g. tower cranes); however, the risk is no different to other construction projects in the locality. The converter stations will be fitted with appropriate lightning conductors.	No
Natural Hazards	Climatological and Meteorological	Wave surges	The Project is located in hydrological catchment areas that are at risk of tidal flooding, however the majority of the infrastructure is below ground and therefore would not be subject to the direct hydraulic forces of a wave surge.	No
Natural Hazards	Climatological and Meteorological	Extreme temperatures: Heatwaves, Low (sub-zero) temperatures and heavy snow	This type of event could expose site infrastructure to greater heat intensity and exposure to sunlight. Heavy snow could cause disruption to workers and delivery vehicles and drivers during construction. High temperature records are now being broken across the UK with increasing frequency. Data sourced from the UK Met Office summarises the highest daily maximum temperature in the UK is 40.3°C,	No

			recorded in Coningsby, Lincolnshire in July 2022. The lowest daily minimum temperature on record in the UK is -27.2°C recorded in Altnaharra, Scotland in December 1995. In late February and early March 2018, the UK experienced a spell of severe winter weather with very low temperatures and significant snowfall. This event became known as 'The Beast from the East' in the media and led to widespread impacts across the UK. Climate change is set to lead to more extreme events over the coming years. The project will be designed to existing National Grid standards, which include consideration of high temperatures. National Grid also undertakes regular inspections of the network using thermal imaging to assess damage from weather.	
Natural Hazards	Climatological and Meteorological	Droughts	Over the past 40 years or so, England has experienced five long-duration droughts (lasting over 6 months) and two shorter periods of drought. Drought in the other UK nations is rare. During the 2010–12 drought, parts of south-east and eastern England recorded their lowest 18-month rainfall total in over 100 years. Temporary hosepipe bans were applied to 20 million customers, and the environment and agricultural sectors were disrupted. Drought has the longest advance warning times of the severe weather types. The Project would not be vulnerable to drought. The design of the cable will be resilient to ground shrinkage.	No
Natural Hazards	Climatological and Meteorological	Severe Space Weather: Solar Flares	The energy from solar flares reaches Earth within a few minutes and can cause radio blackouts. The Project is no more vulnerable than other similar infrastructure in the locality.	No

Natural Hazards	Climatological and Meteorological	Severe Space Weather: Solar Energetic Particles	Solar energetic particles arrive at Earth around 15 minutes to a few hours after they occur, and cause solar radiation storms which can potentially harm astronauts and impact electronics. The Project is no more vulnerable than other similar infrastructure in the locality.	No
Natural Hazards	Climatological and Meteorological	Severe Space Weather: Coronal Mass Ejections (CMEs)	CMEs travel slowly and can take between 14 hours and up to four days to reach Earth and cause geomagnetic storms with many impacts including localised disruptions to power grids. The Project is no more vulnerable than other similar infrastructure in the locality.	No
Natural Hazards	Climatological and Meteorological	Fog	Fog is one of the most common weather conditions in the UK, particularly throughout autumn and winter. Severe disruption to transport occurs when the visibility falls below 50m over a wide area. Should fog become an issue during the construction phase due to visibility, work would cease, where it is not safe to continue until conditions improve.	No
Natural Hazards	Climatological and Meteorological	Wildfires: Forest fire, Bush/brush, pasture	In 2018, fire and rescue services dealt with a number of wildfires across the country. The vast majority of these were considered business as usual, although some larger incidents (including the Saddleworth Moor and Winter Hill fires) involved mutual aid from other services and the use of specialist capabilities such as high-volume pumps. Scotland also experiences large, rural wildfires, most recently seen in Dumfries and Galloway in 2020. The converter stations would include standoff distances from wooded areas and landscape planting. Should weather conditions during construction become hot and dry for a long period of time, further consideration would be given to hot work activity locations.	No

Natural Hazards	Climatological and Meteorological	Poor Air Quality	Between 27 June and 7 July 2006, and between 13 and 23 July of the same year, the UK experienced two periods of extended hot weather with associated elevated ozone and harmful airborne particles. In the first episode, the combination of heatwave conditions, poor air quality and worsening of people's pre-existing conditions led to up to 540 deaths and up to 700 hospital admissions. The same factors led to up to 630 deaths and up to 830 hospital admissions in the second episode. Periods of elevated pollution over a widespread area, and lasting more than two days, can occur around 5 to 10 times a year dependent on seasonal weather conditions. The proposed scope of the air quality assessment is set out in **Part 2, Chapter 9, Air Quality** for the Suffolk Onshore Scheme and **Part 3, Chapter 9, Air Quality** for the Kent Onshore Scheme. No potential significant air quality effects are predicted from the Project. During operation of the Project there is unlikely to be any effect on Air Quality as maintenance vehicles would be very few and there are no emissions associated with the operation of the Project itself.	No
Natural Hazards	Biological	Disease epidemics: • Viral • Bacterial • Parasitic • Fungal • Prion	There were four influenza pandemics in the 20th century. The most recent flu pandemic was the H1N1 strain (swine flu) pandemic in 2009 which caused at least 18,500 deaths worldwide. In 1918, another variant of the same H1N1 strain (Spanish flu) killed over 50 million people globally. Over the past 30 years, more than 30 new, or newly recognised, diseases have been identified. Most of these have been zoonoses – diseases that are naturally transmissible, directly or indirectly, from animals to humans. Examples of new infections that have emerged in the human population include	No

			COVID-19 (which has led to more than 150,000 deaths in the UK since the start of the pandemic), HIV and HCIDs, such as Ebola, SARS, Middle East Respiratory syndrome (MERS), and Zika virus. The construction and operation of the Project would not give rise to any disease epidemics. The development itself would be constructed following all necessary guidance and restrictions in place at the time of its construction relating to the control of COVID-19.	
Natural Hazards	Biological	Animal Diseases: • zoonotic: • avian influenza • West Nile virus • Rabies • non-zoonotic: • foot and mouth • swine fever	Both low and highly pathogenic avian influenza has been recorded in poultry in the UK several times in the last 10 years, although with no human cases reported. The most recent outbreaks of avian influenza occurred in November 2020 years, most recently in the winter of 2016/17, although with no human cases reported. Bats infected with Lyssavirus (rabies) have been found every year for the last seven years and there have been a number of cases of equine notifiable disease in the UK in 2019 and 2020. Classical swine fever has been recorded in the UK but African swine fever has not. Bluetongue was first recorded in the UK in 2007. It was eradicated in 2008 through vaccination but UK animals are vulnerable to new incursions. There was a devastating foot and mouth disease outbreak in 2001 which cost the UK around £8 billion, however, greatly improved response arrangements ensured that an outbreak in 2007 caused much less damage (£150 million). The Project would not be a source of any disease epidemics and spread during any outbreak would be controlled through containment of infected animals including prohibition of transportation. The	No

			Project will adopt strict biosecurity protocols when working between livestock/poultry farms and these measures would form part of the Construction Environmental Management Plan (CEMP)	
Natural Hazards	Biological	Plants	Standard control measures would be implemented by the appointed contractor during construction to handle and dispose of any diseased or invasive plants to prevent their spread. Measures, such as a biosecurity plan as set out in measure BE01 of **Appendix 1.4.A Outline Code of Construction Practice** would be put in place for the Project.	No
Technological or Manmade Hazards	Societal	Extensive public demonstrations which could lead to violence and loss of life	In recent decades, serious widespread disorder in the UK has been rare. On 6 August 2011, a protest in Tottenham following the shooting of Mark Duggan by the police escalated into widespread public disorder. The G20 summits in 2009 and 2017 resulted in varying degrees of violent disorder, while the tuition fees protest in 2010 saw incidents of criminal damage and use of improvised missiles against police. The Project is located in a largely rural area of the UK, and despite the isolated cases listed above, the UK is considered to be a politically stable country. The Project should not lead to civil unrest, widespread damage to societies and economies and is unlikely to require largescale multi-faceted humanitarian assistance.	No
Technological or Manmade Hazards	Societal	Widespread damage to societies and economies.		
Technological or Manmade Hazards	Societal	The need for largescale multi-faceted humanitarian assistance.		
Technological or Manmade Hazards	Societal	The hindrance or prevention of humanitarian assistance by political and military constraints		
Technological or Manmade Hazards	Societal	Significant security risks for humanitarian relief workers in some areas.		
Technological or Manmade Hazards	Societal	Famine	The Project is located in a developed country that produces its own crops and imports food. It is politically stable and not subject to hyperinflation and therefore food is available, whether produced within	No

			the UK or imported. Famine is also not relevant to the use of the Project.	
Technological or Manmade Hazards	Societal	Displaced population	The Project is located in a developed country which is politically stable. There will be no significant displacement of populations as part of the Project.	No
Technological or Manmade Hazards	Industrial and Urban Accidents	Major Accident Hazard Chemical sites	There are two establishments within 3km the Project Scoping Boundary that are covered by the Control of Major Accident Hazard (COMAH) Regulations 2015. These establishments are strictly regulated under the COMAH Regulations 2015 and have to manage their activities in a way which reduces risk to workers and the public. Operators must take all measures necessary to prevent major accidents and to limit their consequences for people and the environment. The Project would not lead to any increased risk of a major accident or disaster from a COMAH site.	No
Technological or Manmade Hazards	Industrial and Urban Accidents	Major Accident Hazard Pipelines	The Project would not lead to any increased risk of a major accident or disaster from a major accident hazard pipeline.	No
Technological or Manmade Hazards	Industrial and Urban Accidents	Nuclear	Nuclear sites are designed, built and operated so that the likelihood of releases of radiological material in the UK is extremely low. Historical accidents include Windscale (UK) in 1957. Sizewell B is located to the north of the Suffolk Scoping Boundary. It is a nuclear power station on the Suffolk coast. Alongside Sizewell B, Sizewell C was granted development consent in July 2022. Although the potential for interactions is considered to be negligible, Sizewell B & the proposed Sizewell C will be considered for further assessment. The Project would not lead to any increased risk of a major accident or disaster from a nuclear site.	No

Technological or Manmade Hazards	Industrial and Urban Accidents	Fuel storage	The Project would not lead to any increased risk of a major accident or disaster from a fuel storage site.	No
Technological or Manmade Hazards	Industrial and Urban Accidents	Dam breaches	Dam breaches in the UK are rare. The last major breach was at the Cwm Eigiau dam in 1925, which caused 17 fatalities and widespread flooding. The Malpasset dam in southern France was breached on 2 December 1959, resulting in over 400 fatalities and widespread damage. English reservoirs are regulated under the Reservoirs Act (1975). A UK dam breach is highly unlikely. However, if a breach occurs, the emergency services will issue a warning and may decide that evacuation is necessary. There are no reservoirs within the Project Scoping Boundary and the Project would not lead to any increased risk of a dam breach. Potential risks from reservoir flooding will be considered in the Flood Risk Assessment. The Project is not expected to lead to any increased risk of major accident or disaster from reservoir flooding.	No
Technological or Manmade Hazards	Industrial and Urban Accidents	Mines and storage caverns	The Kent Onshore Scheme Scoping Boundary is within a Coal Mining Reporting Area. This is detailed in **Part 3, Chapter 6, Geology and Hydrogeology**. Ground instability effects relating to historical coal mining and not likely to result in a significant effect as the Kent Onshore Scheme Scoping Boundary is not within a development high risk areas and the coal measures are anticipated to be relatively this and at significant depth. The Project is not likely to lead to any increased risk of a major accident or disaster from mines and caverns.	No
Technological or Manmade Hazards	Industrial and Urban Accidents	Fires	Fires could be initiated by construction related activities however standard control measures would be implemented by the	No

			appointed contractor to manage the risk of fire. Measure GG20 of **Appendix 1.4.A Outline Code of Construction Practice** prohibits bonfires and the burning of water material on site. The Project is not likely to lead to any increased risk of a major accident or disaster from fires.	
Technological or Manmade Hazards	Transport accidents	Road	Transport accidents occur across the UK on a daily basis. During construction there will be an increase in heavy construction plant and equipment on the local road network which would form the entry and exit points for construction traffic and therefore may increase the risk of road traffic accidents. Access points will incorporate appropriate visibility splays, turning radii and speed limit reductions where necessary/appropriate. Measures TT01, TT02, TT03 of **Appendix 1.4.A Outline Code of Construction Practice** set out measures to control and manage construction traffic on the highway network. The operation of the Project would not result in increased traffic flow or changes to traffic composition which could have an adverse impact on highway safety. The Project is not likely to lead to any increased risk of a major accident or disaster from road traffic accidents.	No
Technological or Manmade Hazards	Transport accidents	Rail	There are railway lines within both the Suffolk Onshore Scheme Scoping Boundary and the Kent Onshore Scheme Scoping Boundary. The railway line within the Suffolk Onshore Scheme Scoping Boundary would only need to be crossed if Site 3 Alternative (Option 1) was selected as the preferred option. The railway line within Kent would be crossed by the HVAC connection between the converter station and the Richborough to Canterbury overhead	No

			line. does not cross any rail stations or tracks within the Kent Scoping Boundary. The closest railway station to the proposed study area is Minster, located approximately 2km northwest. Construction of a new rail station, Thanet Parkway, is underway and due to open in December 2022. It is located approximately 2km northeast of the proposed study area and Within the Suffolk Scoping Boundary there are no rail services, although Saxmundham railway station is located circa. 2.5km to the northwest of the Option Area	
Technological or Manmade Hazards	Transport accidents	Waterways	The proposed scope of the Shipping and Navigation assessment is set out in **Part 4, Chapter 8, Shipping and Navigation**. Measures SN01, - SN06 are in included within **Appendix 1.4.A Outline Code of Construction Practice** to control and manage vessel movements during the installation of the marine cable. The Project is not likely to lead to any increased risk of a major accident or disaster from marine vessel accidents.	No
Technological or Manmade Hazards	Transport accidents	Aviation	There have been no major air accidents in the UK since the Kegworth incident in 1989. There are no in-use airports or airfields within the Project Scoping Boundary. The nearest airport is Manston Airport which is approximately 1km north of the Kent Onshore Scheme Scoping Boundary. The airport received development consent in August 2022, following re determination, for the construction and operation of additional facilities. The Kent Onshore Scheme will be designed so there no impacts on this airport or its operations. The Project is not likely to lead to any increased risk of a major accident or disaster from aviation accidents.	No

Technological or Manmade Hazards	Pollution accidents	Air	The proposed scope of the air quality assessment is set out in Part 2, Chapter 9, Air Quality for the Suffolk Onshore Scheme and Part 3, Chapter 9, Air Quality for the Kent Onshore Scheme. No potential significant air quality effects are predicted from the Project. During operation of the Project there is unlikely to be any effect on Air Quality as maintenance vehicles would be very few and there are no emissions associated with the operation of the Project itself. The Project is not likely to lead to any increased risk of a major accident or disaster from air pollution accidents.	No
Technological or Manmade Hazards	Pollution accidents	Land	Measures GG06, GG23, W02, GH05, GM03, LVS02 and LVS04 in **Appendix 1.4.A Outlie Code of Construction Practice** will ensure control and management measures are in place to prevent pollution from the construction of the Project. The Project is not likely to lead to any increased risk of a major accident or disaster from land pollution accidents.	No
Technological or Manmade Hazards	Pollution accidents	Water	Measures GG06, GG23, W02, GH05, GM03, LVS02 and LVS04 in **Appendix 1.4.A Outlie Code of Construction Practice** will ensure control and management measures are in place to prevent pollution from the construction of the Project. The Project is not likely to lead to any increased risk of a major accident or disaster from water pollution accidents	No
Technological or Manmade Hazards	Utilities failures	Electricity	Above-ground electrical transmission lines are present within the Scoping Boundary which are National Grid owned and transmitted 400kv. During construction, any work required near electric overhead power lines would be adequately controlled and appropriate site-specific risk assessments completed	No

			which would consider such aspects as: • The voltage and height; • Size and reach of any machinery or equipment; • Safe clearance distances required; • Site conditions such as undulating terrain; andCompetence, supervision, training and briefing to staff. The Project is not likely to lead to any increased risk of a major accident or disaster from an electricity utilities failure.	
Technological or Manmade Hazards	Utilities failures	Gas	There are no gas transmission pipelines within the Project Scoping Boundary The Project is not likely to lead to any increased risk of a major accident or disaster from a gas utilities failure.	No
Technological or Manmade Hazards	Utilities failures	Water Supply	The project would be designed and constructed to appropriate design standards which include crossing of other utilities. Including consultation and agreement of protective provisions with the asset owners. The Project is not likely to lead to any increased risk of a major accident or disaster from a water supply utilities failure.	No
Technological or Manmade Hazards	Utilities failures	Sewage system	The project would be designed and constructed to appropriate design standards which include crossing of other utilities. Including consultation and agreement of protective provisions with the asset owners. The Project is not likely to lead to any increased risk of a major accident or disaster from a sewage system utilities failure.	No
Technological or Manmade Hazards	Malicious Attacks	Unexploded Ordnance	UXO surveys will be undertaken and the project would be designed and	No

			constructed to appropriate design standards relevant to UXO. The Project is not likely to lead to any increased risk of a major accident or disaster from UXO.	
Technological or Manmade Hazards	Malicious Attacks	Chemical Biological Radiological Nuclear	The Project will form part of the National Transmission System. Measures are established to prevent such an attack.	No
Technological or Manmade Hazards	Malicious Attacks	Transport systems	N/A	No
Technological or Manmade Hazards	Malicious Attacks	Crowded places	N/A	No
Technological or Manmade Hazards	Engineering accidents and failures	Cyber	According to the National Risk Register 2020, cyber-attacks occur almost constantly on key national and commercial electronic information, control systems and digital industries. National Grid Electricity System Operator (ESO) must adhere to Security Quality of Supply Standards. The Project is not likely to lead to any increased risk of a major accident or disaster from cyber attacks.	No
Technological or Manmade Hazards	Engineering accidents and failures	Infrastructure	N/A	No
Technological or Manmade Hazards	Engineering accidents and failures	Bridge failure	N/A	No
Technological or Manmade Hazards	Engineering accidents and failures	Flood defence failure	The project would be designed and constructed to appropriate design standards which include crossing of flood defences. Including consultation and agreement of protective provisions with the asset owners. The Project is not likely to lead to any increased risk of a major accident or disaster from a flood defence failure.	No

Technological or Manmade Hazards	Engineering accidents and failures	Mast and tower collapse	The HVAC connection for the Kent Onshore Scheme includes an option for this to be made with an overhead line. There are no overhead lines proposed as part of the Suffolk Onshore Scheme. Pylons are designed with a wide base and deep concrete foundations to provide a stable footing. The pylons are designed to safety standards that mean it is highly unlikely that a pylon would collapse if something fell on it. The Project is not likely to lead to any increased risk of a major accident or disaster from mast or tower collapse.	No
Technological or Manmade Hazards	Engineering accidents and failures	Property or bridge demolition accidents	N/A	No
Technological or Manmade Hazards	Engineering accidents and failures	Tunnel failure/fire	N/A.	No
Technological or Manmade Hazards	Human error	Buried strike to existing buried services	The protection of buried services is achieved through existing safety controls embedded during the design and construction stages. These include analysis of up-to-date service information to identify the location of services, holding discussions with service providers to agree protective provisions and managing the risks to services. Measures to manage risk include undertaking service location surveys to track where services are located on the ground. Works would also take into consideration Health and Safety and Environment (HSE) guidance (2014), which provides advice on how to reduce any direct risks to people's health and safety, as well as the indirect risks arising through damage to services. These existing measures reduce the risk to as low as reasonably practicable for the project to cause a service strike through human error. The Project is not likely to lead to any increased risk of a major accident or	No

			disaster from buried strike to existing buried services.	
Technological or Manmade Hazards	Human error	Damage to underground cable	The underground cables are placed at a minimum depth of 1.1m (deep enough so as not to be affected by agricultural activities). The cables and ducts are placed in cement-bound sand with a tile over the top as added protection. Landowners would be made aware of the route of the cable and associated land rights which would outline the activities that can take place over the cable. In the extremely unlikely event that the cable was damaged, the fault would be reported in milliseconds through the monitoring system and the system would be auto-isolated, making it safe pending investigations. The Project is not likely to lead to any increased risk of a major accident or disaster from damage to underground cables.	No
Technological or Manmade Hazards	Human error	Crane Operation	Geotechnical investigations would be undertaken to identify the stability/suitability of the ground beneath where the crane would be placed, having an appropriately designed crane base plate, and using trained staff to operate the crane. The Project is not likely to lead to any increased risk of a major accident or disaster from crane operation.	No
Technological or Manmade Hazards	Sabotage or arson	Sabotage or arson on proposed infrastructure	During construction, the working area would have security fencing around the site and only authorised personnel would be admitted to the site. Outside of working hours, it is anticipated that the site would have the proper security measures such as: security guard/CCTV to check for trespassers that could result in sabotage or arson. During operation, the converter stations surrounded by security fencing to prevent trespass. The Project is not likely to lead to any increased risk of a major accident or disaster from sabotage or arson on the proposed infrastructure.	No



Sea Link

Environmental Impact Assessment Scoping Report
Volume 3 Figures

October 2022

nationalgrid

Contents

Part 1 Introduction

Figure 1.1.1: Project Scoping Boundary
Figure 1.1.2: Suffolk Onshore Scheme Scoping Boundary
Figure 1.1.3: Kent Onshore Scheme Scoping Boundary
Figure 1.1.4: Offshore Scheme Scoping Boundary
Figure 1.3.1: Routeing and Siting Study Area
Figure 1.3.2: Suffolk Landfall Areas of Search
Figure 1.3.3: Kent Landfall Areas of Search
Figure 1.3.4: Suffolk Network Connection Points
Figure 1.3.5: Suffolk Converter Site Option Areas
Figure 1.3.6: Kent Converter Site Option Areas
Figure 1.3.7: Suffolk Terrestrial Route Corridors - Sizewell Connection
Figure 1.3.8: Suffolk Terrestrial Route Corridors - Proposed Firston Connection
Figure 1.3.9: Suffolk Terrestrial Route Corridors - New Connection
Figure 1.3.10: Kent Terrestrial Route Corridors
Figure 1.3.11: Marine Alignments

Part 2 Suffolk Onshore Scheme

Figure 2.1.1: Evolution of the Suffolk Onshore Scheme
Figure 2.1.2: Suffolk Onshore Scheme Initial Preference
Figure 2.1.3: Potential Coordinated Converter Station Sites Fig-
ure 2.1.4: Suffolk Site 1 Emerging Preference
Figure 2.1.5: Suffolk Site 3 Emerging Preference
Figure 2.1.6: Suffolk Site 1 Alternative
Figure 2.1.7: Suffolk Site 3 Alternative (option 1)
Figure 2.1.8: Suffolk Site 3 Alternative (option 2)
Figure 2.1.9: Suffolk Site 1 Emerging Preference Option Area
Figure 2.1.10: Suffolk Site 3 Emerging Preference Option Area
Figure 2.1.11: Suffolk Site 1 Alternative Option Area
Figure 2.1.12: Suffolk Site 3 Alternative Option 1 Option Area
Figure 2.1.13: Suffolk Site 3 Alternative Option 2 Option Area
Figure 2.2.1: Topography
Figure 2.2.2: Landscape Context and Designations
Figure 2.2.3: Landscape Character - National & Regional
Figure 2.2.4: Landscape Character - County

Figure 2.2.5: Landscape Character - District
Figure 2.2.6: Seascape Character - National & Regional
Figure 2.2.7: Bare Earth Zone of Theoretical Visibility - Converter Station Site 1
Figure 2.2.8: Bare Earth Zone of Theoretical Visibility - Converter Station Site 3
Figure 2.2.9: Representative Viewpoint Locations and Screened Zone of Theoretical Visibility - Site 1
Figure 2.2.10: Representative Viewpoint Locations and Screened Zone of Theoretical Visibility - Site 3
Figure 2.3.1: Statutory Designated Ecological Features- Suffolk
Figure 2.4.1: Designated cultural heritage assets within the Scoping Boundary and wider 1 km study area
Figure 2.4.2: Non-designated cultural heritage assets within the Scoping Boundary
Figure 2.5.1: Water Environment Study Area and Existing Features
Figure 2.6.1: Superficial Geology
Figure 2.6.2: Bedrock Geology
Figure 2.6.3: Hydrogeology
Figure 2.6.4: Potential Sources of Contamination
Figure 2.7.1: Soilscape Mapping
Figure 2.7.2: Provisional Agricultural Land Classification Mapping
Figure 2.7.3: Detailed Agricultural Land Classification Mapping
Figure 2.7.4: Environmental Stewardship Agreements and Woodland Grant Schemes
Figure 2.8.1: Proposed Study Area in Suffolk (Traffic & Transport)
Figure 2.10.1: Noise and Vibration Baseline - Suffolk
Figure 2.11.1: Suffolk Onshore Scheme Socio-economic, Recreation and Tourism Study Areas and Receptors
Figure 2.12.1: Suffolk Onshore Scheme Health and Wellbeing Study Areas and Receptors
Figure 2.13.1: Zone of Influence for Suffolk Onshore Scheme
Figure 2.13.2: All projects and development plans located within the Zone of Influence for Suffolk Onshore Scheme
Figure 2.13.3: Projects proposed to be taken forward to Stage 2 for Suffolk Onshore Scheme

Part 3 Kent Onshore Scheme

Figure 3.1.1: Evolution of the Kent Onshore Scheme
Figure 3.1.2: Kent Onshore Scheme
Figure 3.2.1: Topography
Figure 3.2.2: Landscape Context and Designations
Figure 3.2.3: Landscape and Seascape Character - National & County
Figure 3.2.4: Landscape Character - District

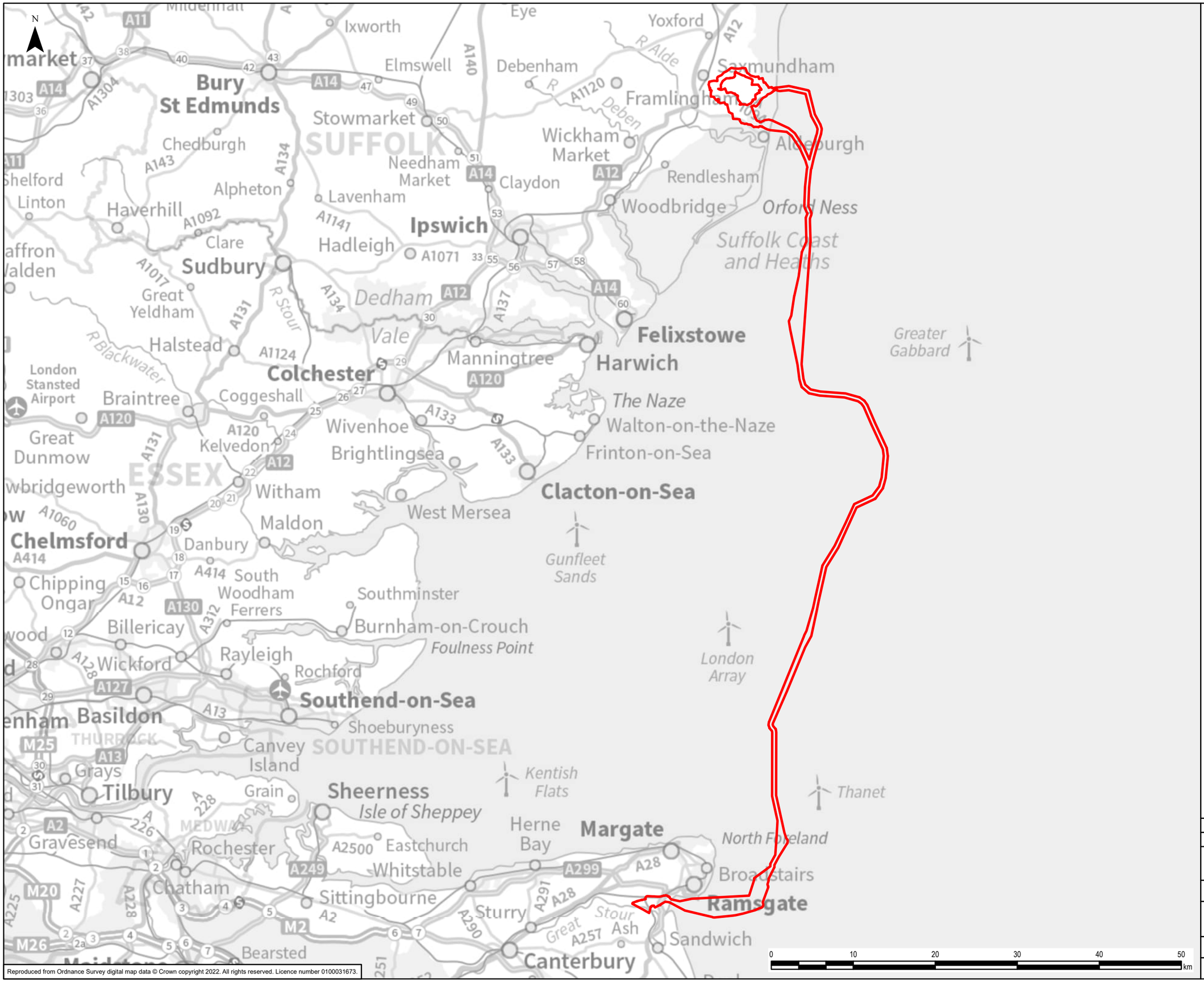
Figure 3.2.5: Bare Earth Zone of Theoretical Visibility
Figure 3.2.6: Representative Viewpoint Locations and Screened Zone of Theoretical Visibility
Figure 3.3.1: Statutory Designated Ecological Features- Kent
Figure 3.4.1: Designated cultural heritage assets within the Scoping Boundary and wider 1 km study area
Figure 3.4.2: Non-designated cultural heritage assets within the Scoping Boundary
Figure 3.5.1: Water Environment Study Area and Existing Features
Figure 3.6.1: Superficial Geology
Figure 3.6.2: Bedrock Geology
Figure 3.6.3: Hydrogeology
Figure 3.6.4: Potential Sources of Contamination
Figure 3.7.1: Soilscape Mapping
Figure 3.7.2: Provisional Agricultural Land Classification Mapping
Figure 3.7.3: Detailed Agricultural Land Classification Mapping
Figure 3.7.4: Environmental Stewardship Agreements and Woodland Grant Schemes
Figure 3.8.1: Proposed Study Area in Kent (Traffic & Transport)
Figure 3.10.1: Noise and Vibration Baseline - Kent
Figure 3.11.1: Kent Onshore Scheme Socio-economic, Recreation and Tourism Study Areas and Receptors
Figure 3.12.1: Kent Onshore Scheme Health and Wellbeing Study Areas and Receptors
Figure 3.13.1: Zone of Influence for Kent Onshore Scheme
Figure 3.13.2: All projects and development plans located within the Zone of Influence for Kent Onshore Scheme
Figure 3.13.3: Projects Proposed to be taken forward to Stage 2 for Kent Onshore Scheme

Part 4 Offshore Scheme

Figure 4.1.1: Evolution of the Offshore Scheme
Figure 4.2.1: Physical Environment Study Area and Metocean Data Sites
Figure 4.2.2: Significant Wave Height (In Part 4, Chapter 2)
Figure 4.2.3: Wind Speed (In Part 4, Chapter 2)
Figure 4.2.4: Bathymetry of the Study Area
Figure 4.2.5: Bedrock Geology at the Kent Landfall
Figure 4.2.6: Bedrock Geology at the Suffolk Landfalls
Figure 4.2.7: Superficial Geology at the Kent Landfall
Figure 4.2.8: Superficial Geology at the Suffolk Landfalls
Figure 4.2.9: Seabed Sediments across the Study Area
Figure 4.2.10: Average suspended sediment around the UK (In Part 4, Chapter 2)

Figure 4.3.1: Benthic Ecology Study Area and Designated Sites
Figure 4.4.1: Fish and Shellfish Ecology Study Area and Designated Sites
Figure 4.5.1: Marine Mammals Study Area and Designated Sites
Figure 4.6.1: Marine Ornithology Study Area and Designated Sites
Figure 4.7.1: Location of Recorded Seabed and Internal Features within, and in Proximity, to the Study Area
Figure 4.8.1: Study Area for Shipping and Navigation
Figure 4.8.2: Key Navigational Features
Figure 4.8.3: Chart of Vessel Tracks by Ship Type Group (In Part 4, Chapter 8)
Figure 4.8.4: AIS Tracks Data by Ship Type Group
Figure 4.9.1: Commercial Fisheries Study Area
Figure 4.9.2: Total landed weight (tonnes) and value (£) of catch by ICES rectangle (2016 – 2020) (In Part 4, Chapter 9)
Figure 4.10.1: Offshore Infrastructure in the Study Area
Figure 4.11.1: Zone of Influence for Marine Offshore Scheme
Figure 4.11.2: All projects and development plans located within the Zone of Influence for Marine Offshore Scheme
Figure 4.11.3: Projects taken forward to Stage 2 for the Offshore Scheme

Part 1- Introduction



Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	06/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

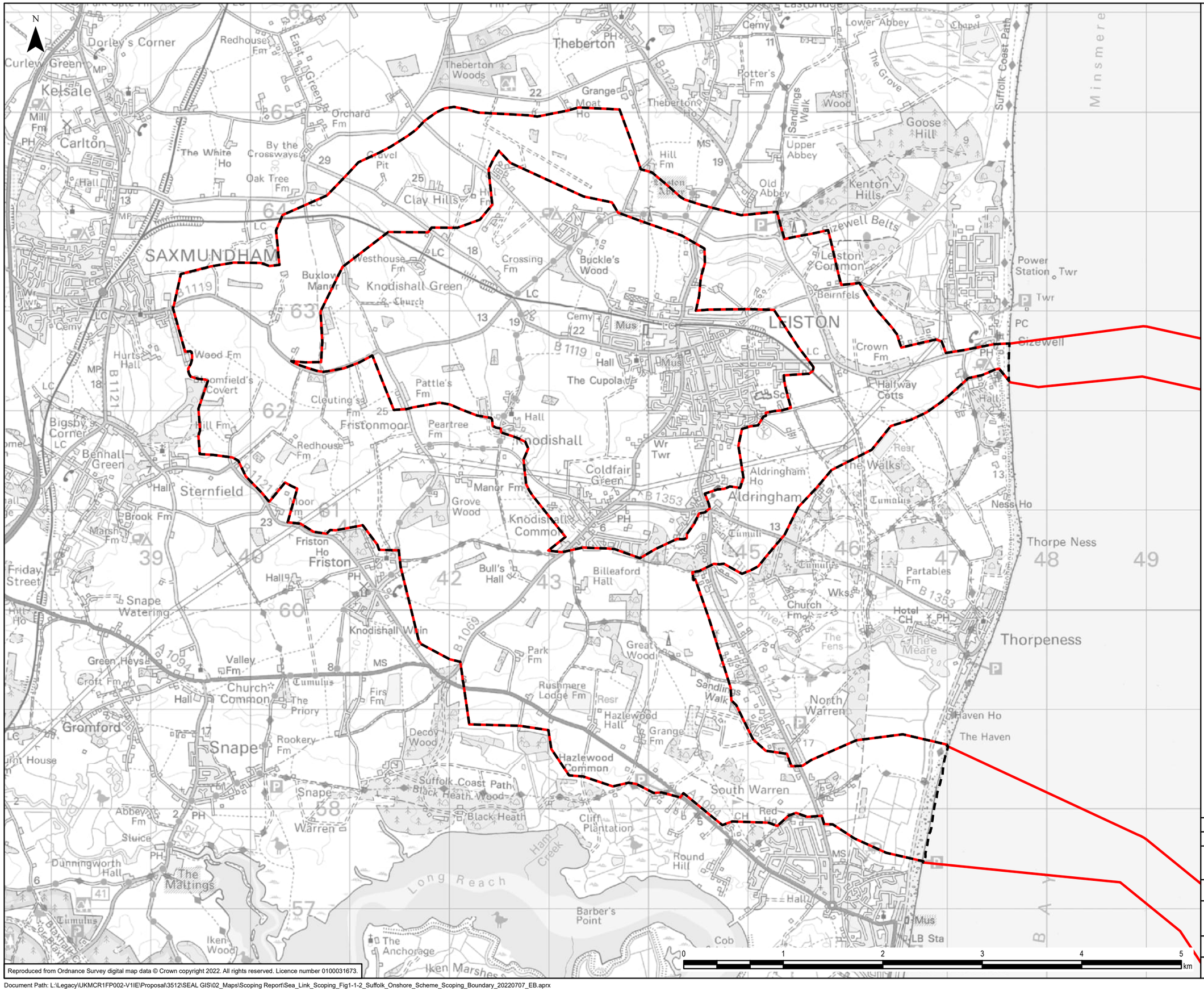
Scheme: SEA LINK

Document Title: PROJECT SCOPING BOUNDARY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	06/07/2022	DF	06/07/2022	CC	06/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.1.1	1:425,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-1-1_Project_Scoping_Boundary_20220706_EB.aprx



Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	07/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

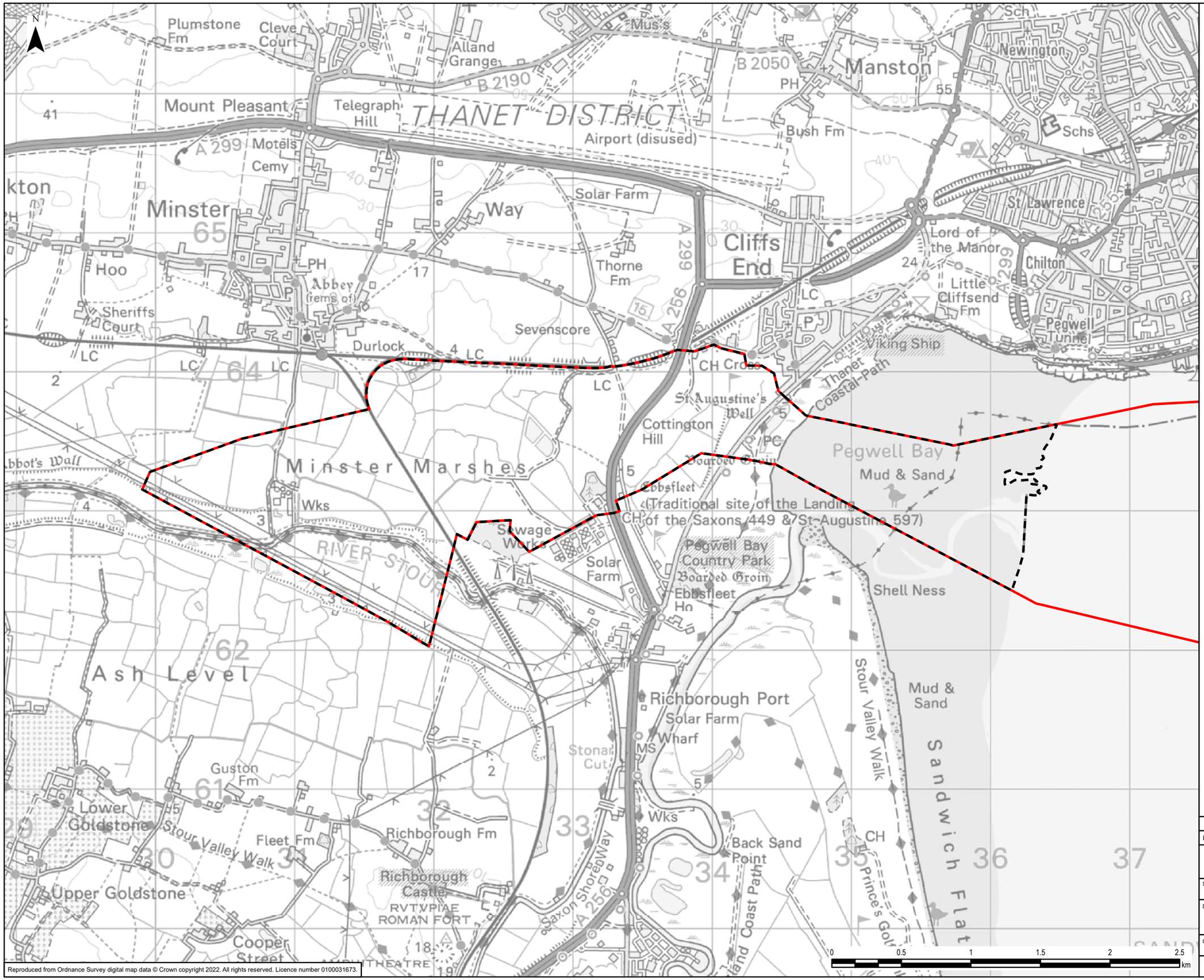
Scheme: SEA LINK

Document Title: SUFFOLK ONSHORE SCHEME SCOPING BOUNDARY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	07/07/2022	DF	07/07/2022	CC	07/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.1.2	1:35,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-1-2_Suffolk_Onshore_Scheme_Scoping_Boundary_20220707_EB.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary

Rev	Date	Description	GIS	Chk	App
0	07/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

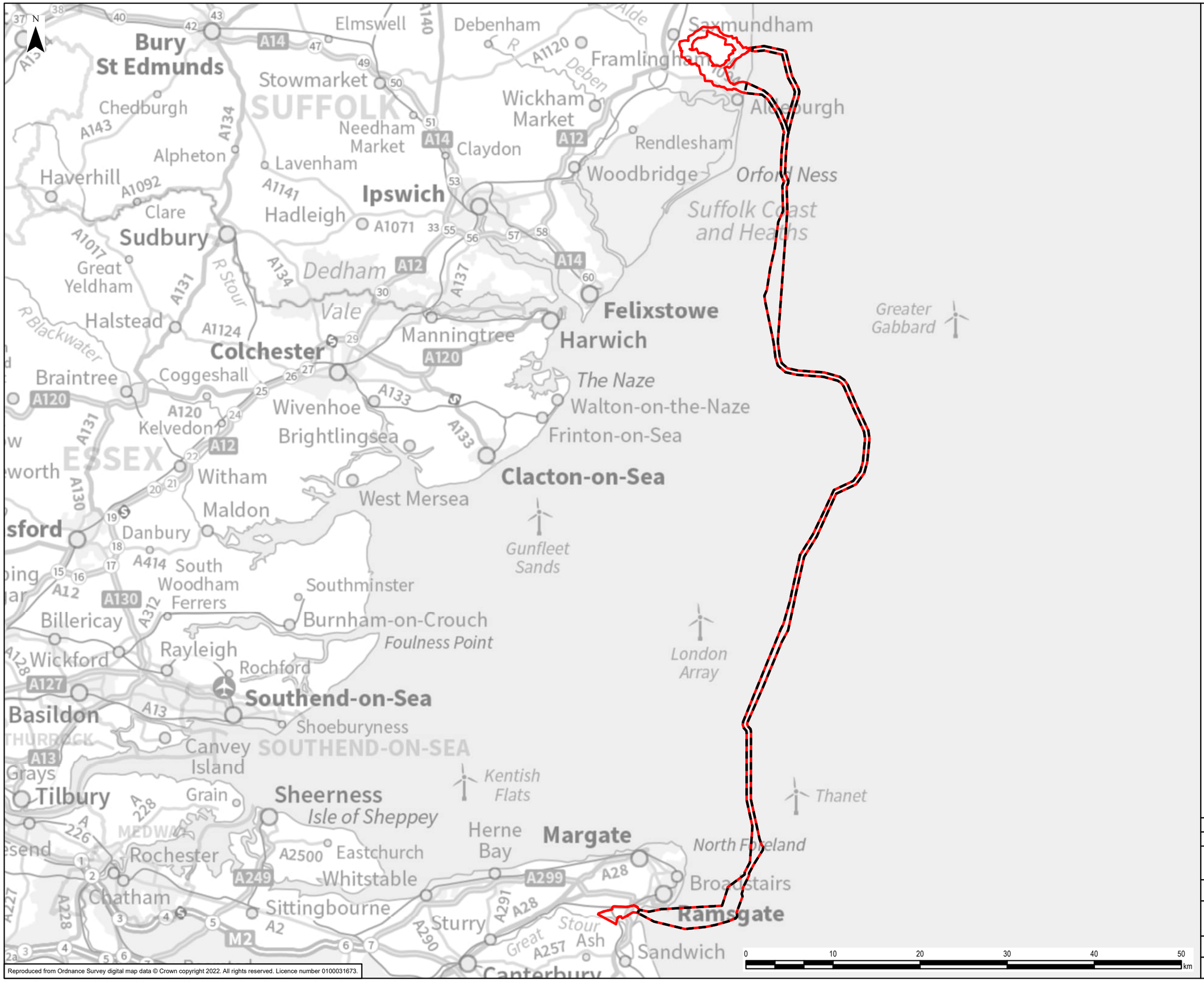
Scheme: SEA LINK

Document Title: KENT ONSHORE SCHEME SCOPING BOUNDARY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	07/07/2022	DF	07/07/2022	CC	07/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.1.3	1:25,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-1-3_Kent_Onshore_Scheme_Scoping_Boundary_20220707_EB.aprx



Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	07/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

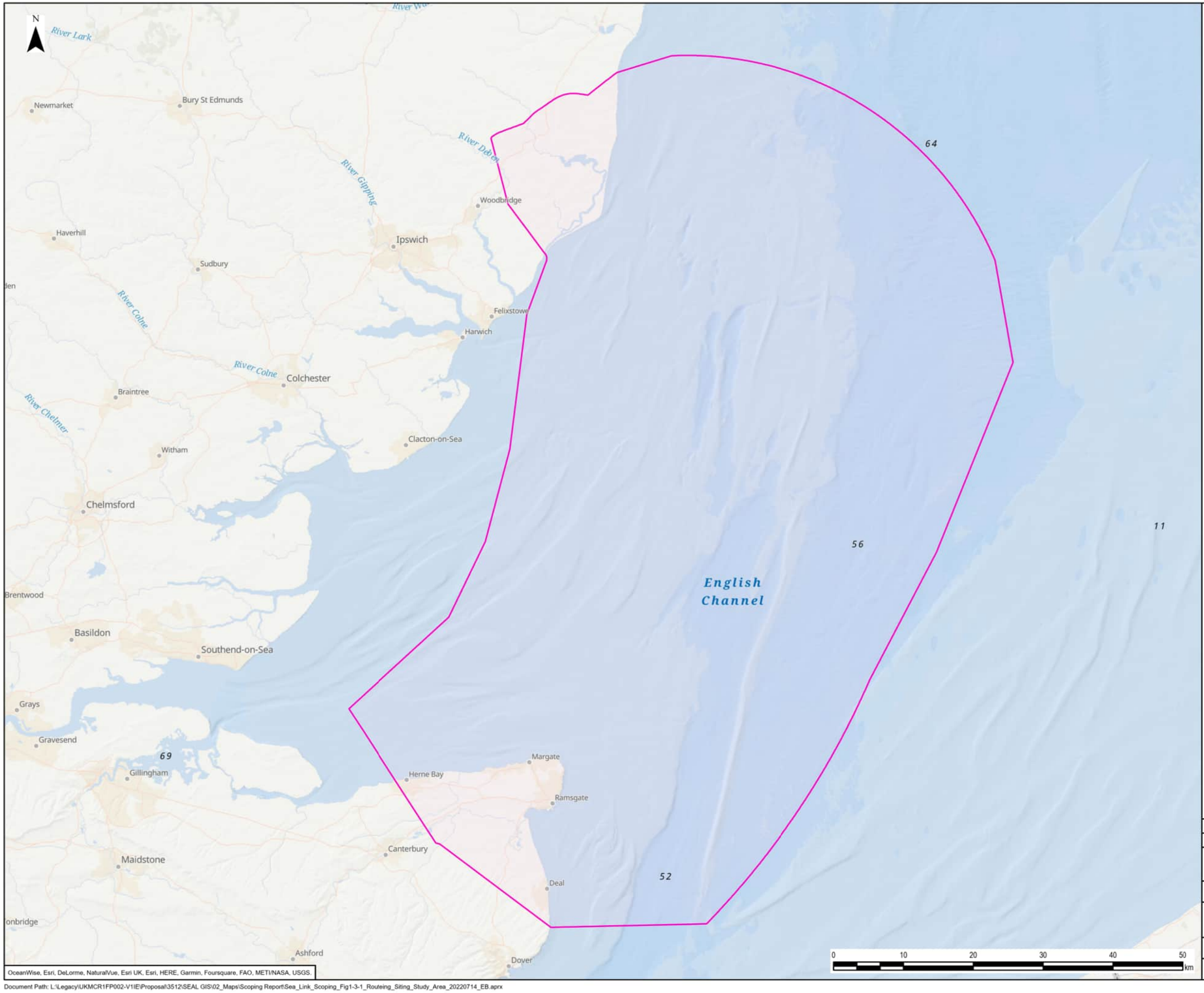
Scheme: SEA LINK

Document Title: OFFSHORE SCHEME SCOPING BOUNDARY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	07/07/2022	DF	07/07/2022	CC	07/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.1.4	1:400,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-1-4_Offshore_Scheme_Scoping_Boundary_20220707_EB.aprx



Rev	Date	Description	GIS	Chk	App
0	14/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

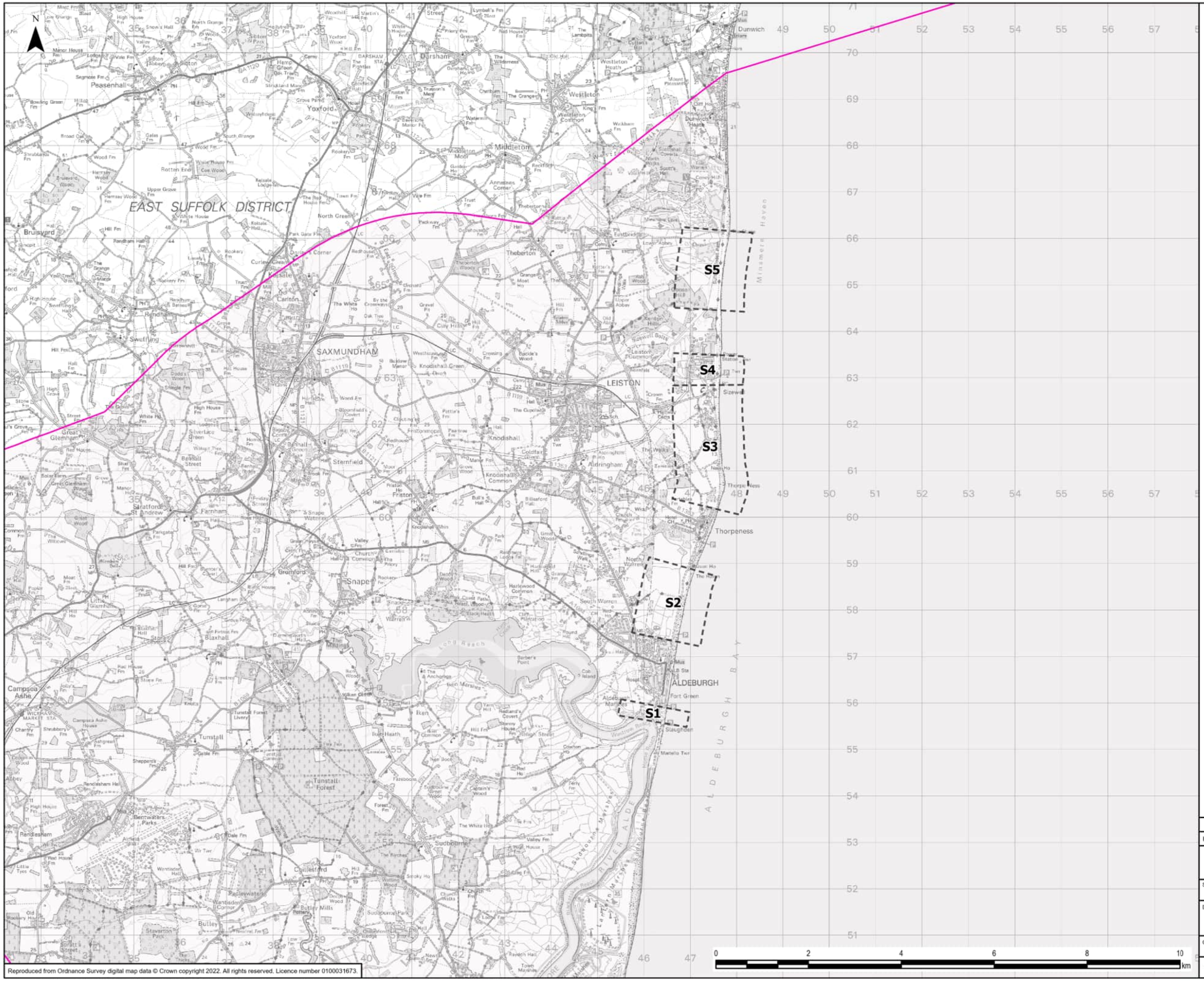
Scheme: SEA LINK

Document Title: ROUTEING AND SITING STUDY AREA

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	14/07/2022	DF	14/07/2022	CC	14/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.3.1	1:500,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-3-1_Routeing_Siting_Study_Area_20220714_EB.aprx



Legend

- Routeing and Siting Study Area
- Landfall Area of Search

Rev	Date	Description	GIS	Chk	App
0	14/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme:	SEA LINK
Document Title:	SUFFOLK LANDFALL AREA OF SEARCH

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	14/07/2022	DF	14/07/2022	CC	14/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.3.2	1:75,000	A3	1	0

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-3-2_Suffolk_Landfall_Areas_of_Search_20220714_EB.aprx



Legend

- Routeing and Siting Study Area
- Landfall Area of Search

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	14/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

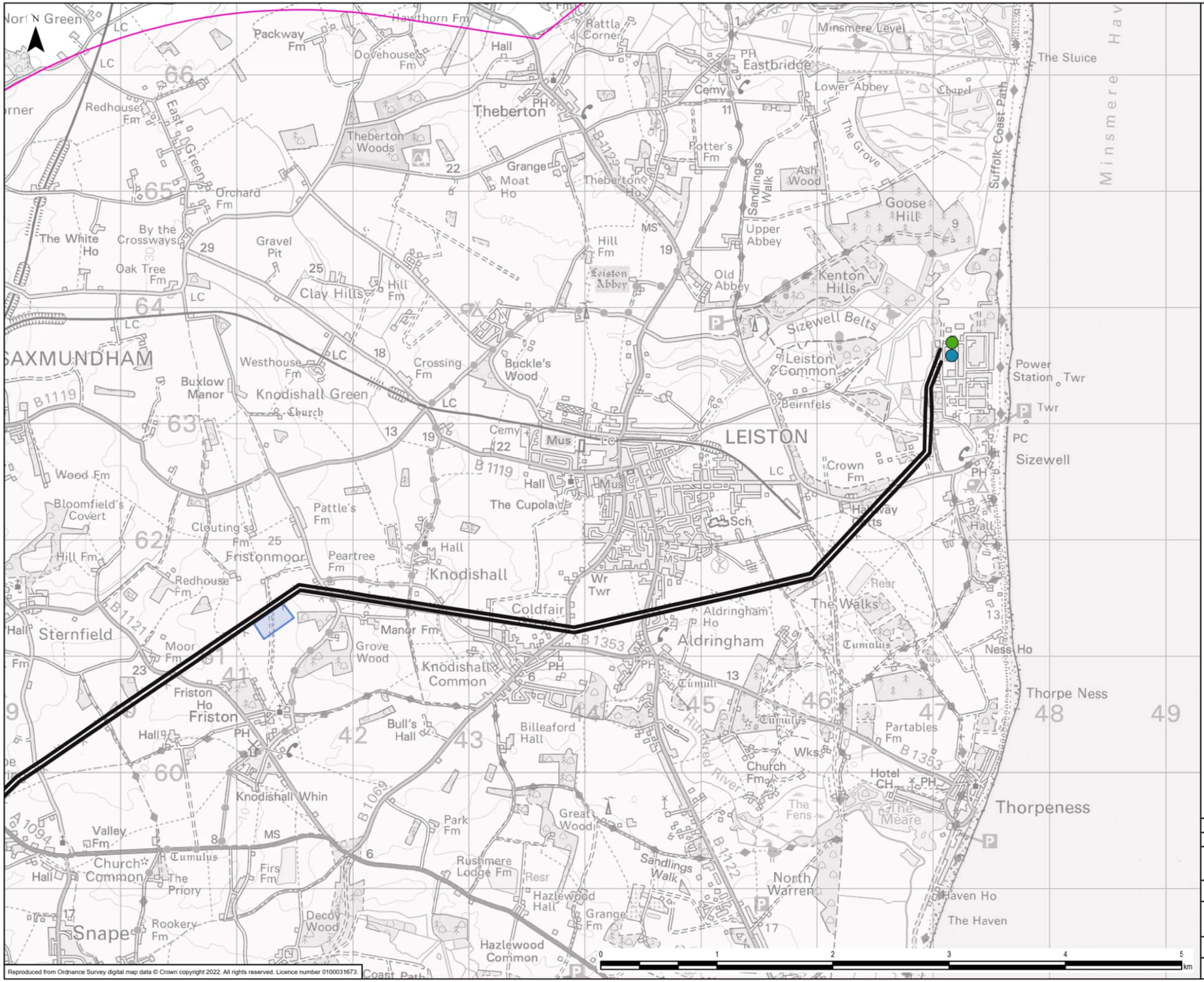
Scheme: SEA LINK

Document Title: KENT LANDFALL AREA OF SEARCH

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	14/07/2022	DF	14/07/2022	CC	14/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.3.3	1:100,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-3-3_Kent_Landfall_Areas_of_Search_20220714_EB.aprx



Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	13/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

Document Title: SUFFOLK NETWORK CONNECTION POINTS

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	13/07/2022	DF	13/07/2022	CC	13/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.3.4	1:30,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-3-4_Suffolk_Network_Connection_Points_20220713_EB.aprx

EAST SUFFOLK DISTRICT

SAXMUNDHAM

LEISTON

ALDEBURGH

A

B

C

D

E

F

G

H

I

Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Proposed Friston Substation
- Converter Site Option Areas

0 1 2 3 4 5 km

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	14/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

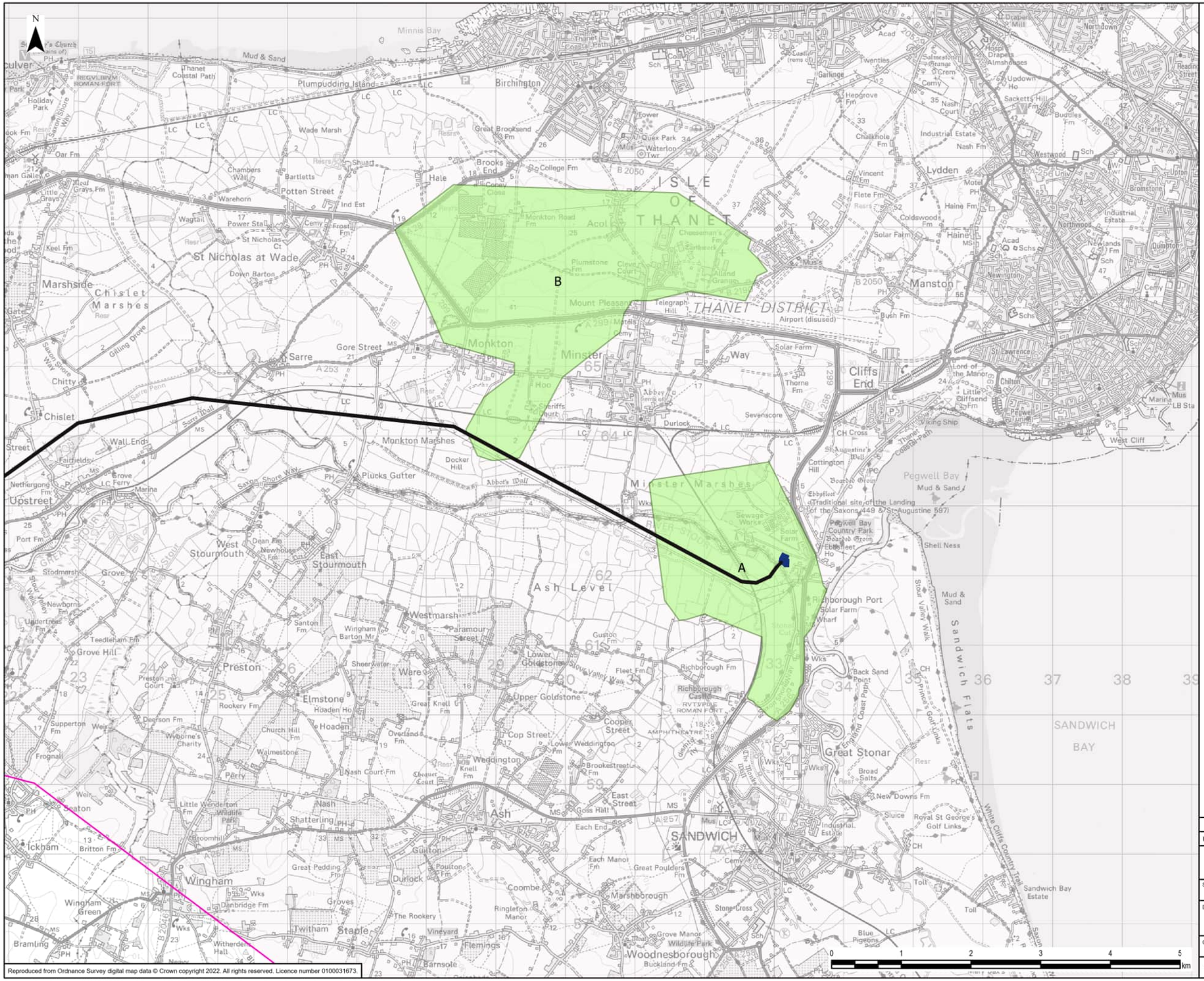
Scheme: SEA LINK

Document Title: SUFFOLK CONVERTER SITE OPTION AREAS

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	14/07/2022	DF	14/07/2022	CC	14/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.3.5	1:50,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-3-5_Suffolk_Converter_Site_Option_Areas_20220714_EB.aprx



Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	13/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

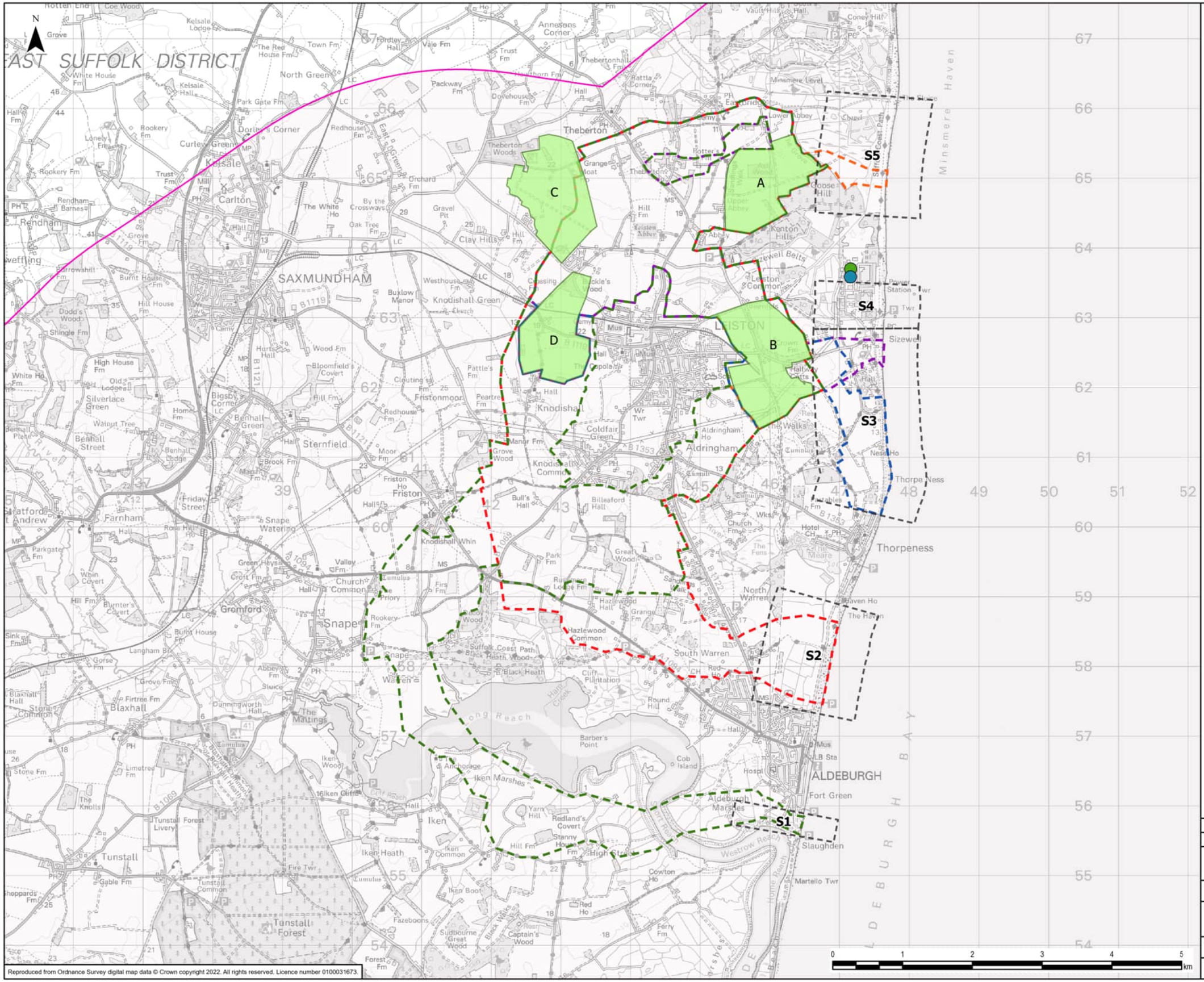
Scheme: SEA LINK

Document Title: KENT CONVERTER SITE OPTION AREAS

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	13/07/2022	DF	13/07/2022	CC	13/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.3.6	1:50,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-3-6_Kent_Converter_Site_Option_Areas_20220713_EB.aprx



Legend

- Routeing and Siting Study Area
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Converter Site Option Areas

Sizewell Connection Points Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange
- Landfall Area of Search

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	14/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

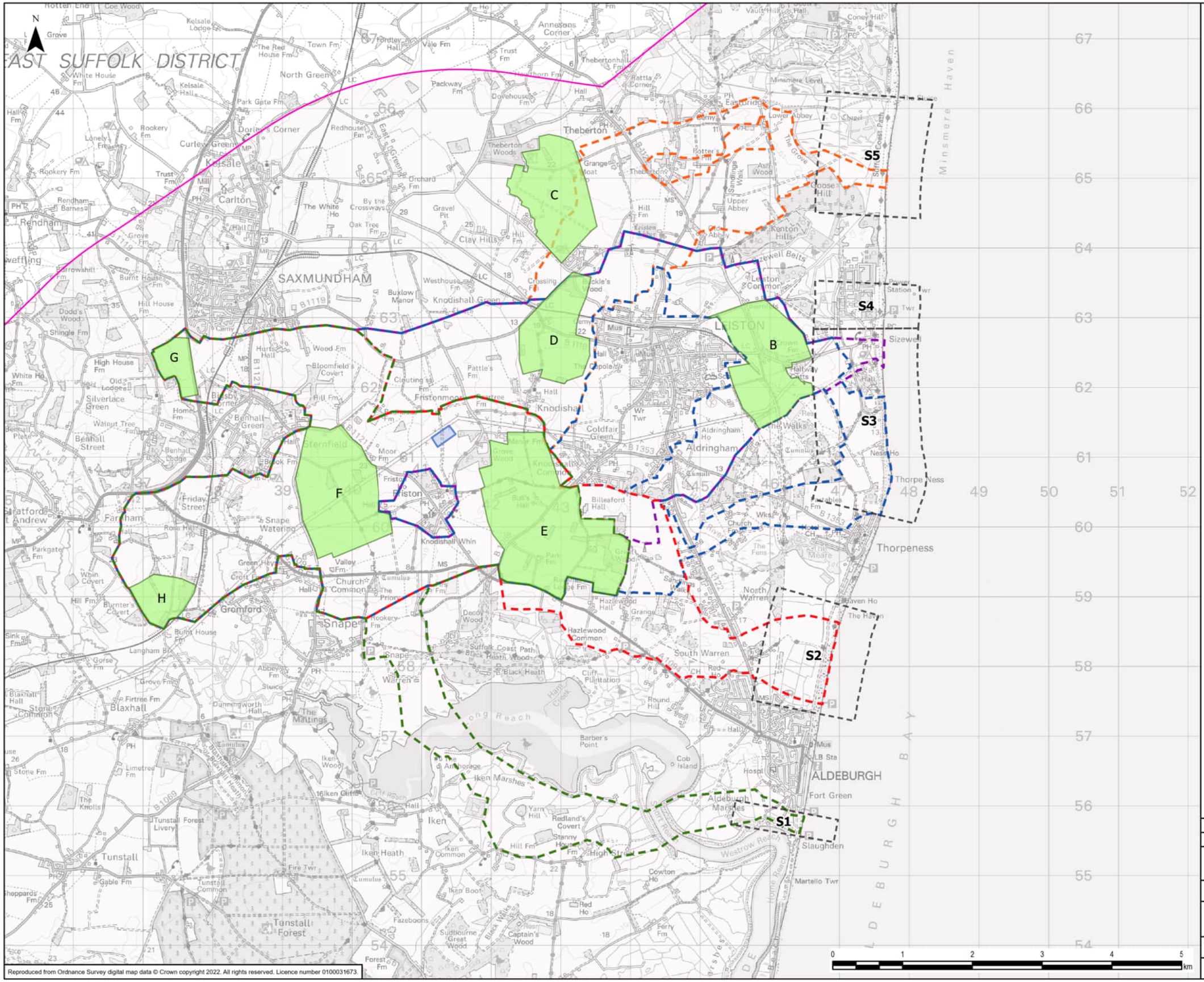
Scheme: SEA LINK

Document Title: SUFFOLK TERRESTRIAL ROUTE CORRIDORS - SIZEWELL CONNECTION

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	14/07/2022	DF	14/07/2022	CC	14/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.3.7	1:50,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-3-7_Suffolk_Terrestrial_Route_Corridors_Sizewell_Connection_20220714_EB.aprx



Legend

- Routeing and Siting Study Area
- Proposed Friston Substation
- Landfall Area of Search
- Converter Site Option Areas

Proposed Friston Substation Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

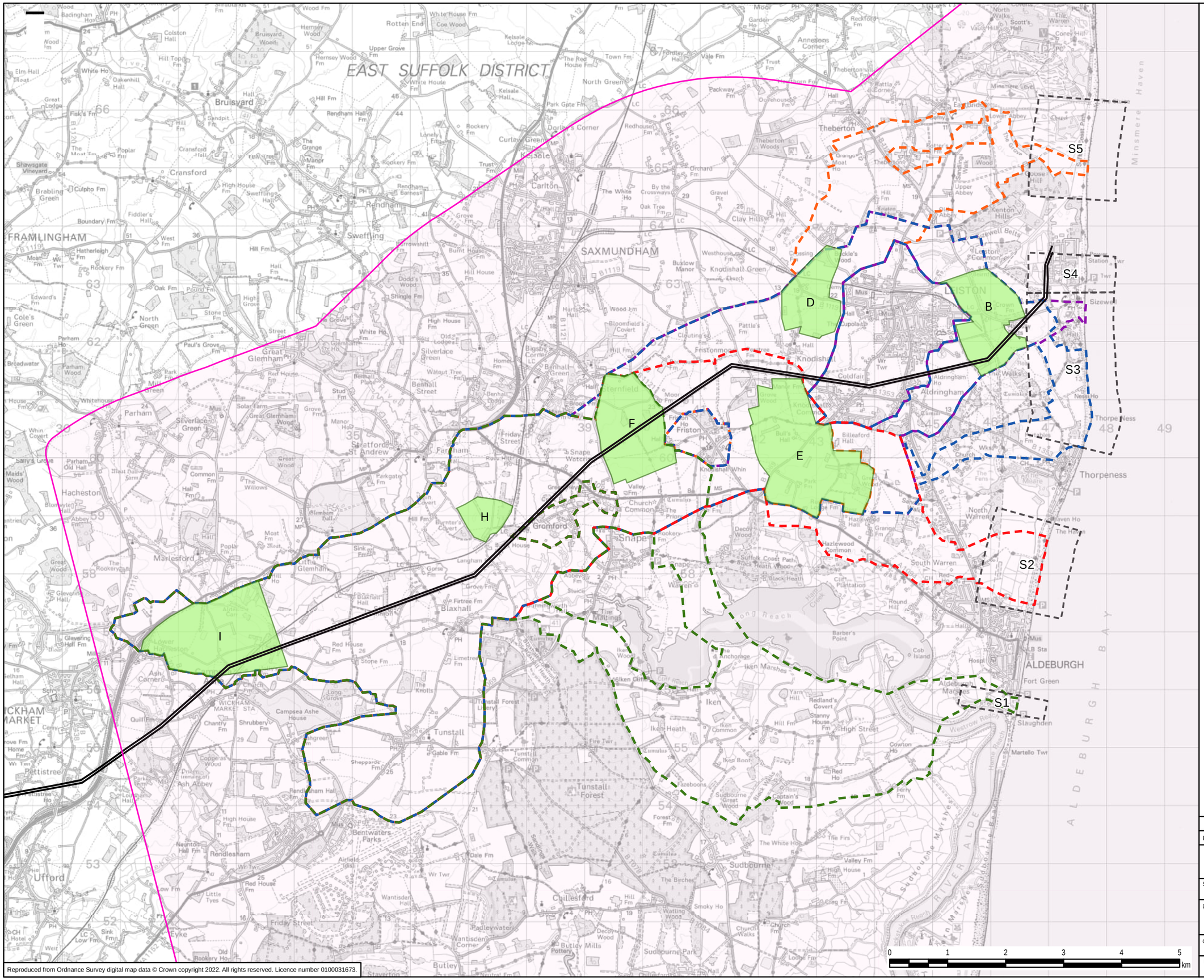
Scheme: SEA LINK

Document Title: SUFFOLK TERRESTRIAL ROUTE CORRIDORS - PROPOSED FRISTON CONNECTION

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	CC	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.3.8	1:50,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-3-8_Suffolk_Terrestrial_Route_Corridors_Proposed_Friston_Connection_20220714_EB.aprx



Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Landfall Area of Search
- Converter Site Option Areas

New Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	20/10/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

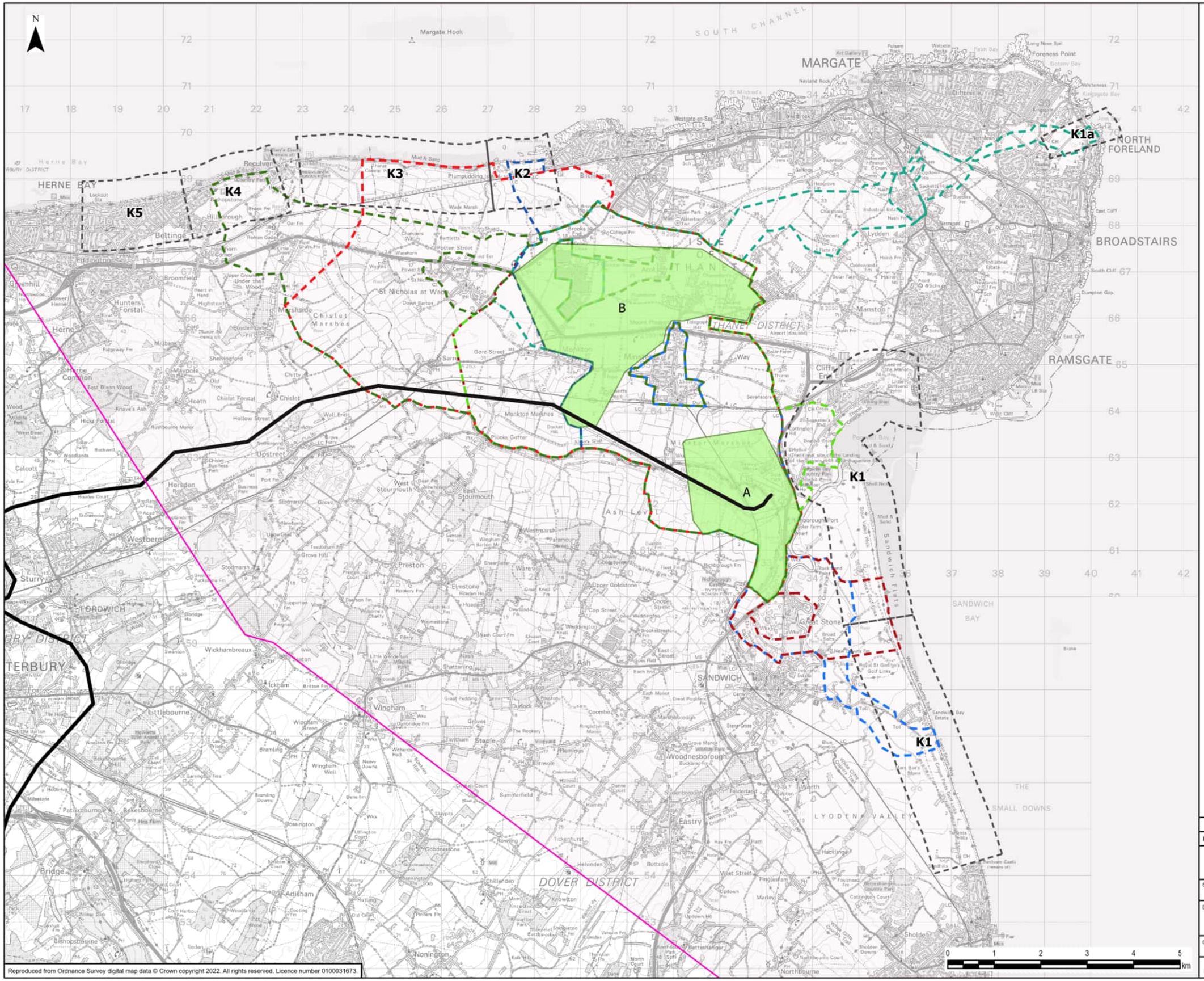
Scheme: SEA LINK

Document Title: SUFFOLK TERRESTRIAL ROUTE CORRIDORS - NEW CONNECTION

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	20/10/2022	DF	20/10/2022	CC	20/10/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.3.9	1:60,000	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-3-9_Suffolk_Terrestrial_Route_Corridors_New_Connection_20220714_EB.aprx



Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Landfall Area of Search
- Converter Site Option Areas

North Kent Coast Terrestrial Corridors

- Green
- Red
- Blue

Broadstairs Terrestrial Corridor

- Green

Pegwell Bay Terrestrial Corridors

- Green
- Red
- Blue

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	EB	DF	CC
0	14/07/2022	SCOPING REPORT			

nationalgrid

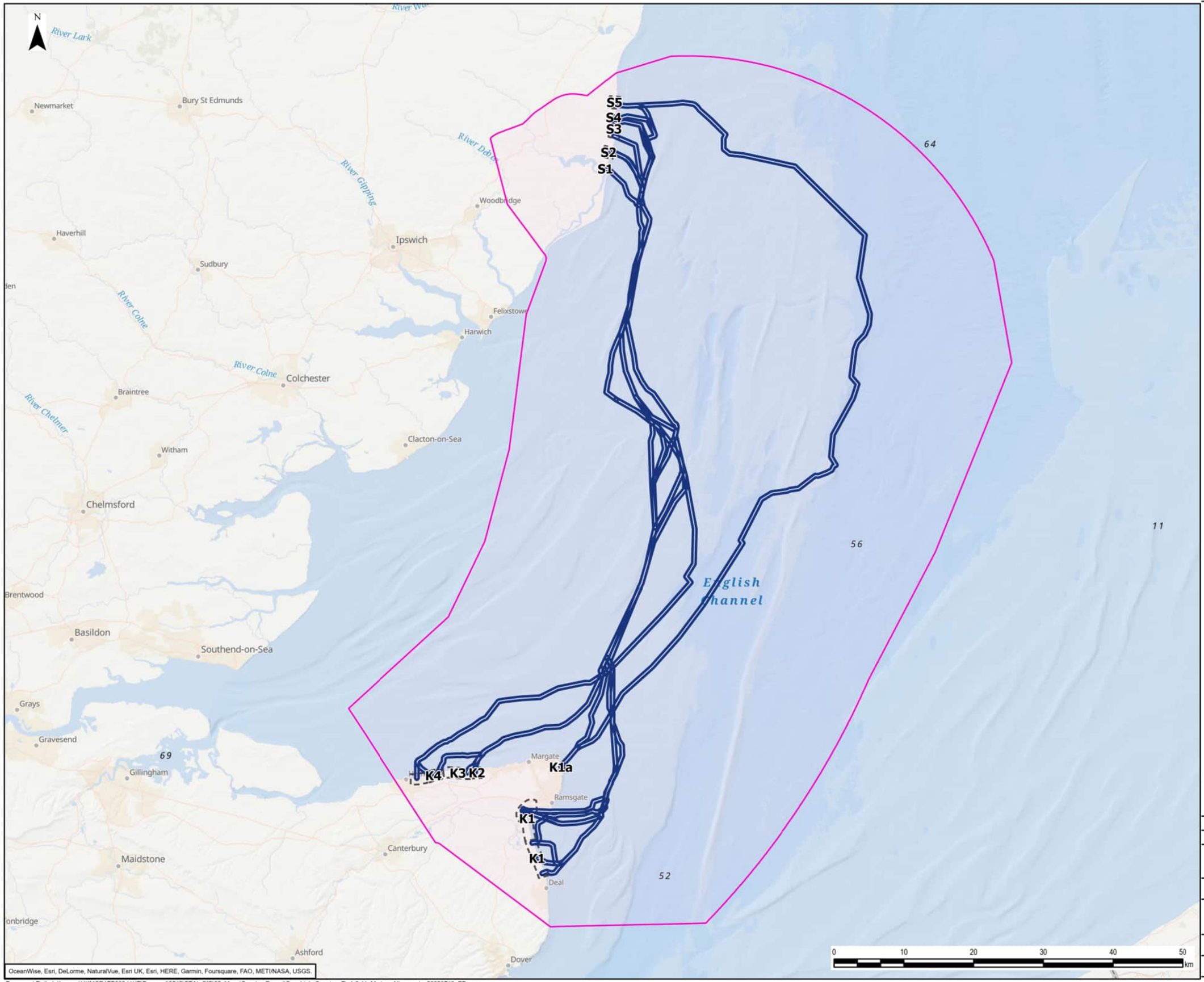
Scheme: SEA LINK

Document Title: KENT TERRESTRIAL ROUTE CORRIDORS

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	14/07/2022	DF	14/07/2022	CC	14/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.3.10	1:75,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-3-10_Kent_Terrestrial_Route_Corridors_20220714_EB.aprx



Legend

- Routeing and Siting Study Area
- Landfall Area of Search
- Marine Final Routes

Rev	Date	Description	GIS	Chk	App
0	13/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

Document Title: MARINE ALIGNMENTS

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	13/07/2022	DF	13/07/2022	CC	13/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 1.3.11	1:500,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig1-3-11_Marine_Alignments_20220713_EB.aprx

Part 2- Suffolk Onshore Scheme

EAST SUFFOLK DISTRICT

A
B
C
D
E
F
G
H
I
S1
S2
S3
S4
S5

Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Proposed Friston Substation
- Converter Site Option Areas
- Landfall Area of Search
- Marine Final Routes

Sizewell Connection Points Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange

Proposed Friston Substation Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Orange
- Purple

New Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Orange
- Purple

Rev	Date	Description			
0	20/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

Document Title: EVOLUTION OF THE SUFFOLK ONSHORE SCHEME - SHEET 1 OF 4

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	20/07/2022	DF	20/07/2022	CC	20/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.1	1:60,000	A3	1	0

0 1 2 3 4 5 km

© National Grid UK.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-1_Evolution_of_Suffolk_Onshore_Scheme_Sheet_1_of_4_20220720_EB.aprx

EAST SUFFOLK DISTRICT

A
B
C
D
E
F
G
H
I
S1
S2
S3
S4
S5

Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Proposed Friston Substation
- Converter Site Option Areas
- Landfall Area of Search
- Marine Final Routes

Sizewell Connection Points Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange

Proposed Friston Substation Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Orange
- Purple

New Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Orange
- Purple

Rev	Date	Description			
0	20/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

Document Title: EVOLUTION OF THE SUFFOLK ONSHORE SCHEME - SHEET 2 OF 4

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	20/07/2022	DF	20/07/2022	CC	20/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.1	1:60,000	A3	1	0

0 1 2 3 4 5 km

© National Grid UK.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-1_Evolution_of_Suffolk_Onshore_Scheme_Sheet_2_of_4_20220720_EB.aprx

EAST SUFFOLK DISTRICT

MINSMERE-WALBERSWICK HEATHS AND MARSHES SSSI

SIZEWELL MARSHES SSSI

GROMFORD MEADOW SSSI

SNAPE WARREN SSSI

ALDE-ORE ESTUARY SPA

ALDE-ORE & BUTLEY ESTUARIES SAC

BLAXHALL HEATH SSSI

IKEN WOOD SSSI

SANDLINGS SPA

SANDLINGS FOREST SSSI

CRAG PIT, ALDEBURGH SSSI

ALDEBURGH BRICK PIT SSSI

ROUND HILL PIT, ALDEBURGH SSSI

ALDEBURGH HALL PIT SSSI

LEISTON - ALDEBURGH SSSI

RED HOUSE FARM PIT, SUDBOURNE SSSI

VALLEY FARM PIT, SUDBOURNE SSSI

ALDE-ORE ESTUARY SSSI

ORFORDNESS-SHINGLE STREET SAC

A B C D E F G H I S1 S2 S3 S4 S5

Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Proposed Friston Substation
- Converter Site Option Areas
- Landfall Area of Search
- Marine Final Routes

Sizewell Connection Points Terrestrial Corridors
- Green
- Red
- Blue
- Purple
- Orange

Proposed Friston Substation Connection Point Terrestrial Corridors
- Green
- Red
- Blue
- Orange
- Purple

New Connection Point Terrestrial Corridors
- Green
- Red
- Blue
- Orange
- Purple

- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- Proposed Sizewell C Nuclear Power Station Order Limits

© National Grid UK
© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

0 1 2 3 4 5 km

Rev	Date	Description	EB	DF	CC
0	20/07/2022	SCOPING REPORT			

nationalgrid

Scheme: SEA LINK

Document Title: EVOLUTION OF THE SUFFOLK ONSHORE SCHEME - SHEET 3 OF 4

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	20/07/2022	DF	20/07/2022	CC	20/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.1	1:60,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-1_Evolution_of_Suffolk_Onshore_Scheme_Sheet_3_of_4_20220720_EB.aprx

EAST SUFFOLK DISTRICT

MINSMERE-WALBERSWICK HEATHS AND MARSHES SSSI

SIZEWELL MARSHES SSSI

GROMFORD MEADOW SSSI

SNAPE WARREN SSSI

ALDE-ORE ESTUARY SPA

ALDE-ORE & BUTLEY ESTUARIES SAC

BLAXHALL HEATH SSSI

IKEN WOOD SSSI

SANDLINGS SPA

SANDLINGS FOREST SSSI

CRAG PIT, ALDEBURGH SSSI

ALDEBURGH BRICK PIT SSSI

ROUND HILL PIT, ALDEBURGH SSSI

ALDEBURGH HALL PIT SSSI

LEISTON - ALDEBURGH SSSI

RED HOUSE FARM PIT, SUDBOURNE SSSI

VALLEY FARM PIT, SUDBOURNE SSSI

ALDE-ORE ESTUARY SSSI

ORFORDNESS-SHINGLE STREET SAC

A B C D E F G H I

S1 S2 S3 S4 S5

0 1 2 3 4 5 km

Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Proposed Friston Substation
- Converter Site Option Areas
- Landfall Area of Search
- Marine Final Routes

Sizewell Connection Points Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange

Proposed Friston Substation Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Orange
- Purple

New Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Orange
- Purple
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- RSPB Reserve
- Rivers
- Proposed Sizewell C Nuclear Power Station Order Limits
- East Anglia One North & Two Order Limits

Rev	Date	Description	GIS	Chk	App
0	21/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

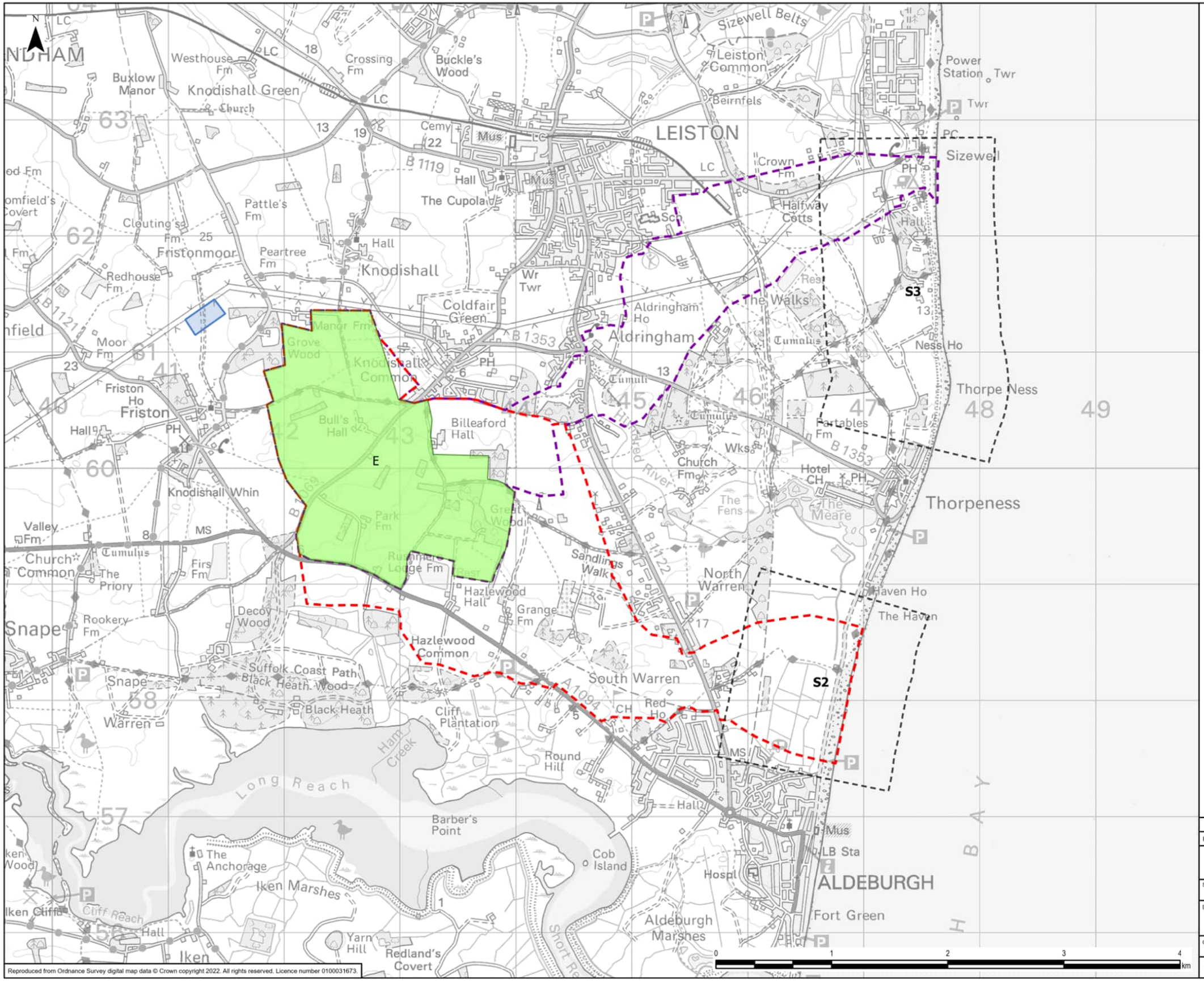
Document Title: EVOLUTION OF THE SUFFOLK ONSHORE SCHEME - SHEET 4 OF 4

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	21/07/2022	DF	21/07/2022	CC	21/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.1	1:60,000	A3	1	0

© National Grid UK.
Contains Ordnance Survey Data © Crown Copyright and database right 2022.
© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Data reproduced with the permission of RSPB. © Crown Copyright. Ordnance Survey licence number 100021787 2022
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-1_Evolution_of_Suffolk_Onshore_Scheme_Sheet_4_of_4_20220720_EB.aprx



Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

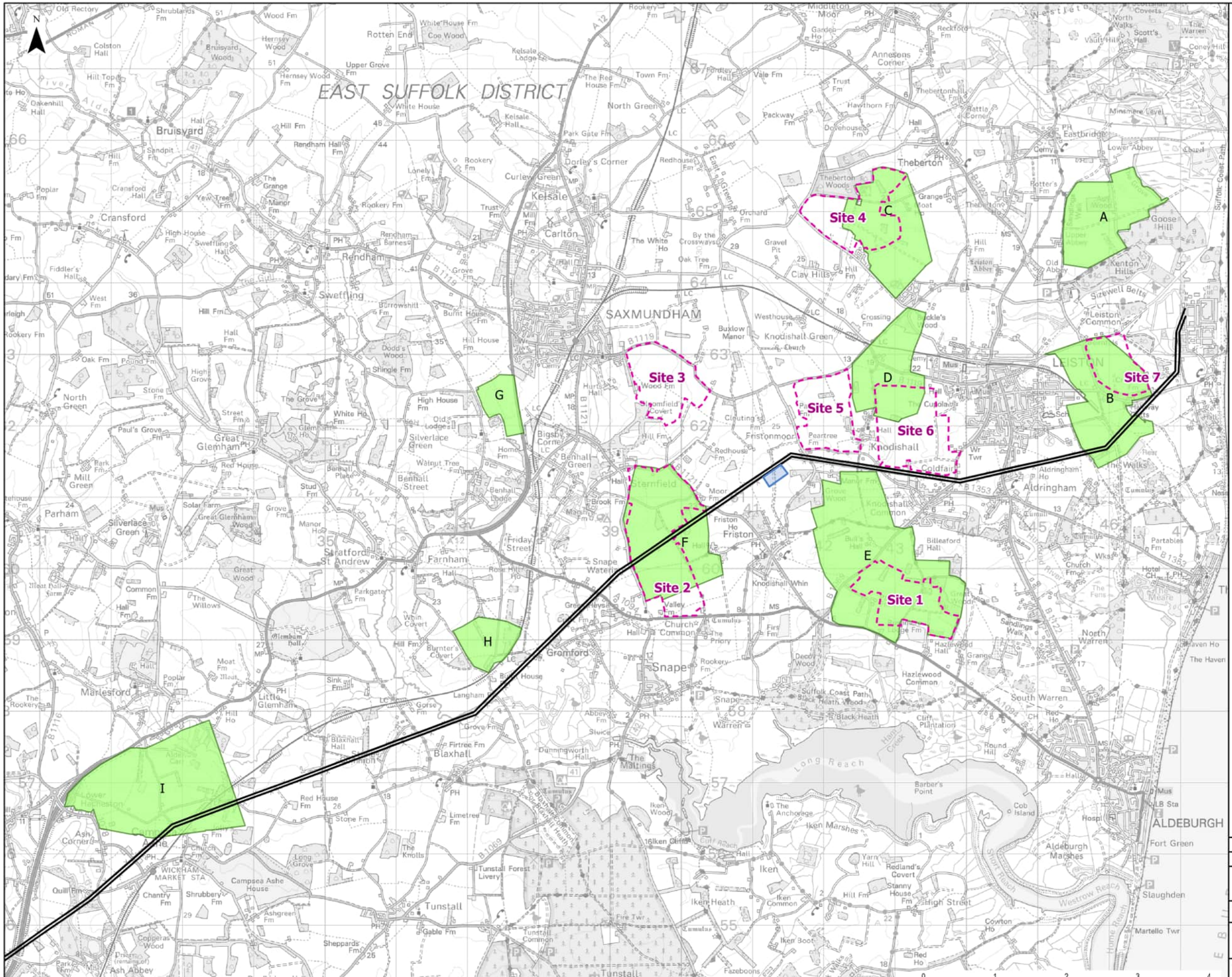
Scheme: SEA LINK

Document Title: SUFFOLK ONSHORE SCHEME INITIAL PREFERENCE

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	CC	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.2	1:30,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-2_Suffolk_Onshore_Scheme_Initial_Preference_20220719_EB.aprx



© National Grid UK
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

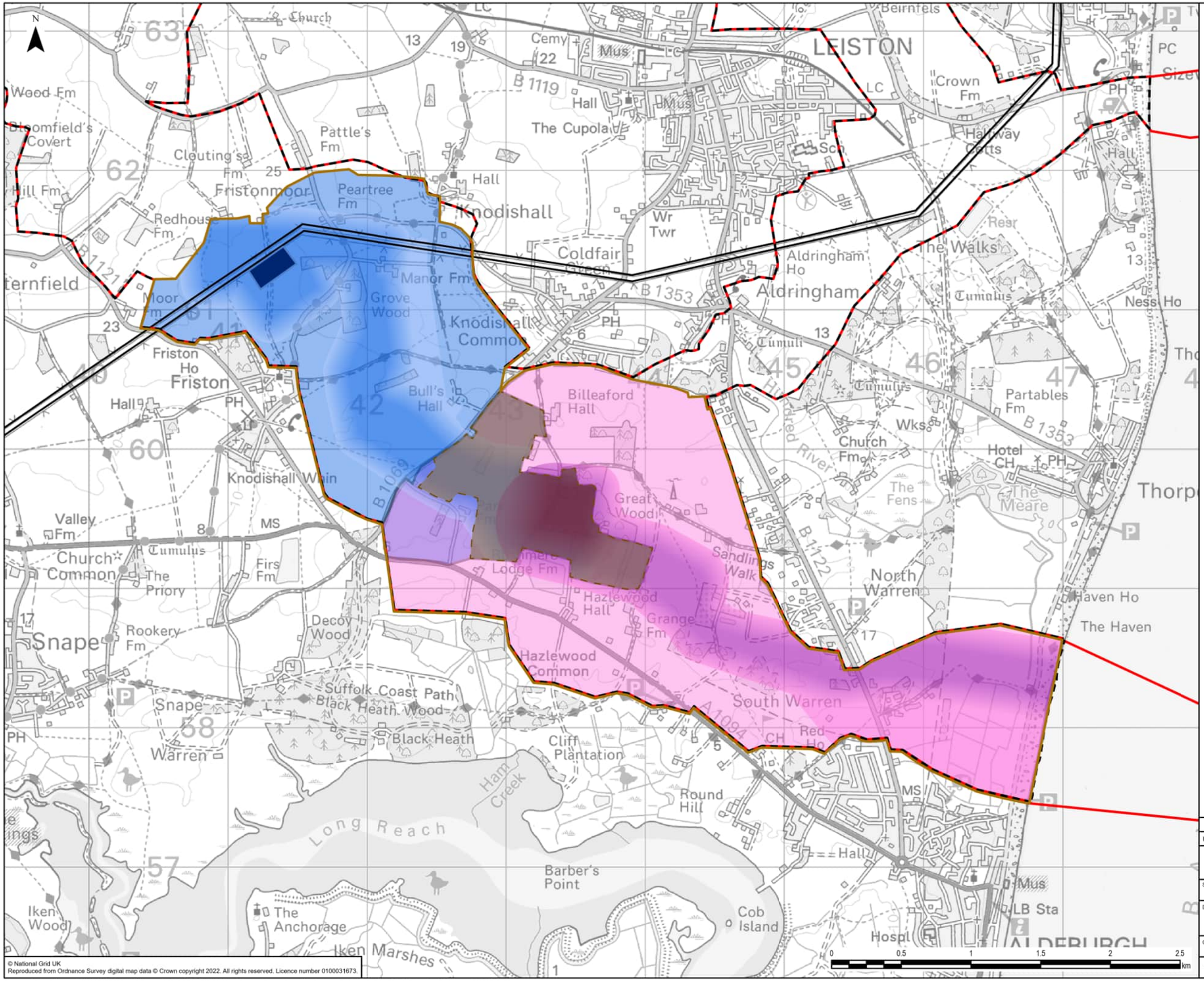
Scheme: SEA LINK

Document Title: POTENTIAL COORDINATED CONVERTER STATION SITES

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	CC	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.3	1:50,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-3_Potential_Coordinated_Converter_Station_Sites_20220719_EB.aprx



Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Suffolk Site 1 Emerging Preference Boundary
- Suffolk Converter Site 1 Emerging Preference - Option Area
- Suffolk Converter Site 1 Emerging Preference - Graduated Swathe
- HVDC Corridor Graduated Swathe
- HVAC Corridor Graduated Swathe
- HVDC Corridor
- HVAC Corridor

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

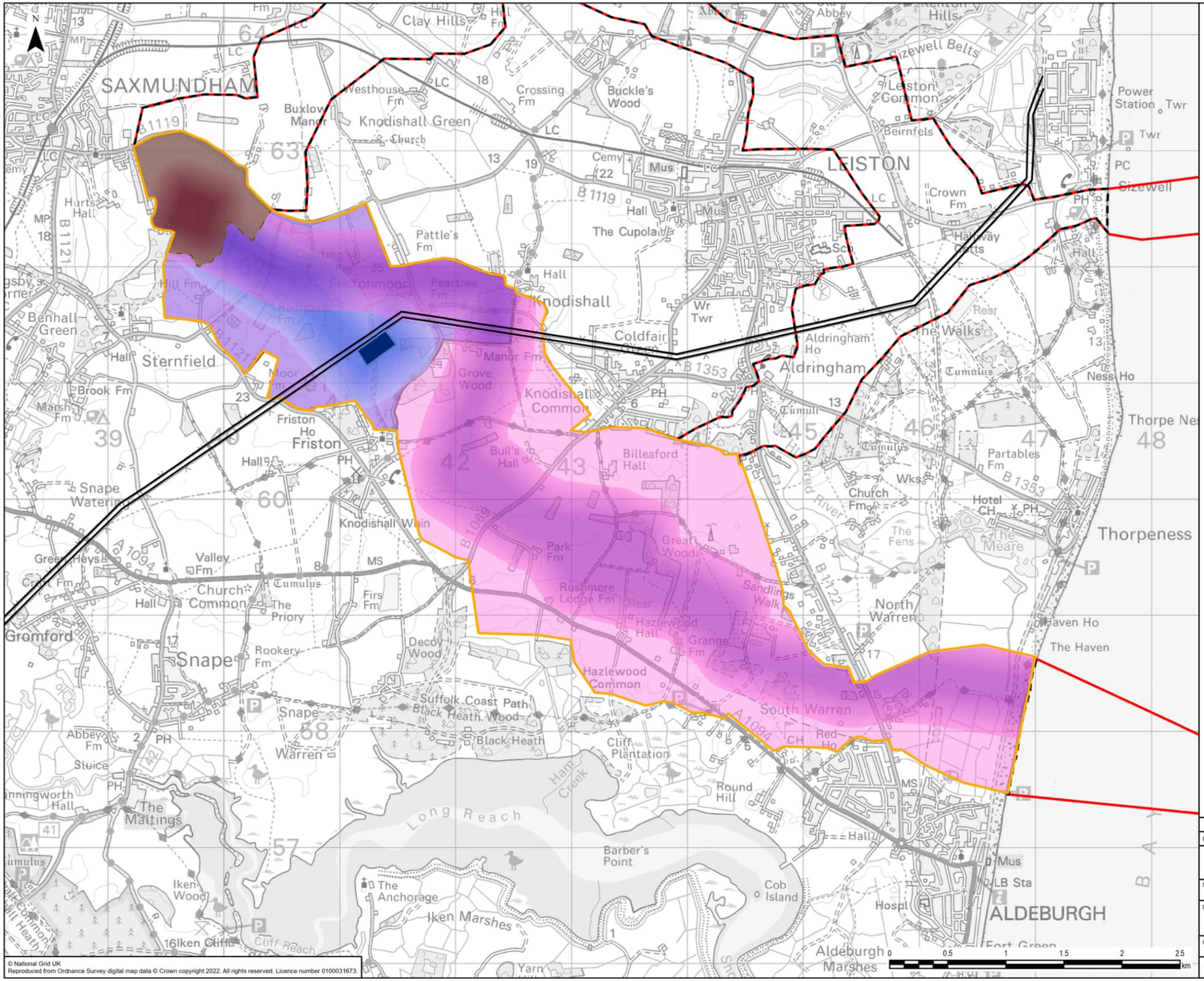
Document Title: SUFFOLK SITE 1 EMERGING PREFERENCE

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	CC	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.4	1:25,000	A3	1	0

© National Grid UK
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-4_Suffolk_Site_1_Emerging_Preference_20220719_EB.aprx



Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Suffolk Site 3 Emerging Preference Boundary
- Update Consultation Suffolk Converter Site Option Site 3
- Suffolk Converter Site 3 Emerging Preference
- HVDC Corridor Graduated Swathe
- HVAC Corridor Graduated Swathe
- HVAC Corridor
- HVDC Corridor

© National Grid UK
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

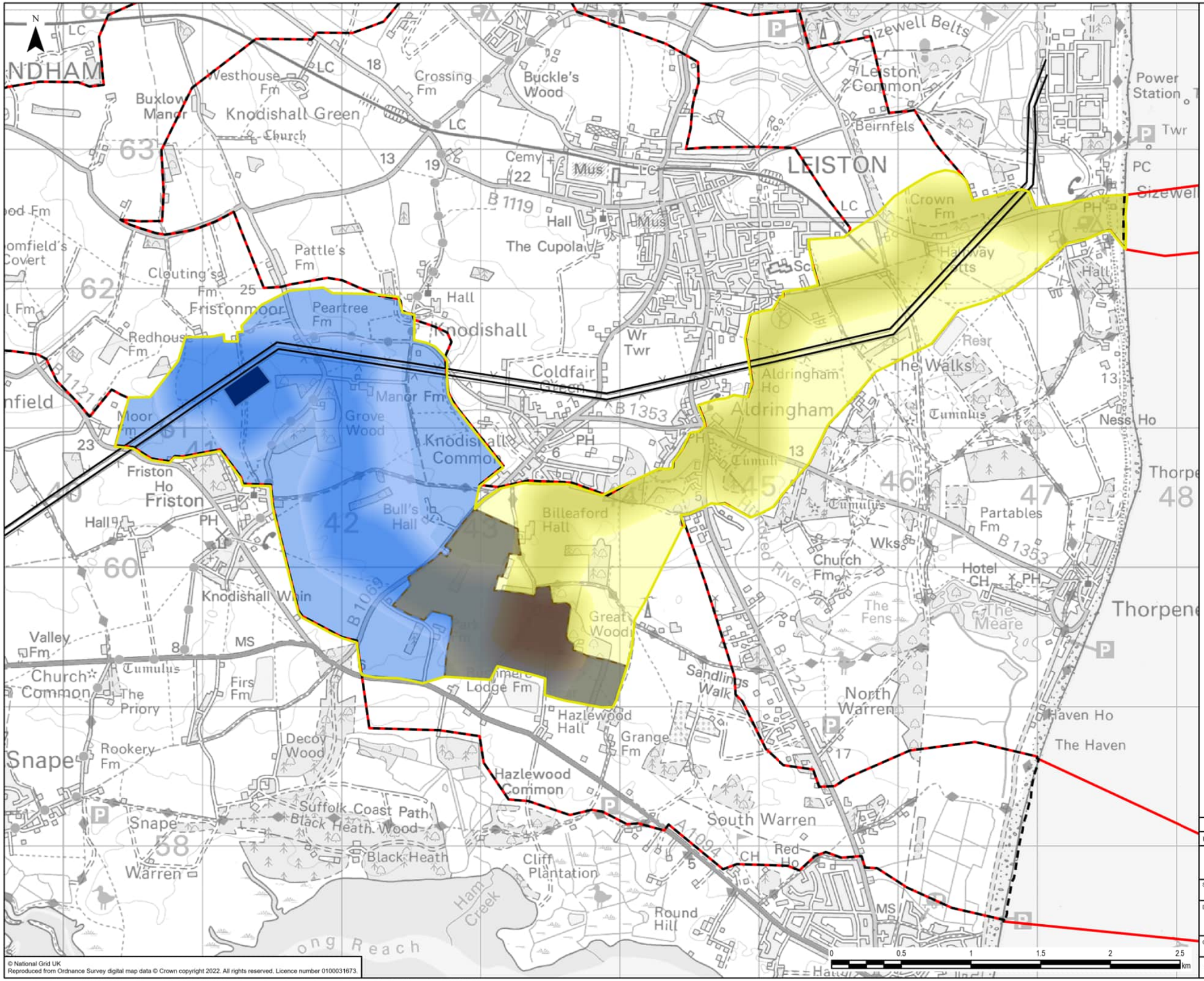
Scheme: SEA LINK

Document Title: SUFFOLK SITE 3 EMERGING PREFERENCE

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	CC	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.5	1:30,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-5_Suffolk_Site_3_Emerging_Preference_20220719_EB.aprx



© National Grid UK
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

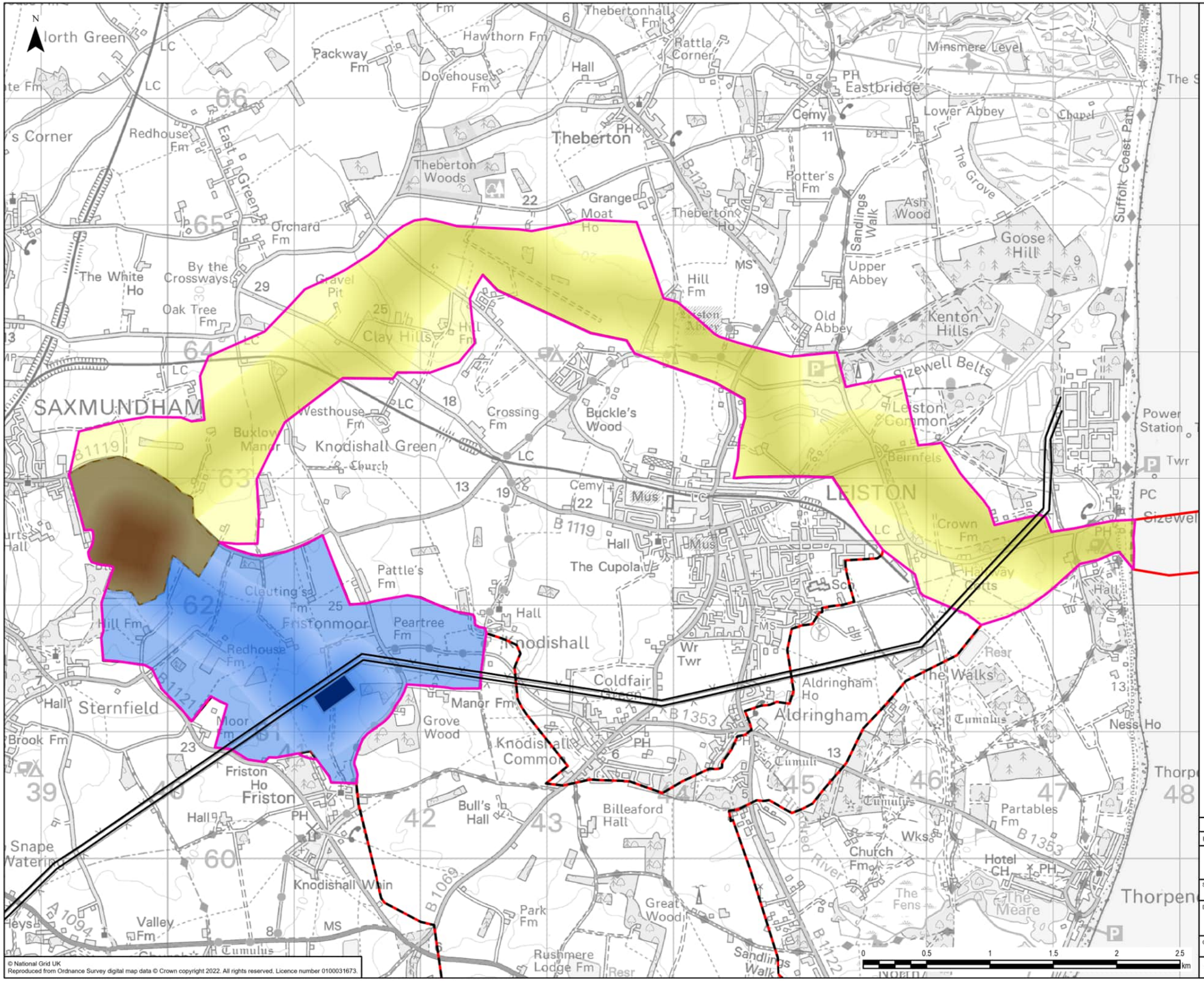
Scheme: SEA LINK

Document Title: SUFFOLK SITE 1 ALTERNATIVE

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	CC	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.6	1:25,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-6_Suffolk_Site_1_Alternative_20220719_EB.aprx



Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Suffolk Site 3 Alternative Option 1 Boundary
- Update Consultation Suffolk Converter Site Option Site 3
- Suffolk Converter Site 3 Emerging Preference
- HVAC Corridor Graduated Swathe
- Alternative HVDC Corridor Graduated Swathe
- HVAC Corridor
- Alternative HVDC Corridor

© National Grid UK
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

Document Title: SUFFOLK SITE 3 ALTERNATIVE OPTION 1

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	CC	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.7	1:27,500	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-7_Suffolk_Site_3_Alternative_Option_1_20220719_EB.aprx

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Suffolk Site 3 Alternative Option 2 Boundary
- Update Consultation Suffolk Converter Site Option Site 3
- Suffolk Converter Site 3 Emerging Preference
- HVAC Corridor Graduated Swathe
- HVAC Corridor
- Alternative HVDC Corridor

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

Document Title: SUFFOLK SITE 3 ALTERNATIVE OPTION 2

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	CC	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.8	1:27,500	A3	1	0

0 0.5 1 1.5 2 2.5 km

© National Grid UK
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-8_Suffolk_Site_3_Alternative_Option_2_20220719_EB.aprx

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Site 1 Emerging Preference Boundary

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

Document Title: SUFFOLK SITE 1 EMERGING PREFERENCE OPTION AREA

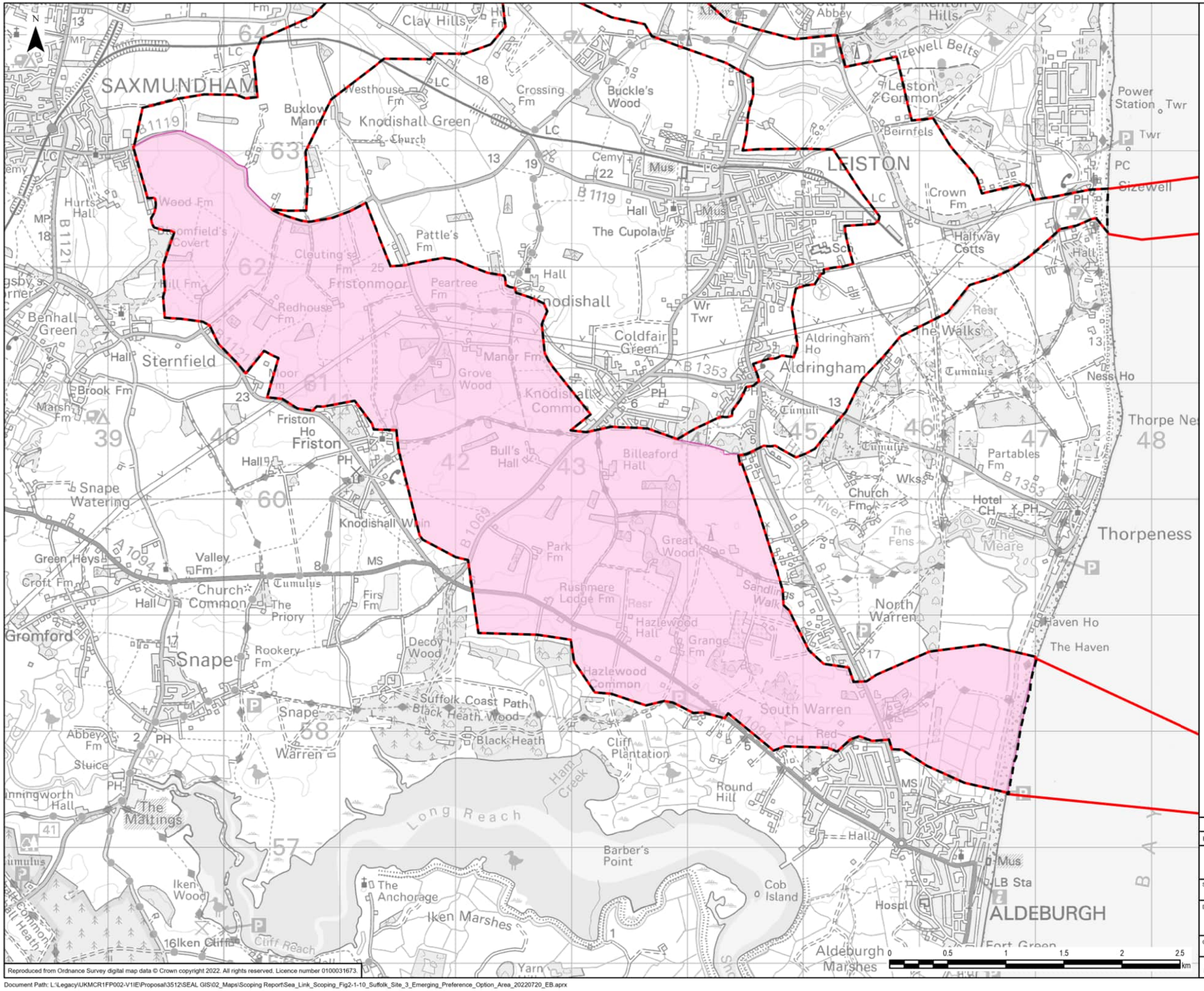
Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	CC	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.9	1:25,000	A3	1	0

0 0.5 1 1.5 2 2.5 km

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-9_Suffolk_Site_1_Emerging_Preference_Option_Area_20220719_EB.aprx



Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Site 3 Emerging Preference Boundary

Rev	Date	Description	GIS	Chk	App
0	20/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

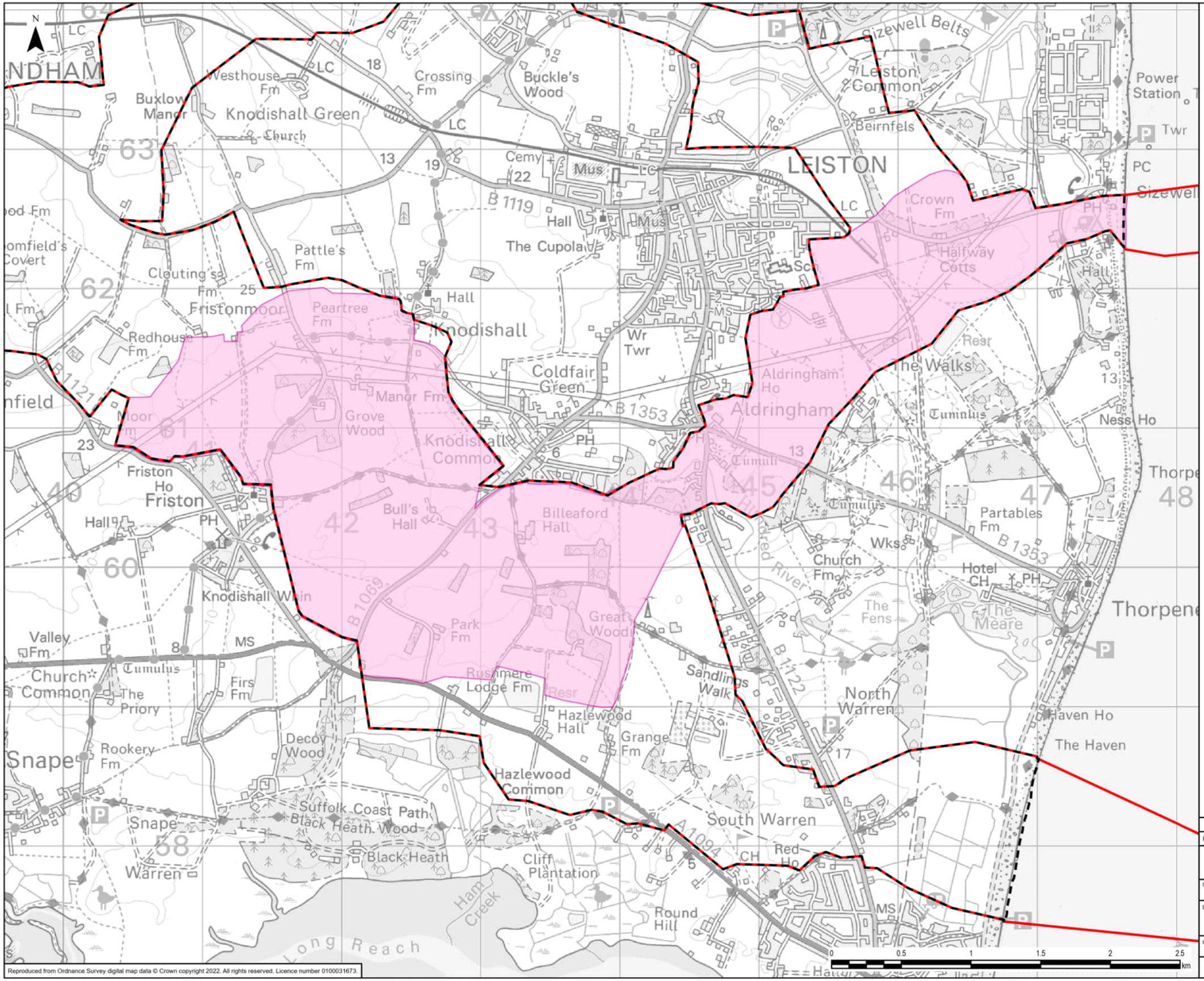
Document Title: SUFFOLK SITE 3 EMERGING PREFERENCE OPTION AREA

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	20/07/2022	DF	20/07/2022	CC	20/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.10	1:30,000	A3	1	0

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-10_Suffolk_Site_3_Emerging_Preference_Option_Area_20220720_EB.aprx



Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	20/07/2022	SCOPING REPORT	EB	DF	CC

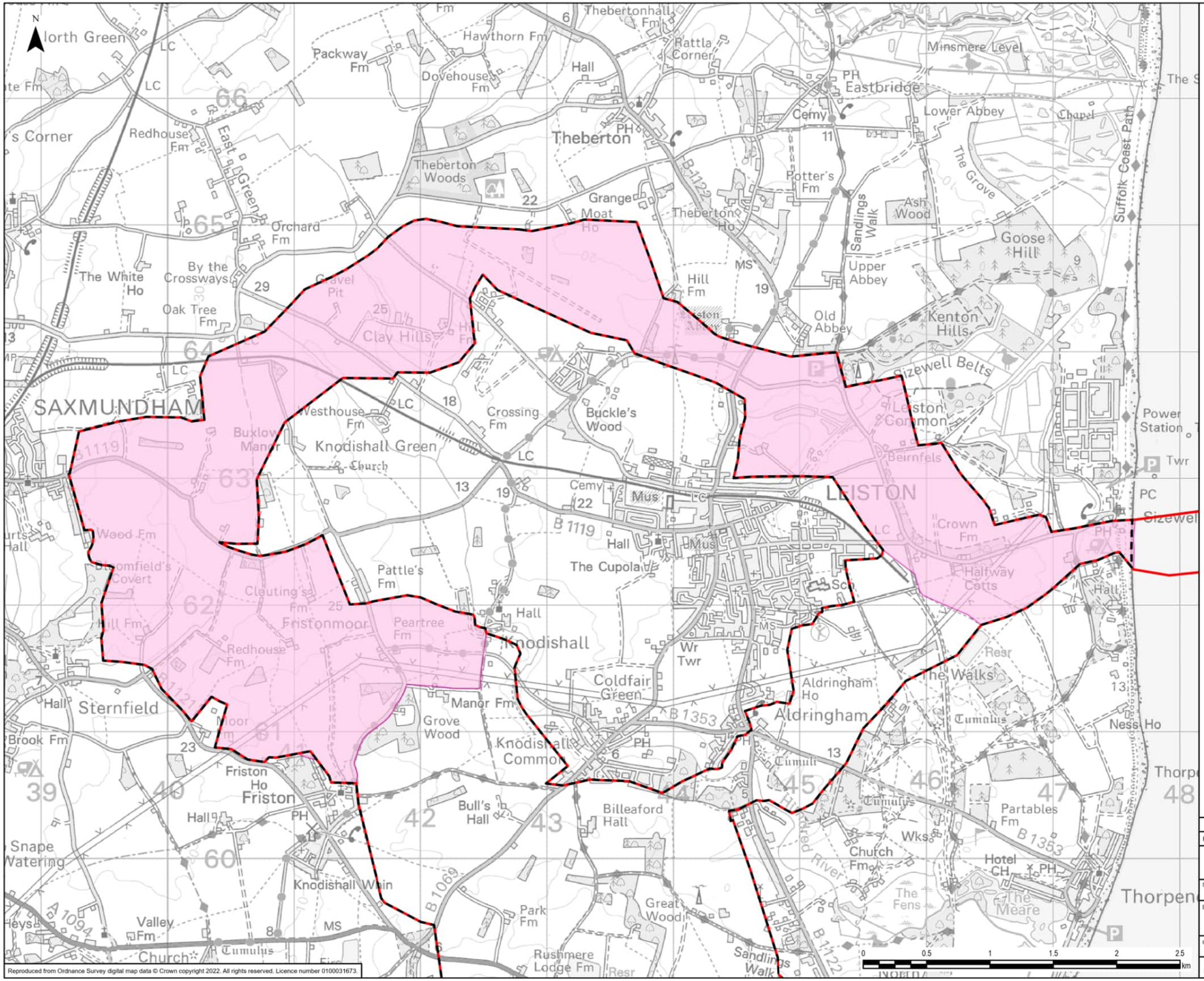
nationalgrid

Scheme:	SEA LINK
Document Title:	SUFFOLK SITE 1 ALTERNATIVE OPTION AREA

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	20/07/2022	DF	20/07/2022	CC	20/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.11	1:25,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-11_Suffolk_Site_1_Alternative_Option_Areas_20220720_EB.aprx



Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	20/07/2022	SCOPING REPORT	EB	DF	CC

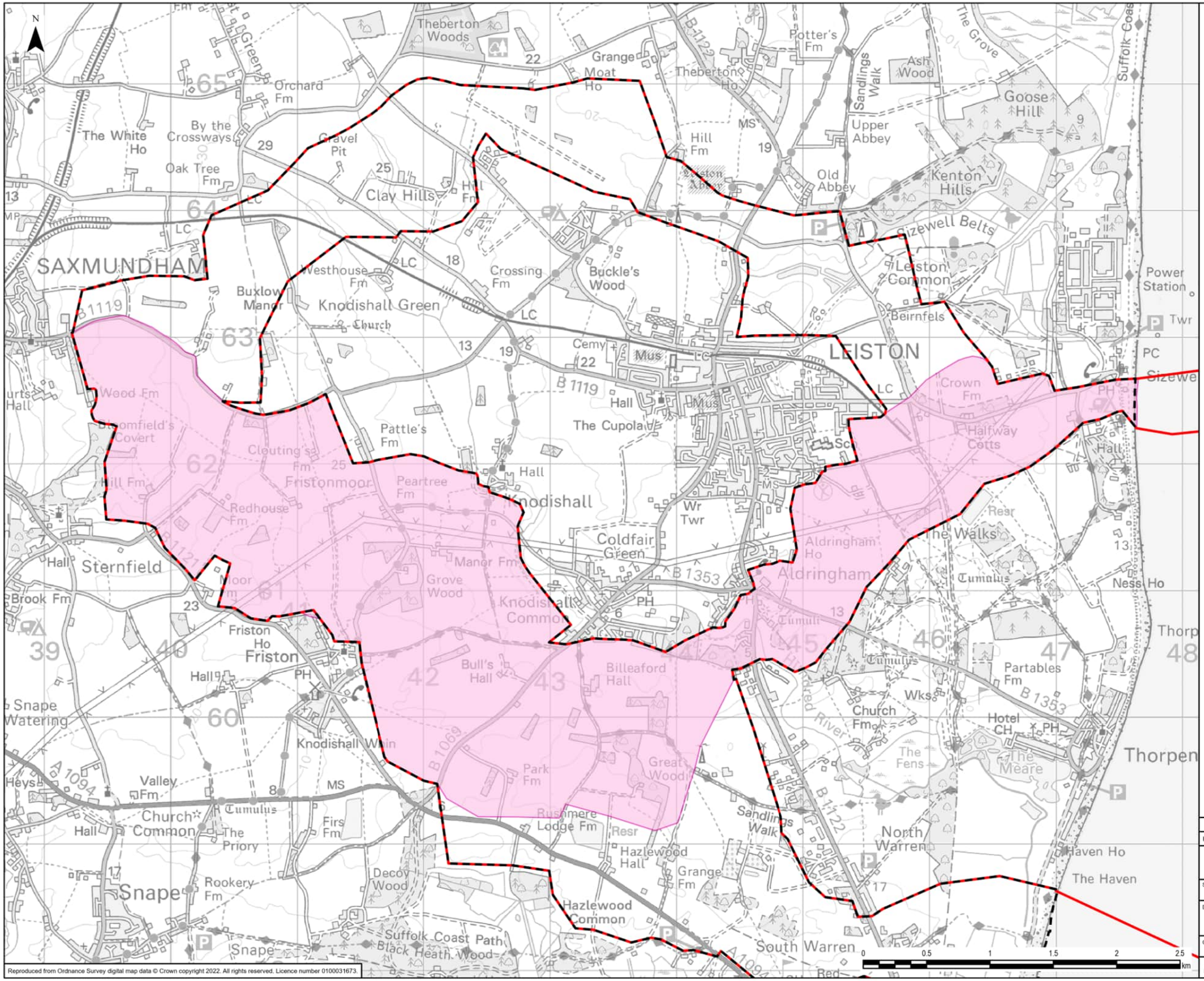
nationalgrid

Scheme:	SEA LINK
Document Title:	SUFFOLK SITE 3 ALTERNATIVE OPTION 1 OPTION AREA

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	20/07/2022	DF	20/07/2022	CC	20/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.12	1:27,500	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-12_Suffolk_Site_3_Alternative_Option_1_Option_Area_20220720_EB.aprx



Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Site 3 Alternative Option 2 Boundary

Rev	Date	Description	GIS	Chk	App
0	20/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

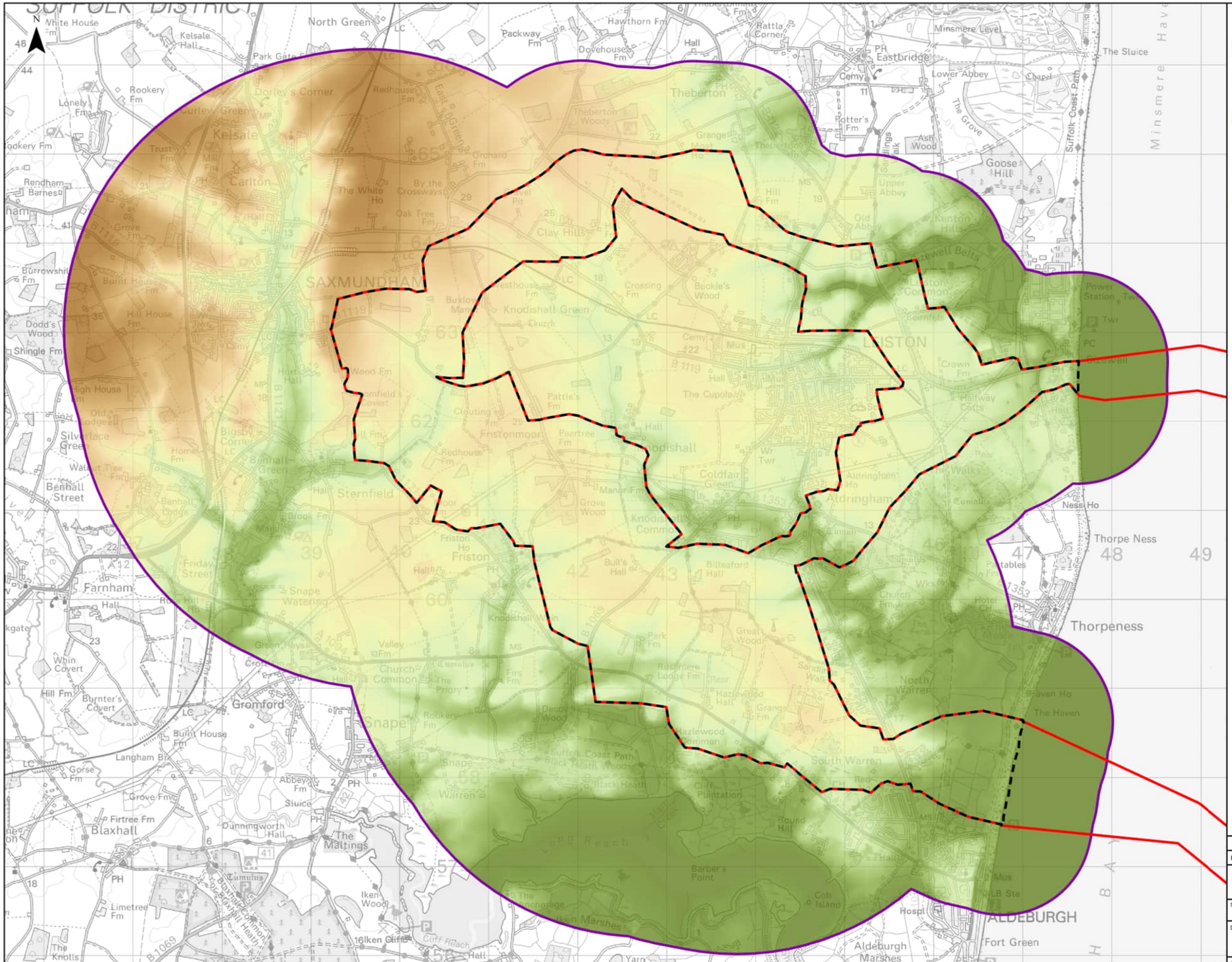
Document Title: SUFFOLK SITE 3 ALTERNATIVE OPTION 2 OPTION AREA

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	20/07/2022	DF	20/07/2022	CC	20/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.1.13	1:27,500	A3	1	0

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-1-13_Suffolk_Site_3_Alternative_Option_2_Option_Area_20220720_EB.aprx



Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Landscape and Visual Study Area

Elevation (m) - OS Terrain 5

41.53

-2.9

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	26/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

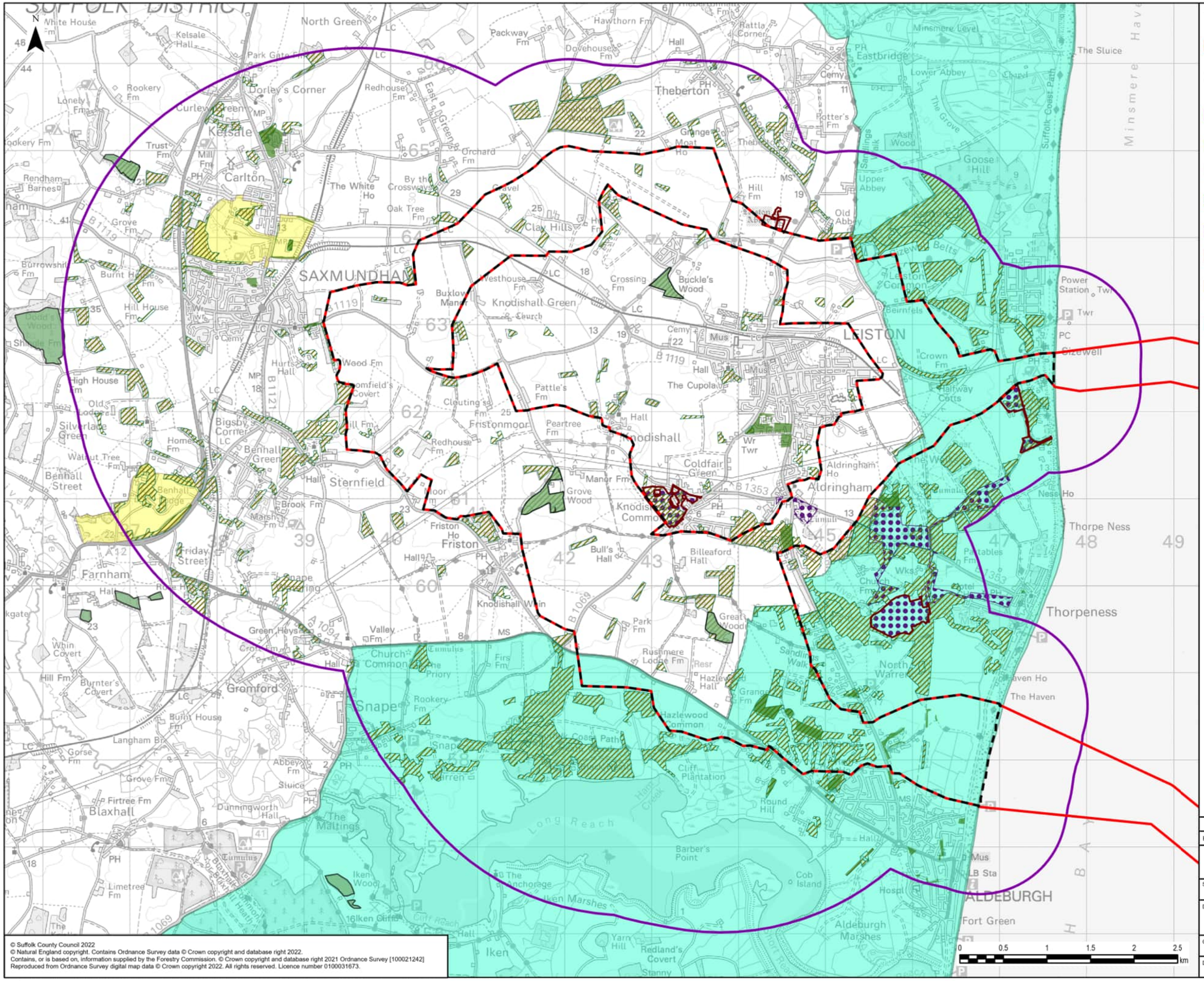
Scheme: SEA LINK

Document Title: TOPOGRAPHY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	26/07/2022	DF	26/07/2022	CW	26/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.2.1	1:40,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-2-1_Topography_20220726.aprx



© Suffolk County Council 2022
© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Contains, or is based on, information supplied by the Forestry Commission. © Crown copyright and database right 2021 Ordnance Survey [100021242]
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	26/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

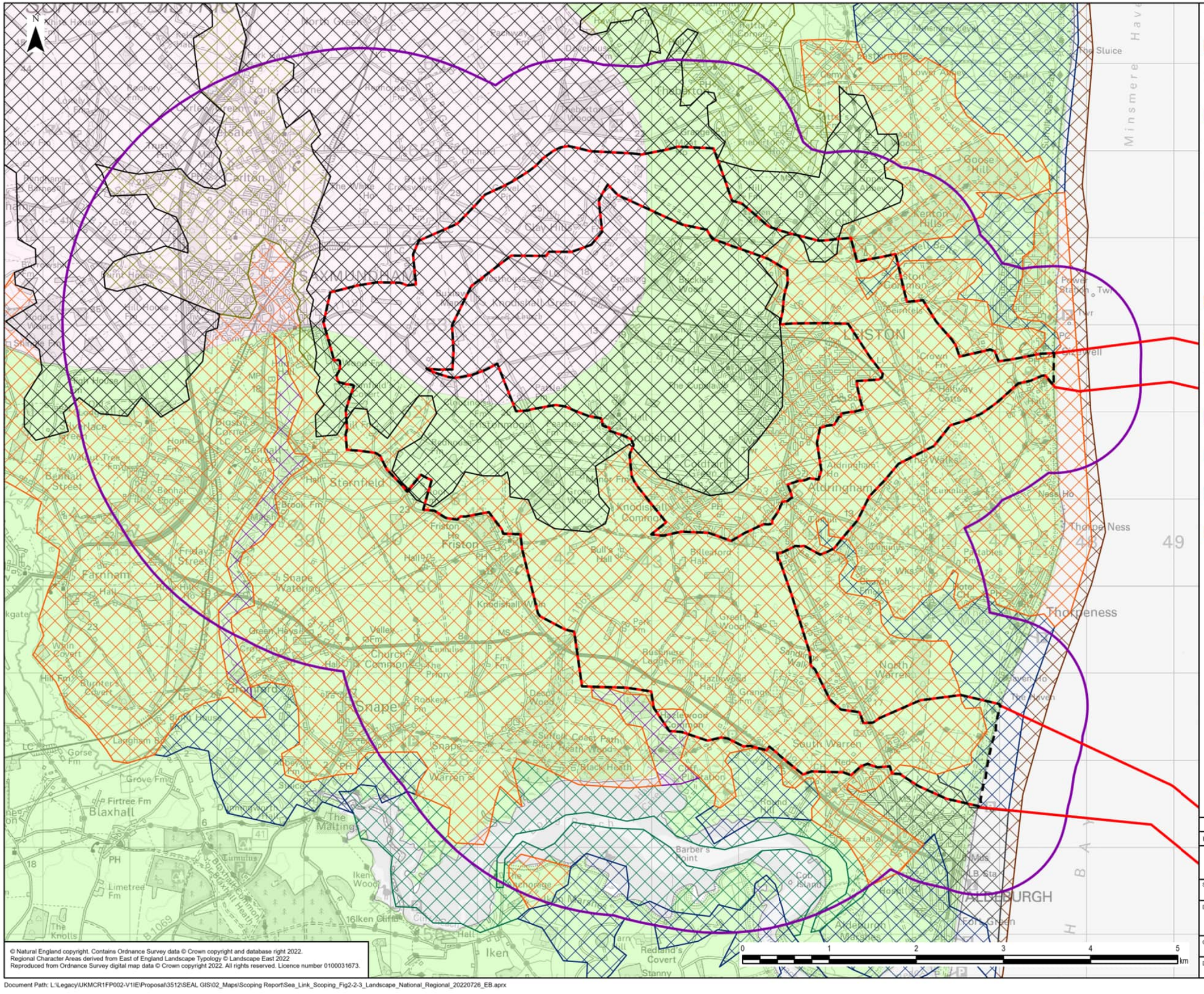
Scheme: SEA LINK

Document Title: LANDSCAPE CONTEXT AND DESIGNATIONS

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	26/07/2022	DF	26/07/2022	CW	26/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.2.2	1:40,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-2-2_Landscape_Context_Designations_20220726.aprx



© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Regional Character Areas derived from East of England Landscape Typology © Landscape East 2022
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	27/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

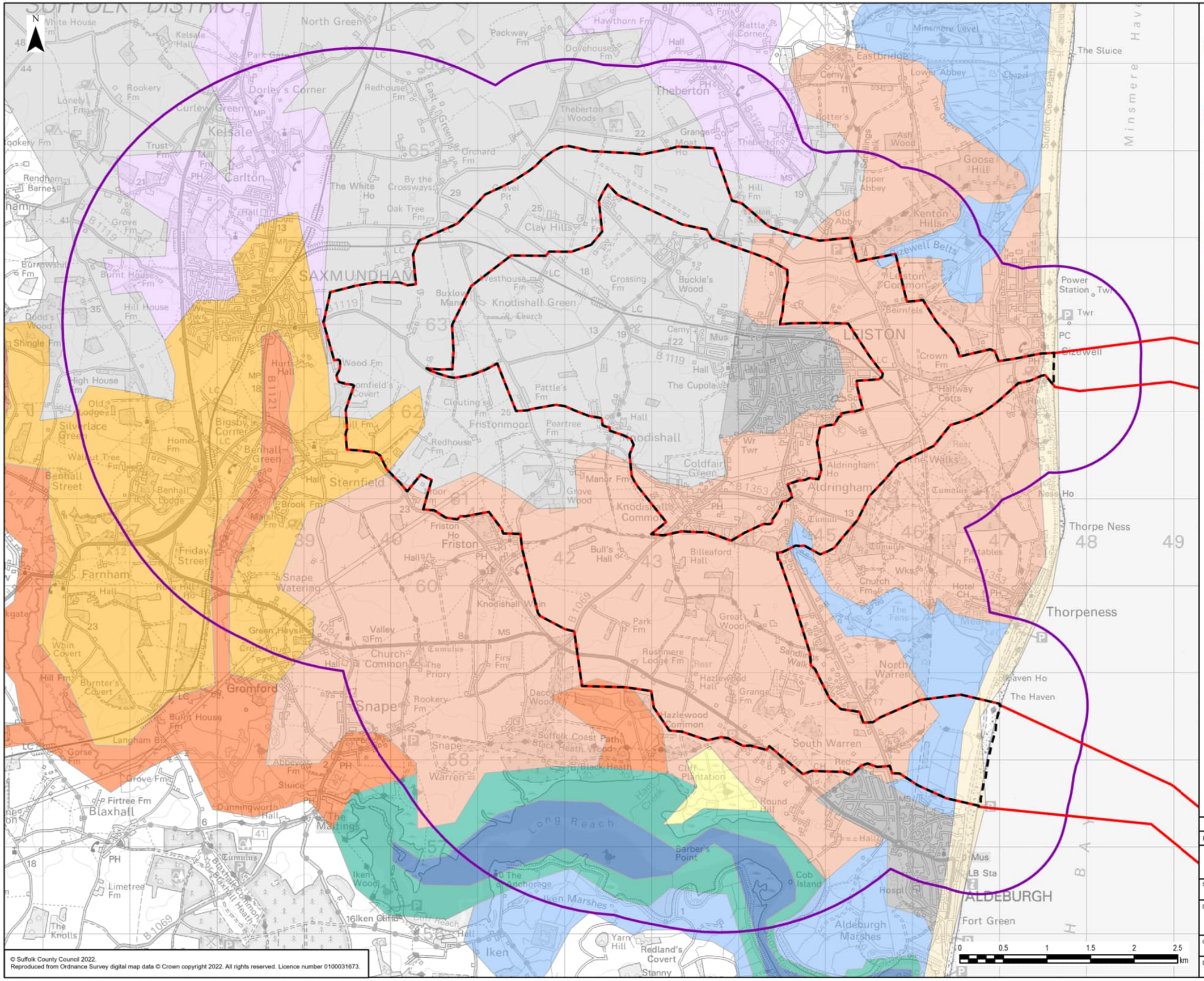
Scheme: SEA LINK

Document Title: LANDSCAPE CHARACTER - NATIONAL & REGIONAL

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	27/07/2022	DF	27/07/2022	CW	27/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.2.3	1:40,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-2-3_Landscape_National_Regional_20220726_EB.aprx



© Suffolk County Council 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	27/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

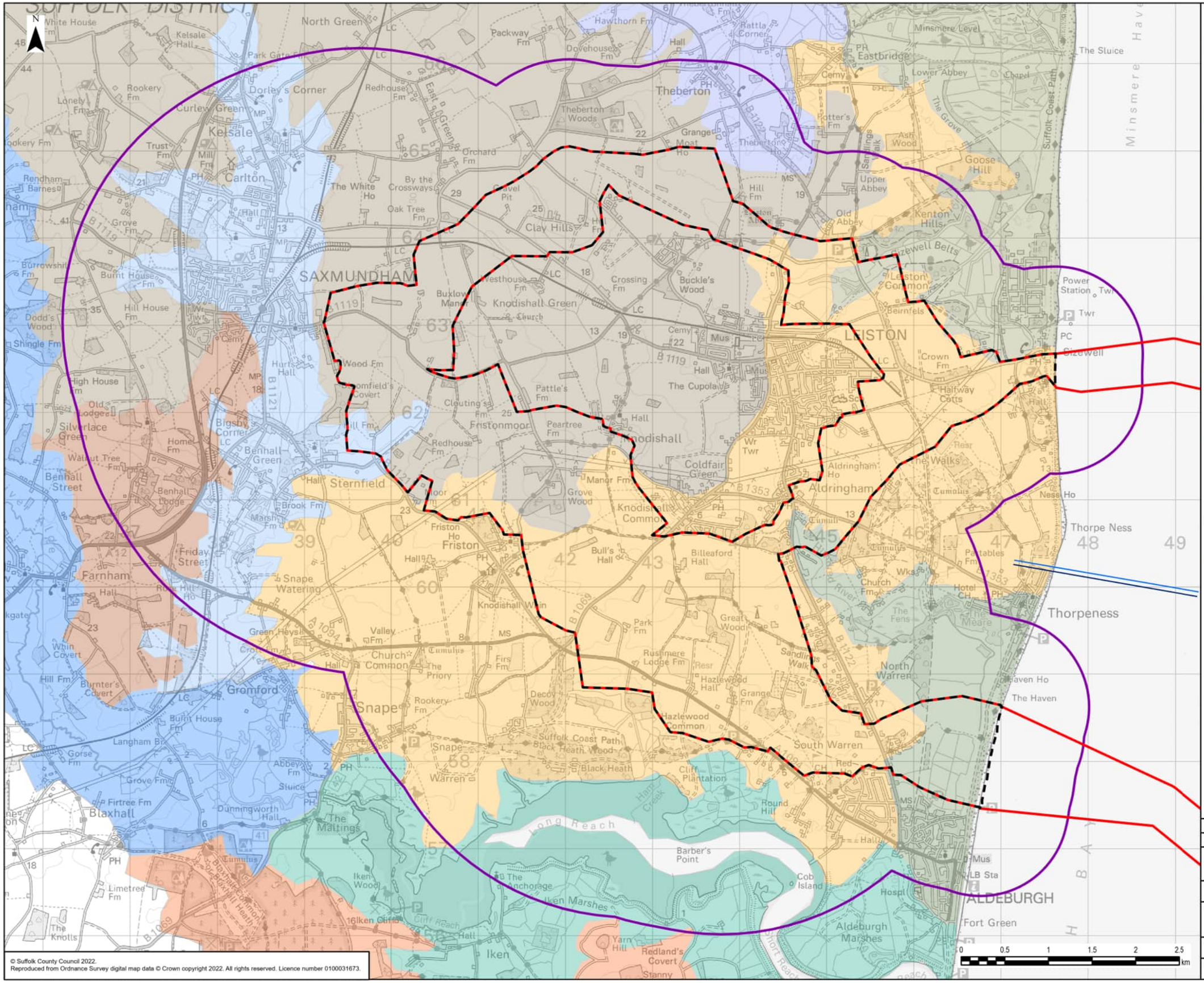
Scheme: SEA LINK

Document Title: LANDSCAPE CHARACTER - COUNTY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	27/07/2022	DF	27/07/2022	CW	27/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.2.4	1:40,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-2-4_Landscape_Character_County_20220727_EB.aprx



Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Landscape and Visual Study Area

Suffolk Coastal Landscape Character Assessment

- B3: Yox Valley
- B4: Fromus Valley
- B5: Alde Valley
- D3: Minsmere and Sizewell Coast
- D4: Thorpeness to Aldeburgh
- J4: Alde Estuary
- K3: Aldringham and Freston Sandlands
- K4: Rendlesham and Tunstall Sandlands
- L1: Heveningham and Knodishall Estate Claylands
- O1: Benhall Estate Sandlands

Touching the Tide Landscape Character Assessment

- Dunwich to Sizewell Coast Coastal Character Area
- Thorpeness to Aldeburgh Coast Coastal Character Area

© Suffolk County Council 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description			
0	27/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

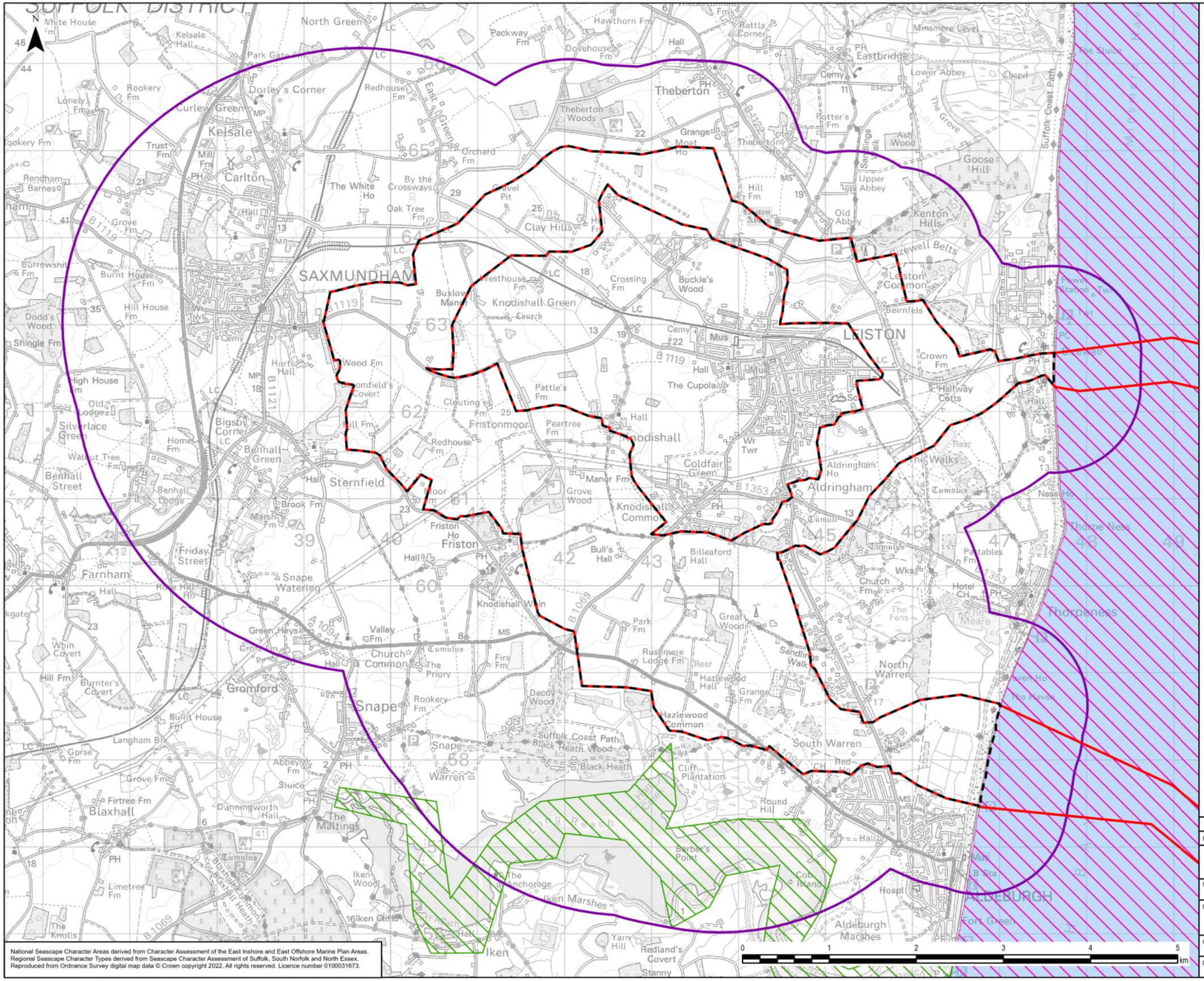
Scheme: SEA LINK

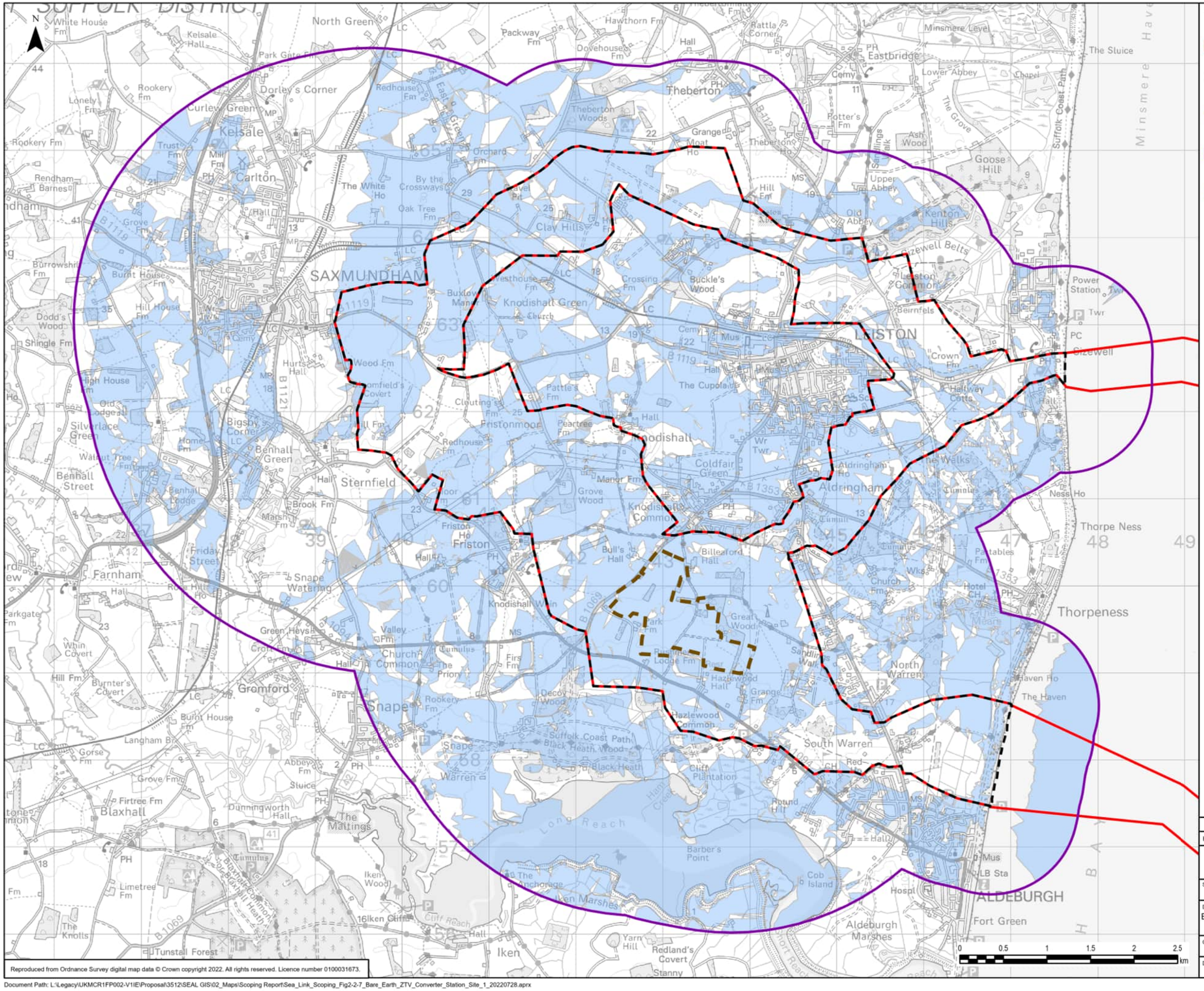
Document Title: LANDSCAPE CHARACTER - DISTRICT

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	27/07/2022	DF	27/07/2022	CW	27/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.2.5	1:40,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-2-5_Landscape_Character_District_20220727_EB.aprx


Legend
Project Scoping Boundary
Suffolk Onshore Scheme Scoping Boundary
Landscape and Visual Study Area
National Seascape Character Areas
Suffolk Coastal Waters
Regional Seascape Character Types
SCT 01: Inland Navigable Waters
SCT 03: Nearshore Waters
SAXMUNDHAM
LEISTON
Theberton
Eastbridge
Kelsale
Carlton
Dorley's Corner
Curlew Green
North Green
Knodishall Green
Friston
Aldringham
Thorpeness
Snape
Gromford
Farnham
Blaxhall
Sternfield
Benhall
Benhall Street
Silverlace Green
Bigsby's Corner
Clay Hills
Kenton Hills
Goose Hill
Leiston Common
Church Common
Knodishall Common
Aldringham Common
Black Heath
Hazlewood Common
Rushmere Lodge Fm
Cliff Plantation
Iken Cliffs
Iken Marshes
Aldeburgh Marshes
ALDEBURGH
North Warren
South Warren
Sizewell Belts
Minsmere Level
Suffolk Coast Path
Black Heath Wood
Decoy Wood
Great Wood
Theberton Woods
Buckle's Wood
Pattle's Fm
Fristonmoor
Halfway Cotts
Crown Fm
Coldfair Green
Billeaford Hall
Bull's Hall
Hazlewood Hall
Grange Fm
Valley Fm
Orchard Fm
Gravel Pit
Oak Tree Fm
Redhouse Fm
Packway Fm
Dovehouse Fm
Hawthorn Fm
Rattle Corner
Lower Abbey
Upper Abbey
Old Abbey
Ash Wood
Theberton Ho
Grange Moat
Buxlow Manor
Westhouse Fm
Crossing Fm
Wood Fm
Hill Fm
Manor Fm
Grove Wood
Brook Fm
Marsh Fm
Friston Ho
Church Fm
Hotel
Pontables Fm
Cumulus
Tumulus
Barber's Point
Cot Island
Yarn Hill
Redland's Covert
Stanny
The Maltings
Dunningworth Hall
Abbey Fm
Sluice
Langham Bk
Gorse Fm
Burnt House Fm
Whin Covert
Burnter's Covert
Hill Fm
Rookery Fm
Firs Fm
Priory
Valley Fm
Green Heys
Snape Watering
Ruse Hill Ho
Friday Street
Limetree Fm
Walnut Tree Fm
Home Fm
High House Fm
Old Lodge
Shingle Fm
Dodd's Wood
Hill House Fm
Burrowshill Fm
Rendham Barnes
Loney Fm
Rookery Fm
Trust Fm
Mill Fm
Grove Fm
Kelsale Hall
Park Gate Fm
Redhouse Fm
East Green
The White Ho
By the Crossways
Gravel Pit
Clay Hills
Hurts Hall
Wood Fm
Cleuting's Fm
Pattle's Fm
Peartree Fm
Redhouse Fm
Coldfair Green
Manor Fm
Grove Wood
Knodishall Common
Knodishall Wash
Park Fm
Rushmere Lodge Fm
Hazlewood Hall
Grange Fm
Decoy Wood
Suffolk Coast Path
Black Heath Wood
Black Heath
Cliff Plantation
Round Hill
Barber's Point
Cot Island
The Anchorage
Iken Marshes
Iken Cliffs
Iken Wood
Yarn Hill
Redland's Covert
Stanny
Aldeburgh Marshes
Fort Green
Thorpe Ness
The Haven
The Meare
The Fens
Great Wood
Sandlings Walk
Red River
Suffolk Coast Path
Sizewell Belts
Minsmere Level
Leiston Common
Beirnfels
Halfway Cotts
Crown Fm
Aldringham Ho
The Walks
Cumulus
Tumulus
Pontables Fm
Hotel
Church Fm
Billeaford Hall
Bull's Hall
Hazlewood Hall
Grange Fm
Hazlewood Common
Rushmere Lodge Fm
Cliff Plantation
Round Hill
Barber's Point
Cot Island
Iken Marshes



Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Converter Site 1 Option Area
- Landscape and Visual Study Area
- Zone of Theoretical Visibility - Bare Earth

The Zone of Theoretical Visibility (ZTV) has been generated using the Ordnance Survey Terrain 5 Digital Terrain Model which does not take account of the screening effects of vegetation, buildings or other structures.
The ZTV is based on an observer point from the centre of the Suffolk Converter Site 1 Emerging Preference graduated swathe area, at an elevation of 30 metres.

Rev	Date	Description	GIS	Chk	App
0	28/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

Scheme: SEA LINK

Document Title: BARE EARTH ZONE OF THEORETICAL VISIBILITY - CONVERTER STATION SITE 1

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	28/07/2022	DF	28/07/2022	CW	28/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.2.7	1:40,000	A3	1	0

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-2-7_Bare_Earth_ZTV_Converter_Station_Site_1_20220728.aprx

N

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Converter Site 3 Option Area
- Landscape and Visual Study Area
- Zone of Theoretical Visibility - Bare Earth

The Zone of Theoretical Visibility (ZTV) has been generated using the Ordnance Survey Terrain 5 Digital Terrain Model which does not take account of the screening effects of vegetation, buildings or other structures.
The ZTV is based on an observer point from the centre of the Suffolk Converter Site 3 Emerging Preference graduated swathe area, at an elevation of 30 metres.

Rev	Date	Description	GIS	Chk	App
0	28/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

Scheme: SEA LINK

Document Title: BARE EARTH ZONE OF THEORETICAL VISIBILITY - CONVERTER STATION SITE 3

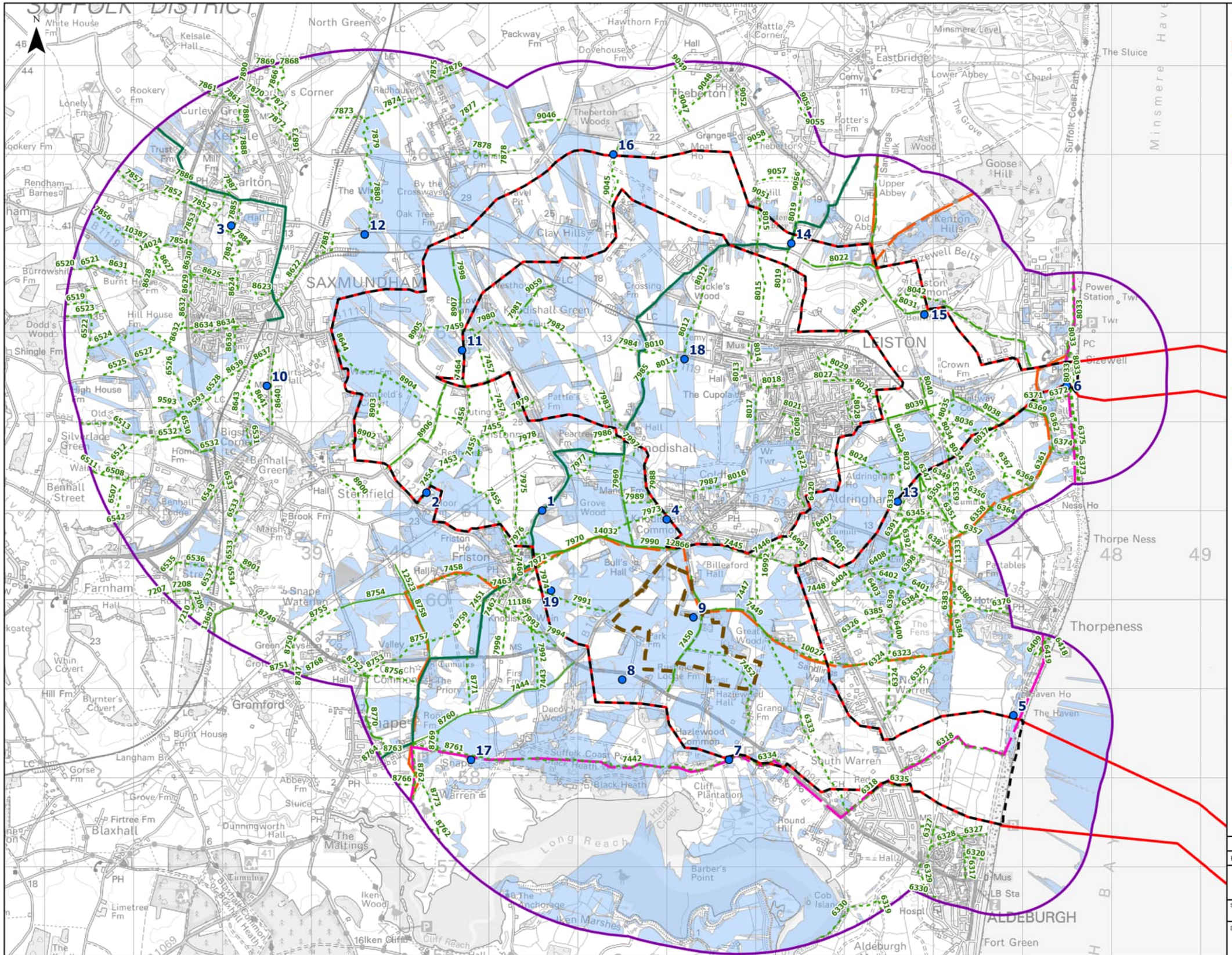
Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	28/07/2022	DF	28/07/2022	CW	28/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.2.8	1:40,000	A3	1	0

0 0.5 1 1.5 2 2.5 km

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-2-8_Bare_Earth_ZTV_Converter_Station_Site_3_20220728.aprx



Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Converter Site 1 Option Area
- Landscape and Visual Study Area
- Zone of Theoretical Visibility - Screened
- Representative Viewpoint Locations
- National Cycle Network

Public Rights of Way

- Public Footpath
- Bridleway
- Byway Open to All Traffic
- Restricted Byway

Recreational Routes

- Sandlings Walk
- Suffolk Coast Path

The Zone of Theoretical Visibility (ZTV) has been generated using the Ordnance Survey Terrain 5 Digital Terrain Model which does not take account of the screening effects of vegetation, buildings or other structures.
Existing buildings have been incorporated into the DTM from OS Open Map Local with an assumed height of 7.5m. Woodland data from the National Forest Inventory has also been incorporated into the DTM with an assumed height of 10m.
The ZTV is based on an observer point from the centre of the Suffolk Converter Site 1 Emerging Preference graduated swathe area, at an elevation of 30 metres.

0 0.5 1 1.5 2 2.5 km

Public Rights of Way & Recreational Routes derived from OS 50K & 25K basemapping.
Contains Ordnance Survey Data © Crown Copyright and database right 2022.
Contains, or is based on, information supplied by the Forestry Commission. © Crown copyright and database right 2021 Ordnance Survey [100021242].
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	28/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

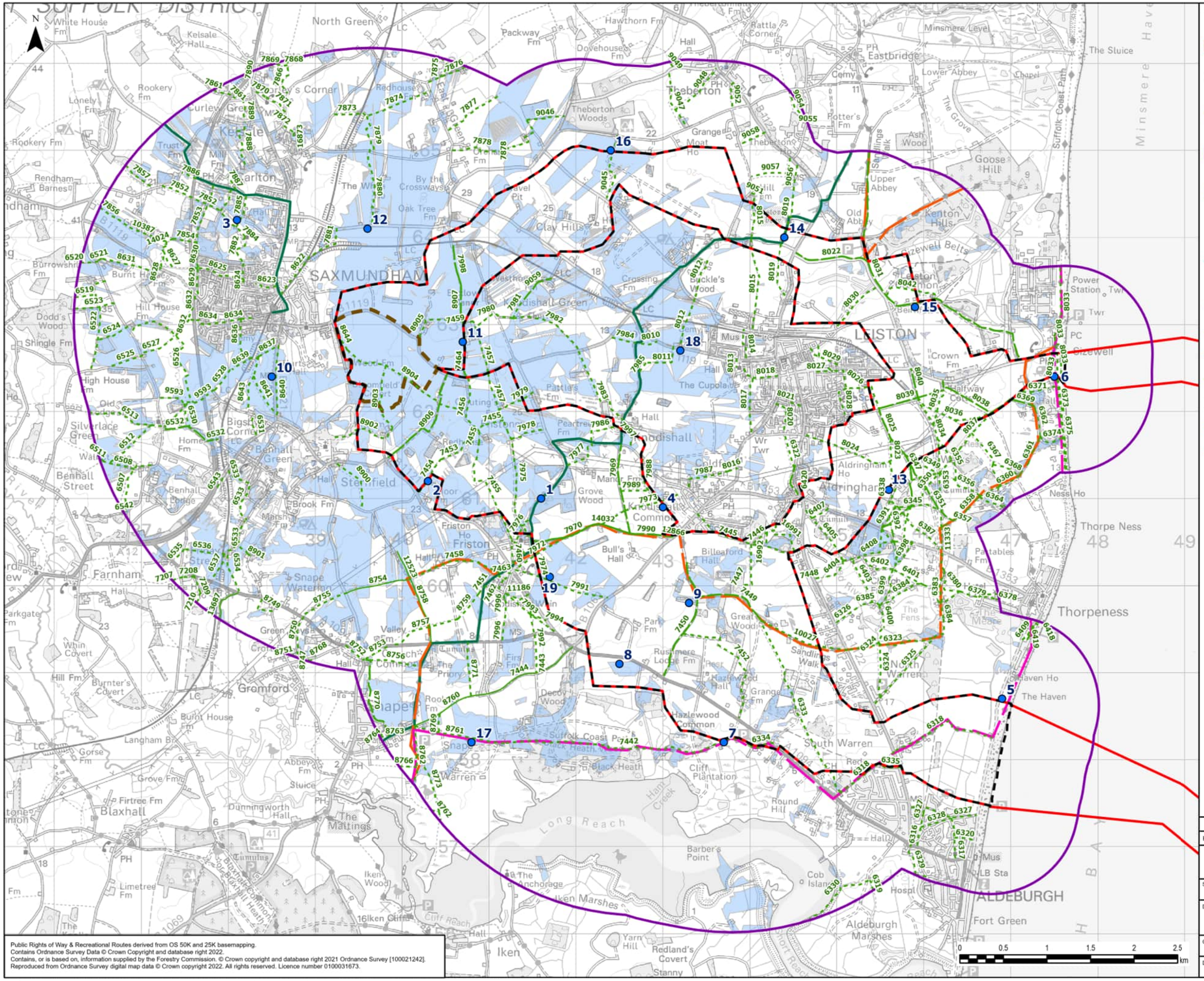
Scheme: SEA LINK

Document Title: REPRESENTATIVE VIEWPOINT LOCATIONS AND SCREENED ZONE OF THEORETICAL VISIBILITY -SITE 1

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	28/07/2022	DF	28/07/2022	CW	28/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.2.9	1:40,037	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-2-9_Representative_VPs_Screened_ZTV_Site_1_20220728.aprx


SUFFOLK DISTRICT
SAXMUNDHAM
LEISTON
ALDEBURGH
Thorpeness
Thorpe Ness
Gromford
Farnham
Blaxhall
Benhall
Sternfield
Friston
Aldringham
Theberton
Eastbridge
Kelsale
Rookery Fm
Curlew Green
Kenton Hills
Goose Hill
Upper Abbey
Old Abbey
Minsmere Level
The Sluice
Suffolk Coast Path
Minsmere Haven
Sizewell Belts
Sizewell
Power Station
Twr
Crown Fm
Halfway Cott
Aldringham Ho
Ness Ho
Potter's Fm
Ash Wood
Theberton Woods
Grange Moat
Theberton Ho
Hawthorn Fm
Packway Fm
Dovehouses Fm
Rattle Corner
Lower Abbey
Chapel
Cemy
Hill Fm
Kelsale Hall
White House Fm
North Green
Rookery Fm
Lonely Fm
Trust Fm
Mill Fm
Rendham Barnes
Burrowshall Fm
Burnt House Fm
Hill House Fm
Dodd's Wood
Shingle Fm
High House Fm
Old Lodge
Silverlace Green
Benhall Street
Benhall Lodge
Brook Fm
Marsh Fm
Snape Watering
Whin Covert
Hill Fm
Burnter's Covert
Burnt House Fm
Langham Bk
Gorse Fm
Grove Fm
Firtree Fm
Dunningworth Hall
The Maltings
Sluice
Abbey Fm
Limetree Fm
Iken Wood
Iken Cliff
Iken Marshes
The Anchorage
Long Reach
Barber's Point
Cob Island
Hard Creek
Round Hill
Cliff Plantation
Black Heath
Suffolk Coast Path
Aldeburgh Marshes
Fort Green
LB Sta
Hospl
Mus
Yarn Hill
Redland's Covert
Stanny
Iken
Cliff Reach
Short Reach
Valley Fm
Green Fm
Croft
Whin Covert
Hall Fm
Burnter's Covert
Burnt House Fm
Langham Bk
Gorse Fm
Grove Fm
Firtree Fm
Limetree Fm
Abbey Fm
Sluice
Dunningworth Hall
The Maltings

N

DEW'S PONDS SAC

MINSMERE-WALBERSWICK SPA

WESTLETON HEATH NNR

MINSMERE TO WALBERSWICK HEATHS & MARSHES SAC

MINSMERE-WALBERSWICK HEATHS AND MARSHES SSSI

EAST SUFFOLK DISTRICT

MINSMERE-WALBERSWICK RAMSAR

SIZEWELL MARSHES SSSI

SOUTHERN NORTH SEA SAC

OUTER THAMES ESTUARY SPA

GROMFORD MEADOW SSSI

SNAPE WARREN SSSI

ALDEBURGH BRICK PIT SSSI

LEISTON - ALDEBURGH SSSI

THE HAVEN, ALDEBURGH LNR

CRAG PIT, ALDEBURGH SSSI

ROUND HILL PIT, ALDEBURGH SSSI

ALDEBURGH HALL PIT SSSI

BLAXHALL HEATH SSSI

IKEN WOOD SSSI

ALDE-ORE ESTUARY RAMSAR

RED HOUSE FARM PIT, SUDBOURNE SSSI

VALLEY FARM PIT, SUDBOURNE SSSI

SANDLINGS FOREST SSSI

SANDLINGS SPA

STAVERTON PARK & THE THICKS, WANTISDEN SAC

ALDE-ORE & BUTLEY ESTUARIES SAC

ALDE-ORE ESTUARY SSSI

ORFORDNESS-SHINGLE STREET SAC

ALDE-ORE ESTUARY SPA

ORFORDNESS-HAVERGATE NNR

FRAMLINGHAM

WICKHAM MARKET

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary - 5km Buffer
- Suffolk Onshore Scheme Scoping Boundary - 10km Buffer
- Suffolk Site 1 Emerging Preference Boundary
- National Nature Reserve (NNR)
- Local Nature Reserve (LNR)
- Ramsar
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)

0 1 2 3 4 5 km

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
© Natural England copyright. Contains Ordnance Survey data © Crown Copyright and database right 2022, NB This national dataset is "indicative" not "definitive". Definitive information can only be provided by individual local authorities and you should refer directly to their information for all purposes that require the most up to date and complete dataset.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	JR

nationalgrid

Scheme: SEA LINK

Document Title: STATUTORY DESIGNATED ECOLOGICAL FEATURES - SHEET 1 OF 5

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	JR	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.3.1	1:100,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-3-1_Statutory_Designated_Eco_Features_Sheet_1_of_5_20220719_EB.aprx

N

DEW'S PONDS SAC

MINSMERE-WALBERSWICK SPA

WESTLETON HEATH NNR

MINSMERE TO WALBERSWICK HEATHS & MARSHES SAC

MINSMERE-WALBERSWICK HEATHS AND MARSHES SSSI

EAST SUFFOLK DISTRICT

MINSMERE-WALBERSWICK RAMSAR

FRAMLINGHAM

SAXMUNDHAM

SIZEWELL MARSHES SSSI

SOUTHERN NORTH SEA SAC

OUTER THAMES ESTUARY SPA

GROMFORD MEADOW SSSI

SNAPE WARREN SSSI

ALDEBURGH BRICK PIT SSSI

LEISTON - ALDEBURGH SSSI

THE HAVEN, ALDEBURGH LNR

CRAG PIT, ALDEBURGH SSSI

ROUND HILL PIT, ALDEBURGH SSSI

ALDEBURGH HALL PIT SSSI

BLAXHALL HEATH SSSI

IKEN WOOD SSSI

ALDE-ORE ESTUARY RAMSAR

RED HOUSE FARM PIT, SUDBOURNE SSSI

VALLEY FARM PIT, SUDBOURNE SSSI

WICKHAM MARKET

SANDLINGS FOREST SSSI

SANDLINGS SPA

STAVERTON PARK & THE THICKS, WANTISDEN SAC

ALDE-ORE & BUTLEY ESTUARIES SAC

ORFORDNESS-SHINGLE STREET SAC

ALDE-ORE ESTUARY SPA

ALDE-ORE ESTUARY SSSI

ORFORDNESS-HAVERGATE NNR

0 1 2 3 4 5 km

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary - 5km Buffer
- Suffolk Onshore Scheme Scoping Boundary - 10km Buffer
- Suffolk Site 1 Alternative Option Area Boundary
- National Nature Reserve (NNR)
- Local Nature Reserve (LNR)
- Ramsar
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
© Natural England copyright. Contains Ordnance Survey data © Crown Copyright and database right 2022, NB This national dataset is "indicative" not "definitive". Definitive information can only be provided by individual local authorities and you should refer directly to their information for all purposes that require the most up to date and complete dataset.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	JR

nationalgrid

Scheme: SEA LINK

Document Title: STATUTORY DESIGNATED ECOLOGICAL FEATURES - SHEET 2 OF 5

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	JR	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.3.1	1:100,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-3-1_Statutory_Designated_Eco_Features_Sheet_2_of_5_20220719_EB.aprx

N

DEW'S PONDS SAC

MINSMERE-WALBERSWICK SPA

WESTLETON HEATH NNR

MINSMERE TO WALBERSWICK HEATHS & MARSHES SAC

MINSMERE-WALBERSWICK HEATHS AND MARSHES SSSI

EAST SUFFOLK DISTRICT

MINSMERE-WALBERSWICK RAMSAR

FRAMLINGHAM

SIZEWELL MARSHES SSSI

SOUTHERN NORTH SEA SAC

OUTER THAMES ESTUARY SPA

GROMFORD MEADOW SSSI

SNAPE WARREN SSSI

ALDEBURGH BRICK PIT SSSI

LEISTON - ALDEBURGH SSSI

THE HAVEN, ALDEBURGH LNR

CRAG PIT, ALDEBURGH SSSI

ROUND HILL PIT, ALDEBURGH SSSI

BLAXHALL HEATH SSSI

ALDEBURGH HALL PIT SSSI

IKEN WOOD SSSI

ALDE-ORE ESTUARY RAMSAR

RED HOUSE FARM PIT, SUDBOURNE SSSI

VALLEY FARM PIT, SUDBOURNE SSSI

SANDLINGS FOREST SSSI

SANDLINGS SPA

STAVERTON PARK & THE THICKS, WANTISDEN SAC

ALDE-ORE & BUTLEY ESTUARIES SAC

ALDE-ORE ESTUARY SSSI

ORFORDNESS-SHINGLE STREET SAC

ALDE-ORE ESTUARY SPA

ORFORDNESS-HAVERGATE NNR

0 1 2 3 4 5 km

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary - 5km Buffer
- Suffolk Onshore Scheme Scoping Boundary - 10km Buffer
- Suffolk Site 3 Emerging Preference Boundary
- National Nature Reserve (NNR)
- Local Nature Reserve (LNR)
- Ramsar
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
© Natural England copyright. Contains Ordnance Survey data © Crown Copyright and database right 2022, NB This national dataset is "indicative" not "definitive". Definitive information can only be provided by individual local authorities and you should refer directly to their information for all purposes that require the most up to date and complete dataset.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	JR

nationalgrid

Scheme: SEA LINK

Document Title: STATUTORY DESIGNATED ECOLOGICAL FEATURES - SHEET 3 OF 5

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	JR	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.3.1	1:100,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-3-1_Statutory_Designated_Eco_Features_Sheet_3_of_5_20220719_EB.aprx

N

DEW'S PONDS SAC

MINSMERE-WALBERSWICK SPA

WESTLETON HEATH NNR

MINSMERE TO WALBERSWICK HEATHS & MARSHES SAC

MINSMERE-WALBERSWICK HEATHS AND MARSHES SSSI

EAST SUFFOLK DISTRICT

MINSMERE-WALBERSWICK RAMSAR

SIZEWELL MARSHES SSSI

SOUTHERN NORTH SEA SAC

OUTER THAMES ESTUARY SPA

GROMFORD MEADOW SSSI

SNAPE WARREN SSSI

ALDEBURGH BRICK PIT SSSI

LEISTON - ALDEBURGH SSSI

THE HAVEN, ALDEBURGH LNR

CRAG PIT, ALDEBURGH SSSI

ROUND HILL PIT, ALDEBURGH SSSI

ALDEBURGH HALL PIT SSSI

BLAXHALL HEATH SSSI

IKEN WOOD SSSI

ALDE-ORE ESTUARY RAMSAR

RED HOUSE FARM PIT, SUDBOURNE SSSI

VALLEY FARM PIT, SUDBOURNE SSSI

SANDLINGS FOREST SSSI

SANDLINGS SPA

STAVERTON PARK & THE THICKS, WANTISDEN SAC

ALDE-ORE & BUTLEY ESTUARIES SAC

ALDE-ORE ESTUARY SSSI

ORFORDNESS-SHINGLE STREET SAC

ALDE-ORE ESTUARY SPA

ORFORDNESS-HAVERGATE NNR

0 1 2 3 4 5 km

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary - 5km Buffer
- Suffolk Onshore Scheme Scoping Boundary - 10km Buffer
- Suffolk Site 3 Alternative (Option 1) Boundary
- National Nature Reserve (NNR)
- Local Nature Reserve (LNR)
- Ramsar
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
© Natural England copyright. Contains Ordnance Survey data © Crown Copyright and database right 2022, NB This national dataset is "indicative" not "definitive". Definitive information can only be provided by individual local authorities and you should refer directly to their information for all purposes that require the most up to date and complete dataset.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	JR

nationalgrid

Scheme: SEA LINK

Document Title: STATUTORY DESIGNATED ECOLOGICAL FEATURES - SHEET 4 OF 5

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	JR	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.3.1	1:100,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-3-1_Statutory_Designated_Eco_Features_Sheet_4_of_5_20220719_EB.aprx

N

DEW'S PONDS SAC

MINSMERE-WALBERSWICK SPA

WESTLETON HEATH NNR

MINSMERE TO WALBERSWICK HEATHS & MARSHES SAC

MINSMERE-WALBERSWICK HEATHS AND MARSHES SSSI

EAST SUFFOLK DISTRICT

MINSMERE-WALBERSWICK RAMSAR

FRAMLINGHAM

SIZEWELL MARSHES SSSI

SOUTHERN NORTH SEA SAC

OUTER THAMES ESTUARY SPA

GROMFORD MEADOW SSSI

SNAPE WARREN SSSI

ALDEBURGH BRICK PIT SSSI

LEISTON - ALDEBURGH SSSI

THE HAVEN, ALDEBURGH LNR

CRAG PIT, ALDEBURGH SSSI

ROUND HILL PIT, ALDEBURGH SSSI

ALDEBURGH HALL PIT SSSI

BLAXHALL HEATH SSSI

IKEN WOOD SSSI

ALDE-ORE ESTUARY RAMSAR

RED HOUSE FARM PIT, SUDBOURNE SSSI

VALLEY FARM PIT, SUDBOURNE SSSI

WICKHAM MARKET

SANDLINGS FOREST SSSI

SANDLINGS SPA

STAVERTON PARK & THE THICKS, WANTISDEN SAC

ALDE-ORE & BUTLEY ESTUARIES SAC

ORFORDNESS-SHINGLE STREET SAC

ALDE-ORE ESTUARY SPA

ALDE-ORE ESTUARY SSSI

ORFORDNESS-HAVERGATE NNR

0 1 2 3 4 5 km

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary - 5km Buffer
- Suffolk Onshore Scheme Scoping Boundary - 10km Buffer
- Suffolk Site 3 Alternative (Option 2) Boundary
- National Nature Reserve (NNR)
- Local Nature Reserve (LNR)
- Ramsar
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
© Natural England copyright. Contains Ordnance Survey data © Crown Copyright and database right 2022, NB This national dataset is "indicative" not "definitive". Definitive information can only be provided by individual local authorities and you should refer directly to their information for all purposes that require the most up to date and complete dataset.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	JR

nationalgrid

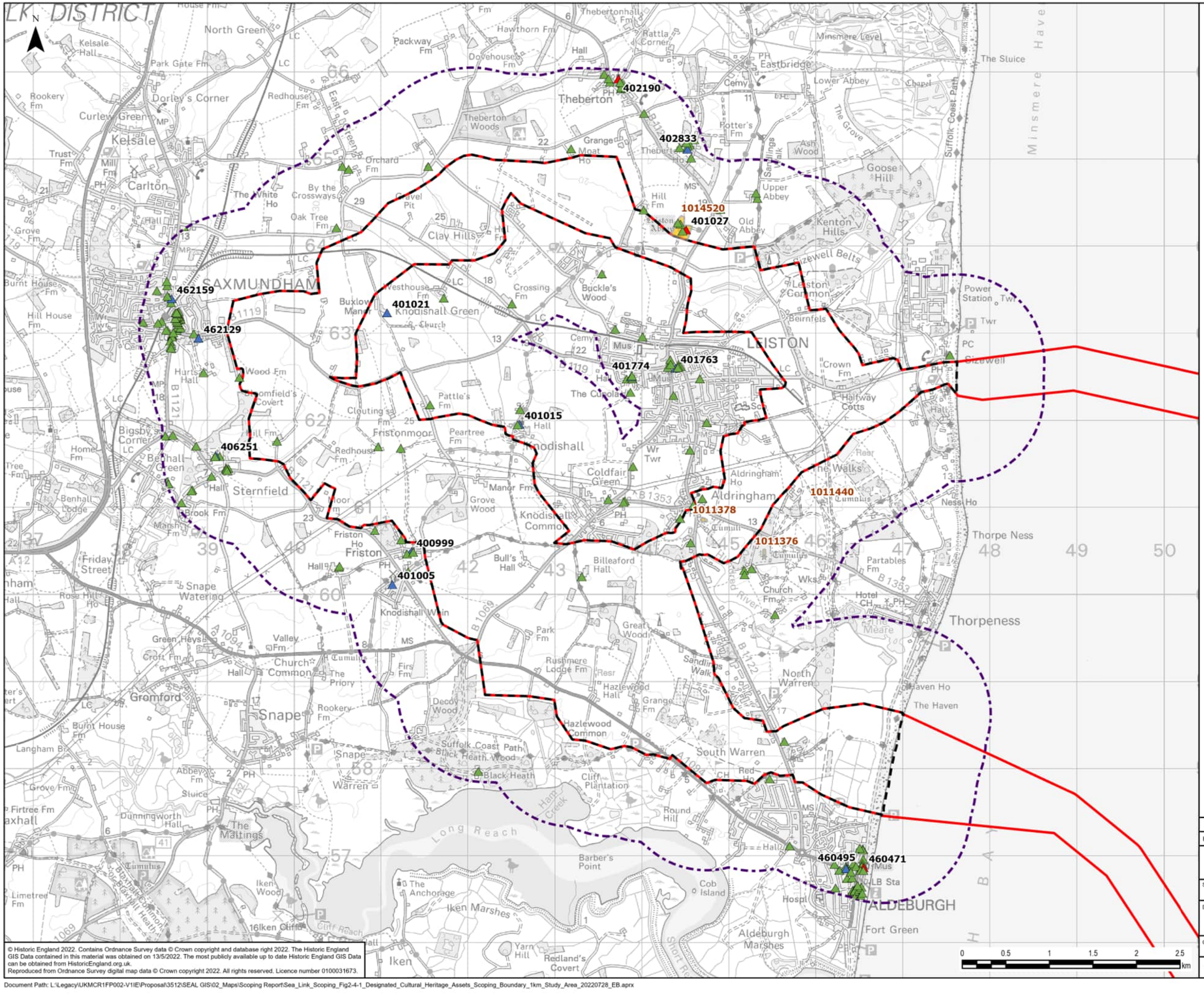
Scheme: SEA LINK

Document Title: STATUTORY DESIGNATED ECOLOGICAL FEATURES - SHEET 5 OF 5

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	JR	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.3.1	1:100,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-3-1_Statutory_Designated_Eco_Features_Sheet_5_of_5_20220719_EB.aprx



© Historic England 2022. Contains Ordnance Survey data © Crown copyright and database right 2022. The Historic England GIS Data contained in this material was obtained on 13/5/2022. The most publicly available up to date Historic England GIS Data can be obtained from HistoricEngland.org.uk.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description			
0	28/07/2022	SCOPING REPORT	EB	DF	JS

nationalgrid

Scheme: SEA LINK

Document Title: DESIGNATED CULTURAL HERITAGE ASSETS WITHIN THE SCOPING BOUNDARY AND WIDER 1KM STUDY AREA

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	28/07/2022	DF	28/07/2022	JS	28/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.4.1	1:40,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-4-1_Designated_Cultural_Heritage_Assets_Scoping_Boundary_1km_Study_Area_20220728_EB.aprx

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk HER Non-Designated Asset (point)
- Suffolk HER Non-Designated Asset (polyline)
- Suffolk HER Non-Designated Asset (polygon)

Rev	Date	Description	GIS	Chk	App
0	28/07/2022	SCOPING REPORT	EB	DF	JS

nationalgrid

Scheme: SEA LINK

Document Title: NON-DESIGNATED CULTURAL HERITAGE ASSETS WITHIN THE SCOPING BOUNDARY

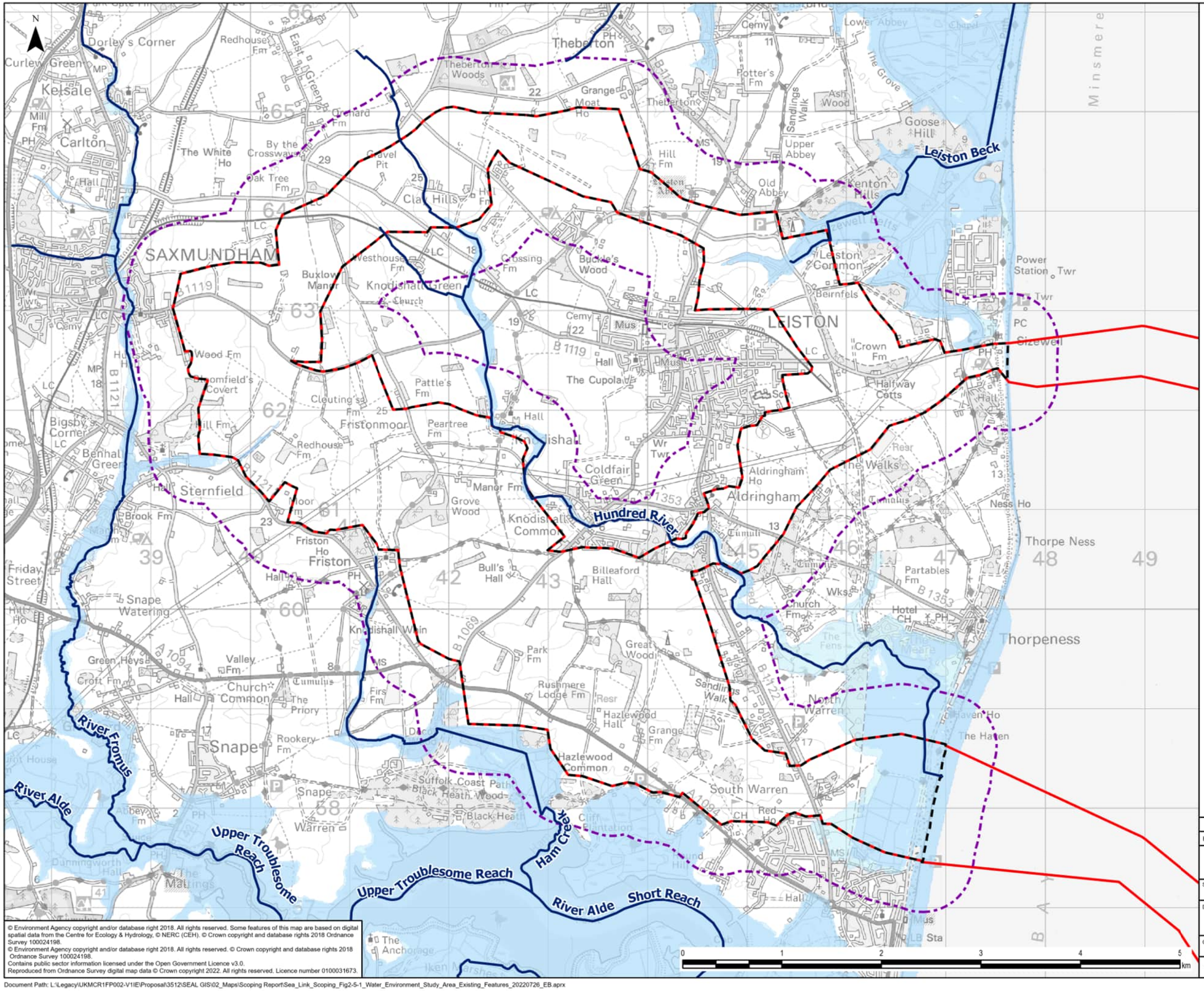
Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	28/07/2022	DF	28/07/2022	JS	28/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.4.2	1:30,000	A3	1	0

0 0.5 1 1.5 2 2.5 km

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-4-2_Non_Designated_Cultural_Heritage_Assets_Scoping_Boundary_20220728_EB.aprx



Rev	Date	Description	GIS	Chk	App
0	26/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

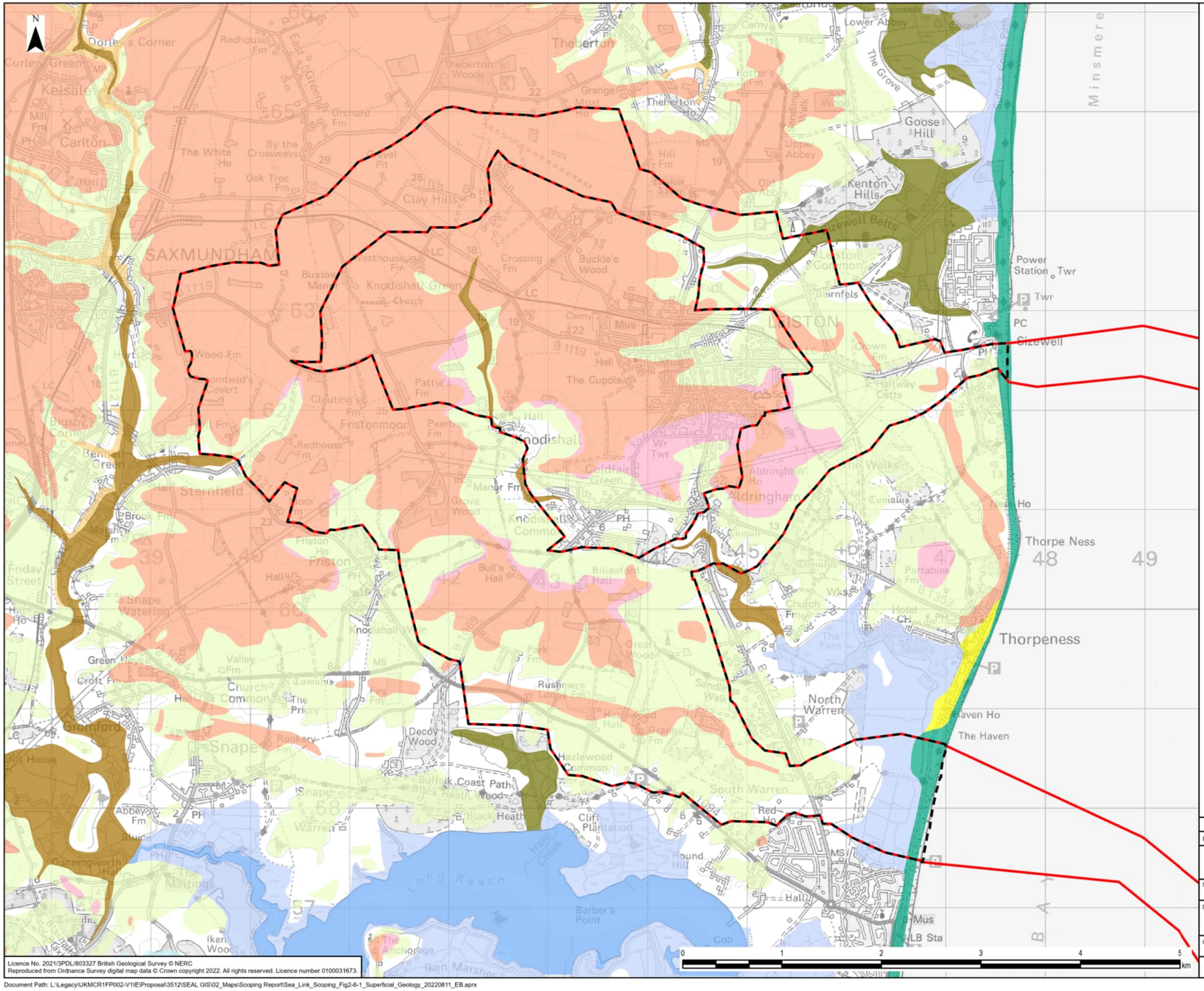
Scheme: SEA LINK

Document Title: WATER ENVIRONMENT STUDY AREA AND EXISTING FEATURES

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	26/07/2022	DF	26/07/2022	CC	26/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.5.1	1:35,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-5-1_Water_Environment_Study_Area_Existing_Features_20220726_EB.aprx



Licence No. 2021/3PDL/803327 British Geological Survey © NERC
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description			
0	11/08/2022	SCOPING REPORT	EB	DF	NC

nationalgrid

Scheme: SEA LINK

Document Title: SUPERFICIAL GEOLOGY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	11/08/2022	DF	11/08/2022	NC	11/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.6.1	1:35,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-6-1_Superficial_Geology_20220811_EB.aprx

N

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary

Bedrock Geology

- Chillesford Church Sand Member - Sand
- Chillesford Clay Member - Clay, Silty
- Coralline Crag Formation - Calcarenite
- Crag Group - Sand
- Red Crag Formation - Sand

0 1 2 3 4 5 km

Licence No. 2021/3PDL/803327 British Geological Survey © NERC.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description			
0	11/08/2022	SCOPING REPORT	EB	DF	NC

nationalgrid

Scheme: SEA LINK

Document Title: BEDROCK GEOLOGY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	11/08/2022	DF	11/08/2022	NC	11/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.6.2	1:35,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-6-2_Bedrock_Geology_20220811_EB.aprx

N

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary - 500m Buffer

Source Protection Zone

- Zone I - Inner Protection Zone
- Zone II - Outer Protection Zone
- Zone III - Total Catchment

0 1 2 3 4 5 km

© Environment Agency copyright and/or database right 2016. All rights reserved.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description			
0	26/07/2022	SCOPING REPORT	EB	DF	NC

nationalgrid

Scheme: SEA LINK

Document Title: HYDROGEOLOGY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	26/07/2022	DF	26/07/2022	NC	26/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.6.3	1:35,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-6-3_Hydrogeology_20220726_EB.aprx

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary - 250m Buffer

Potential Sources of Contamination (line)

- Very Low / Low Risk

Potential Sources of Contamination (area)

- Very Low / Low Risk
- Moderate Risk
- Moderate / High Risk

Rev	Date	Description			
0	09/08/2022	SCOPING REPORT	EB	DF	NC

nationalgrid

Scheme: SEA LINK

Document Title: POTENTIAL SOURCES OF CONTAMINATION

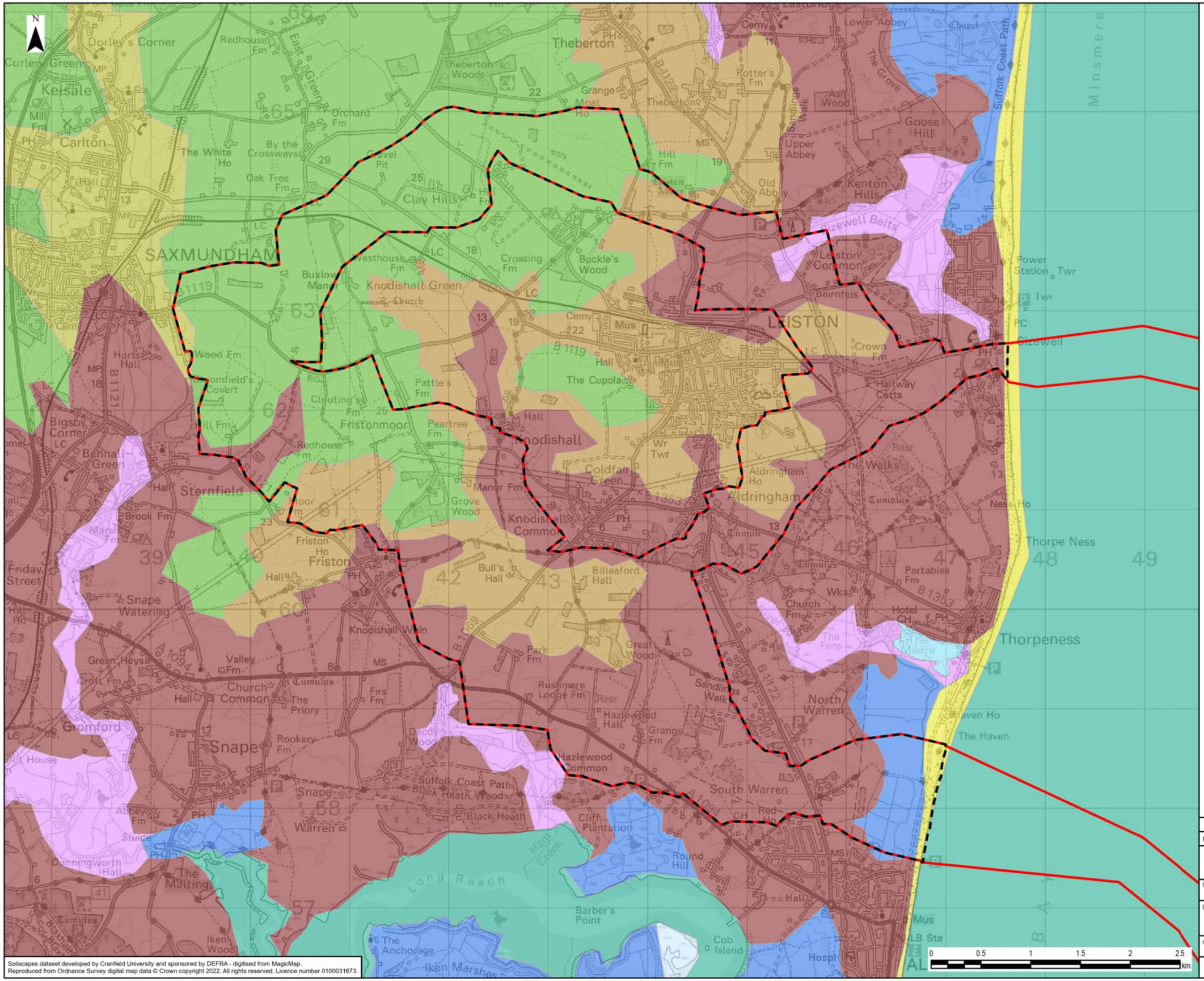
Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	09/08/2022	DF	09/08/2022	NC	09/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.6.4	1:35,000	A3	1	0

0 1 2 3 4 5 km

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-6-4_Potential_Sources_of_Contamination_20220809_EB.aprx



Soilscapes dataset developed by Cranfield University and sponsored by DEFRA - digitised from MagicMap.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	16/08/2022	SCOPING REPORT	EB	DF	BL

nationalgrid

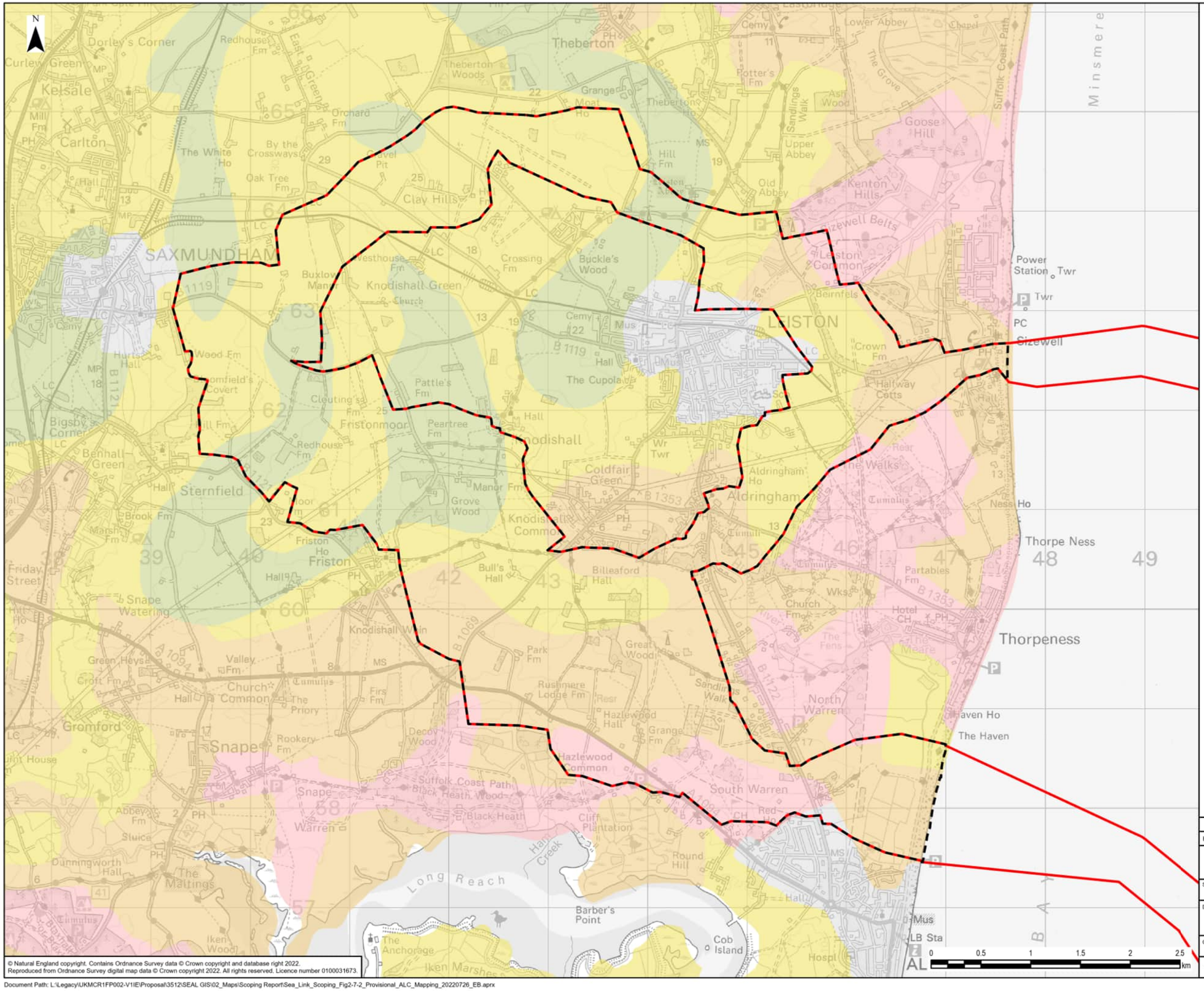
Scheme: SEA LINK

Document Title: SOILSCAPE MAPPING

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	16/08/2022	DF	16/08/2022	BL	16/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.7.1	1:35,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-7-1_Soilscape_Mapping_20220816_EB.aprx



© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description			
0	26/07/2022	SCOPING REPORT	EB	DF	BL

nationalgrid

Scheme: SEA LINK

Document Title: PROVISIONAL AGRICULTURAL LAND CLASSIFICATION MAPPING

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	26/07/2022	DF	26/07/2022	BL	26/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.7.2	1:35,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-7-2_Provisional_ALC_Mapping_20220726_EB.aprx

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary

Post 1988 Agricultural Land Classification

- Grade 1
- Grade 3a
- Grade 3b
- Grade 4
- Other

Rev	Date	Description			
0	26/07/2022	SCOPING REPORT	EB	DF	BL

nationalgrid

Scheme: SEA LINK

Document Title: DETAILED AGRICULTURAL LAND CLASSIFICATION MAPPING

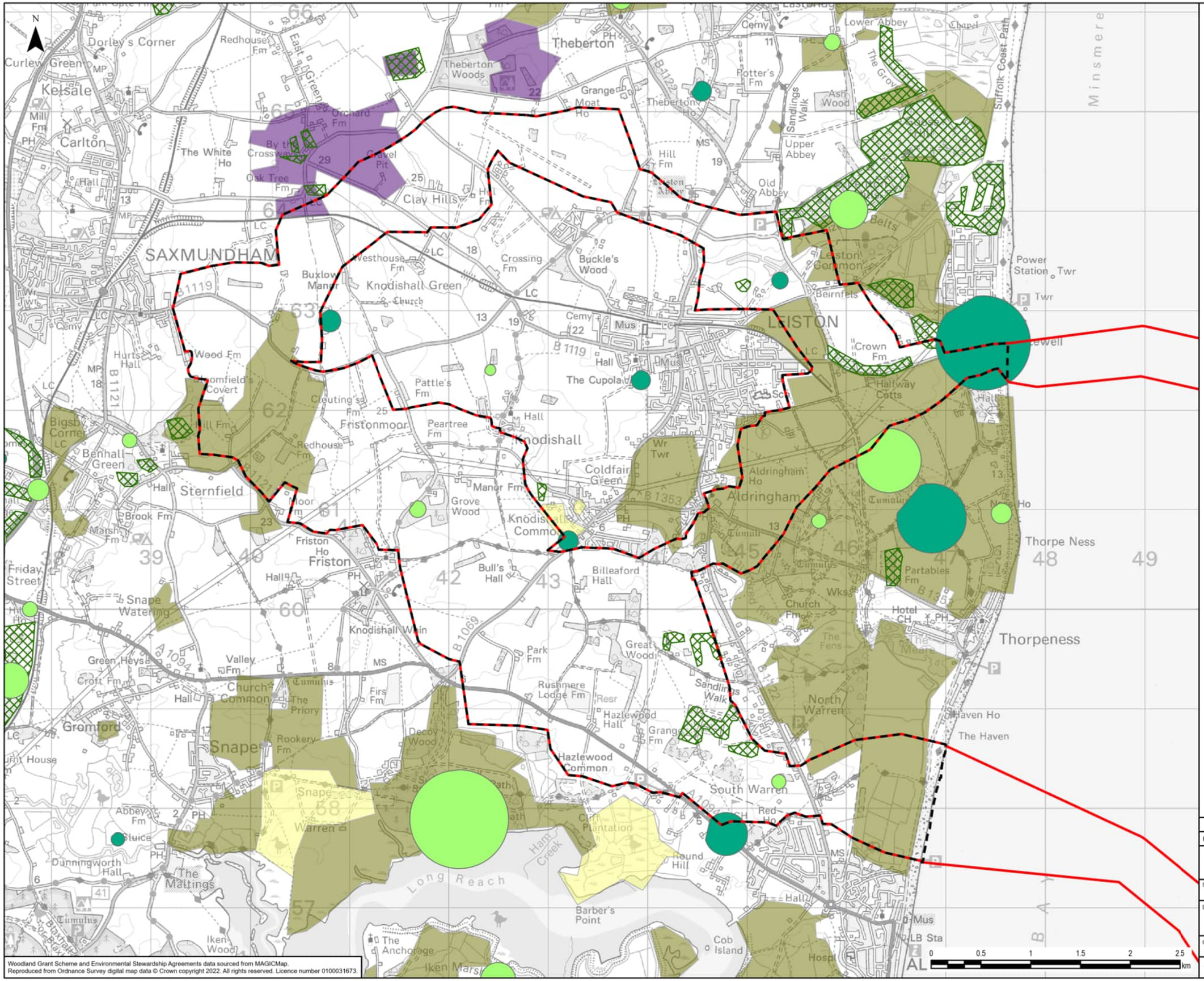
Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	26/07/2022	DF	26/07/2022	BL	26/07/2022

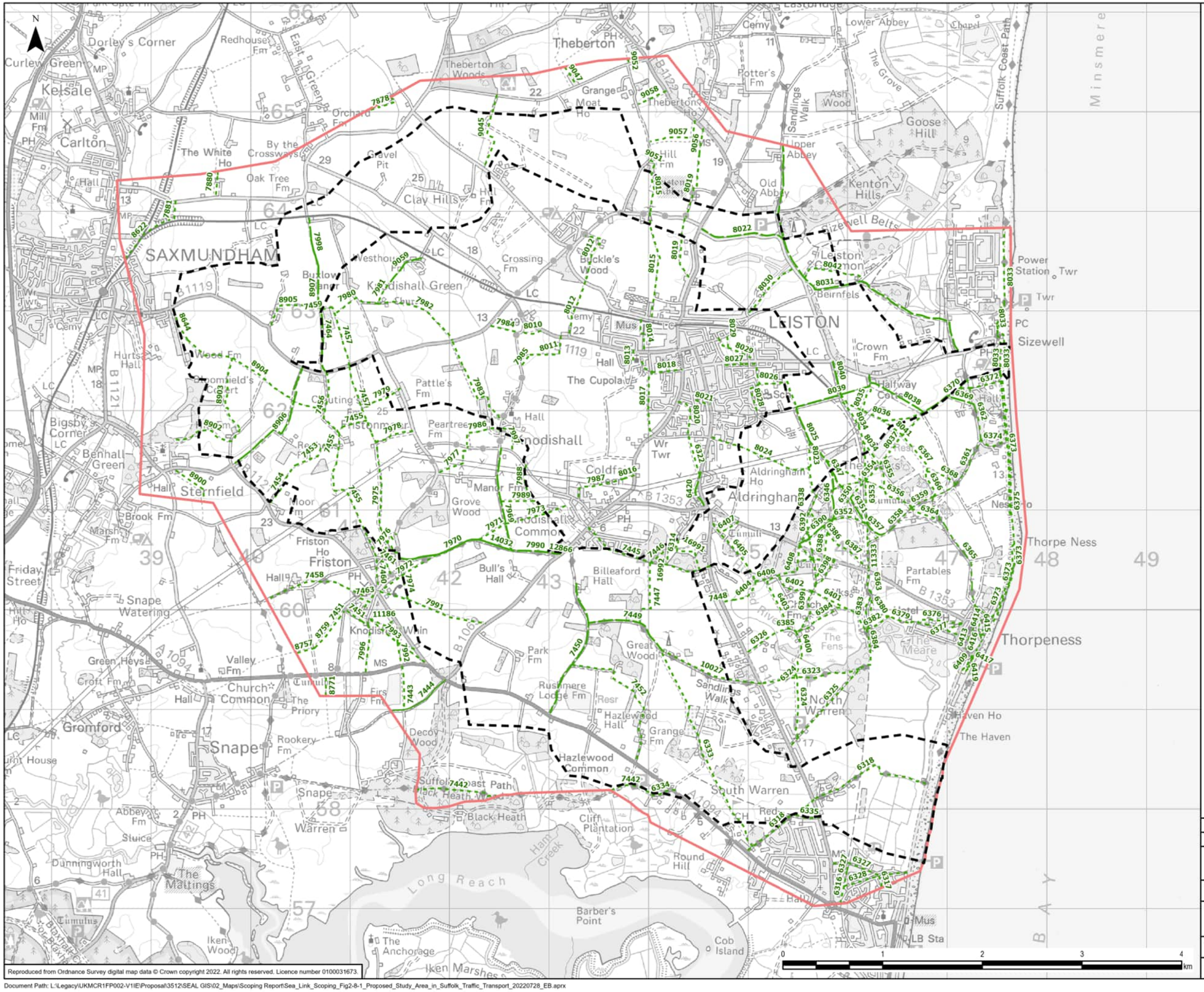
Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.7.3	1:35,000	A3	1	0

0 0.5 1 1.5 2 2.5 km

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-7-3_Detailed_ALC_Mapping_20220726_EB.aprx


N
Legend
Project Scoping Boundary
Suffolk Onshore Scheme Scoping Boundary
Woodland Grant Scheme 1
Woodland Grant Scheme 2
Woodland Grant Scheme 3
Environmental Stewardship Agreements
Entry Level plus Higher Level Stewardship
Higher Level Stewardship
Organic Entry Level plus Higher Level Stewardship
SAXMUNDHAM
LEISTON
Theberton
Knodishall Green
Fristonmoor
Knodishall
Aldringham
Thorpeness
Snape
Friston
Sternfield
Dorley's Corner
Curlew Green
Kelsale
Carlton
Clay Hills
Buckle's Wood
Crossing
Westhouse Fm
Buxlow Manor
Pattle's Fm
Peartree Fm
Coldfair Green
Billeaford Hall
Hazlewood Common
Hazlewood Hall
Rushmere Lodge Fm
Park Fm
Manor Fm
Grove Wood
Theberton Woods
Grange Moat
Theberton Ho
Potter's Fm
Ash Wood
Upper Abbey
Old Abbey
Lower Abbey
Suffolk Coast Path
Minsmere
Belts
Aston Common
Beirnfels
Power Station
Crown Fm
Halfway Cotts
Lewell
Partables Fm
North Warren
South Warren
The Haven
Haven Ho
Thorpe Ness
Hotel
Church Fm
Great Wood
Sandlings Walk
Round Hill
Cliff Plantation
Barber's Point
Long Reach
Ham Creek
Cob Island
Iken Wood
The Anchorage
The Maltings
Dunningworth Hall
Abbey Fm
Sluice
Gromford
Church Common
Valley Fm
Croft Fm
Green Heys
Snape Watering
Friday Street
Brook Fm
Marsh Fm
Benhall Green
Bigsby's Corner
Hurts Hall
Wood Fm
Broomfield's Covert
Redhouse Fm
Hill Fm
Cleuting's Fm
Oak Tree Fm
By the Crossway
Orchard Fm
Gravel Pit
The White Ho
Mill Fm
Theberton
Theberton Woods
Grange Moat
Theberton Ho
Potter's Fm
Ash Wood
Sandlings Walk
Upper Abbey
Old Abbey
Lower Abbey
Suffolk Coast Path
Minsmere
Belts
Aston Common
Beirnfels
Power Station
Crown Fm
Halfway Cotts
Lewell
Partables Fm
North Warren
South Warren
The Haven
Haven Ho
Thorpe Ness
Hotel
Church Fm
Great Wood
Sandlings Walk
Round Hill
Cliff Plantation
Barber's Point
Long Reach
Ham Creek
Cob Island
Iken Wood
The Anchorage
The Maltings
Dunningworth Hall
Abbey Fm
Sluice
Gromford
Church Common
Valley Fm
Croft Fm
Green Heys
Snape Watering
Friday Street
Brook Fm
Marsh Fm
Benhall Green
Bigsby's Corner
Hurts Hall
Wood Fm
Broomfield's Covert
Redhouse Fm
Hill Fm
Cleuting's Fm
Oak Tree Fm
By the Crossway
Orchard Fm
Gravel Pit
The White Ho
Mill Fm
Carlton
Kelsale
Dorley's Corner
Curlew Green
Redhouse Fm
East Green



Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description			
0	28/07/2022	SCOPING REPORT	EB	DF	MA

nationalgrid

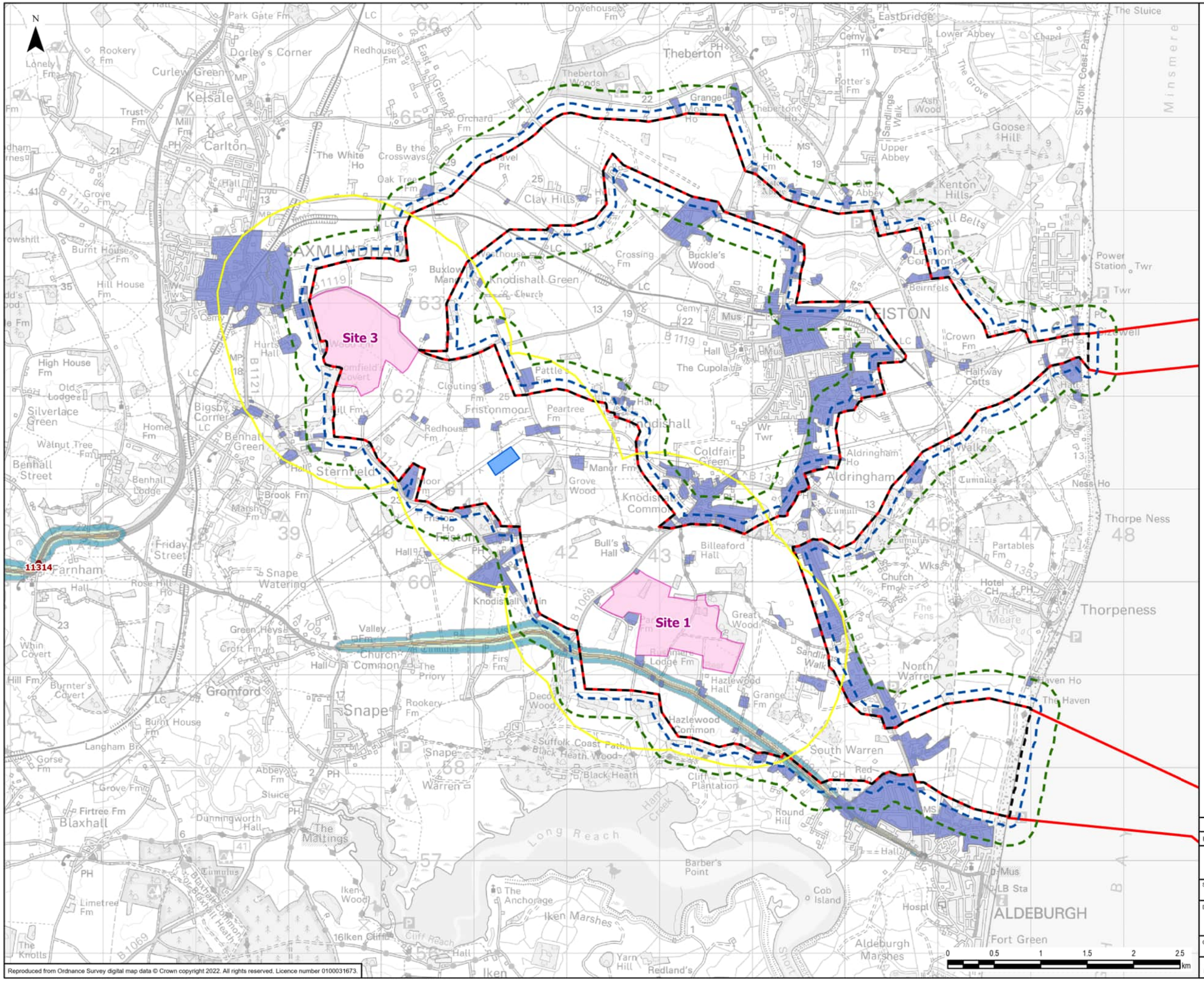
Scheme: SEA LINK

Document Title: PROPOSED STUDY AREA IN SUFFOLK (TRAFFIC AND TRANSPORT)

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	28/07/2022	DF	28/07/2022	MA	28/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.8.1	1:35,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-8-1_Proposed_Study_Area_in_Suffolk_Traffic_Transport_20220728_EB.aprx



Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- 300m Construction Noise Study Area
- 100m Construction Vibration Study Area
- 1km Operational Noise Study Area
- Friston Substation Site Area
- Converter Station Sites
- Noise and Vibration Sensitive Receptors
- Noise Important Area

Defra Road Traffic Noise, dBA

- 55.0-59.9
- 60.0-64.9
- 65.0-69.9
- 70.0-74.9

Rev	Date	Description	GIS	Chk	App
0	15/07/2022	SCOPING REPORT	EB	DF	DG

nationalgrid

Scheme: SEA LINK

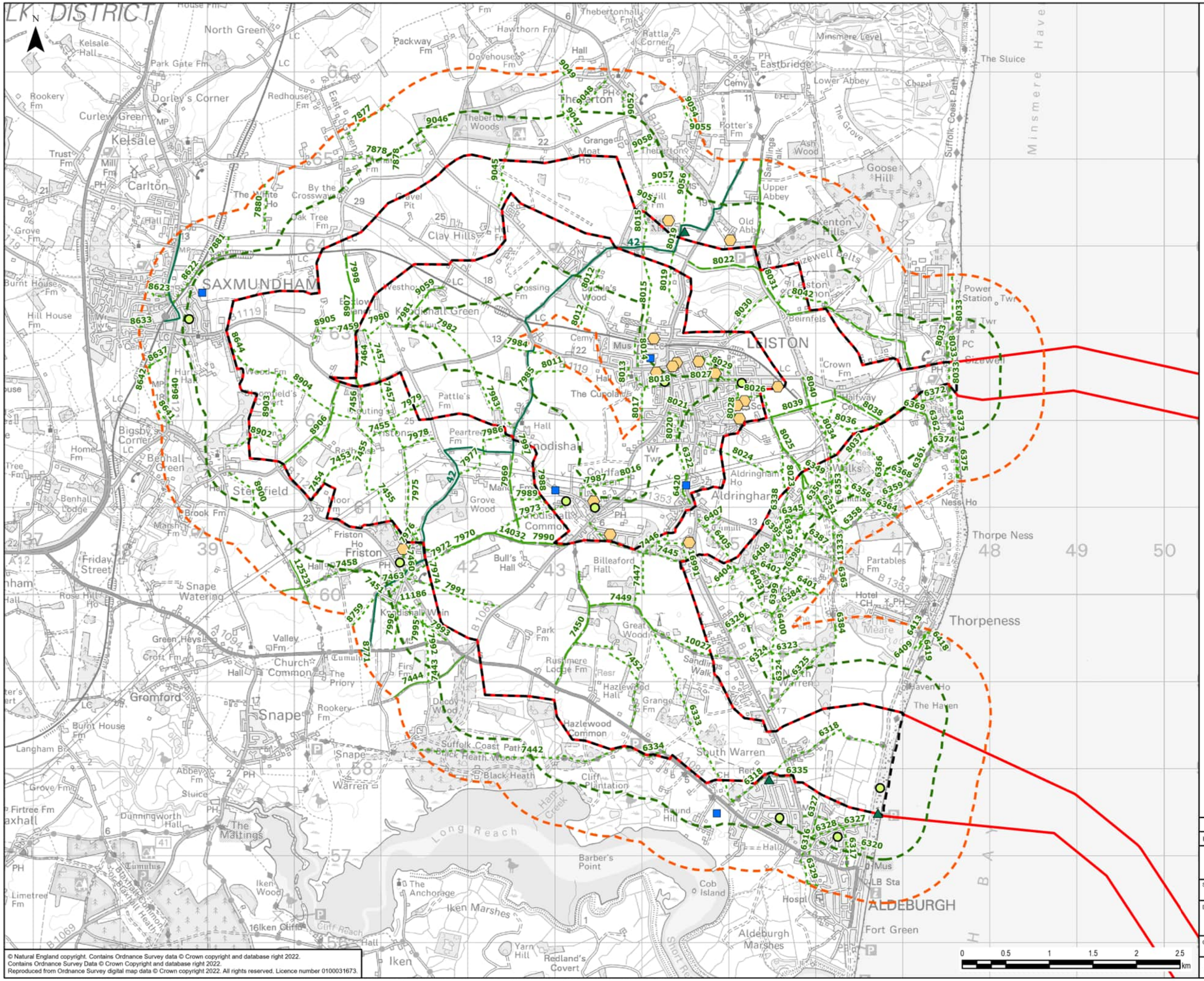
Document Title: NOISE AND VIBRATION BASELINE - SUFFOLK

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	15/07/2022	DF	15/07/2022	DG	15/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.10.1	1:37,500	A3	1	0

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-10-1_Noise_Vibration_Baseline_Suffolk_20220715_EB.aprx



© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Contains Ordnance Survey Data © Crown Copyright and database right 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	22/07/2022	SCOPING REPORT	EB	DF	JR

nationalgrid

Scheme: SEA LINK

Document Title: SUFFOLK ONSHORE SCHEME SOCIO-ECONOMIC, RECREATION AND TOURISM - STUDY AREAS AND RECEPTORS

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	22/07/2022	DF	22/07/2022	EW	22/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.11.1	1:40,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-11-1_Suffolk_Onshore_Scheme_Socio_Economic_Recreation_Tourism_Study_Areas_Receptors_20220722_EB.aprx

EAST SUFFOLK DISTRICT

Saxmundham Ward

Aldeburgh & Leiston Ward

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary - 500m Buffer
- Human Health Profile Baseline Study Area
- Open Space within 500m
- Community Facilities within 500m
- National Cycle Network Route within 500m

Public Rights of Way within 500m

- Public Footpath
- Bridleway
- Byway Open to All Traffic
- Restricted Byway

0 0.5 1 1.5 2 2.5 km

Contains Ordnance Survey Data © Crown Copyright and database right 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description			
0	26/09/2022	SCOPING REPORT	EB	DF	EW

nationalgrid

Scheme:	SEA LINK
Document Title:	SUFFOLK ONSHORE SCHEME HEALTH AND WELLBEING STUDY AREAS AND RECEPTORS

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	26/09/2022	DF	26/09/2022	EW	26/09/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.12.1	1:55,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-12-1_Suffolk_Onshore_Scheme_Health_Wellbeing_Study_Areas_Receptors_20220926_EB.aprx

Legend

- Project Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary
- Suffolk Onshore Scheme Scoping Boundary - Cumulative Zone of Influence

0 3 6 9 12 15 km

Rev	Date	Description			
0	01/08/2022	SCOPING REPORT	EB	DF	SA

nationalgrid

Scheme: SEA LINK

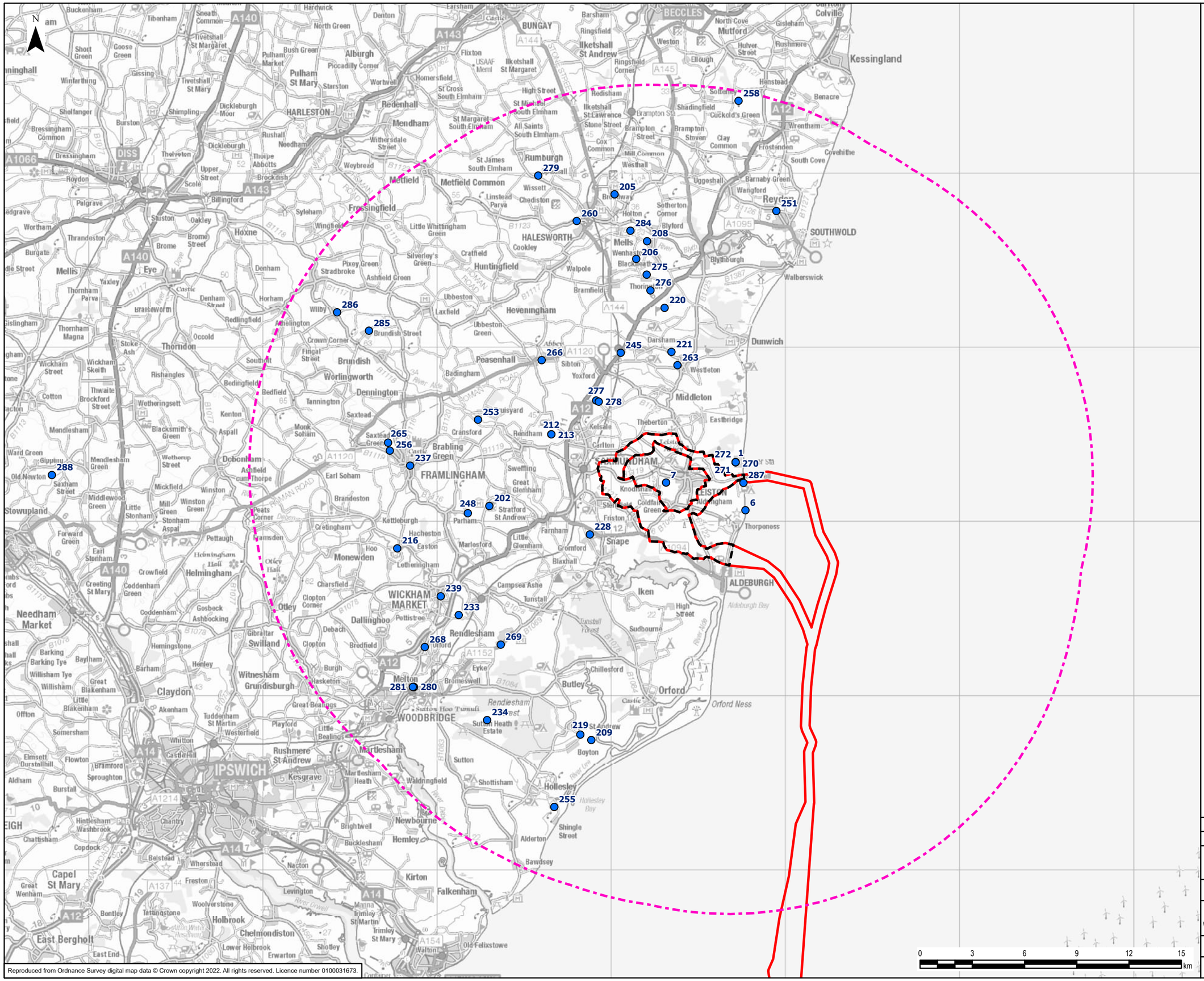
Document Title: ZONE OF INFLUENCE FOR SUFFOLK ONSHORE SCHEME

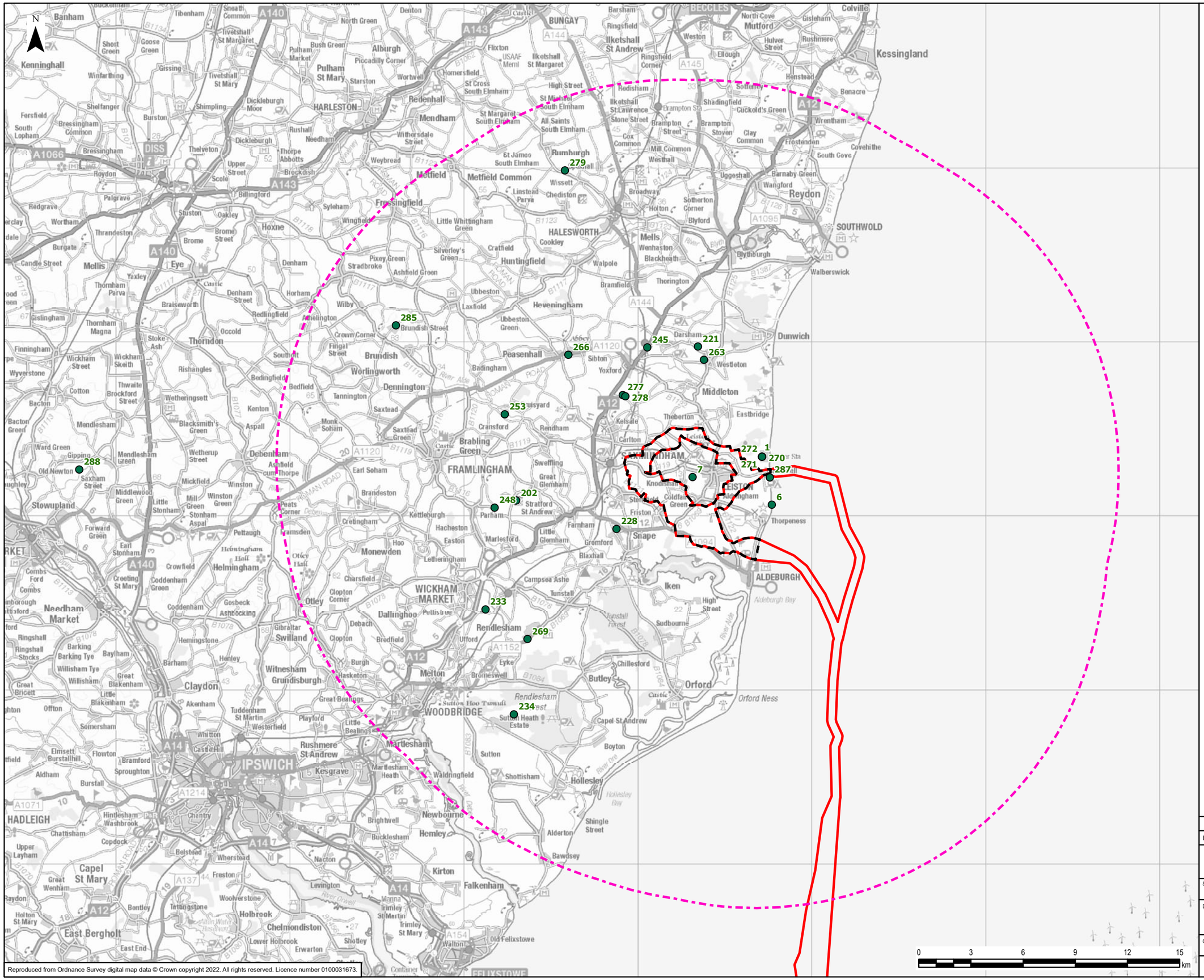
Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	01/08/2022	DF	01/08/2022	SA	01/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 2.13.1	1:200,000	A3	1	0

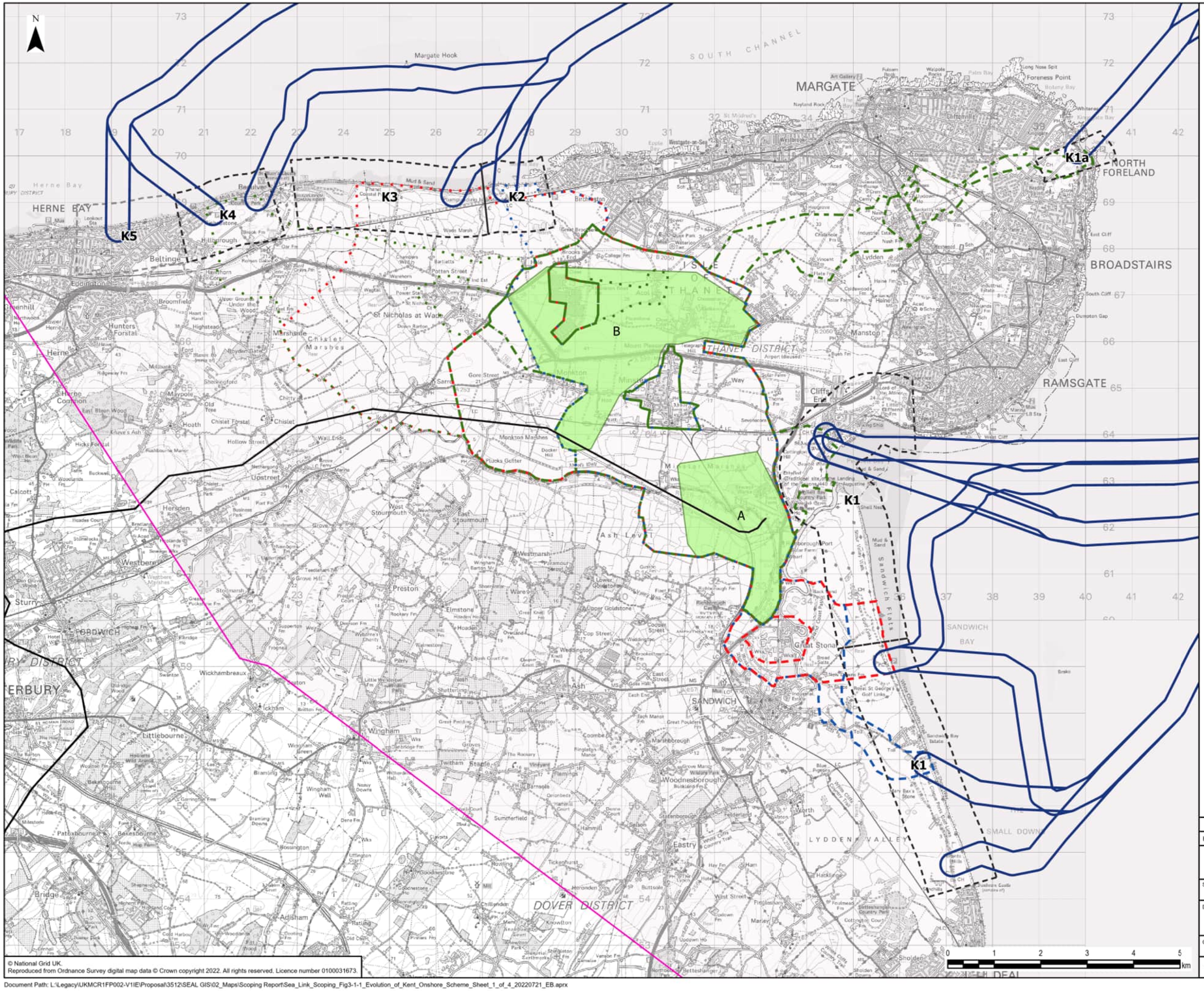
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig2-13-1_Zone_of_Influence_Suffolk_Onshore_Scheme_20220801_EB.aprx


N
Legend
Project Scoping Boundary
Suffolk Onshore Scheme Scoping Boundary
Suffolk Onshore Scheme Scoping Boundary - Cumulative Zone of Influence
Cumulative Long List Developments
1
6
7
202
205
208
209
212
213
216
219
220
221
228
233
234
237
239
245
248
251
253
255
256
258
260
263
265
266
268
269
270
271
272
275
276
277
278
279
280
281
284
285
286
287
288
BECCLES
BUNGAY
HARLESTON
DISS
FRAMLINGHAM
WICKHAM MARKET
SAXMUNDHAM
LEISTON
ALDEBURGH
SOUTHWOLD
WOODBRIDGE
IPSWICH
Kessingland
Dunwich
Middleton
Snape
Orford
Hollesley
Shingle Street
Orford Ness
Aldeburgh Bay
Hollesley Bay
Rendlesham
Metfield
Fressingfield
Mendham
Redenhall
Rumburgh
Metfield Common
HALESWORTH
Huntingfield
Heveningham
Peasenhall
Worlingworth
Dennington
Brundish
Thorndon
Hoxne
Eye
Mellis
Diss
Needham Market
Claydon
Barking
Barking Tye
Willisham Tye
Willisham
Great Blakenham
Little Blakenham
Offton
Somersham
Whitton
Castle Hill
Rushmere St Andrew
Kesgrave
Martlesham
Martlesham Heath
Waldringfield
Sutton
Shottisham
Newbourne
Hemley
Brightwell
Bucklesham
Alderton
Bawdsey
Boyton
Sutton Hoo Tumuli
Sutton Heath Estate
Melton
Hasketon
Burgh
Bromeswell
Eyke
Butley
Chillesford
Iken
Sudbourne
Orford Ness
Aldeburgh Bay
Hollesley Bay
Rendlesham
Tunstall
Tunstall Forest
Campsea Ashe
Marlesford
Little Glemham
Great Glemham
Parham
Stratford St Andrew
Farnham
Friston
Knodishall
Coldfair Green
Thorpeness
Aldeburgh
Iken
Sudbourne
Orford
Butley
Chillesford
Eyke
Bromeswell
Melton
Hasketon
Burgh
Wickham Market
Debach
Bredfield
Pettistree
Dallinghoo
Clopton
Swilland
Gibraltar
Otley
Clopton Corner
Charsfield
Monewden
Hacheston
Easton
Letheringham
Kettleburgh
Framsden
Pettaugh
Helmingham
Crowfield
Coddenham
Gosbeck
Ashbocking
Stonham Aspal
Earl Stonham
Creeting St Mary
Coddenham Green
Needham Market
Barking
Barking Tye
Willisham Tye
Willisham
Great Blakenham
Little Blakenham
Offton
Somersham
Whitton
Castle Hill
Flowton
Elmsett
Durstallhill
Aldham
Burstall
Bramford
Sproughton
Rushmere St Andrew
Kesgrave
Martlesham
Martlesham Heath
Waldringfield
Sutton
Shottisham
Hollesley
Newbourne
Hemley
Brightwell
Bucklesham
Alderton
Bawdsey
Shingle Street
Boyton
Sutton Hoo Tumuli
Sutton Heath Estate
Melton
Hasketon
Burgh
Bromeswell
Eyke
Butley
Chillesford
Iken
Sudbourne
Orford


N
Banham
Kenninghall
Winfarthing
Short Green
Goose Green
Gissing
Tivetshall St Margaret
Tivetshall St Mary
Sheffanger
Shimpling
Dickleburgh Moor
Burston
Fersfield
Bressingham Common
South Lopham
Bressingham
DISS
A1066
Roydon
Thelveton
Dickleburgh
Thorpe Abbotts
Brockdish
Scole
Upper Street
Billingford
Palgrave
Redgrave
Wortham
Thrandeston
Stuston
Oakley
Burgate
Brome
Bromo Street
Hoxne
Candle Street
Mellis
Eye
Yaxley
Thornham Parva
Castle
Denham Street
Horham
Braiseworth
Gislingham
Thornham Magna
Stoke Ash
Thornham
Occold
Finningham
Wickham Street
Wickham Skeith
Wyverstone
Rishangles
Cotton
Thwaite
Brockford Street
Wetheringsett
Bacton
Kenton
Bacton Green
Mendlesham
Blacksmith's Green
Aspall
Ward Green
Gipping
Mendlesham Green
Wetherup Street
Old Newton
Saxham Street
Debenham
Ashfield cum Thorpe
Mickfield
Winston
Middlewood Green
Little Stonham
Mill Green
Winston Green
Stowupland
Stonham Aspal
Forward Green
Earl Stonham
Pettaugh
Hemingstone Hall
Helmingham
Crowfield
Coddenham Green
Creeting St Mary
Coddenham
Gosbeck
Ashbocking
Needham Market
Ringshall
Ringshall Stocks
Barking
Barking Tye
Baylham
Willisham Tye
Willisham
Great Blakenham
Little Blakenham
Great Bricett
Offton
Somersham
Whitton
Elmsett
Burstall Hill
Flowton
Bramford
Sproughton
Aldham
Burstall
IPSWICH
Castle Hill
Rushmere St Andrew
Kesgrave
Martlesham
Martlesham Heath
Waldringfield
Shottisham
Hollesley
Hollesley Bay
Boyton
Sutton
Capel St Andrew
Sutton Hoo Tumuli
Sutton Heath Estate
Rendlesham Forest
WOODBRIDGE
Tuddenham St Martin
Playford
Little Bealings
Westerfield
Great Bealings
Claydon
Akenham
Barham
Henley
Witnesham
Grundisburgh
Debach
Clopton
Swilland
Gibraltar
Bredfield
Ufford
Melton
Burgh
Hasketon
Eyke
Bromeswell
Butley
Chillesford
Orford
Orford Ness
Castle
Iken
Sudbourne
High Street
Tunstall Forest
ALDEBURGH
Aldeburgh Bay
Thorpeness
Snape
Blaxhall
Gromford
Farnham
Little Glemham
Marlesford
Parham
Stratford St Andrew
Friston
Knodishall Green
Coldfair Green
Leiston
Knodishall
Sizewell
Sizewell Nuclear Power Station
Theberton
Eastbridge
Middleton
Kelsale
Carlton
Saxmundham
Yoxford
Sibton
Westleton
Darsham
Dunwich
Peasenhall
Heveningham
Ubbeston
Ubbeston Green
Laxfield
Cratfield
Huntingfield
Walpole
Bramfield
Thorington
Wenhaston
Blackheath
Mells
Halesworth
Cookley
Wissett
Chediston
Linstead Parva
Broadway
Holton
Sotherton Corner
Blyford
Blythburgh
Walberswick
SOUTHWOLD
Reydon
Wangford
Barnaby Green
Uggeshall
Westhall
Mill Common
Cox Common
Brampton Street
Brampton
Stoven
Clay Common
Frostenden
South Cove
Covehithe
Wrentham
Benacre
Cuckold's Green
Shadingfield
Ellough
Henstead
Rushmere
Hulver Street
Mutford
North Cove
Gisleham
Colville
Kessingland
BECCLES
Weston
Ringsfield
Ringsfield Corner
Ilketshall St Andrew
Ilketshall St Lawrence
Stone Street
Redisham
Ilketshall St Margaret
Flixton
USAAF Meml
BUNGAY
Barsham
Denton
Castle
Sneath Common
Tibenham
Pulham Market
Bush Green
Alburgh
Piccadilly Corner
Pulham St Mary
Starston
Worlwell
Homersfield
St Cross South Elmham
St Margaret South Elmham
St Michael South Elmham
All Saints South Elmham
St James South Elmham
High Street
Redenhall
HARLESTON
Rushall
Needham
Withersdale Street
Mendham
Metfield
Metfield Common
Rumburgh
Weybread
Fressingfield
Syleham
Wingfield
Little Whittingham Green
Denham
Pixey Green
Stradbroke
Ashfield Green
Silverley's Green
Cratfield
Huntingfield
Heveningham
Wilby
Laxfield
Ubbeston
Ubbeston Green
Brundish
Brundish Street
Worlingworth
Southolt
Fingal Street
Crown Corner
Occold
Thornham Magna
Thornham Parva
Gislingham
Redlingfield
Athelington
Denham
Horham
Braiseworth
Denham Street
Castle
Oakley
Stuston
Thrandeston
Brome
Bromo Street
Hoxne
Eye
Mellis
Yaxley
Burgate
Candle Street
Wortham
Roydon
Palgrave
Redgrave
Billingford
Scole
Upper Street
Brockdish
Thorpe Abbotts
Thelveton
Dickleburgh
Rushall
Needham
Withersdale Street
Mendham
Redenhall
HARLESTON
Shelfanger
Shimpling
Dickleburgh Moor
Burston
Fersfield
Bressingham Common
South Lopham
Bressingham
DISS
A1066
A140
A143
A144
A145
A12
A1120
A1095
A1152
A1214
A1071
A137
A154
A14
A1094
B1123
B1124
B1125
B1126
B1127
B1387
B1084
B1078
B1116
B1117
B1118
B1119
B1120
B1121
B1122
B1078
B1069
B1063
B1062
B1066
B1067
B1068
B1070
B1071
B1072
B1073
B1074
B1075
B1076
B1077
B1079
B1080
B1081
B1082
B1083
B1085
B1086
B1087
B1088
B1089
B1090
B1091
B1092
B1093
B1094
B1095
B1096
B1097
B1098
B1099
B1100
B1101
B1102
B1103
B1104
B1105
B1106
B1107
B1108
B1109
B1110
B1111
B1112
B1113
B1114
B1115
B1116
B1117
B1118
B1119
B1120
B1121
B1122
B1123
B1124

Part 3- Kent Onshore Scheme



© National Grid UK.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	21/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

Document Title: EVOLUTION OF THE KENT ONSHORE SCHEME - SHEET 1 OF 4

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	21/07/2022	DF	21/07/2022	CC	21/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.1.1	1:75,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-1-1_Evolution_of_Kent_Onshore_Scheme_Sheet_1_of_4_20220721_EB.aprx

MARGATE AND LONG SANDS SAC

K1a
K1
K2
K3
K4
K5
A
B

MARGATE
NORTH FORELAND
BROADSTAIRS
RAMSGATE
HERNE BAY
Herne Bay
Beltinge
Herne
Westbere
Sturry
Wickhambreaux
Littlebourne
Wingham
Preston
Ash
Sandwich
Woodnesborough
Eastry
Great Stonar
SANDWICH BAY
Deal
Sholden
Adisham
Bridge
Patrixbourne
Bekesbourne
THANET DISTRICT
DOVER DISTRICT
LYDDEN VALLEY
SMALL DOWN
Sandwich Flats

Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Converter Site Option Areas
- Landfall Area of Search
- Marine Final Routes

North Kent Coast
- Green
- Red
- Blue

Broadstairs
- Green

Pegwell Bay
- Green
- Red
- Blue

- Special Area of Conservation (SAC)

0 1 2 3 4 5 km

© National Grid UK.
© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	21/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

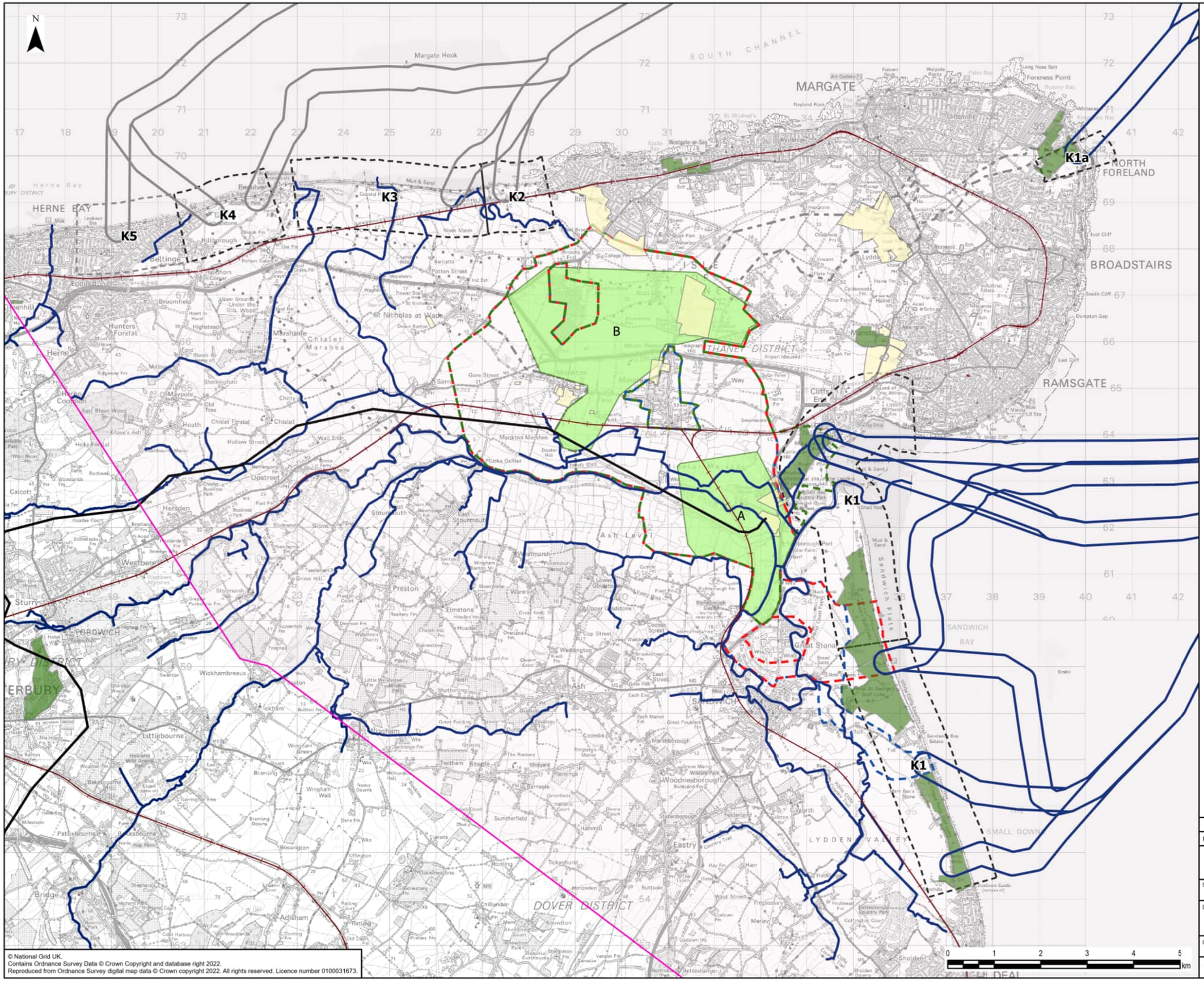
Scheme: SEA LINK

Document Title: EVOLUTION OF THE KENT ONSHORE SCHEME - SHEET 2 OF 4

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	21/07/2022	DF	21/07/2022	CC	21/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.1.1	1:75,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-1-1_Evolution_of_Kent_Onshore_Scheme_Sheet_2_of_4_20220721_EB.aprx



Rev	Date	Description	GIS	Chk	App
0	21/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

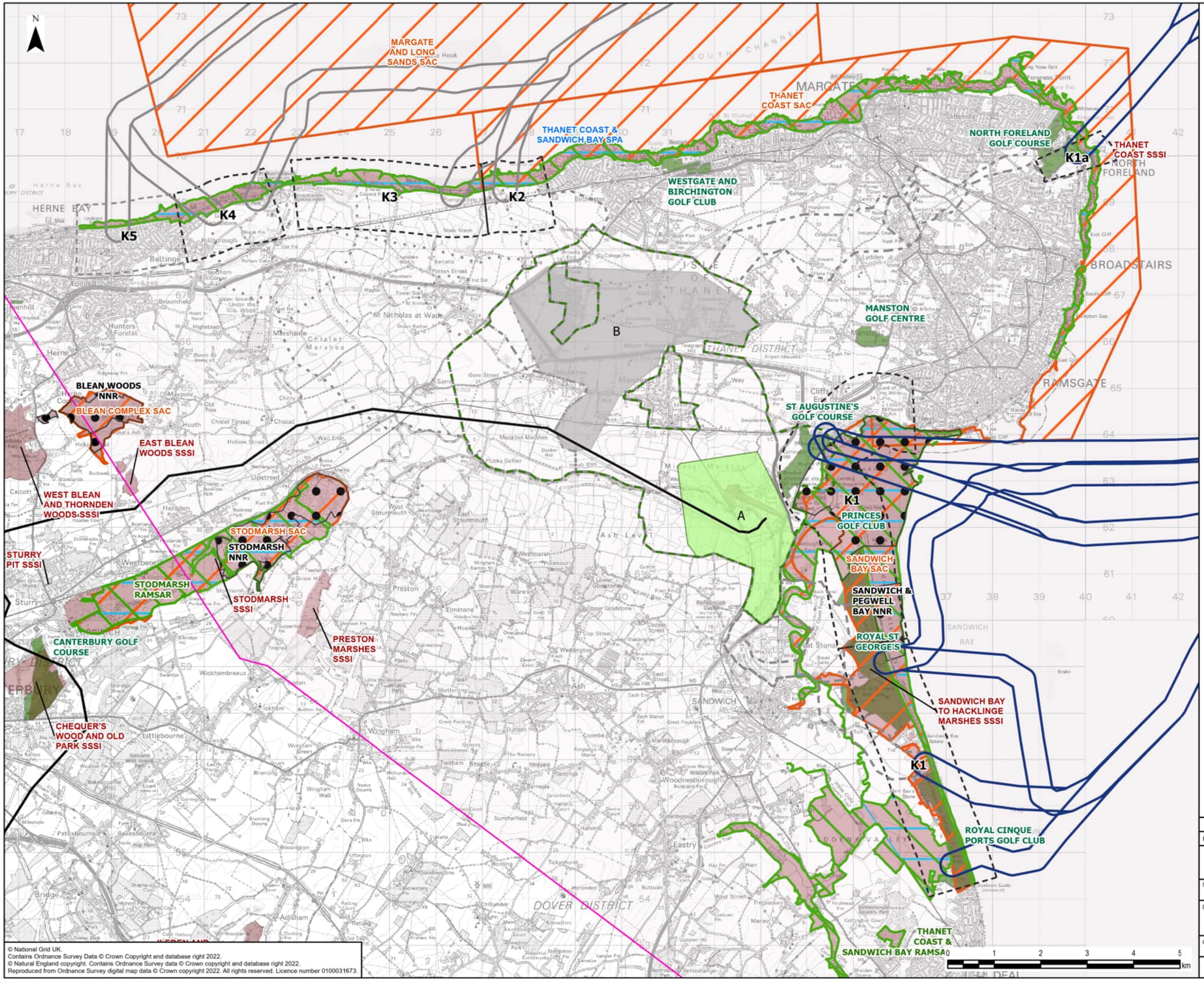
Scheme: SEA LINK

Document Title: EVOLUTION OF THE KENT ONSHORE SCHEME - SHEET 3 OF 4

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	21/07/2022	DF	21/07/2022	CC	21/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.1.1	1:75,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-1-1_Evolution_of_Kent_Onshore_Scheme_Sheet_3_of_4_20220721_EB.aprx



Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Converter Site Option Areas
- Landfall Area of Search
- Marine Final Routes

North Kent Coast
- Green
- Red
- Blue

Broadstairs
- Green

Pegwell Bay
- Green
- Red
- Blue

- Ramsar
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- National Nature Reserve (NNR)
- Golf Course

© National Grid UK.
Contains Ordnance Survey Data © Crown Copyright and database right 2022.
© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	21/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

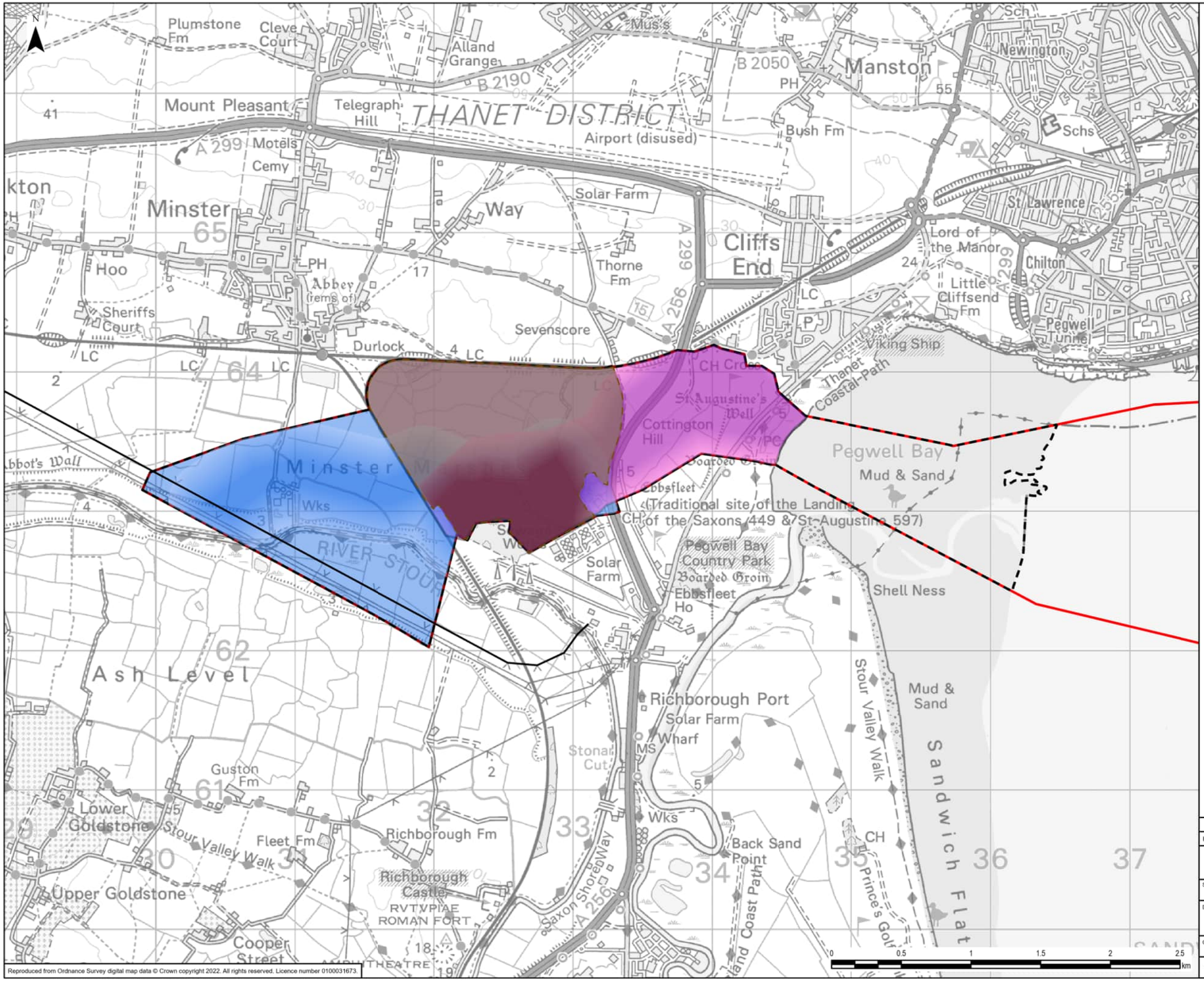
Scheme: SEA LINK

Document Title: EVOLUTION OF THE KENT ONSHORE SCHEME - SHEET 4 OF 4

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	21/07/2022	DF	21/07/2022	CC	21/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.1.1	1:75,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-1-1_Evolution_of_Kent_Onshore_Scheme_Sheet_4_of_4_20220721_EB.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary
- National Grid Overhead Line - 400kV
- Kent Converter Site/Substation Option Area
- Kent Converter/ Substation Site Emerging Preference Graduated Swarhe
- HVDC Corridor Graduated Swathe
- HVAC Corridor Graduated Swathe
- HVDC Corridor
- HVAC Corridor

Rev	Date	Description			
0	21/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

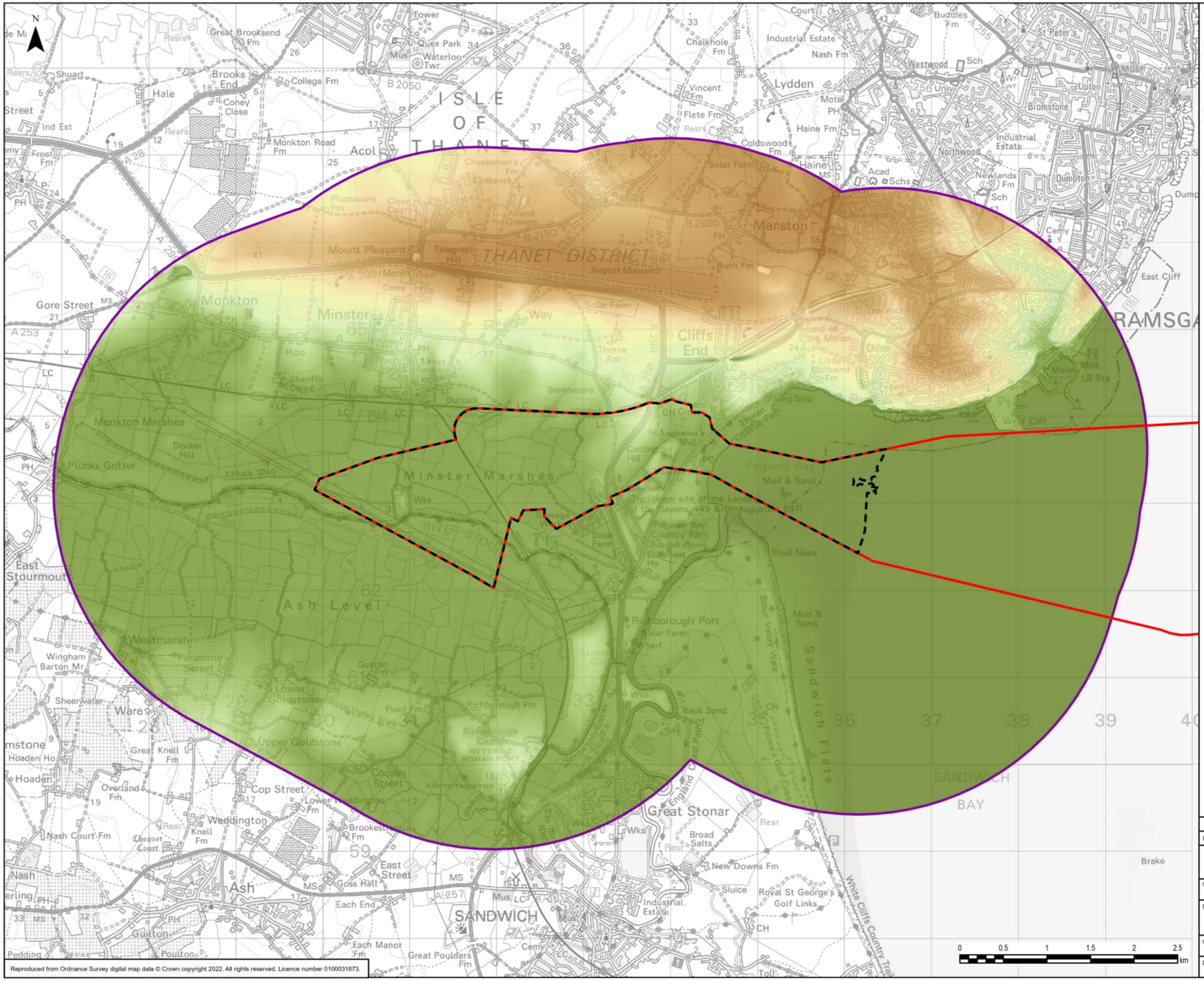
Document Title: KENT ONSHORE SCHEME

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	21/07/2022	DF	21/07/2022	CC	21/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.1.2	1:25,000	A3	1	0

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-1-2_Kent_Onshore_Scheme_20220721_EB.aprx



Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	15/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

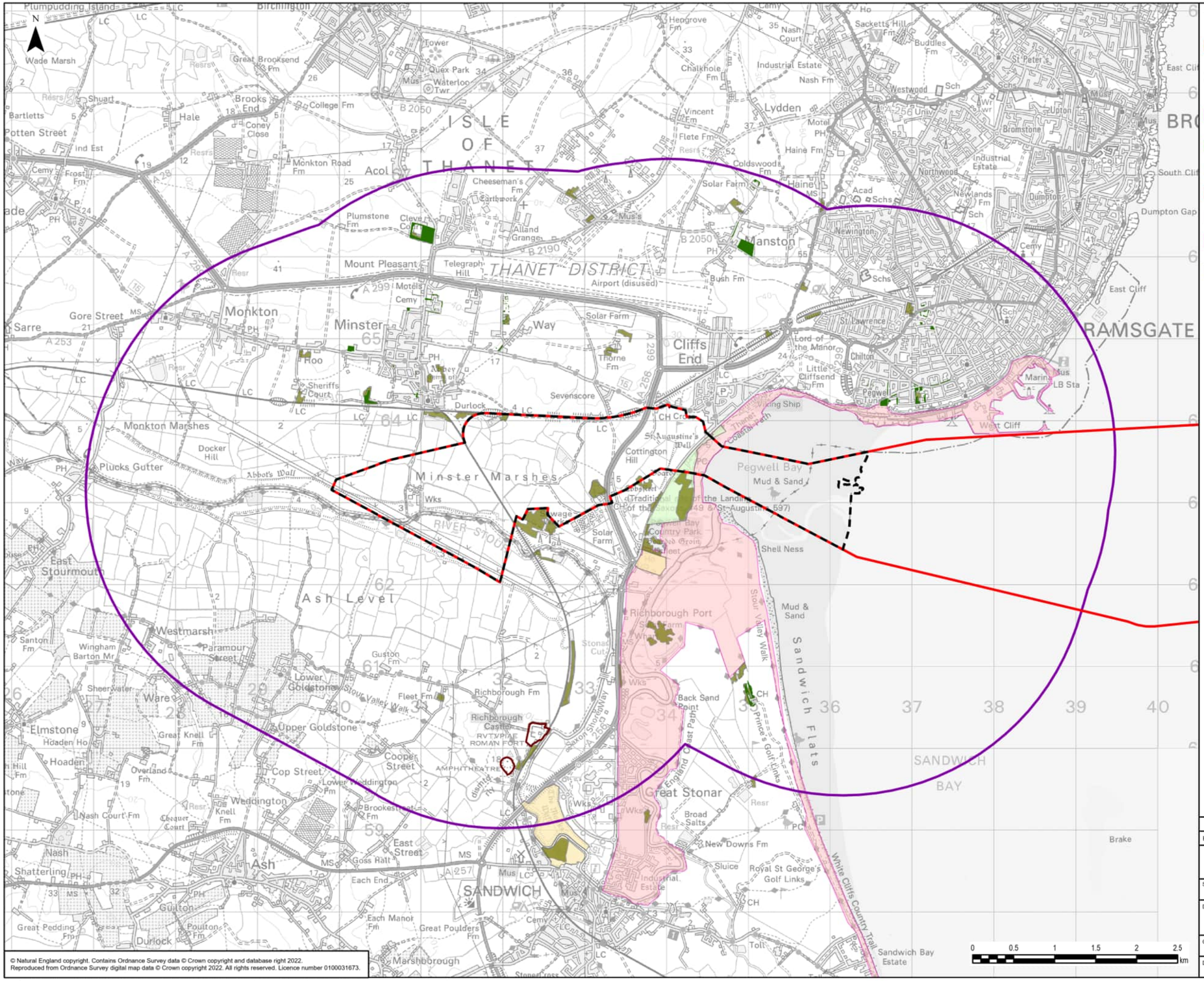
Scheme: SEA LINK

Document Title: TOPOGRAPHY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	15/07/2022	DF	15/07/2022	CW	15/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.2.1	1:40,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3_2_1_Topography_20220715.aprx



© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	15/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

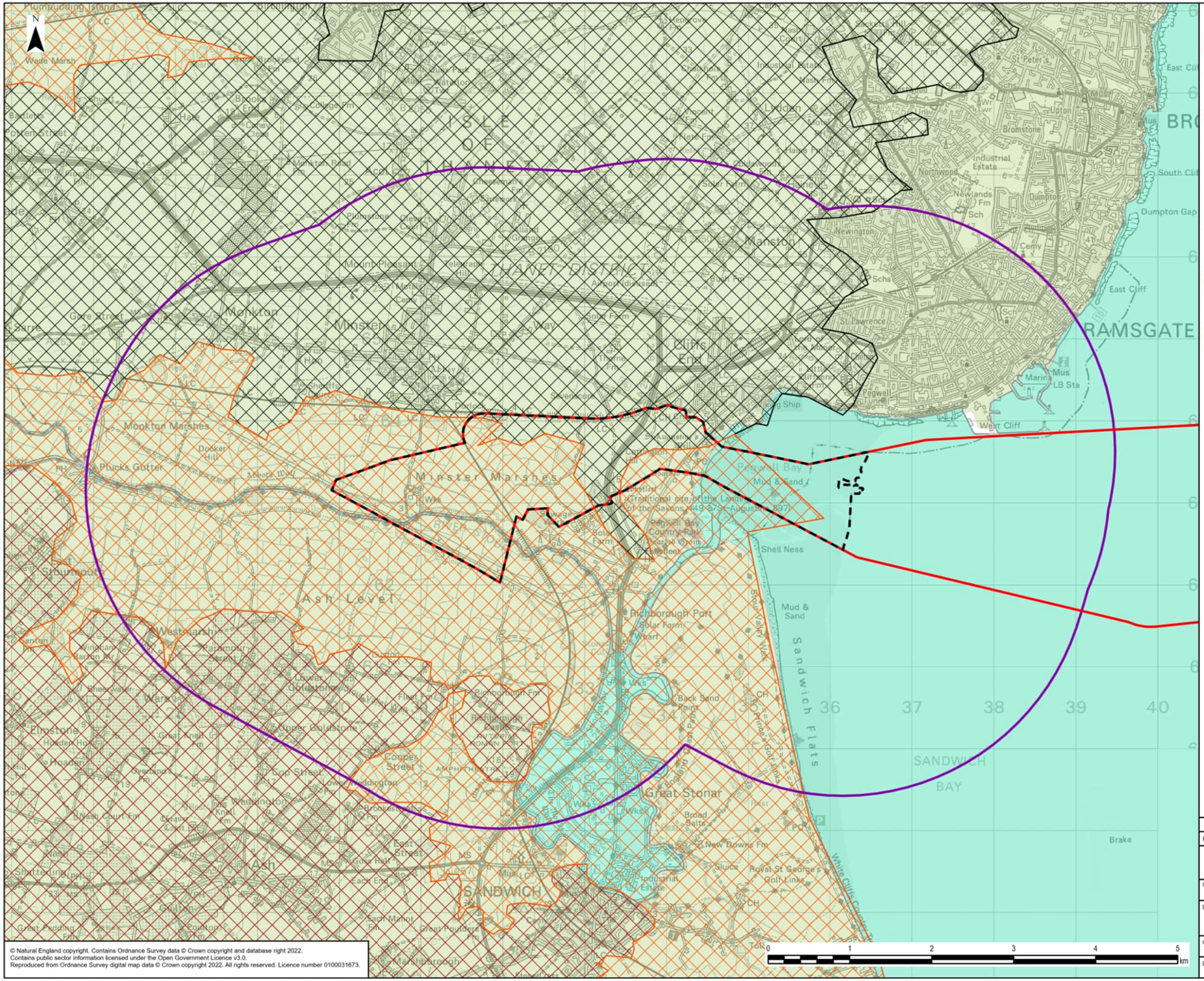
Scheme: SEA LINK

Document Title: LANDSCAPE CONTEXT AND DESIGNATIONS

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	15/07/2022	DF	15/07/2022	CW	15/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.2.2	1:42,500	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3_2_2_Landscape_Context_Designations_20220715.aprx



© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Contains public sector information licensed under the Open Government Licence v3.0.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	27/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

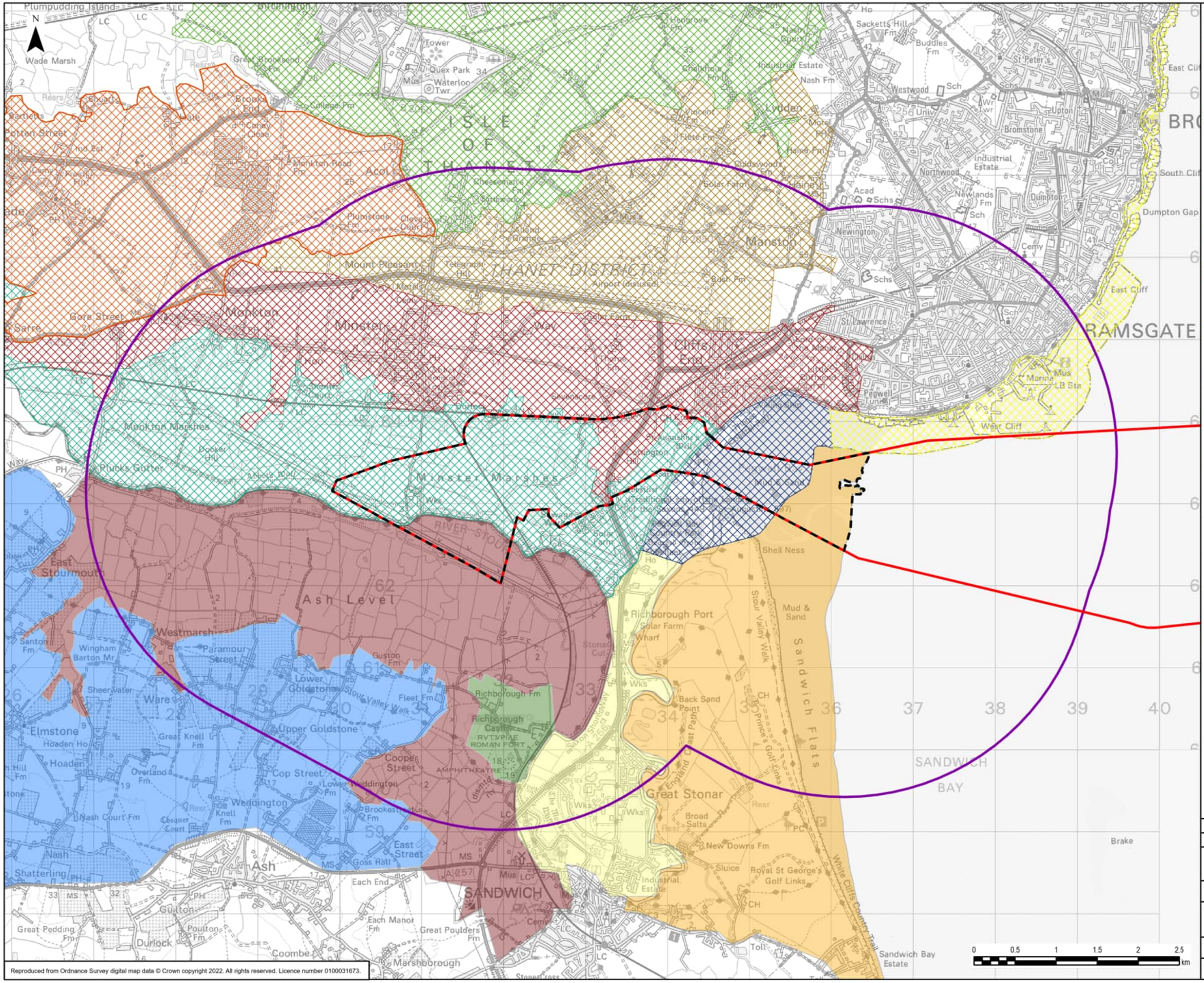
Scheme: SEA LINK

Document Title: LANDSCAPE & SEASCAPE CHARACTER - NATIONAL & COUNTY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	27/07/2022	DF	27/07/2022	CW	27/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.2.3	1:42,500	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-2-3_Landscape_Seascape_Character_Area_National_County_20220727_EB.aprx



Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	14/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

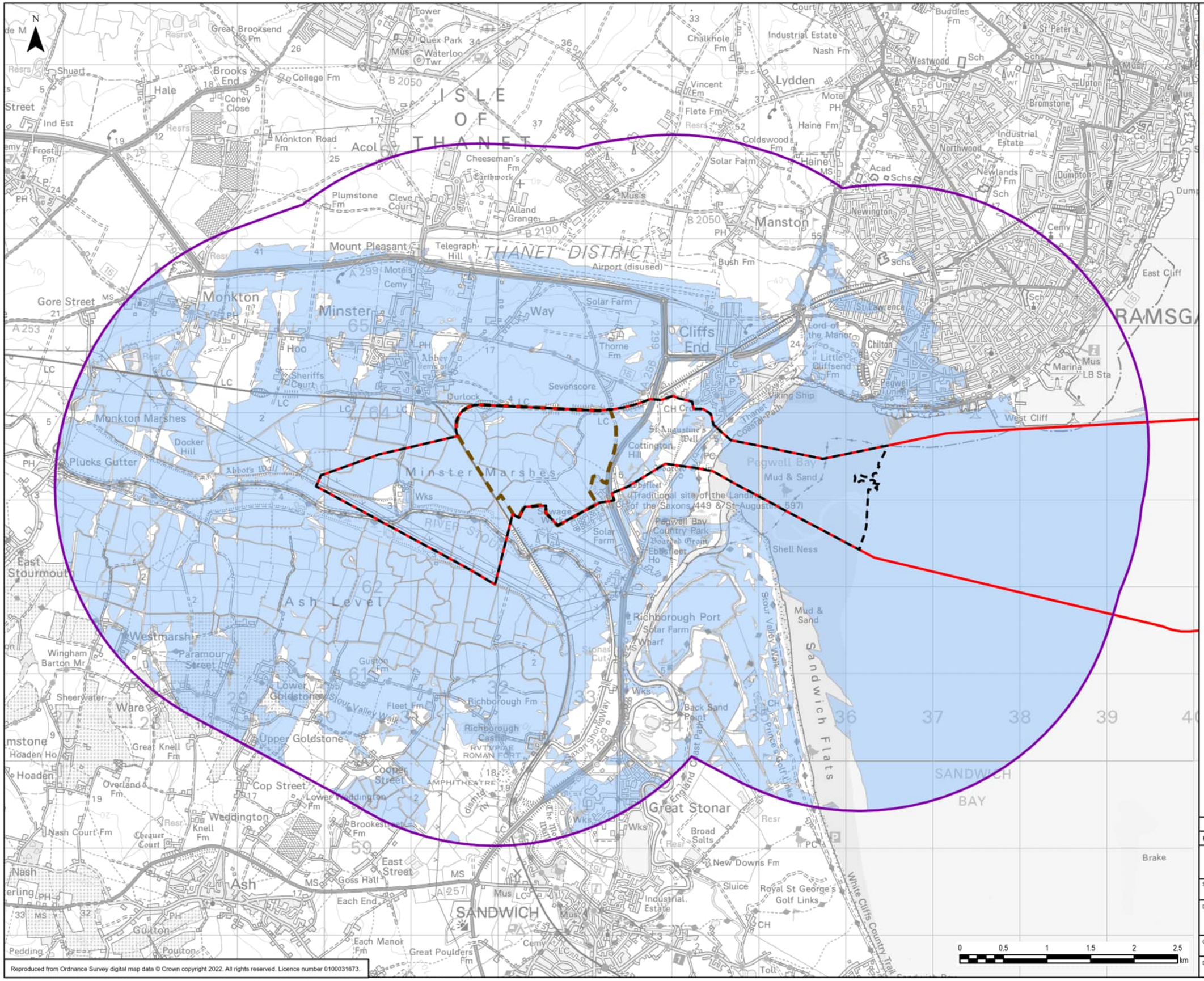
Scheme: SEA LINK

Document Title: LANDSCAPE CHARACTER - DISTRICT

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	14/07/2022	DF	14/07/2022	CW	14/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.2.4	1:42,500	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3_2_4_Landscape_Character_Area_District_20220712_EB.aprx



Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

The Zone of Theoretical Visibility (ZTV) has been generated using the Ordnance Survey Terrain 5 Digital Terrain Model which does not take account of the screening effects of vegetation, buildings or other structures.
The ZTVs are based on an observer point from the centre of the Kent Converter Station Emerging Preference graduated swathe area, at an elevation of 30 metres.

Rev	Date	Description			
0	28/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

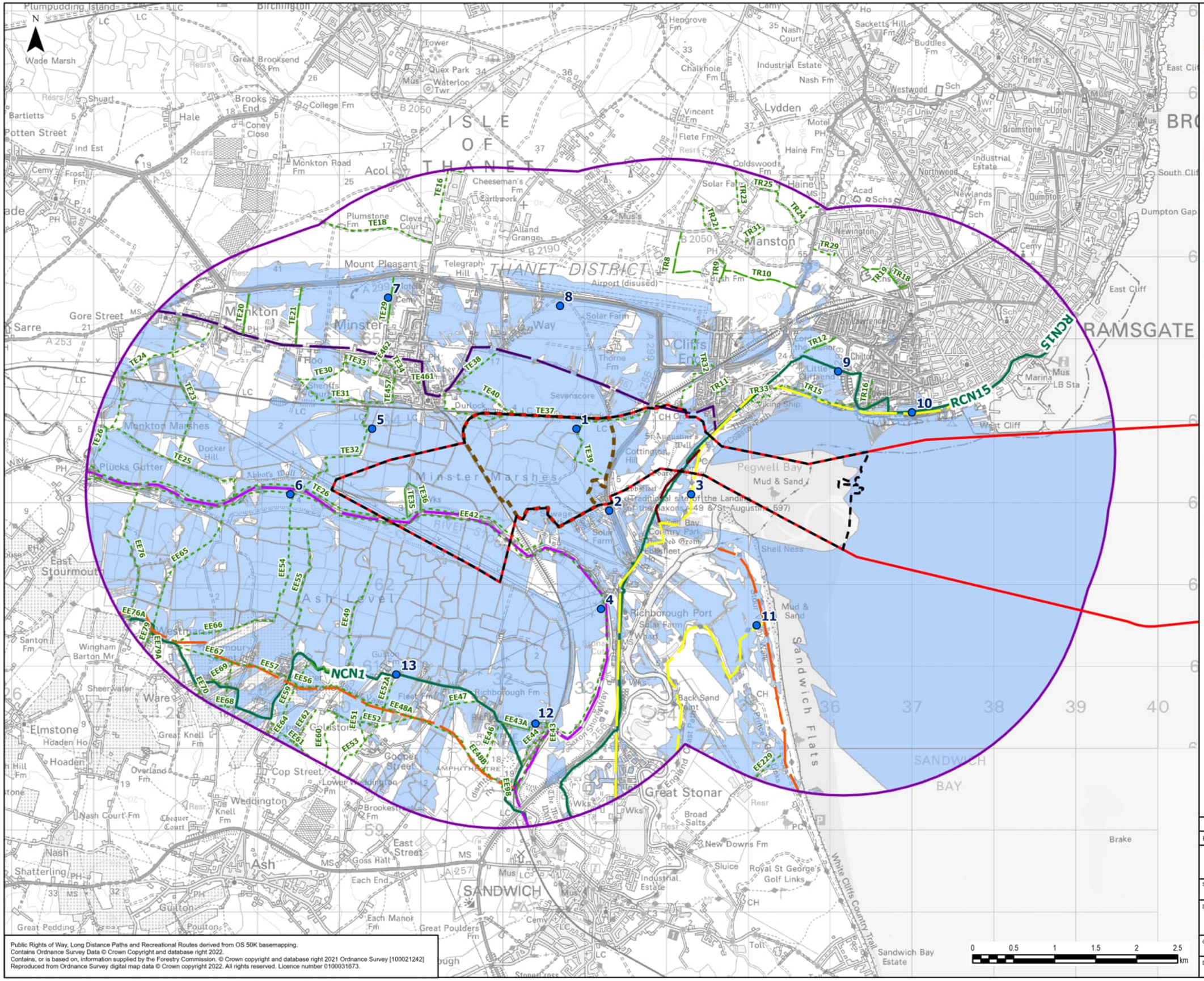
Scheme: SEA LINK

Document Title: BARE EARTH ZONE OF THEORETICAL VISIBILITY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	28/07/2022	DF	28/07/2022	CW	28/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.2.5	1:40,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-2-5_Bare_Earth_ZTV_20220728.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary
- Kent Converter Site Option Area
- Landscape and Visual Study Area
- Zone of Theoretical Visibility - Screened
- Representative Viewpoint Locations
- National Cycle Network

Public Rights of Way

- Public Footpath
- Public Bridleway
- Restricted Byway

Recreational Routes

- Active Ramsgate - Ramsgate to Pegwell Bay (The Contra Trail)
- England Coast Path - Camber to Ramsgate
- Saxon Shore Way
- Stour Valley Walk
- Viking Coastal Trail - Sandwich to Reculver

The Zones of Theoretical Visibility (ZTVs) have been generated using the Ordnance Survey Terrain 5 Digital Terrain Model which does not take account of the screening effects of vegetation, buildings or other structures.
Existing buildings have been incorporated into the DTM from OS Open Map Local with an assumed height of 7.5m. Woodland data from the National Forest Inventory has also been incorporated into the DTM with an assumed height of 10m.
The ZTV is based on an observer point from the centre of the Kent Converter Station Emerging Preference graduated swathe area, at an elevation of 30 metres.

Rev	Date	Description	EB	DF	CW
0	28/07/2022	SCOPING REPORT	EB	DF	CW

nationalgrid

Scheme: SEA LINK

Document Title: REPRESENTATIVE VIEWPOINT LOCATIONS AND SCREENED ZONE OF THEORETICAL VISIBILITY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	28/07/2022	DF	28/07/2022	CW	28/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.2.6	1:42,500	A3	1	0

Public Rights of Way, Long Distance Paths and Recreational Routes derived from OS 50K basemapping.
Contains Ordnance Survey Data © Crown Copyright and database right 2022.
Contains, or is based on, information supplied by the Forestry Commission. © Crown copyright and database right 2021 Ordnance Survey [100021242]
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-2-6_Representative_VPs_Screened_ZTV_20220728.aprx

MARGATE AND LONG SANDS SAC

OUTER THAMES ESTUARY SPA

THANET COAST SAC

THANET COAST & SANDWICH BAY SPA

THANET COAST & SANDWICH BAY RAMSAR

FORELAND

THANET COAST SSSI

BROADSTAIRS

RAMSGATE

ISLE OF THANET

THANET DISTRICT

THANET COAST SAC

SANDWICH BAY SAC

SANDWICH & PEGWELL BAY NNR

PRINCE'S BEACHLANDS LNR

SANDWICH BAY TO HACKLINGE MARSHES SSSI

STODMARSH SAC

STODMARSH SPA

STODMARSH RAMSAR

SANDWICH BAY

SANDWICH

THE SMALL DOWNS

DOVER DISTRICT

DEAL

THE DOWNS

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
© Natural England copyright. Contains Ordnance Survey data © Crown Copyright and database right 2022. NB This national dataset is "indicative" not "definitive". Definitive information can only be provided by individual local authorities and you should refer directly to their information for all purposes that require the most up to date and complete dataset.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

0 1 2 3 4 5 km

Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary
- Kent Onshore Scheme Scoping Boundary - 5km Buffer
- Kent Onshore Scheme Scoping Boundary - 10km Buffer
- National Nature Reserve (NNR)
- Local Nature Reserve (LNR)
- Ramsar
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)

Rev	Date	Description	GIS	Chk	App
0	19/07/2022	SCOPING REPORT	EB	DF	JR

nationalgrid

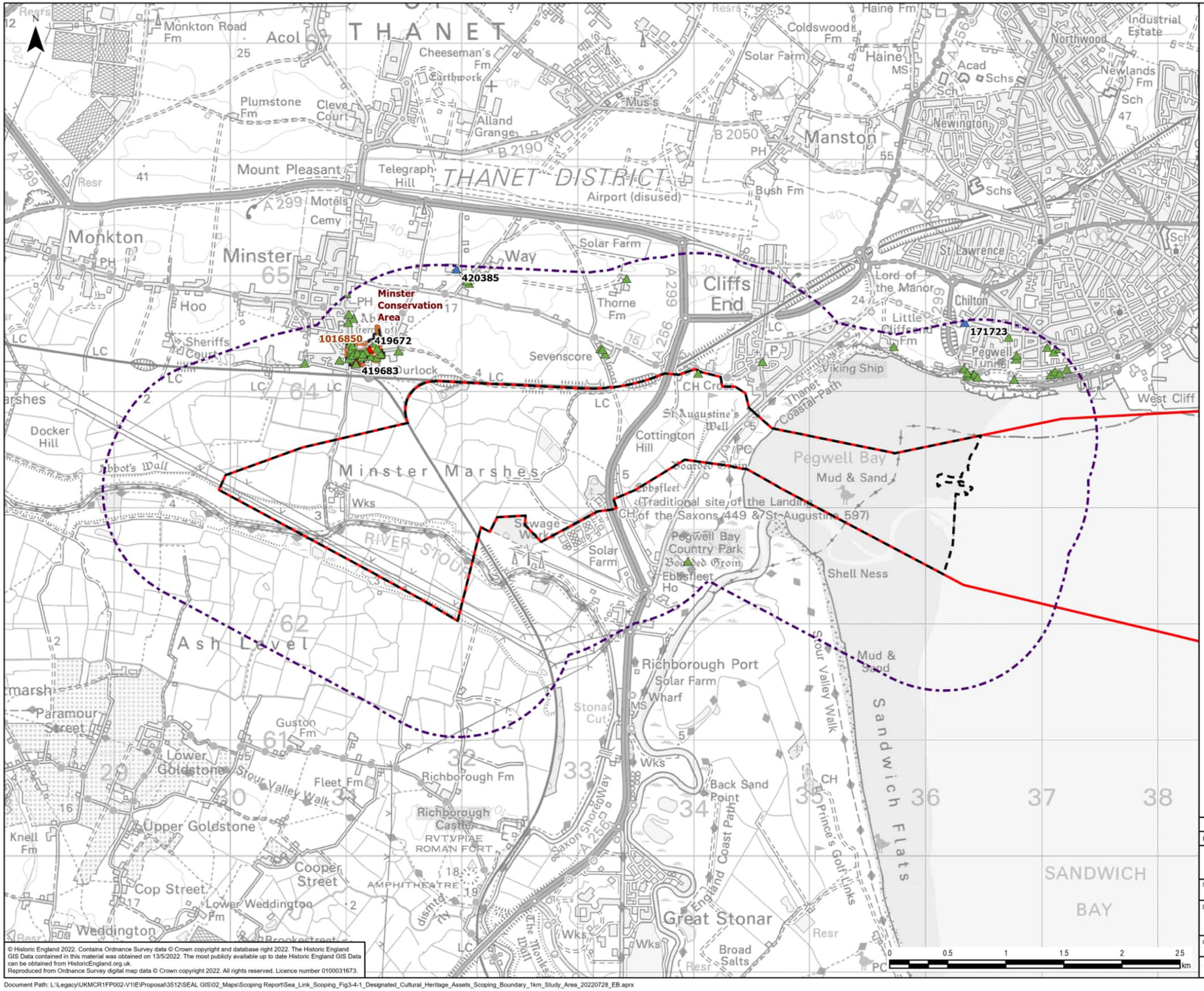
Scheme: SEA LINK

Document Title: STATUTORY DESIGNATED ECOLOGICAL FEATURES

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/07/2022	DF	19/07/2022	JR	19/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.3.1	1:85,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-3-1_Statutory_Designated_Eco_Features_20220719_EB.aprx



© Historic England 2022. Contains Ordnance Survey data © Crown copyright and database right 2022. The Historic England GIS Data contained in this material was obtained on 13/5/2022. The most publicly available up to date Historic England GIS Data can be obtained from HistoricEngland.org.uk.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	28/07/2022	SCOPING REPORT	EB	DF	JS

nationalgrid

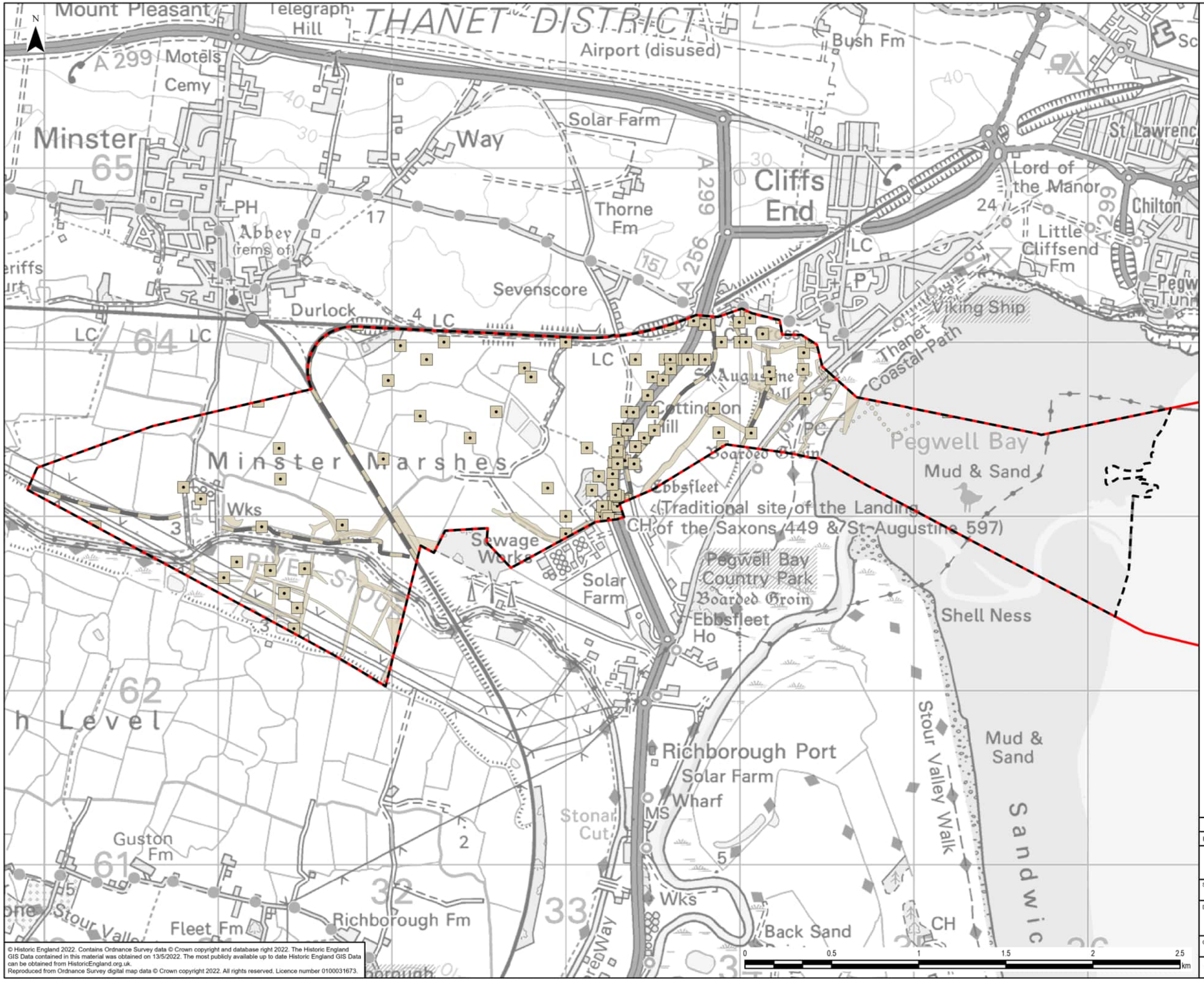
Scheme: SEA LINK

Document Title: DESIGNATED CULTURAL HERITAGE ASSETS WITHIN THE SCOPING BOUNDARY AND WIDER 1KM STUDY AREA

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	28/07/2022	DF	28/07/2022	JS	28/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.4.1	1:30,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-4-1_Designated_Cultural_Heritage_Assets_Scoping_Boundary_1km_Study_Area_20220728_EB.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary
- Kent HER Non-Designated Asset (point)
- Kent HER Non-Designated Asset (polyline)
- Kent HER Non-Designated Asset (polygon)

© Historic England 2022. Contains Ordnance Survey data © Crown copyright and database right 2022. The Historic England GIS Data contained in this material was obtained on 13/5/2022. The most publicly available up to date Historic England GIS Data can be obtained from HistoricEngland.org.uk.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	28/07/2022	SCOPING REPORT	EB	DF	JS

nationalgrid

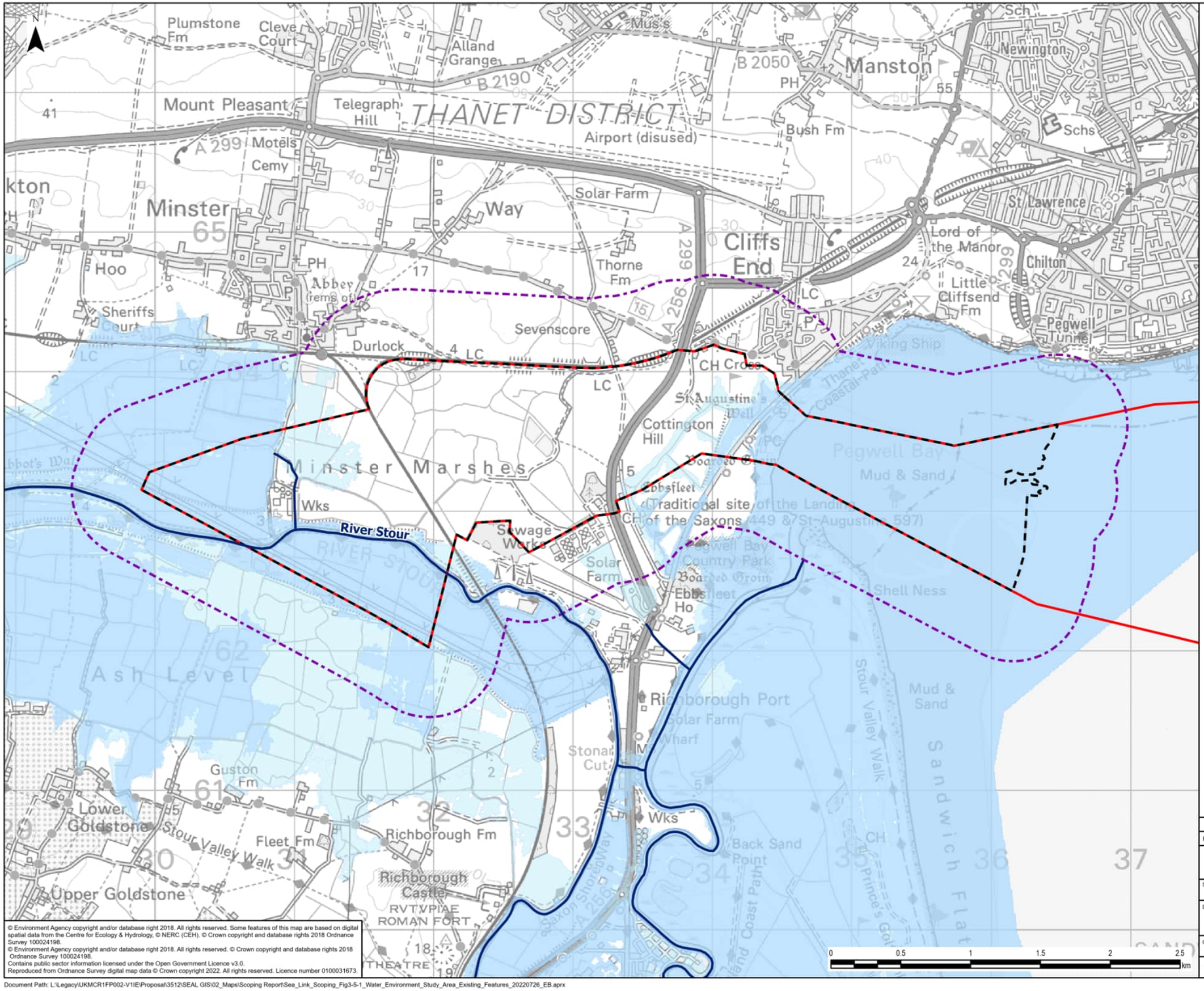
Scheme: SEA LINK

Document Title: NON-DESIGNATED CULTURAL HERITAGE ASSETS WITHIN THE SCOPING BOUNDARY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	28/07/2022	DF	28/07/2022	JS	28/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.4.2	1:20,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-4-2_Non_Designated_Cultural_Heritage_Assets_Scoping_Boundary_20220728_EB.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary
- Kent Onshore Scheme Scoping Boundary - 500m Buffer
- Main River
- Flood Zone 2
- Flood Zone 3

© Environment Agency copyright and/or database right 2018. All rights reserved. Some features of this map are based on digital spatial data from the Centre for Ecology & Hydrology, © NERC (CEH). © Crown copyright and database rights 2018 Ordnance Survey 100024198.
© Environment Agency copyright and/or database right 2018. All rights reserved. © Crown copyright and database rights 2018 Ordnance Survey 100024198.
Contains public sector information licensed under the Open Government Licence v3.0.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description			
0	26/07/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

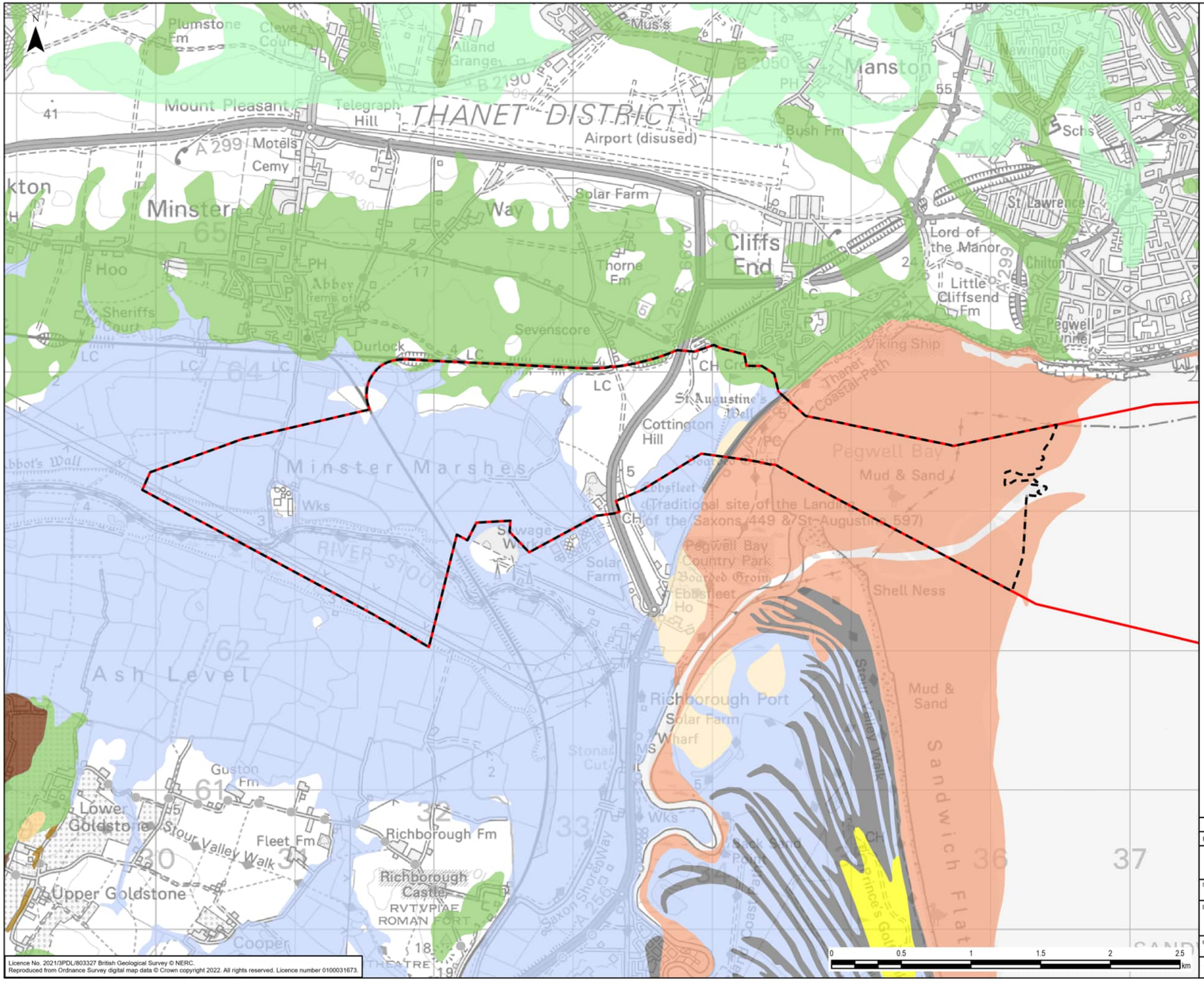
Scheme: SEA LINK

Document Title: WATER ENVIRONMENT STUDY AREA AND EXISTING FEATURES

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	26/07/2022	DF	26/07/2022	CC	26/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.5.1	1:24,957	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-5-1_Water_Environment_Study_Area_Existing_Features_20220726_EB.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary

Superficial Geology

- Alluvium - Clay, Silt, Sand and Gravel
- Beach and Tidal Flat Deposits (Undifferentiated) - Sand and Gravek
- Beach and Tidal Flat Deposits (Undifferentiated) - Sand, Silt and Clay
- Blown Sand - Sand
- Head - Clay, Silt, Sand and Gravel
- Head - Gravel, Sand, Silt And Clay
- Head, 1 - Clay and Silt
- Head, 2 - Clay and Silt
- Storm Beach Deposits - Sand and Gravel
- Tidal Flat Deposits - Clay and Silt

Rev	Date	Description			
0	11/08/2022	SCOPING REPORT	EB	DF	NC

nationalgrid

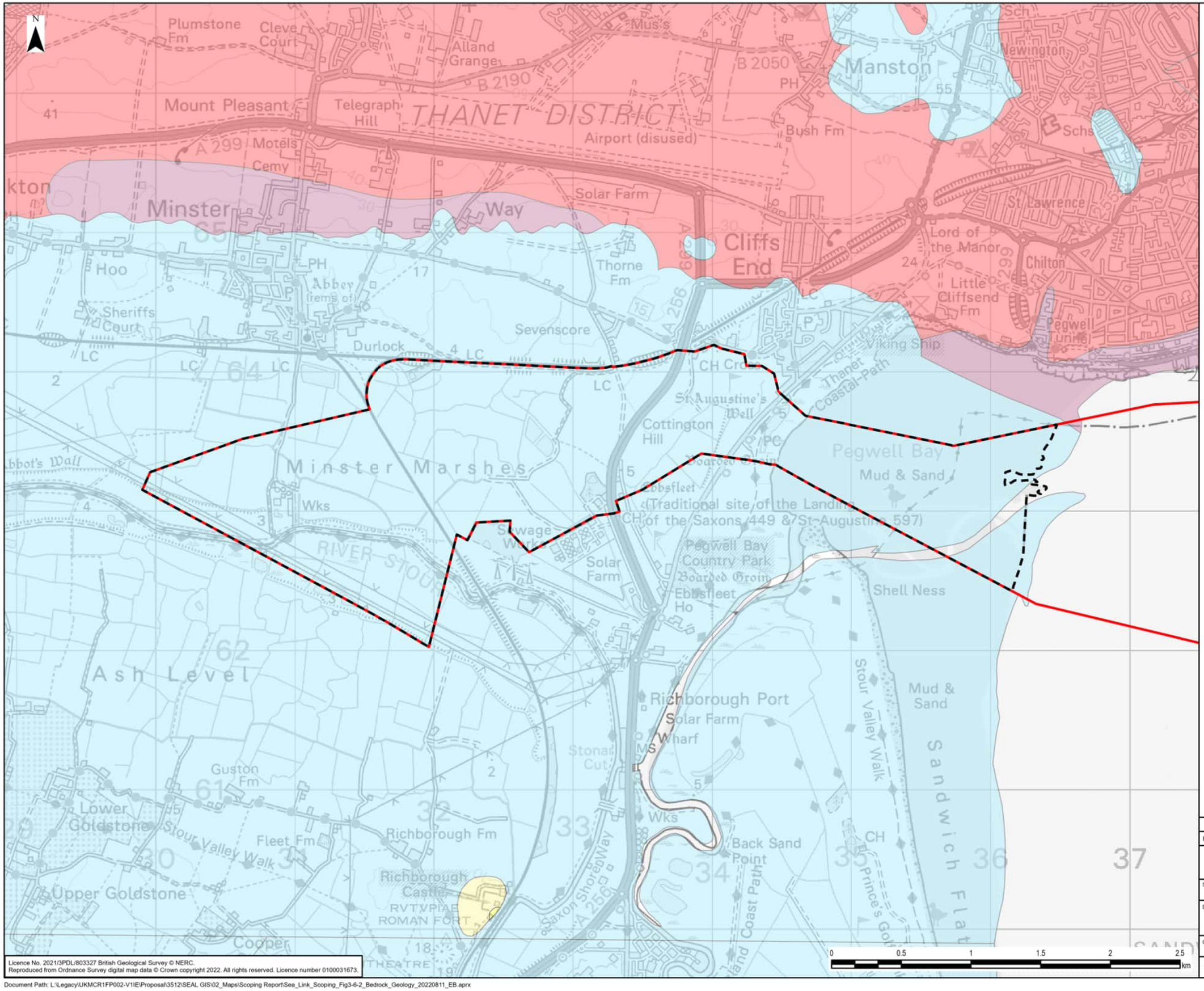
Scheme: SEA LINK

Document Title: SUPERFICIAL GEOLOGY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	11/08/2022	DF	11/08/2022	NC	11/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.6.1	1:25,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-6-1_Superficial_Geology_20220811_EB.aprx



Licence No. 2021/3PDL/803327 British Geological Survey © NERC.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description			
0	11/08/2022	SCOPING REPORT	EB	DF	NC

nationalgrid

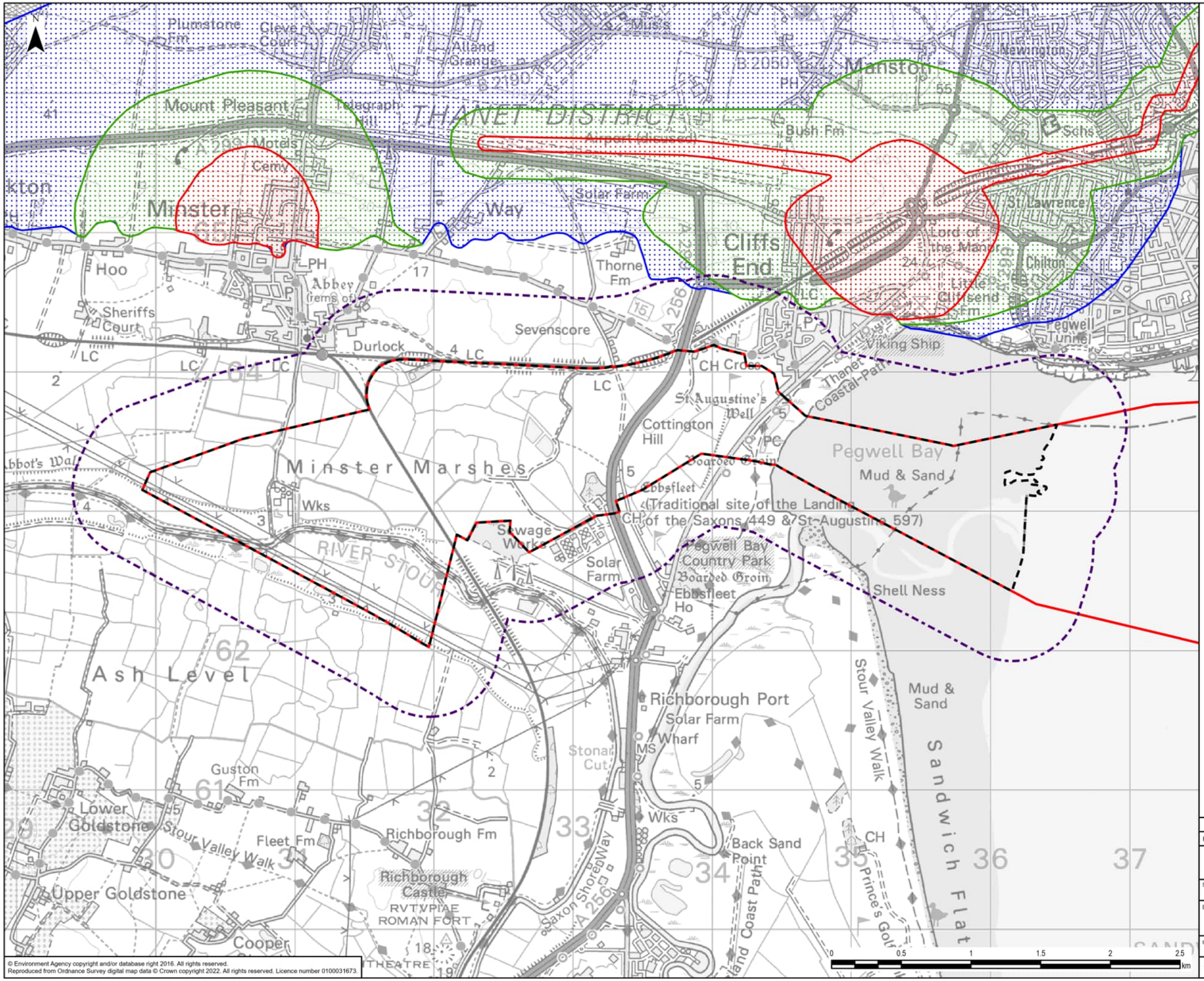
Scheme: SEA LINK

Document Title: BEDROCK GEOLOGY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	11/08/2022	DF	11/08/2022	NC	11/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.6.2	1:25,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-6-2_Bedrock_Geology_20220811_EB.aprx



© Environment Agency copyright and/or database right 2016. All rights reserved.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	26/07/2022	SCOPING REPORT	EB	DF	NC

nationalgrid

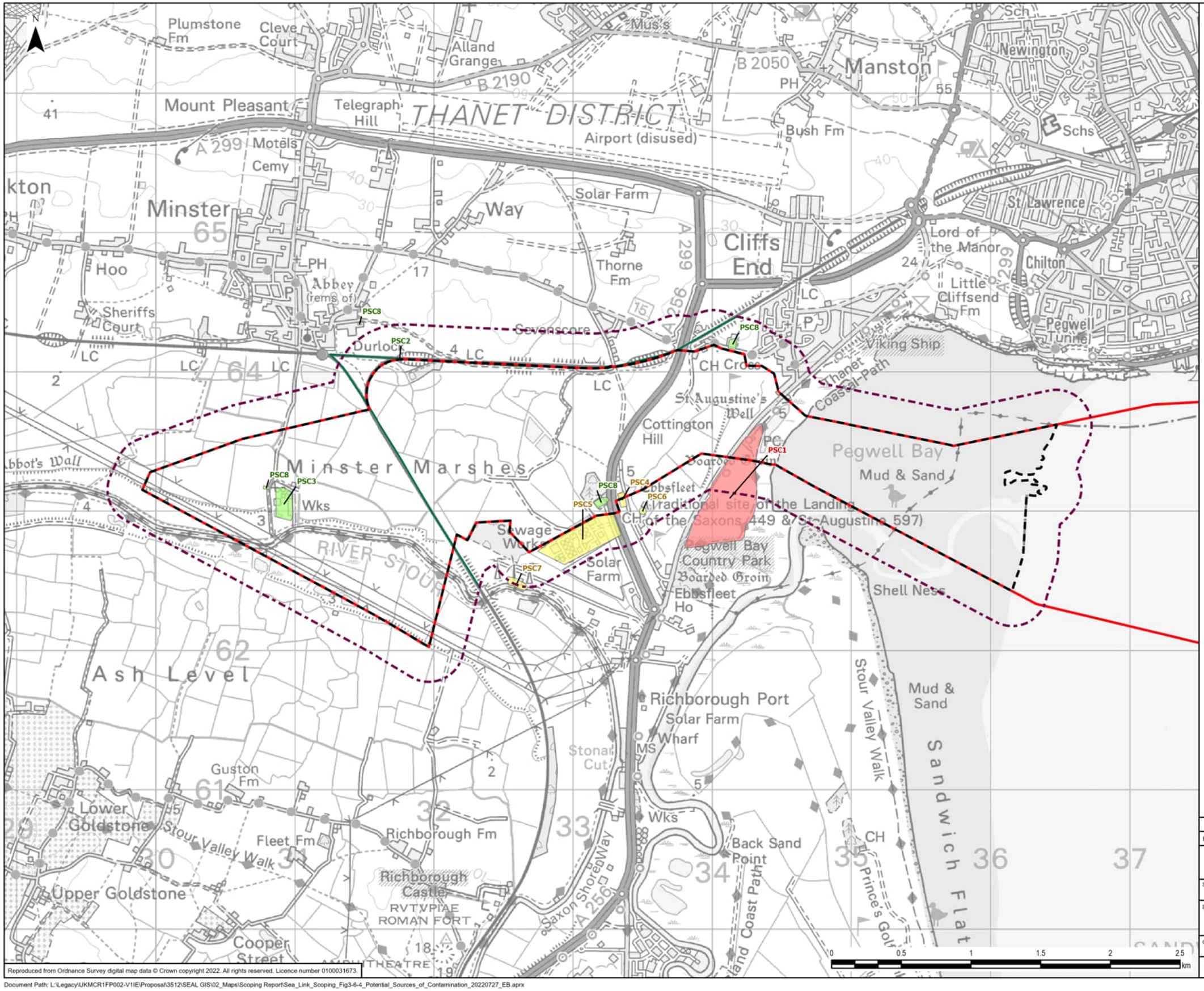
Scheme: SEA LINK

Document Title: HYDROGEOLOGY

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	26/07/2022	DF	26/07/2022	NC	26/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.6.3	1:25,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-6-3_Hydrogeology_20220726_EB.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary
- Kent Onshore Scheme Scoping Boundary - 250m Buffer

Potential Sources of Contamination (line)

- Very Low / Low Risk

Potential Sources of Contamination (area)

- Very Low / Low Risk
- Moderate Risk
- High Risk

Rev	Date	Description			
0	27/07/2022	SCOPING REPORT	EB	DF	NC

nationalgrid

Scheme: SEA LINK

Document Title: POTENTIAL SOURCES OF CONTAMINATION

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	27/07/2022	DF	27/07/2022	NC	27/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.6.4	1:25,000	A3	1	0

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-6-4_Potential_Sources_of_Contamination_20220727_EB.aprx

Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary

Soilscapes

- 4 - Sand Dune Soils
- 5 - Freely draining lime-rich loamy soils
- 6 - Freely draining slightly acid loamy soils
- 21 - Loamy and clayey soils of coastal flats with naturally high groundwate
- 28 - Sea

Soilscapes dataset developed by Cranfield University and sponsored by DEFRA - digitised from MagicMap.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

0 0.5 1 1.5 2 2.5 km

Rev	Date	Description	GIS	Chk	App
0	16/08/2022	SCOPING REPORT	EB	DF	BL

nationalgrid

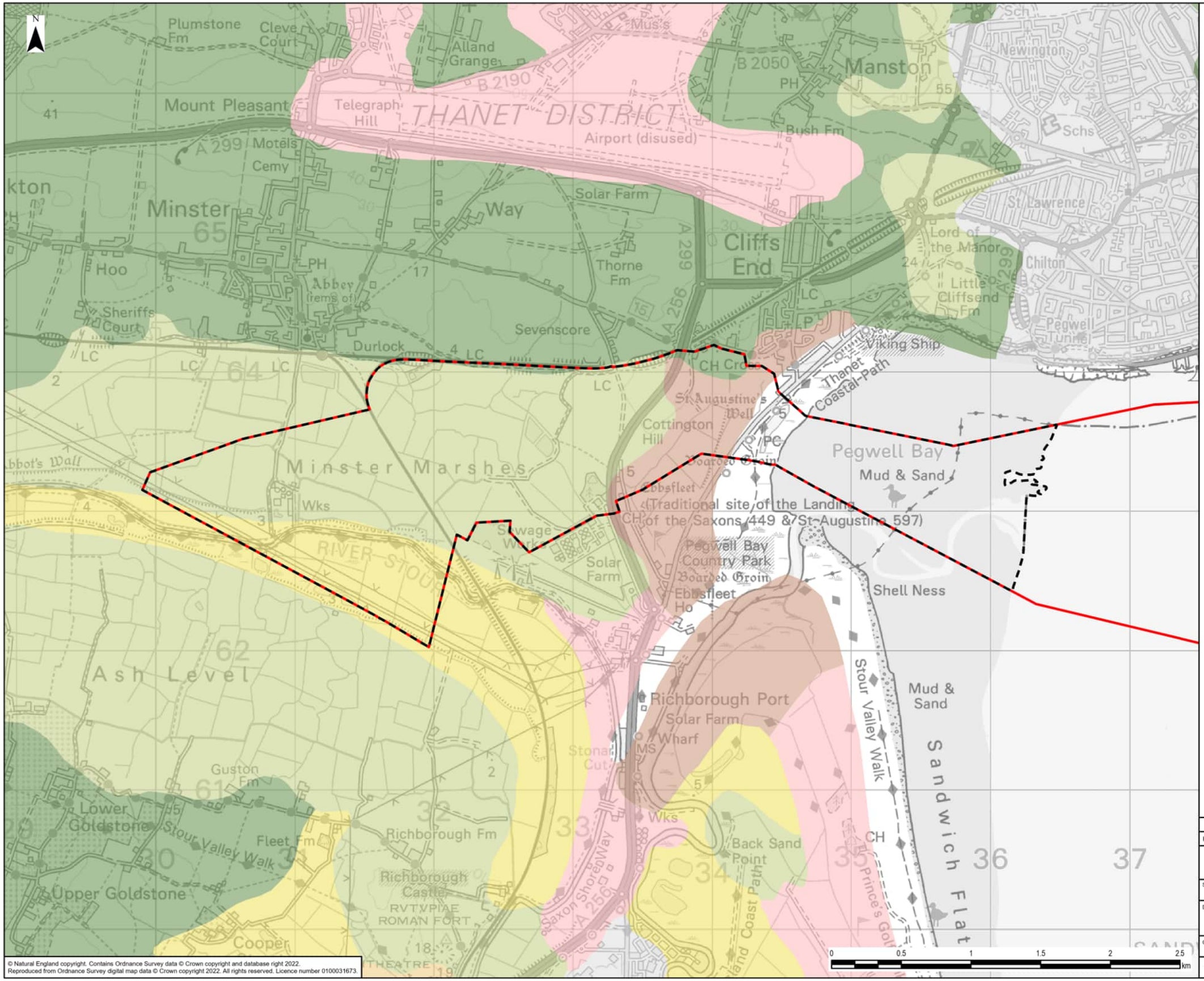
Scheme: SEA LINK

Document Title: SOILSCAPE MAPPING

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	16/08/2022	DF	16/08/2022	BL	16/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.7.1	1:25,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-7-1_Soilscape_Mapping_20220816_EB.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary

Agricultural Land Classification

- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Grade 5
- Non Agricultural
- Urban

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	26/07/2022	SCOPING REPORT	EB	DF	BL

nationalgrid

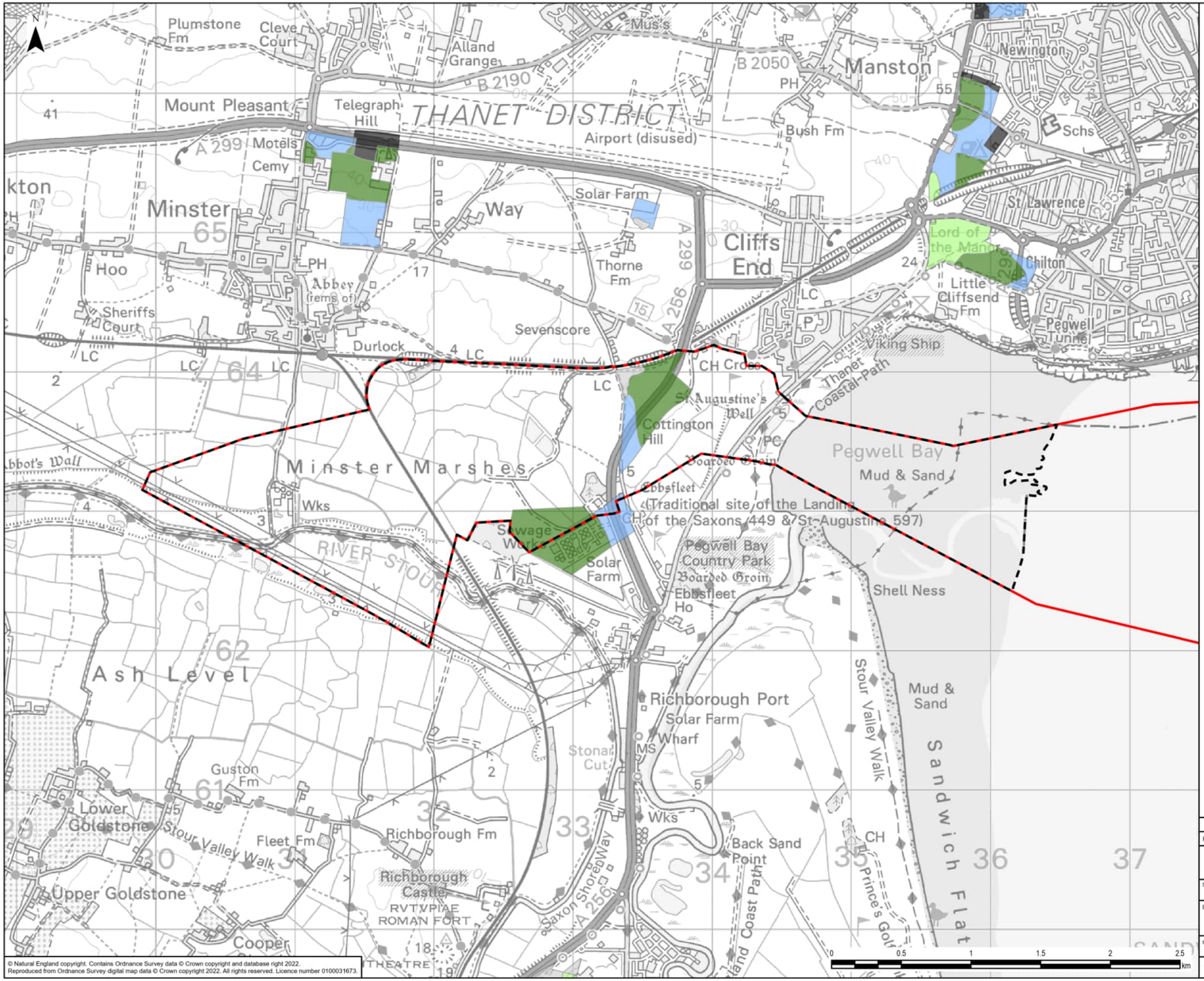
Scheme: SEA LINK

Document Title: PROVISIONAL AGRICULTURAL LAND CLASSIFICATION MAPPING

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	26/07/2022	DF	26/07/2022	BL	26/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.7.2	1:25,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-7-2_Provisional_ALC_Mapping_20220726_EB.aprx



© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description			
0	26/07/2022	SCOPING REPORT	EB	DF	BL

nationalgrid

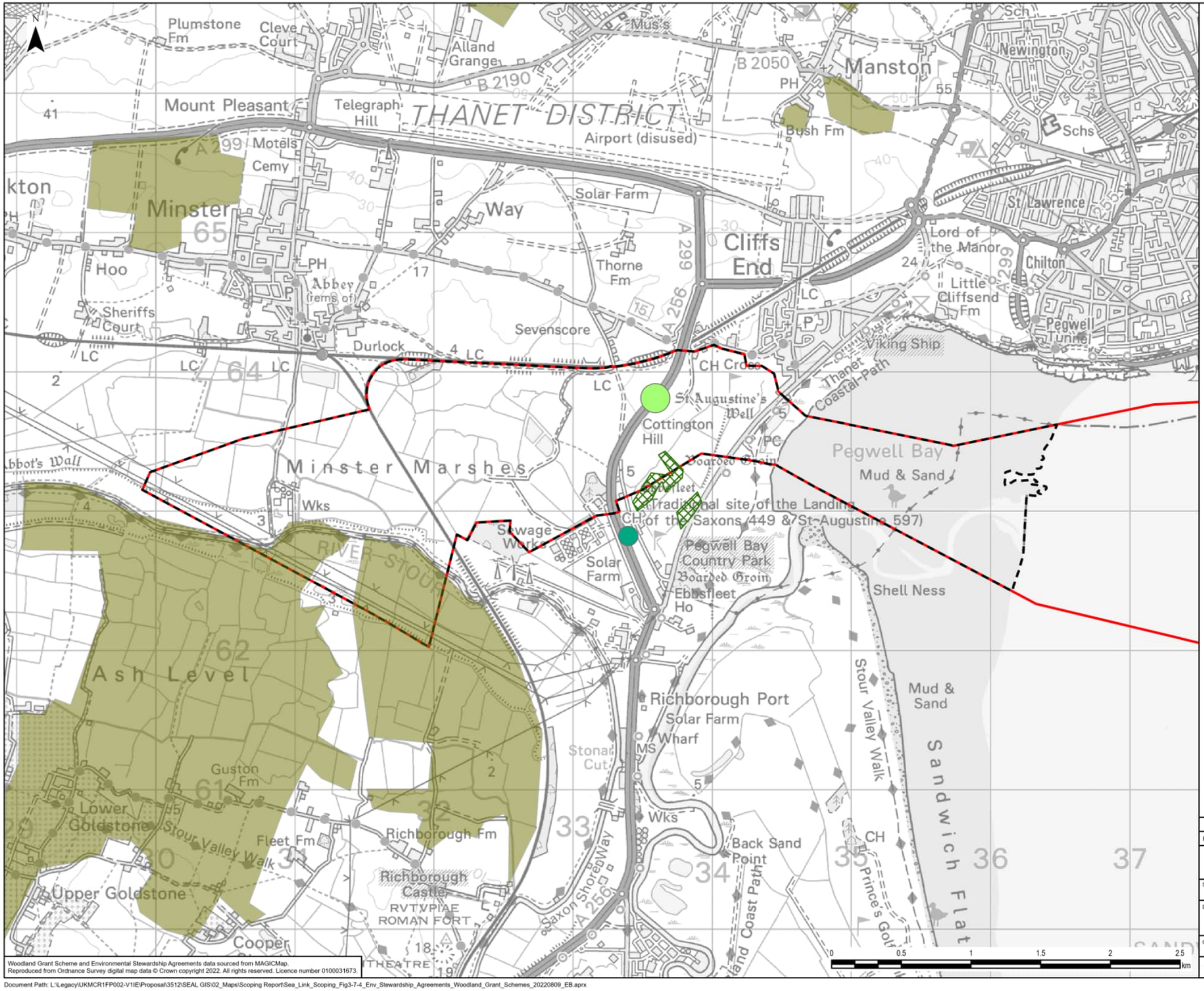
Scheme: SEA LINK

Document Title: DETAILED AGRICULTURAL LAND CLASSIFICATION MAPPING

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	26/07/2022	DF	26/07/2022	BL	26/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.7.3	1:25,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-7-3_Detailed_ALC_Mapping_20220726_EB.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary
- Woodland Grant Scheme 1
- Woodland Grant Scheme 2
- Woodland Grant Scheme 3

Environmental Stewardship Agreements

- Entry Level plus Higher Level Stewardship

0 0.5 1 1.5 2 2.5 km

Woodland Grant Scheme and Environmental Stewardship Agreements data sourced from MAGICMap.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description			
0	09/08/2022	SCOPING REPORT	EB	DF	BL

nationalgrid

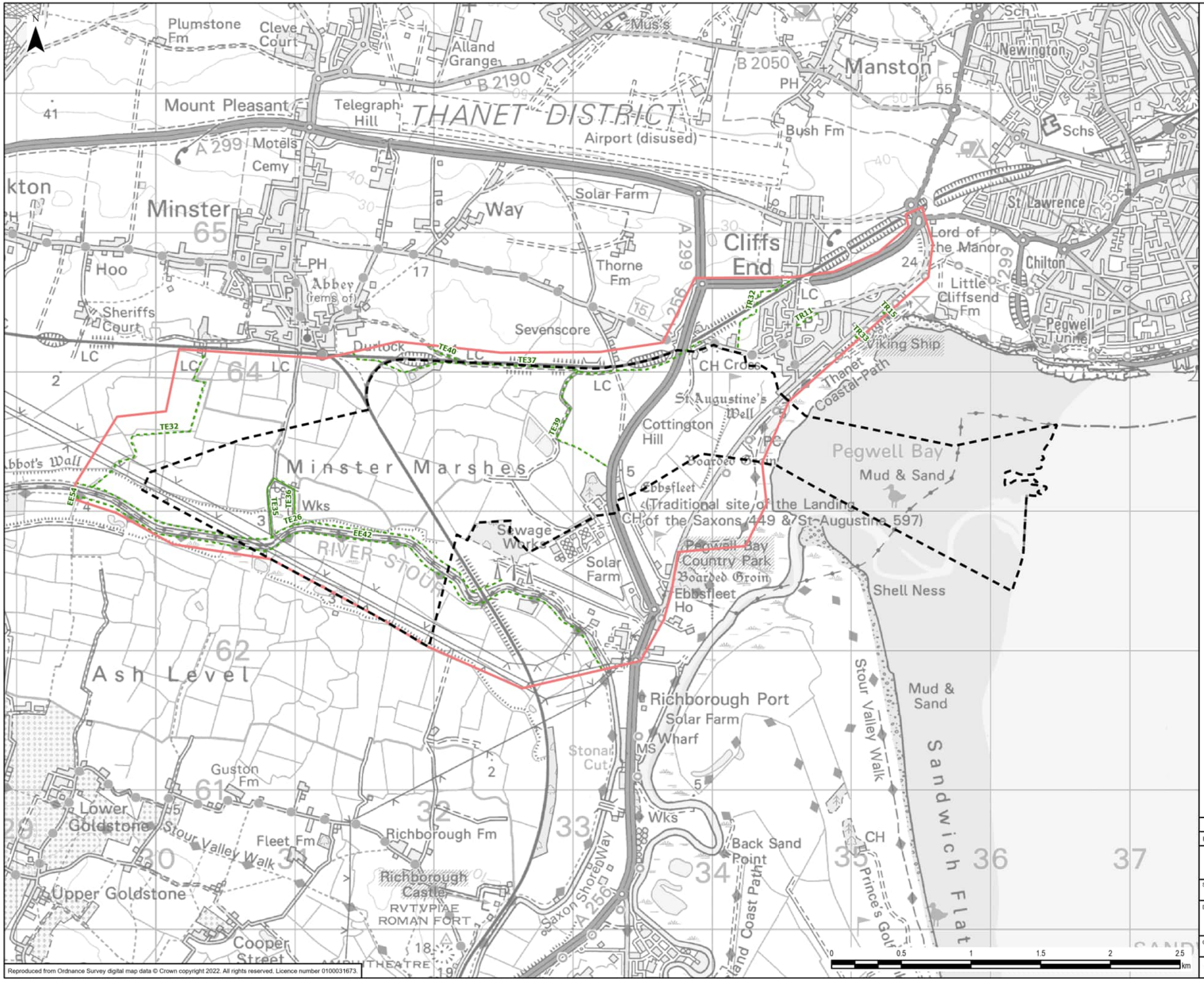
Scheme: SEA LINK

Document Title: ENVIRONMENTAL STEWARDSHIP AGREEMENTS AND WOODLAND GRANT SCHEMES

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	09/08/2022	DF	09/08/2022	BL	09/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.7.4	1:25,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-7-4_Env_Stewardship_Agreements_Woodland_Grant_Schemes_20220809_EB.aprx



Legend

- Kent Onshore Scheme Scoping Boundary
- Kent Traffic & Transport Study Area Boundary

Public Rights of Way

- Public Footpath
- Restricted Byway

0 0.5 1 1.5 2 2.5 km

Rev	Date	Description	GIS	Chk	App
0	28/07/2022	SCOPING REPORT	EB	DF	MA

nationalgrid

Scheme: SEA LINK

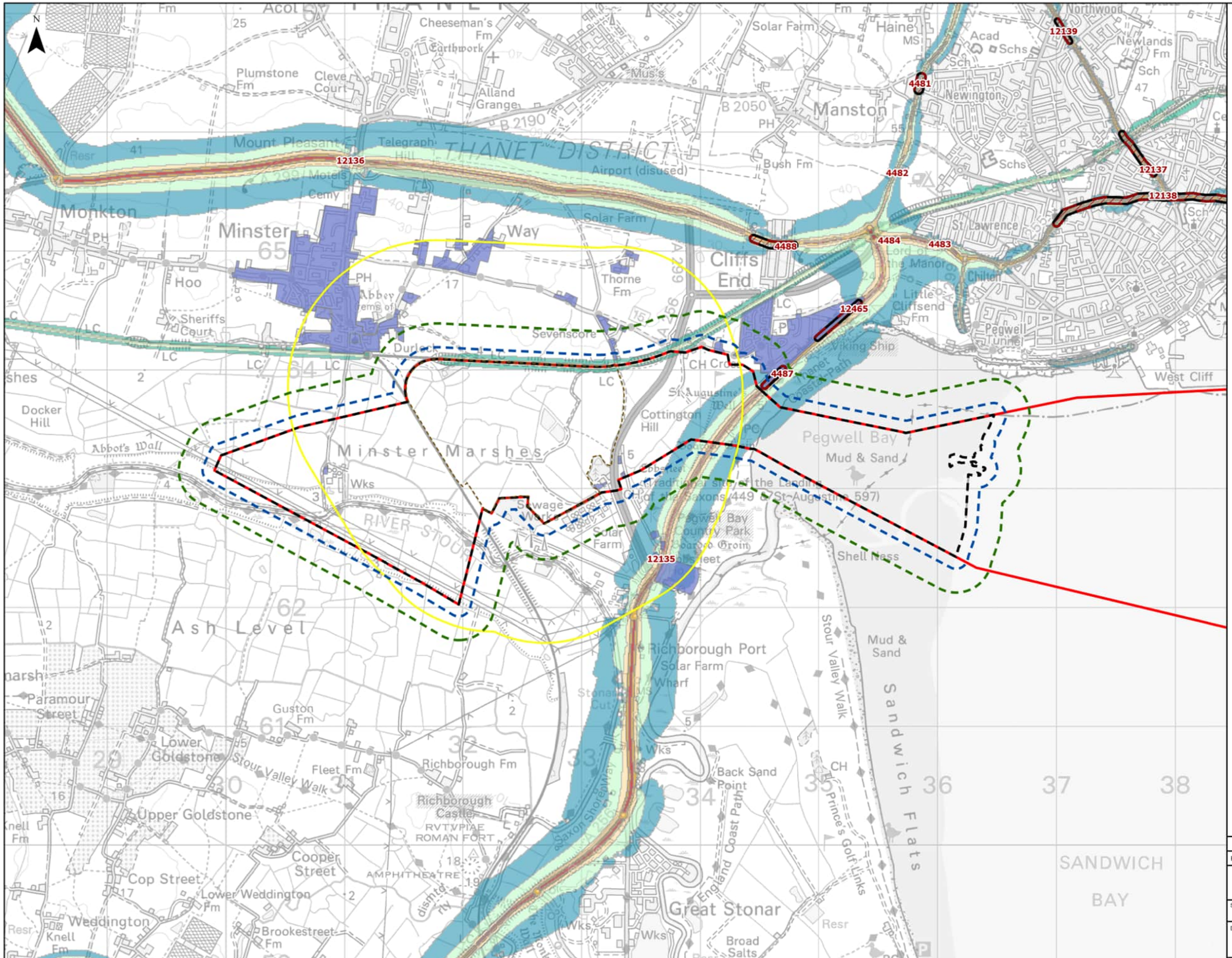
Document Title: PROPOSED STUDY AREA IN KENT (TRAFFIC AND TRANSPORT)

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	28/07/2022	DF	28/07/2022	MA	28/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.8.1	1:25,000	A3	1	0

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-8-1_Proposed_Study_Area_in_Kent_Traffic_Transport_20220728_EB.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary
- Kent Converter Site Option Area
- 300m Construction Noise Study Area
- 100m Construction Vibration Study Area
- 1km Operational Noise Study Area
- Noise and Vibration Sensitive Receptors
- Noise Important Area

Defra Road Traffic Noise, dBA

- 55.0-59.9
- 60.0-64.9
- 65.0-69.9
- 70.0-74.9
- >=75.0

Defra Rail Noise, dBA

- 55.0-59.9
- 60.0-64.9
- 65.0-69.9

0 0.5 1 1.5 2 2.5 km

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description			
0	22/07/2022	SCOPING REPORT	EB	DF	DG
			GIS	Chk	App

nationalgrid

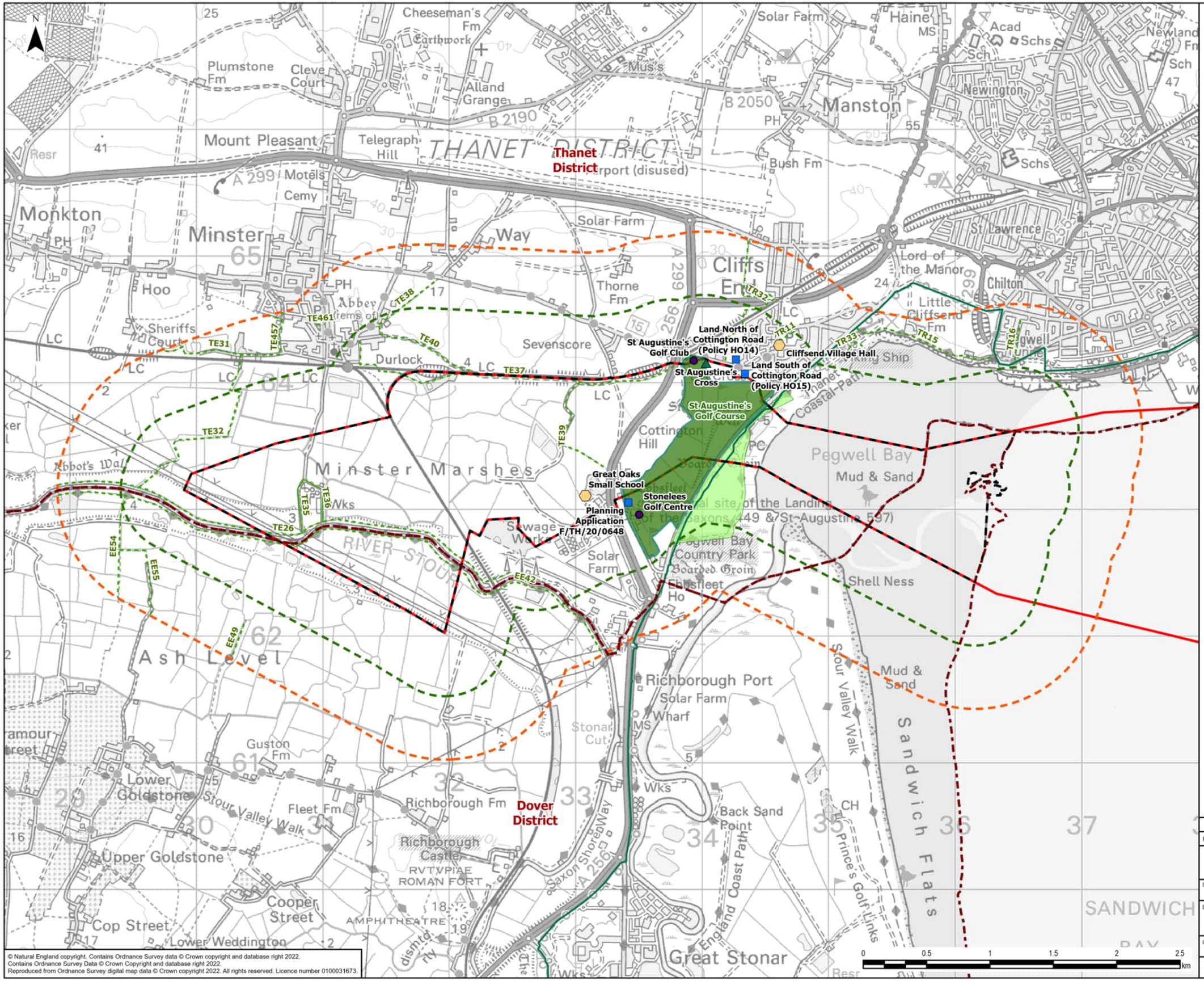
Scheme: SEA LINK

Document Title: NOISE AND VIBRATION BASELINE - KENT

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	22/07/2022	DF	22/07/2022	DG	22/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.10.1	1:30,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-10-1_Noise_Vibration_Baseline_Kent_20220722_EB.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary
- Kent Onshore Scheme Scoping Boundary - 500m Buffer
- Kent Onshore Scheme Scoping Boundary - 1km Buffer
- District Borough Unitary Boundary
- Visitor Attractions
- Development Land
- Community Facilities
- Business Premises

Public Rights of Way

- Public Footpath
- Restricted Byway
- National Cycle Network Route 15
- Pegwell Bay Country Park
- Golf Course

Rev	Date	Description			
0	11/07/2022	SCOPING REPORT	EB	DF	JR

nationalgrid

Scheme: SEA LINK

Document Title: SOCIO-ECONOMIC, RECREATION AND TOURISM - STUDY AREAS AND RECEPTORS

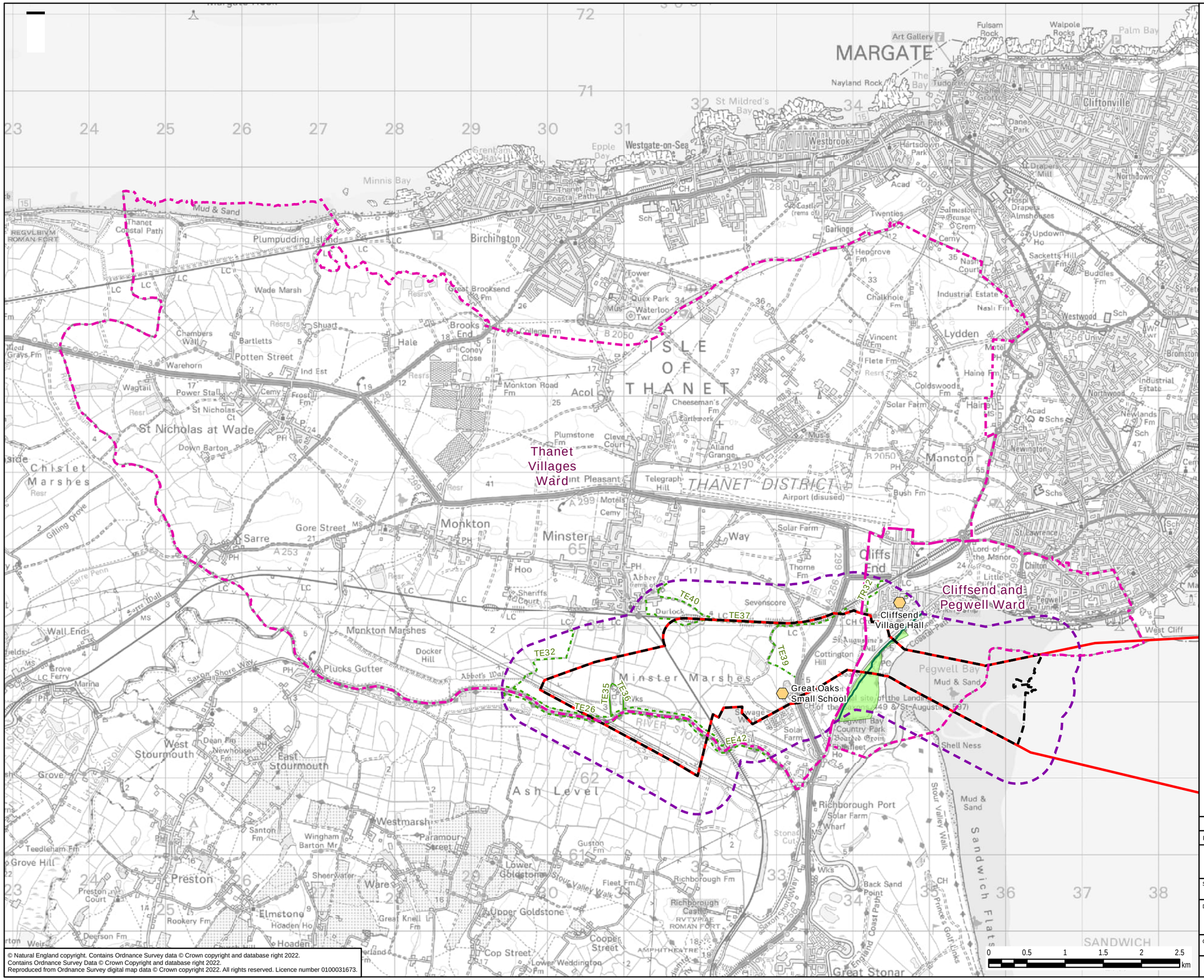
Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	11/07/2022	DF	11/07/2022	EW	11/07/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.11.1	1:27,500	A3	1	0

0 0.5 1 1.5 2 2.5 km

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Contains Ordnance Survey Data © Crown Copyright and database right 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-11-1_Socio_Economic_Recreation_Tourism_Study_Areas_Receptors_20220711_EB.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary
- Kent Onshore Scheme Scoping Boundary - 500m Buffer
- Human Health Profile Baseline Study Area
- Community Facilities within 500m

Public Rights of Way within 500m

- Public Footpath
- Restricted Byway
- National Cycle Network Route within 500m
- Pegwell Bay Country Park

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Contains Ordnance Survey Data © Crown Copyright and database right 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	20/10/2022	SCOPING REPORT	EB	DF	JR

nationalgrid

Scheme: SEA LINK

Document Title: KENT ONSHORE SCHEME HEALTH AND WELLBEING STUDY AREAS AND RECEPTORS

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	20/10/2022	DF	20/10/2022	EW	20/10/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.12.1	1:45,550	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-12-1_Kent_Onshore_Scheme_Health_Wellbeing_Study_Areas_Receptors_20220926_EB.aprx

Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary
- Kent Onshore Scheme Scoping Boundary - Cumulative Zone of Influence

DOVER to
Calais 2 hrs
Dunkirk 2 hrs

0 3 6 9 12 15 km

Rev	Date	Description	GIS	Chk	App
0	01/08/2022	SCOPING REPORT	EB	DF	SA

nationalgrid

Scheme: SEA LINK

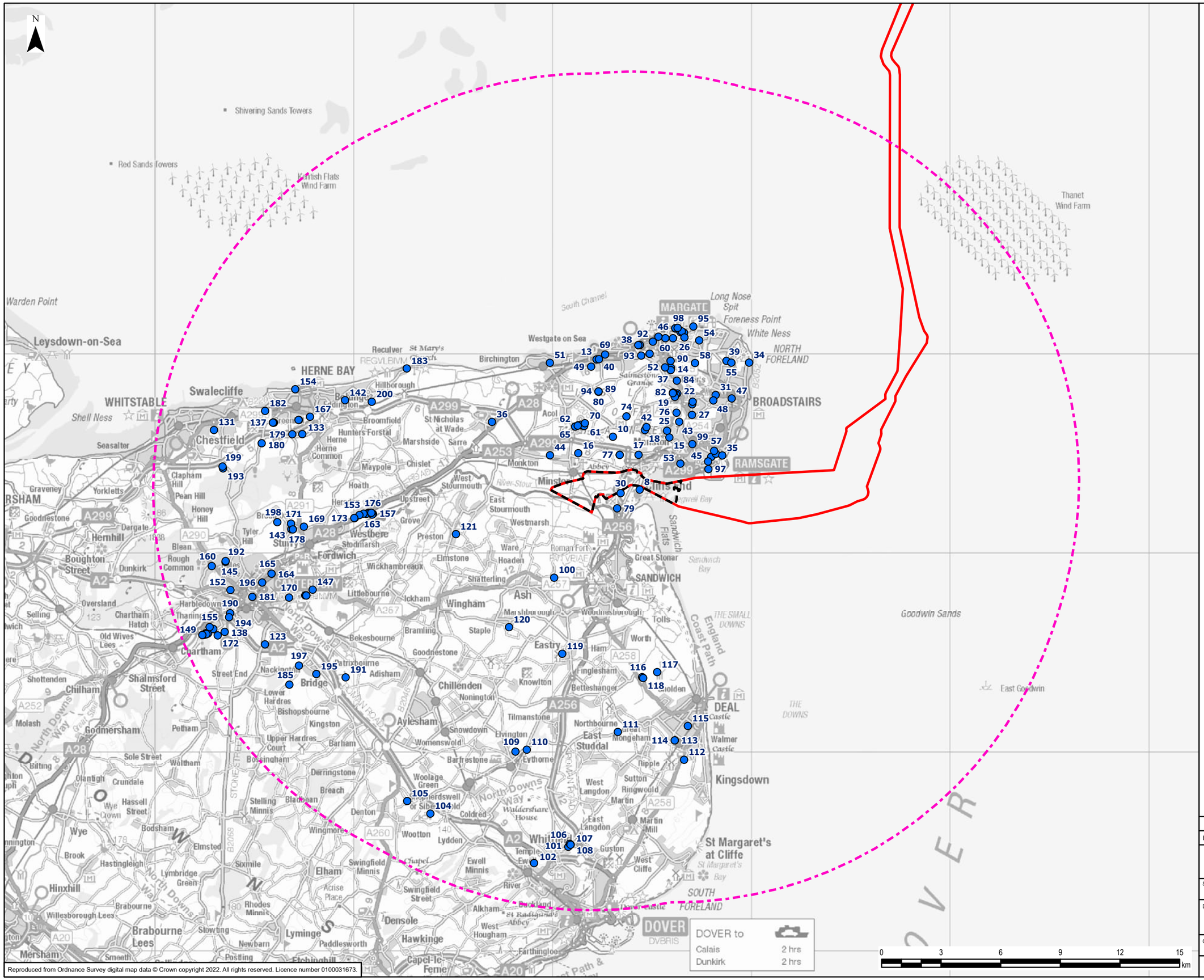
Document Title: ZONE OF INFLUENCE FOR KENT ONSHORE SCHEME

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	01/08/2022	DF	01/08/2022	SA	01/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.13.1	1:175,000	A3	1	0

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-13-1_Zone_of_Influence_Kent_Onshore_Scheme_20220801_EB.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary
- Kent Onshore Scheme Scoping Boundary - Cumulative Zone of Influence
- Cumulative Long List Developments

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	29/09/2022	SCOPING REPORT	EB	DF	SA

nationalgrid

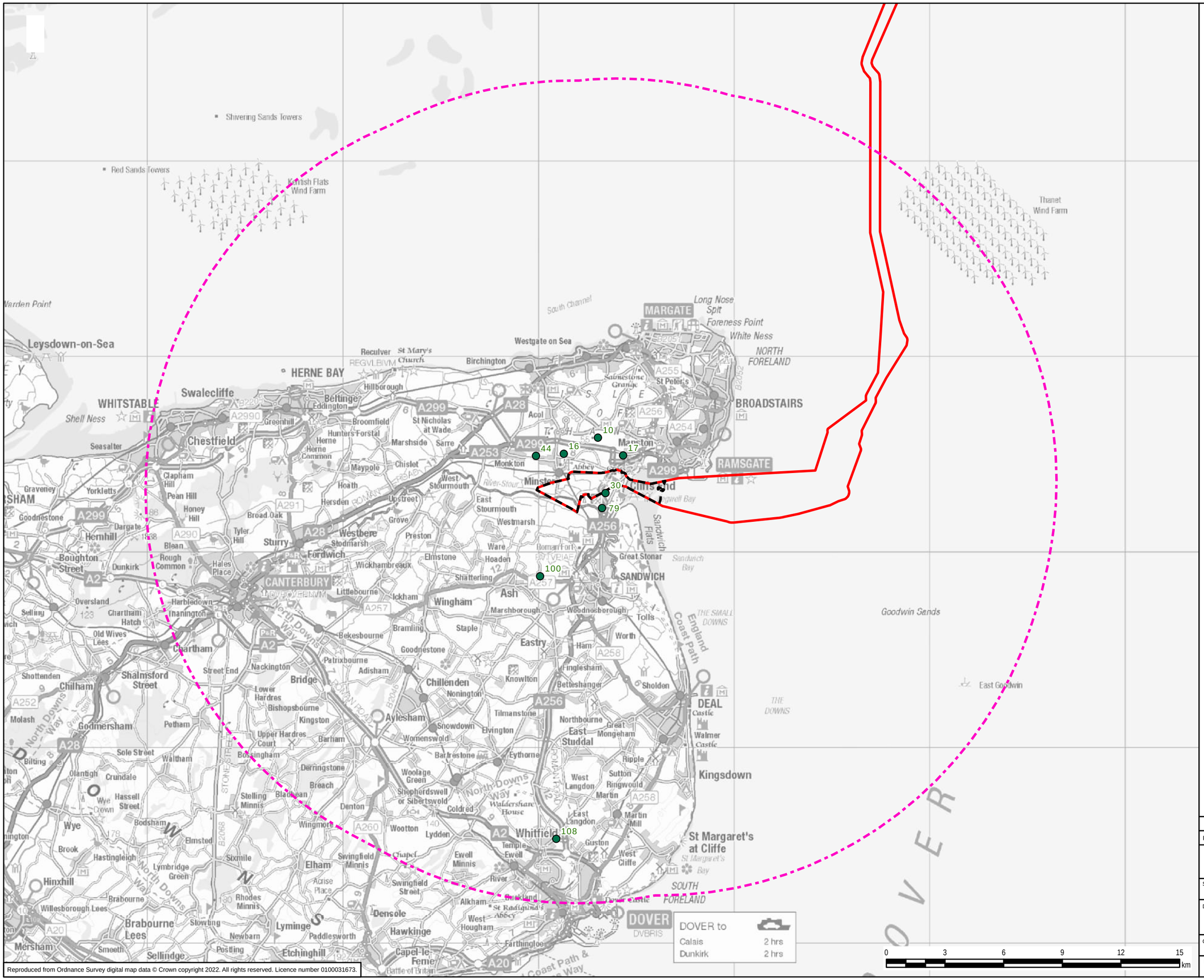
Scheme: SEA LINK

Document Title: ALL PROJECTS AND DEVELOPMENT PLANS LOCATED WITHIN THE ZONE OF INFLUENCE FOR KENT ONSHORE SCHEME

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	29/09/2022	DF	29/09/2022	SA	29/09/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.13.2	1:175,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-13-2_All_Projects_Development_Plans_within_Zone_of_Influence_Kent_Onshore_Scheme_20220929_EB.aprx



Legend

- Project Scoping Boundary
- Kent Onshore Scheme Scoping Boundary
- Kent Onshore Scheme Scoping Boundary - Cumulative Zone of Influence
- Cumulative Long List Developments

0	17/10/2022	SCOPING REPORT	EB	DF	SA
Rev	Date	Description	GIS	Chk	App

nationalgrid

Scheme: SEA LINK

Document Title: PROJECTS TAKEN FORWARD TO STAGE 2 FOR KENT ONSHORE SCHEME

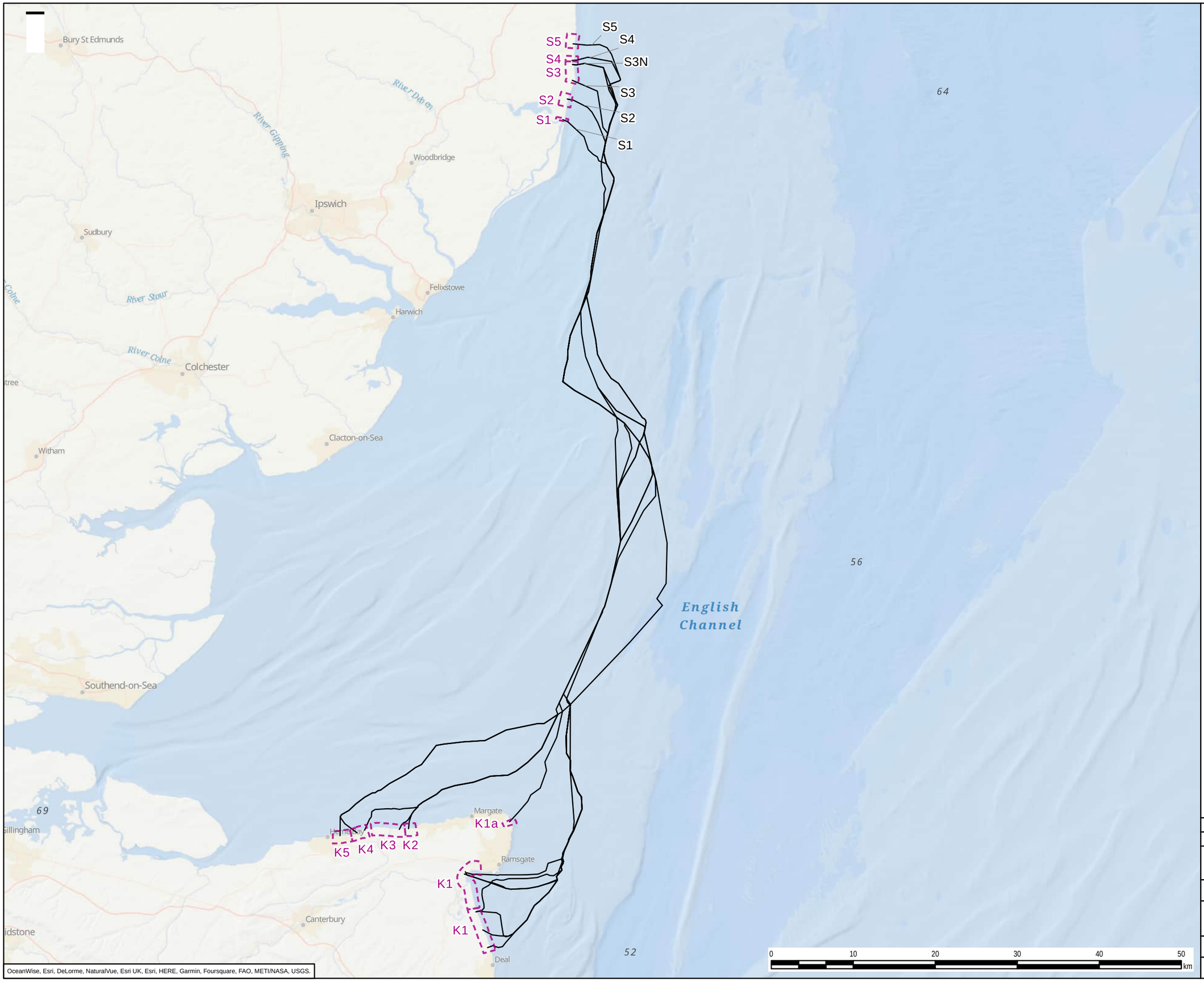
Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	17/10/2022	DF	17/10/2022	SA	17/10/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 3.13.3	1:177,964	A3	1	0

Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig3-13-3_Projects_Taken_Forward_Stage2_Kent_Onshore_20221017_DF.aprx

Part 4- Offshore Scheme



Legend

- Marine Alignment
- Landfall Area of Search

Rev	Date	Description	GIS	Chk	App
0	18/10/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

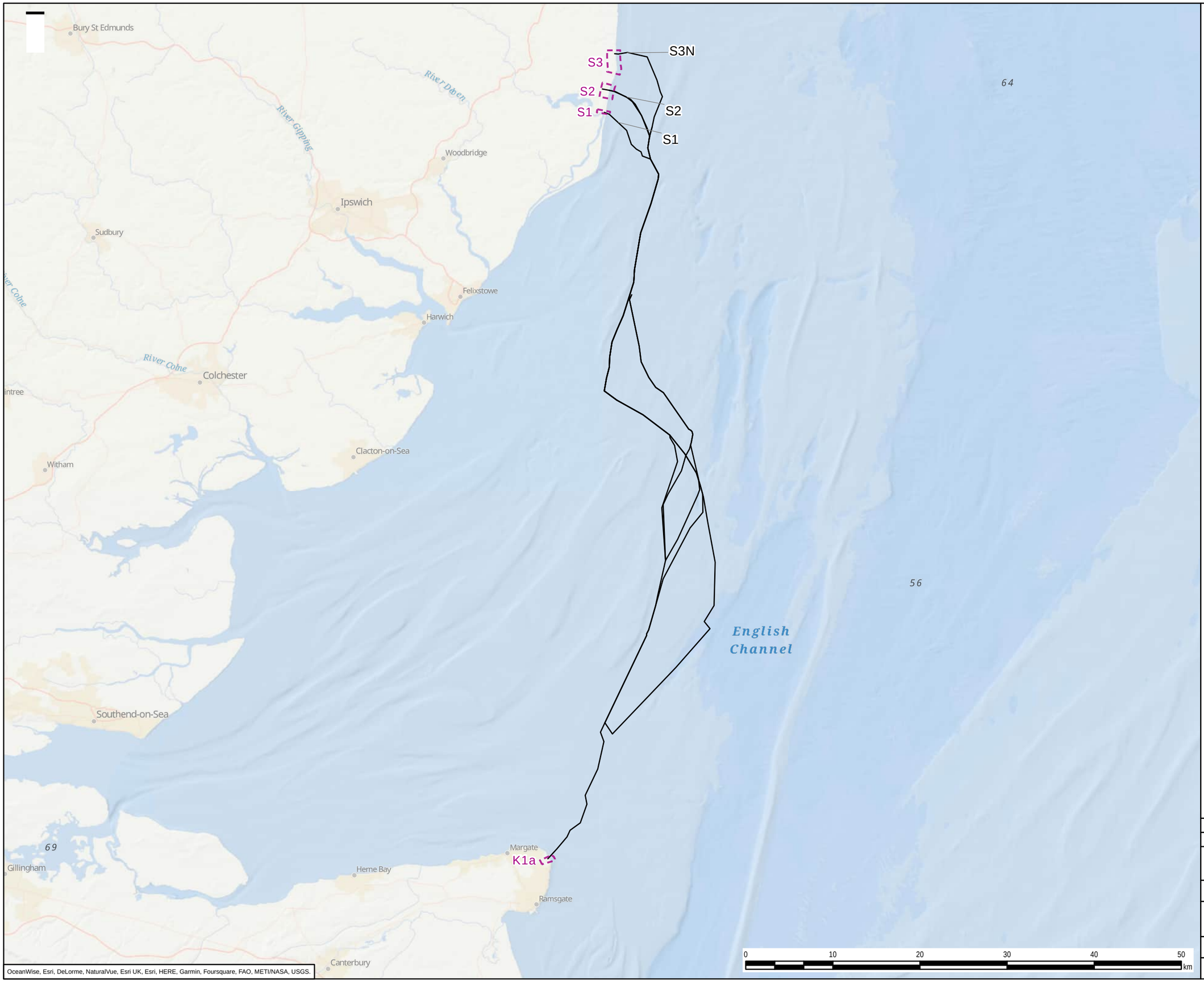
Scheme: SEA LINK

Document Title: EVOLUTION OF THE OFFSHORE SCHEME - SHEET 1 OF 4

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/10/2022	DF	18/10/2022	KS	18/10/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.1.1	1:425,000	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-1-1_Evolution_of_Offshore_Scheme_Sheet_1_of_4_20221017_DF.aprx



OceanWise, Esri, DeLorme, NaturalVue, Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS.

Legend

- Marine Alignment
- Landfall Area of Search

Rev	Date	Description	GIS	Chk	App
0	18/10/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

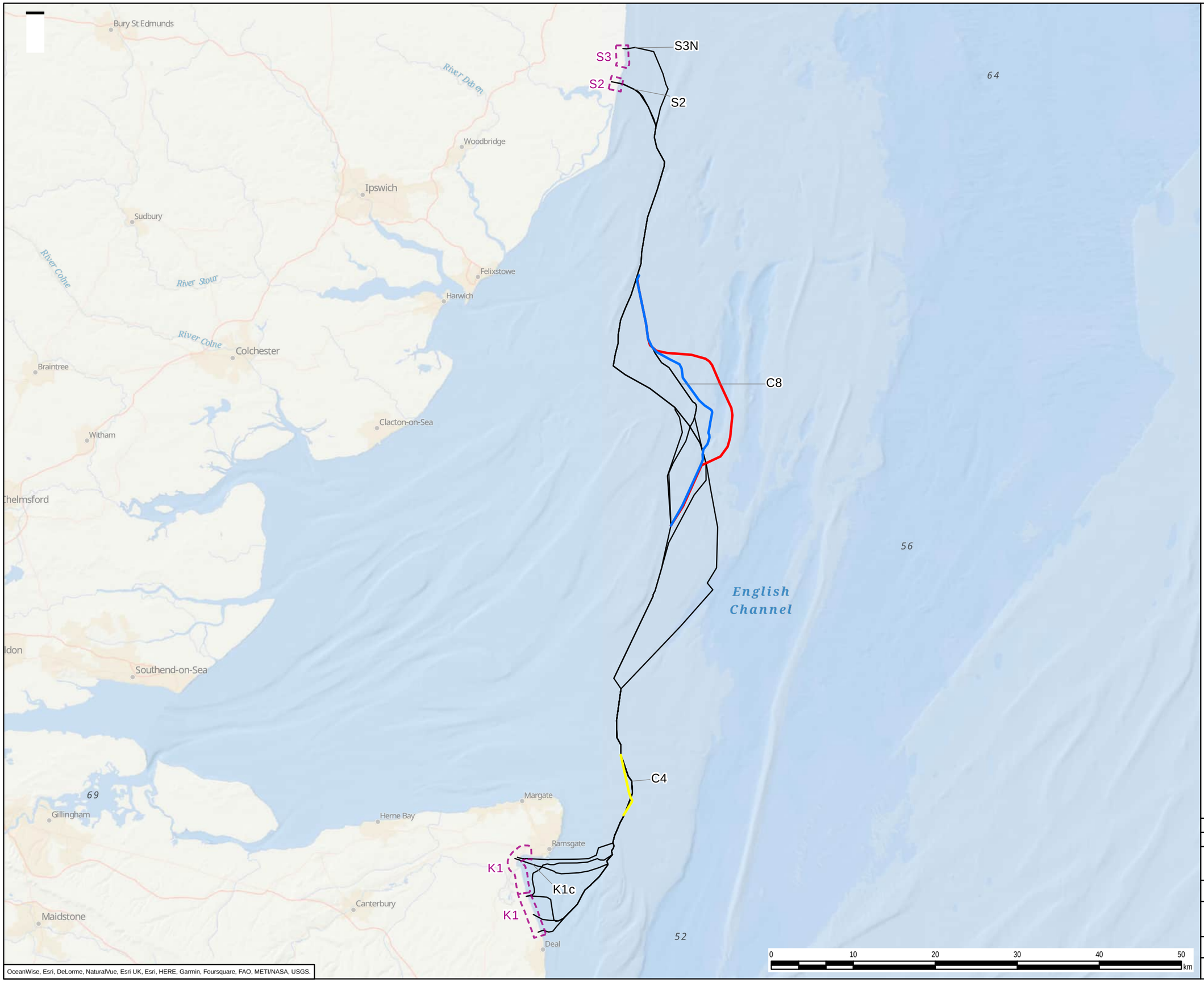
Scheme: SEA LINK

Document Title: EVOLUTION OF THE OFFSHORE SCHEME - SHEET 2 OF 4

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/10/2022	DF	18/10/2022	KS	18/10/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.1.1	1:400,000	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-1-1_Evolution_of_Offshore_Scheme_Sheet_2_of_4_20221017_DF.aprx



Legend

- Marine Alignment
- Alignment C4A
- Alignment C8A
- Alignment C8B
- Landfall Area of Search

Rev	Date	Description	GIS	Chk	App
0	18/10/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

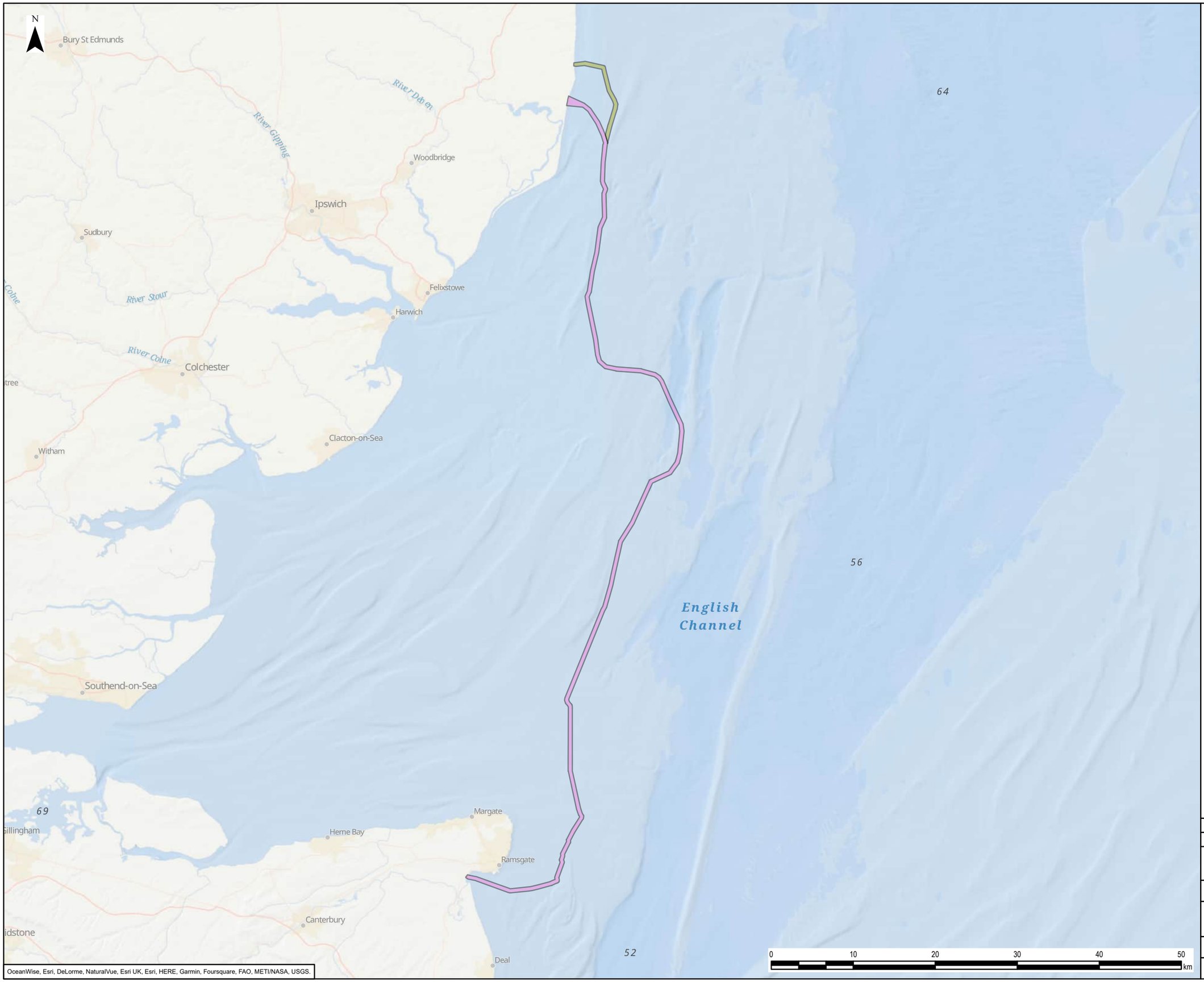
Scheme: SEA LINK

Document Title: EVOLUTION OF THE OFFSHORE SCHEME - SHEET 3 OF 4

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/10/2022	DF	18/10/2022	KS	18/10/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.1.1	1:425,000	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-1-1_Evolution_of_Offshore_Scheme_Sheet_3_of_4_20221017_DF.aprx



Legend

- Marine Route Emerging Preference
- Marine Route Alternative

Rev	Date	Description	GIS	Chk	App
0	07/10/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

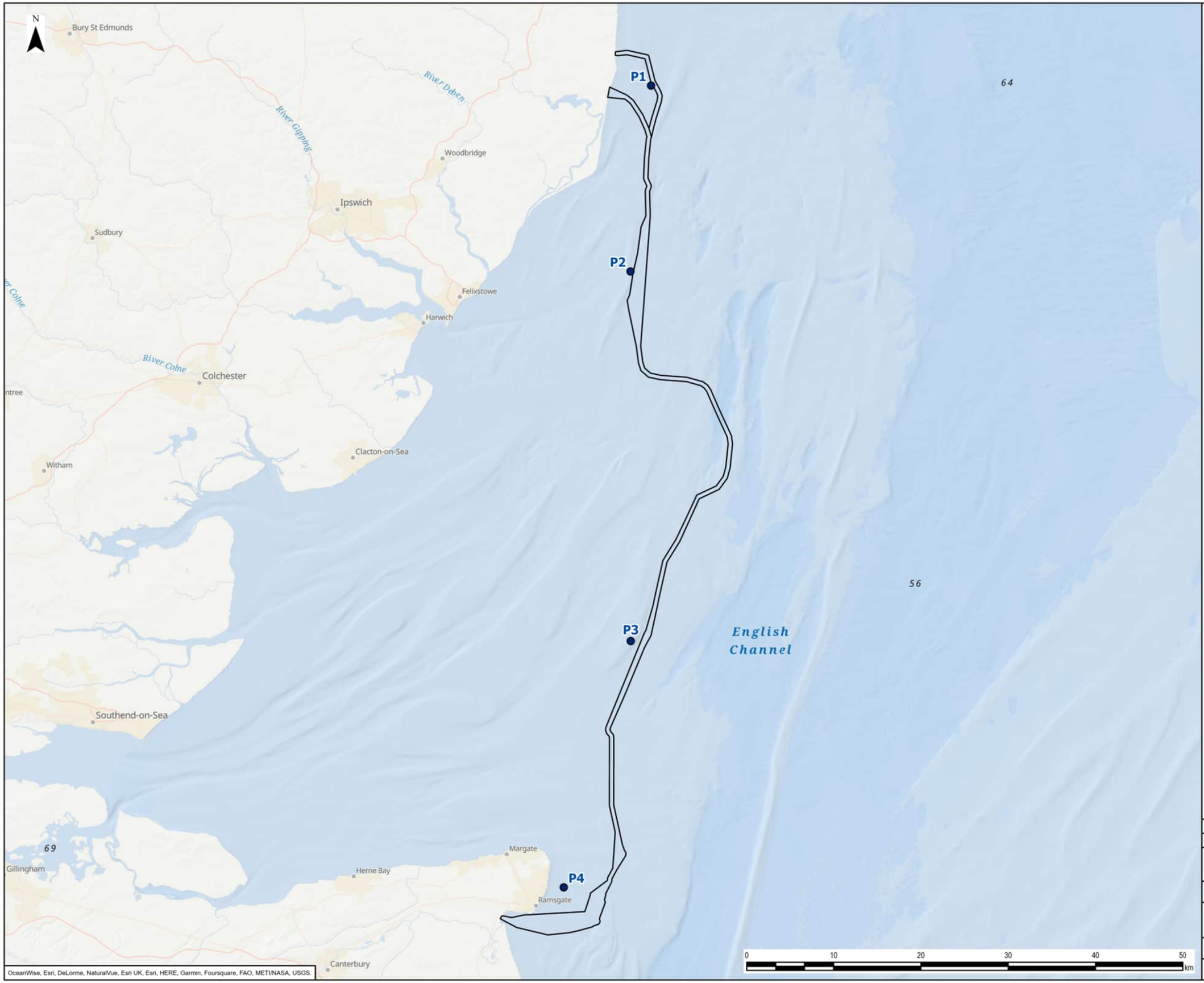
Scheme: SEA LINK

Document Title: EVOLUTION OF THE OFFSHORE SCHEME - SHEET 4 OF 4

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	07/10/2022	DF	07/10/2022	KS	07/10/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.1.1	1:425,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-1-1_Evolution_of_Offshore_Scheme_Sheet_4_of_4_20221007_EB.aprx



Legend

- Offshore Scheme Scoping Boundary
- Metocean Data Sites

Rev	Date	Description	GIS	Chk	App
0	09/08/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

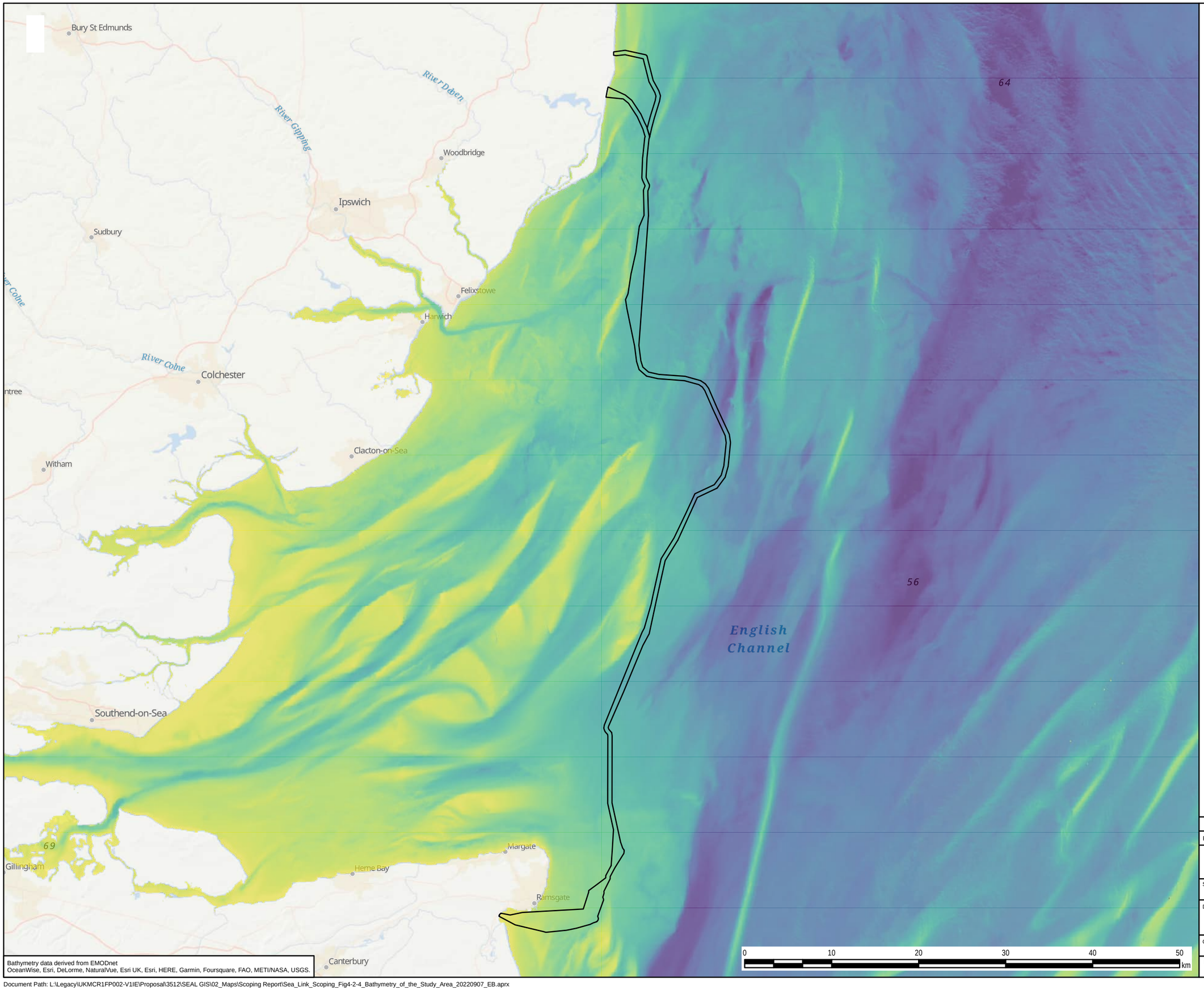
Scheme: SEA LINK

Document Title: PHYSICAL ENVIRONMENT STUDY AREA AND METOCEAN DATA SITES

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	09/08/2022	DF	09/08/2022	KS	09/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.2.1	1:400,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-2-1_Physical_Env_Study_Area_Metocean_Data_Sites_20220809_EB.aprx



Legend

Offshore Scheme Scoping Boundary

Elevation (m)

29.4

-103.85

Bathymetry data derived from EMODnet
OceanWise, Esri, DeLorme, NaturalVue, Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS.

Rev	Date	Description	GIS	Chk	App
0	07/09/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

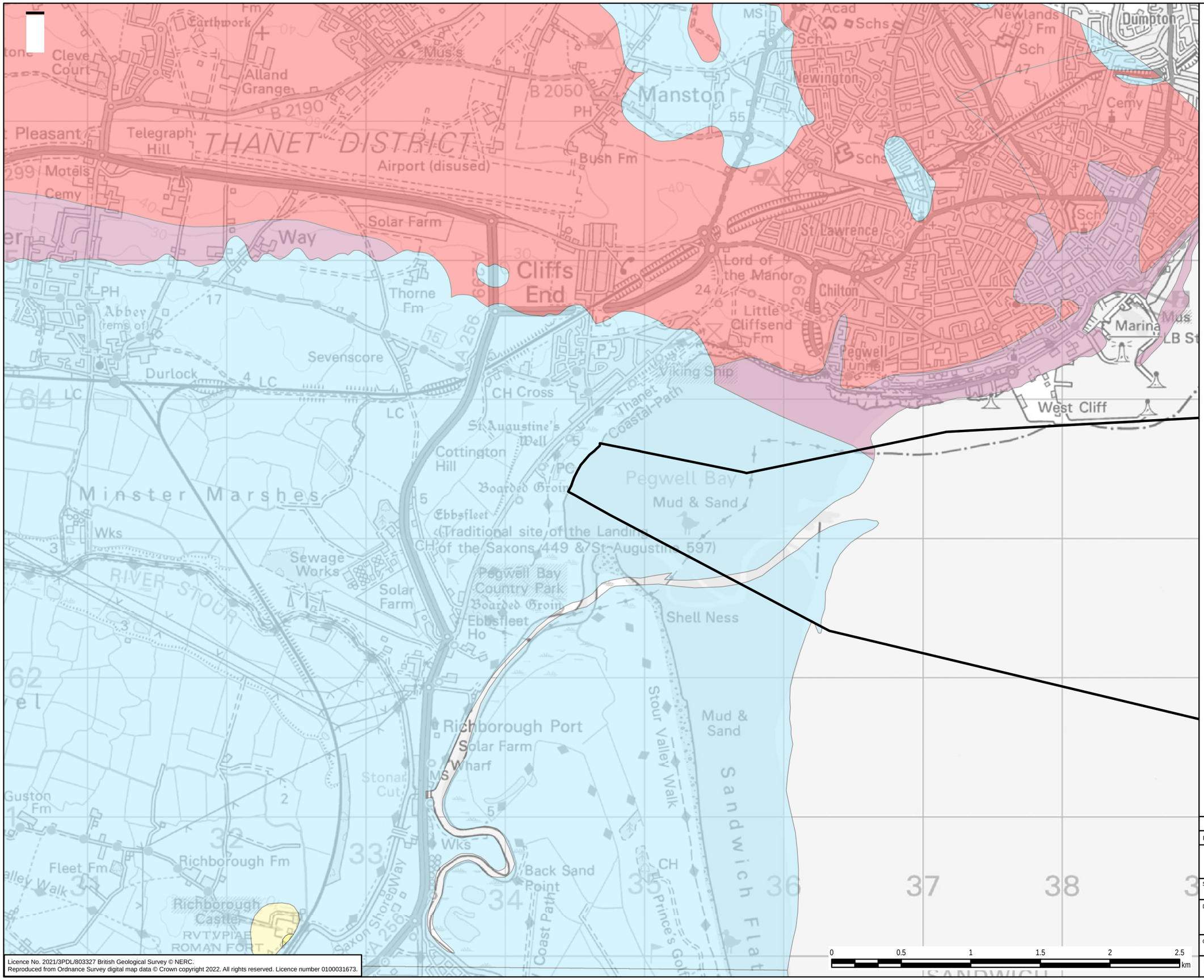
Scheme: SEA LINK

Document Title: BATHYMETRY OF THE STUDY AREA

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	07/09/2022	DF	07/09/2022	KS	07/09/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.2.4	1:400,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-2-4_Bathymetry_of_the_Study_Area_20220907_EB.aprx



Legend

- Offshore Scheme Scoping Boundary

Bedrock Geology

- Harwich Formation - Sand and Gravel
- Lambeth Group - Sand
- Margate Chalf Member - Chalk
- Seaford Chalk Formation - Chalk
- Thanet Formation - Sand, Silt and Clay

Licence No. 2021/3PDL/803327 British Geological Survey © NERC.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	07/09/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

Scheme: SEA LINK

Document Title: BEDROCK GEOLOGY AT THE KENT LANDFALL

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	07/09/2022	DF	07/09/2022	KS	07/09/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.2.5	1:25,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-2-5_Bedrock_Geology_at_the_Kent_Landfall_20220907_EB.aprx

Legend

- Offshore Scheme Scoping Boundary

Bedrock Geology

- Chillesford Church Sand Member - Sand
- Chillesford Clay Member - Clay, Silty
- Coralline Crag Formation - Calcarenite
- Crag Group - Sand
- Red Crag Formation - Sand

0 1 2 3 4 5 km

Licence No. 2021/3PDL/803327 British Geological Survey © NERC.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	07/09/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

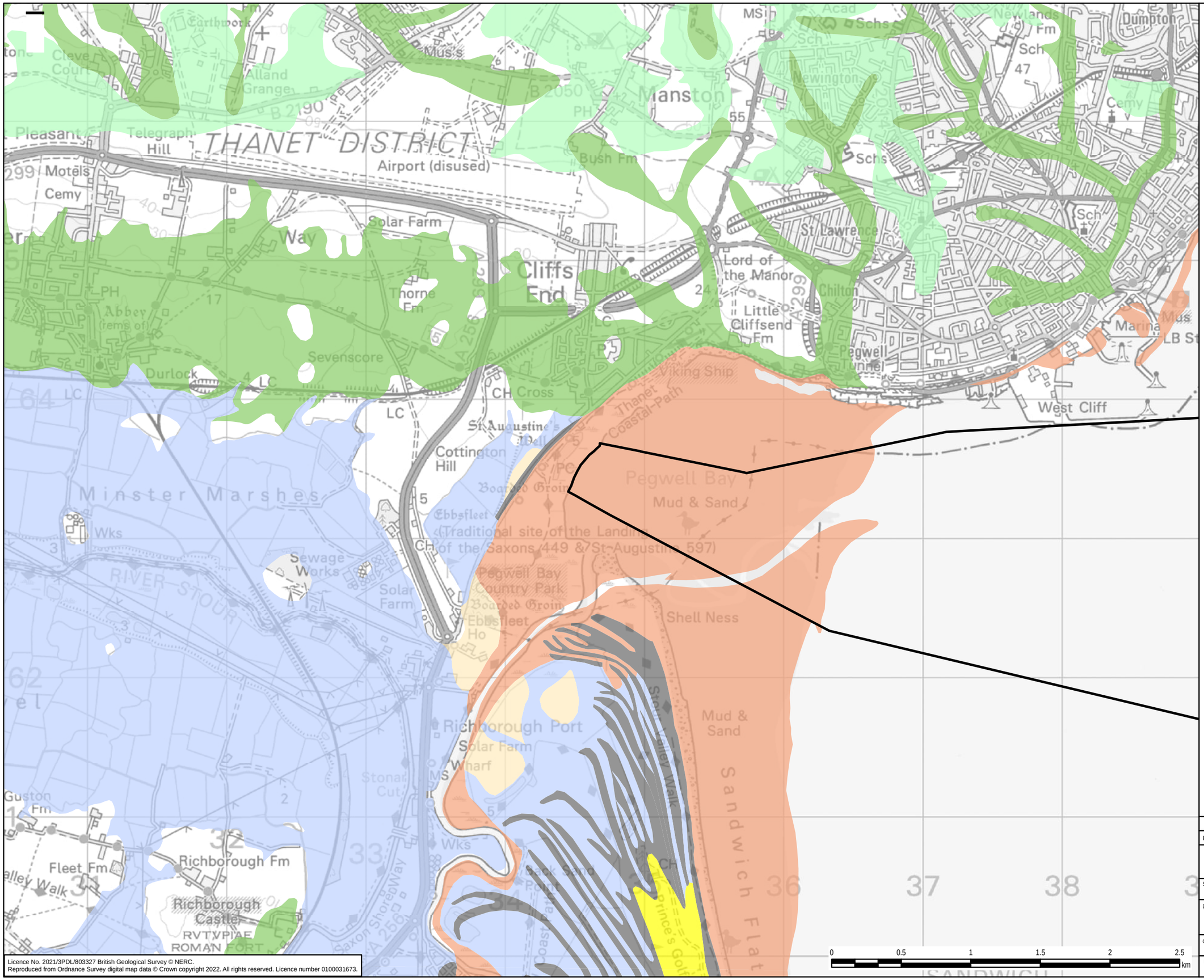
Scheme: SEA LINK

Document Title: BEDROCK GEOLOGY AT THE SUFFOLK LANDFALLS

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	07/09/2022	DF	07/09/2022	KS	07/09/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.2.6	1:35,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-2-6_Bedrock_Geology_at_the_Suffolk_Landfalls_20220907_EB.aprx



Legend

- Offshore Scheme Scoping Boundary

Superficial Geology

- Alluvium - Clay, Silt, Sand and Gravel
- Beach and Tidal Flat Deposits (Undifferentiated) - Sand and Gravek
- Beach and Tidal Flat Deposits (Undifferentiated) - Sand, Silt and Clay
- Blown Sand - Sand
- Head - Clay, Silt, Sand and Gravel
- Head - Gravel, Sand, Silt And Clay
- Head, 1 - Clay and Silt
- Head, 2 - Clay and Silt
- Storm Beach Deposits - Sand and Gravel
- Tidal Flat Deposits - Clay and Silt

Rev	Date	Description	GIS	Chk	App
0	07/09/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

Scheme: SEA LINK

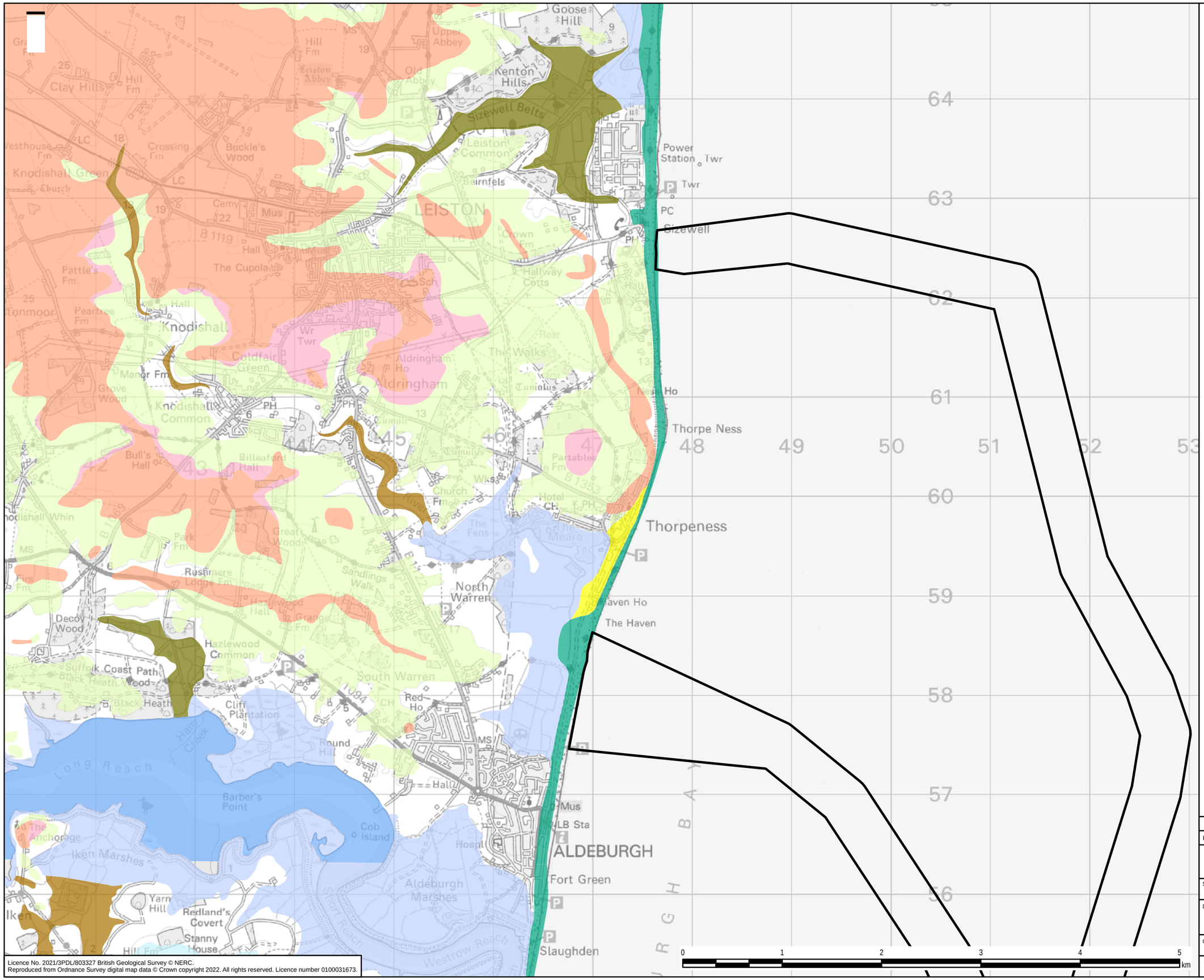
Document Title: SUPERFICIAL GEOLOGY AT THE KENT LANDFALL

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	07/09/2022	DF	07/09/2022	KS	07/09/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.2.7	1:25,000	A3	1	0

Licence No. 2021/3PDL/803327 British Geological Survey © NERC.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-2-7_Superficial_Geology_at_the_Kent_Landfall_20220907_EB.aprx



Licence No. 2021/3PDL/803327 British Geological Survey © NERC.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.

Rev	Date	Description	GIS	Chk	App
0	07/09/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

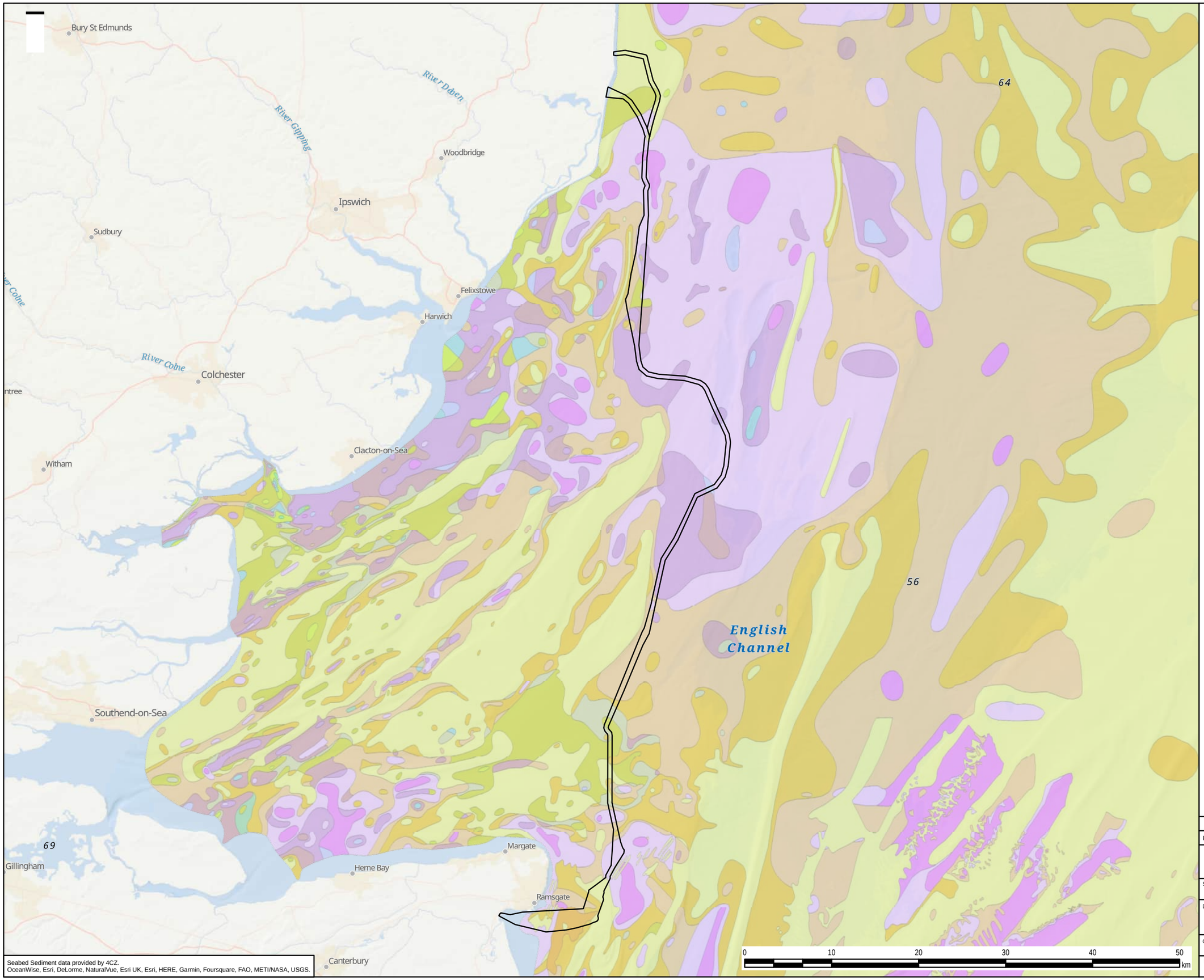
Scheme: SEA LINK

Document Title: SUPERFICIAL GEOLOGY AT THE SUFFOLK LANDFALLS

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	07/09/2022	DF	07/09/2022	KS	07/09/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.2.8	1:35,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-2-8_Superficial_Geology_at_the_Suffolk_Landfalls_20220907_EB.aprx



Seabed Sediment data provided by 4CZ.
OceanWise, Esri, DeLorme, NaturalVue, Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS.

Legend

- Offshore Scheme Scoping Boundary

Seabed Sediment[1]

- Gravel
- Gravelly Mud
- Gravelly Muddy Sand
- Gravelly Sand
- Muddy Gravel
- Muddy Sand
- Muddy Sandy Gravel
- Sand
- Sandy Gravel
- Sandy Mud
- Slightly Gravelly Muddy Sand
- Slightly Gravelly Sand
- Slightly Gravelly Sandy Mud

1: All seabed sediment types belong to the Marine Sediments, Holocene (Undifferentiated) group.

Rev	Date	Description	GIS	Chk	App
0	07/09/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

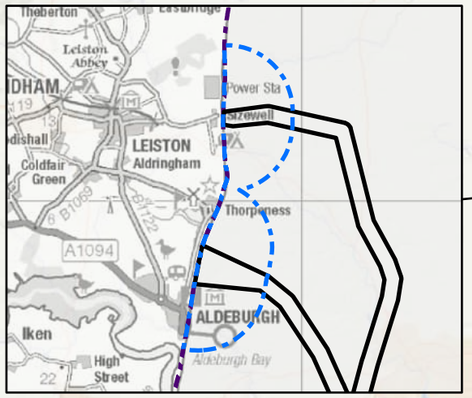
Scheme: SEA LINK

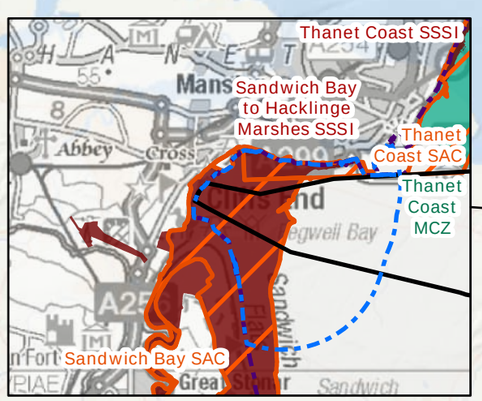
Document Title: SEABED SEDIMENTS ACROSS THE STUDY AREA

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	07/09/2022	DF	07/09/2022	KS	07/09/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.2.9	1:400,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-2-9_Seabed_Sediments_Across_the_Study_Area_20220907_EB.aprx





Orford Inshore MCZ

Kentish Knock East MCZ

Margate and Long Sands SAC

Thanet Coast SSSI

Thanet Coast MCZ

Thanet Coast SAC

Sandwich Bay SAC

Goodwin Sands MCZ

Sandwich Bay to Hacklinge Marshes SSSI

Legend

- Offshore Scheme Scoping Boundary
- Intertidal Benthic Ecology Study Area
- Subtidal Benthic Ecology Study Area
- Special Area of Conservation
- Site of Special Scientific Interest
- Marine Conservation Zone

0 10 20 30 40 50 km

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
Reproduced from Ordnance Survey digital map data © Crown copyright 2022. All rights reserved. Licence number 0100031673.
OceanWise, Esri, DeLorme, NaturalVue, Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS

Rev	Date	Description	GIS	Chk	App
0	25/08/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

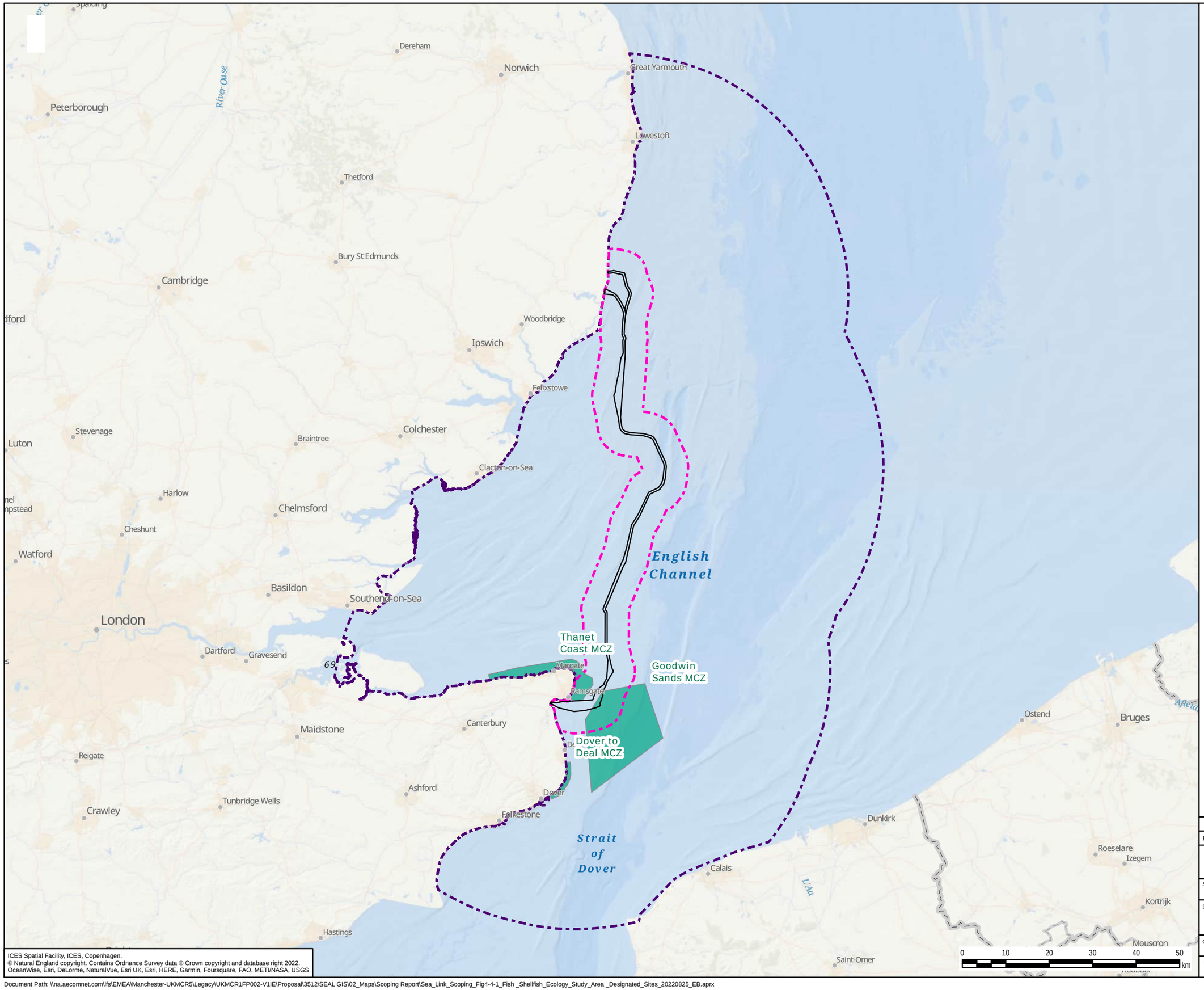
Scheme: SEA LINK

Document Title: BENTHIC ECOLOGY STUDY AREA AND DESIGNATED SITES

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	25/08/2022	DF	25/08/2022	CC	25/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.3.1	1:500,000	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-3-1_Benthic_Ecology_Study_Area_Designated_Sites_20220825_EB.aprx



Rev	Date	Description	GIS	Chk	App
0	25/08/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

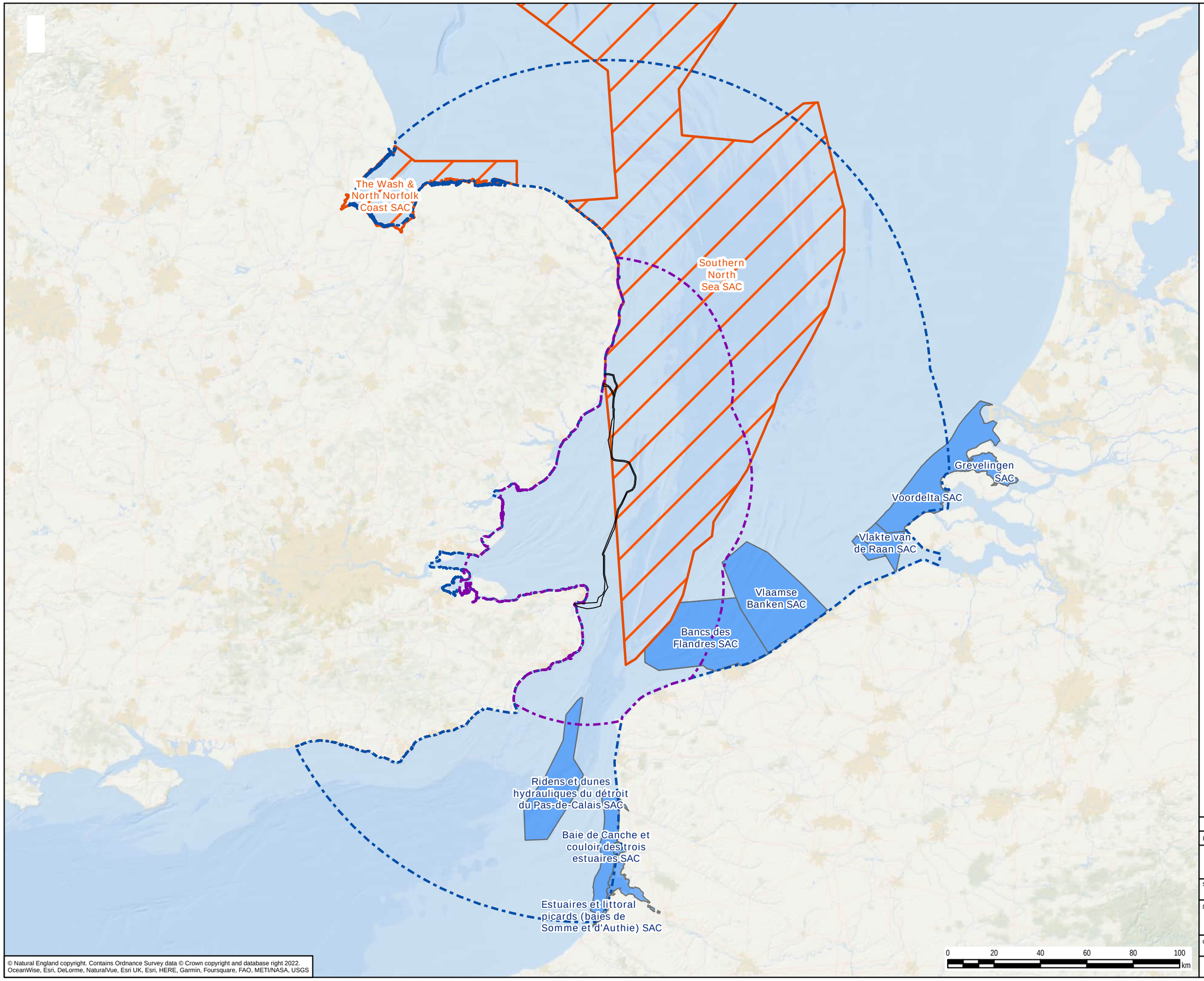
Scheme: SEA LINK

Document Title: FISH AND SHELLFISH ECOLOGY STUDY AREA AND DESIGNATED SITES

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	25/08/2022	DF	25/08/2022	KS	25/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.4.1	1:800,000	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-4-1_Fish _Shellfish_Ecology_Study_Area _Designated_Sites_20220825_EB.aprx



© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022. OceanWise, Esri, DeLorme, NaturalVue, Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS

Legend

- Offshore Scheme Scoping Boundary
- Cetacean and Harbour Seal Designated Sites Screening Area (50km)
- Grey Seal Designated Sites Screening Area (135km)
- Special Area of Conservation (SAC)
- Special Area of Conservation (European)

Rev	Date	Description	GIS	Chk	App
0	25/08/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

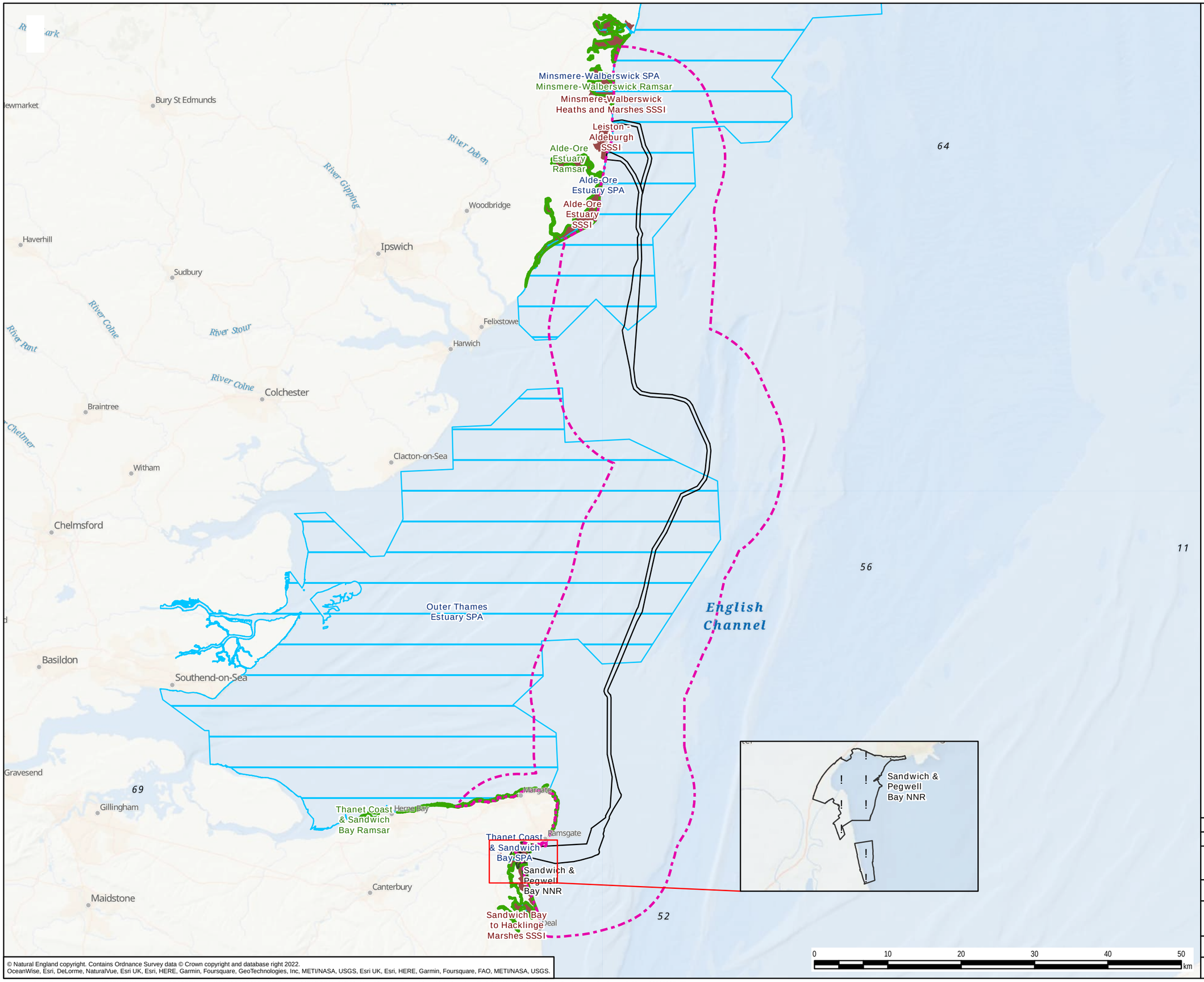
Scheme: SEA LINK

Document Title: MARINE MAMMALS STUDY AREA AND DESIGNATED SITES

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	25/08/2022	DF	25/08/2022	CC	25/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.5.1	1:1,500,000	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-5-1_Marine_Mammals_Study_Area_Designated_Sites_20220825_EB.aprx



Legend

- Offshore Scheme Scoping Boundary
- Marine Ornithology Study Area
- Ramsar
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)
- National Nature Reserve

© Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2022.
OceanWise, Esri, DeLorme, NaturalVue, Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS, Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS.

Rev	Date	Description	GIS	Chk	App
0	25/08/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

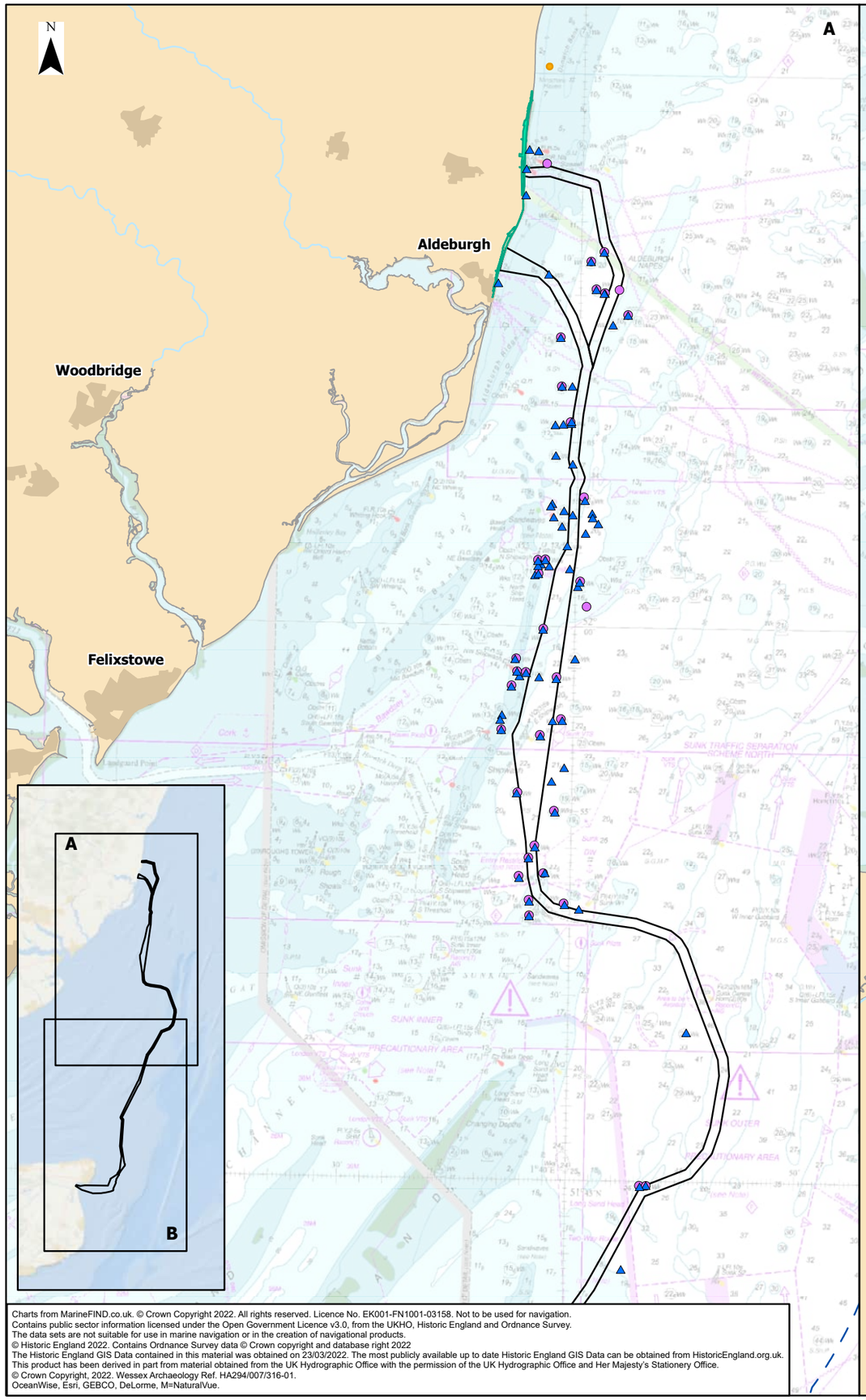
Scheme: SEA LINK

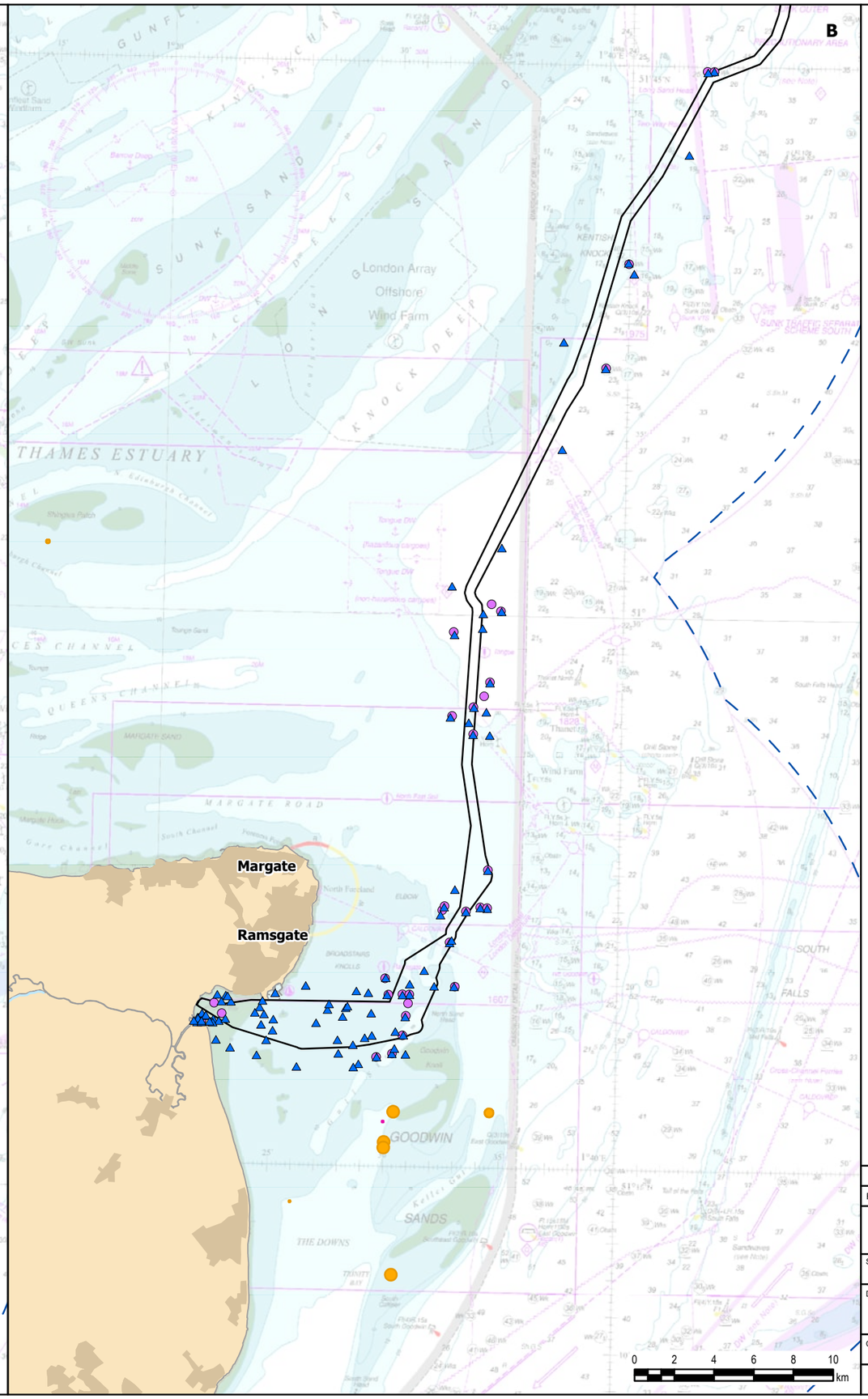
Document Title: MARINE ORNITHOLOGY STUDY AREA AND DESIGNATED SITES

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	25/08/2022	DF	25/08/2022	KS	25/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.6.1	1:475,000	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-6-1_Marine_Ornithology_Study_Area_Designated_Sites_20220825_EB.aprx





Legend

- Offshore Scheme Scoping Boundary
- English Territorial Waters
- Marine and intertidal scheduled monuments (AMAA 1979)
- Protected wreck sites (PWA 1973)
- Suffolk HER sites
- UKHO sites
- NMHR sites

Charts from MarineFIND.co.uk. © Crown Copyright 2022. All rights reserved. Licence No. EK001-FN1001-03158. Not to be used for navigation.
Contains public sector information licensed under the Open Government Licence v3.0, from the UKHO, Historic England and Ordnance Survey.
The data sets are not suitable for use in marine navigation or in the creation of navigational products.
© Historic England 2022. Contains Ordnance Survey data © Crown copyright and database right 2022
The Historic England GIS Data contained in this material was obtained on 23/03/2022. The most publicly available up to date Historic England GIS Data can be obtained from HistoricEngland.org.uk.
This product has been derived in part from material obtained from the UK Hydrographic Office with the permission of the UK Hydrographic Office and Her Majesty's Stationery Office.
© Crown Copyright, 2022. Wessex Archaeology Ref. HA294/007/316-01.
OceanWise, Esri, GEBCO, DeLorme, M=NaturalVue.

Rev	Date	Description	GIS	Chk	App
0	14/09/2022	SCOPING REPORT	KF	VL	VL

nationalgrid

Scheme: SEA LINK

Document Title: LOCATION OF RECORDED SEABED AND INTERTIDAL FEATURES WITHIN, AND IN PROXIMITY TO, THE STUDY AREA

Creator:	Date:	Checker:	Date:	Approver:	Date:
KF	14/09/2022	VL	14/09/2022	VL	14/09/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.7.1	1:250,000	A3	1	0

Document Path: W:\Projects\244370\Graphics_Office\Rep figs\Scoping\2022_09_14\244370_ArcPro\244370_ArcPro.aprx

N

Newmarket
Bury St Edmunds
SUFFOLK
Haverhill
Sudbury
Woodbridge
Ipswich
IPSWICH
HARWICH
Harwich
Felixstowe
Braintree
COLCHESTER
Clacton-on-Sea
ESSEX
Witham
Chelmsford
Basildon
Southend-on-Sea
Grays
Gravesend
SHEERNESS
THAMESPORT
CHATHAM DOCKS
Gillingham
WHITSTABLE
Herne Bay
Margate
RAMSGATE
Maidstone
Canterbury
KENT
Deal
Ashford
Dover
THAMES ESTUARY
English Channel
Netherlands - United Kingdom
Belgium - Netherlands
Belgium - United Kingdom
France - United Kingdom
Belgium - France

Legend

- Offshore Scoping Boundary
- Study area (10 NM buffer)
- Port
- UK Territorial Sea Limit
- EEZ Boundaries

0 10 20 30 40 50 km

Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS

Rev	Date	Description	GIS	Chk	App
0	20/09/2022	SCOPING REPORT	LM	JDM	DB

nationalgrid

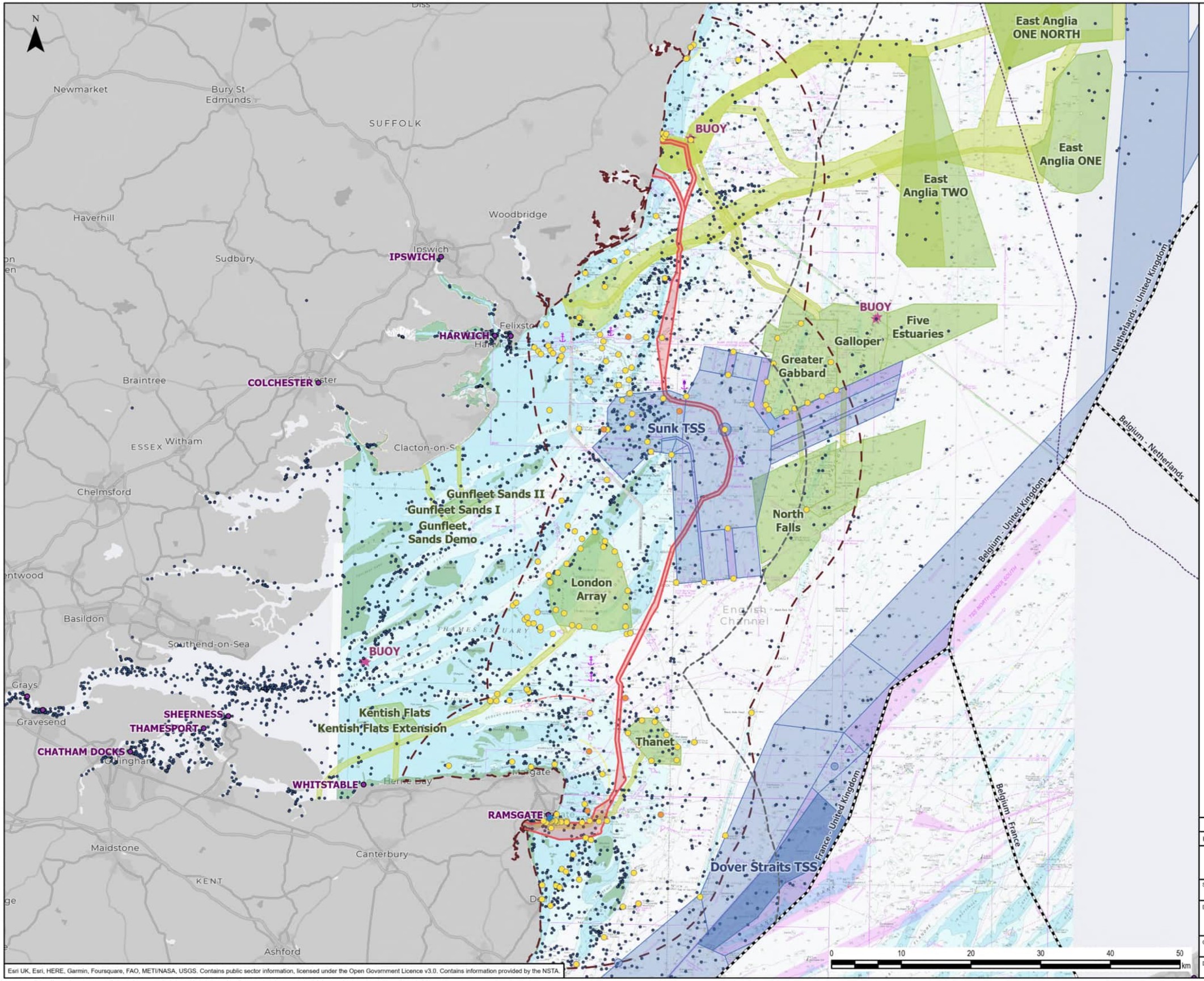
Scheme: SEA LINK

Document Title: STUDY AREA FOR SHIPPING AND NAVIGATION

Creator:	Date:	Checker:	Date:	Approver:	Date:
LM	20/09/2022	JDM	20/09/2022	DB	20/09/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.8.1	1:500,000	A3	1	0

Document Path: \\xodus.local\london\Xodus\Assignments\L100695\S00\Working Files\GIS\Output\03_Scoping\L100695_S00_SeaLink_ScopingFigures_v2.aprx



Legend

- Offshore Scoping Boundary
- Study area (10 NM buffer)
- Port
- UK Territorial Sea Limit
- EEZ Boundaries

Navigational features

- Anchorage
- Pilotage
- AtoN
- Marina
- IMO routing measures
- Wrecks
- Surface infrastructure
- Pipelines
- Offshore wind site agreements
- Offshore wind cable agreements

Rev	Date	Description	GIS	Chk	App
0	20/09/2022	SCOPING REPORT	LM	JDM	DB

nationalgrid

Scheme: SEA LINK

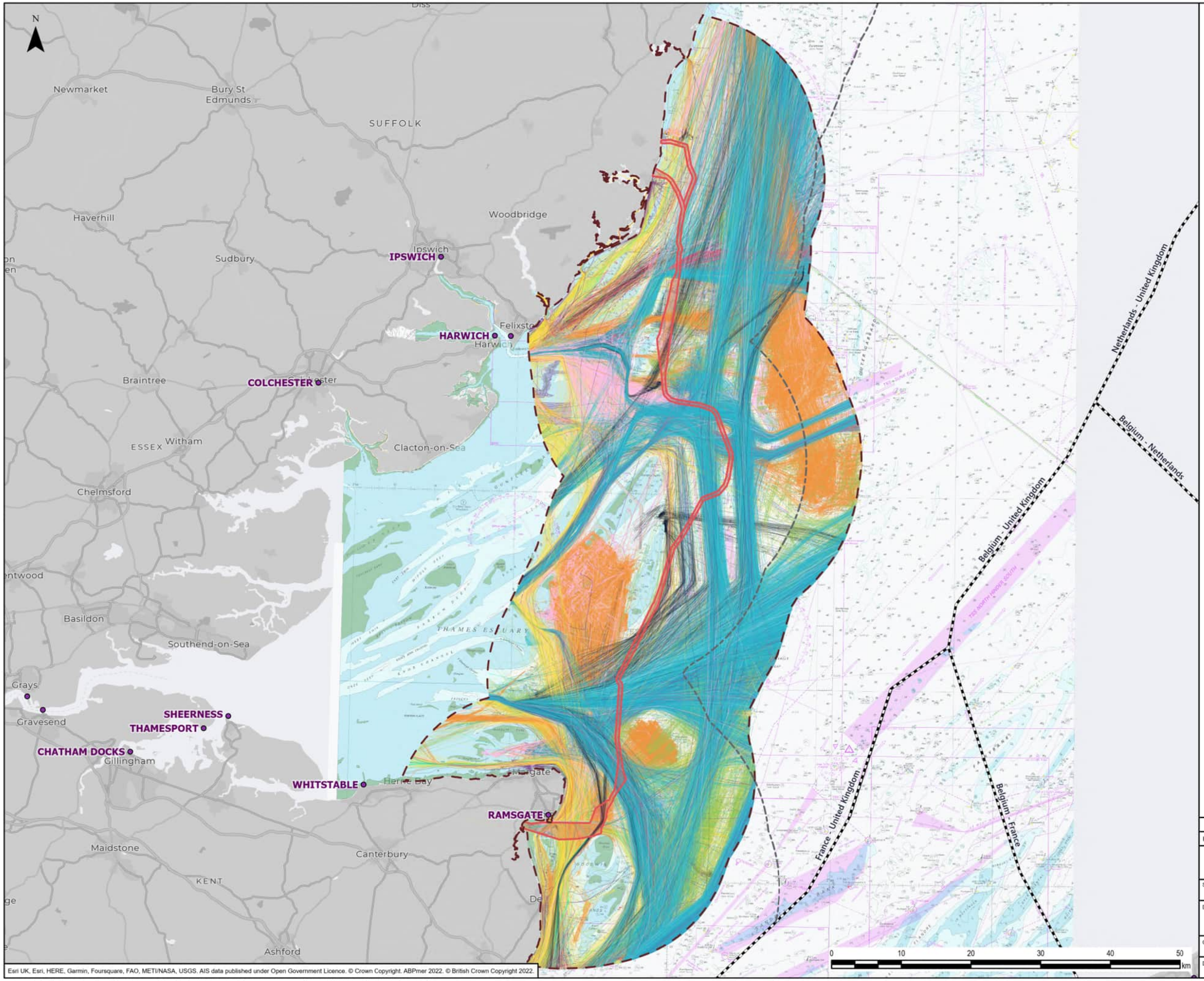
Document Title: KEY NAVIGATIONAL FEATURES

Creator:	Date:	Checker:	Date:	Approver:	Date:
LM	20/09/2022	JDM	20/09/2022	DB	20/09/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.8.2	1:500,000	A3	1	0

Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS. Contains public sector information, licensed under the Open Government Licence v3.0. Contains information provided by the NSTA.

Document Path: \\xodus.local\london\Xodus\Assignments\L100695\S00\Working Files\GIS\Output\03_Scoping\L100695_S00_SeaLink_ScopingFigures_v2.aprx



Legend

- Offshore Scoping Boundary
- Study area (10 NM buffer)
- Port
- UK Territorial Sea Limit
- EEZ Boundaries

Ship type group

- Cargo
- Tankers
- Passenger
- Recreational
- Fishing
- Non-port service craft
- Port service craft
- Dredging/ underwater operations
- High-speed craft
- Military/law enforcement
- Unknown

Rev	Date	Description	GIS	Chk	App
0	20/09/2022	SCOPING REPORT	LM	JDM	DB

nationalgrid

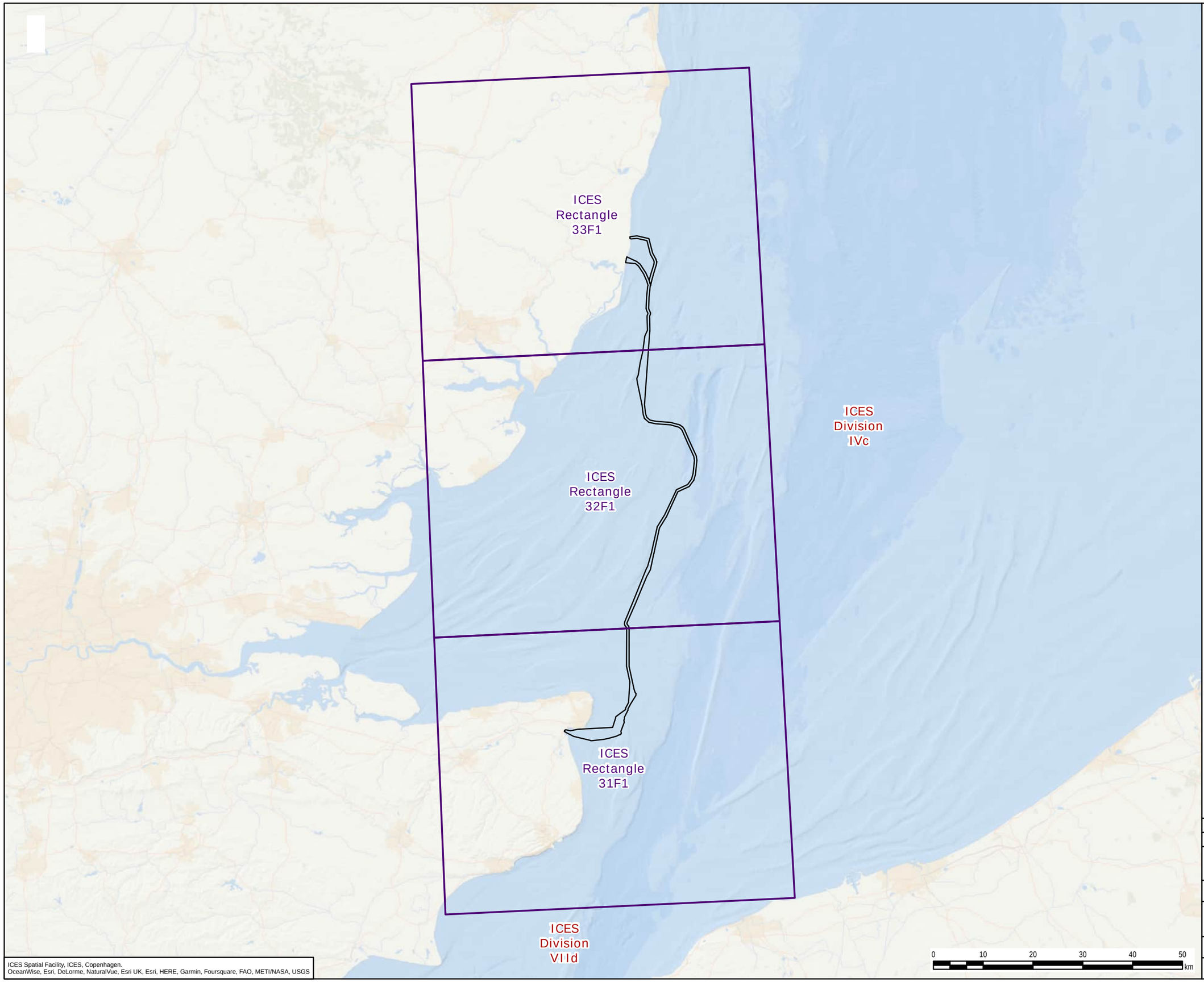
Scheme: SEA LINK

Document Title: AIS TRACKS DATA BY SHIP TYPE GROUP (2019)

Creator:	Date:	Checker:	Date:	Approver:	Date:
LM	20/09/2022	JDM	20/09/2022	DB	20/09/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.8.4	1:500,000	A3	1	0

Document Path: \\xodus.local\london\Xodus\Assignments\L100695\S00\Working Files\GIS\Output\03_Scoping\L100695_S00_SeaLink_ScopingFigures_v2.aprx



Legend

- Offshore Scheme Scoping Boundary
- ICES Rectangles

Rev	Date	Description	GIS	Chk	App
0	25/08/2022	SCOPING REPORT	EB	DF	CC

nationalgrid

Scheme: SEA LINK

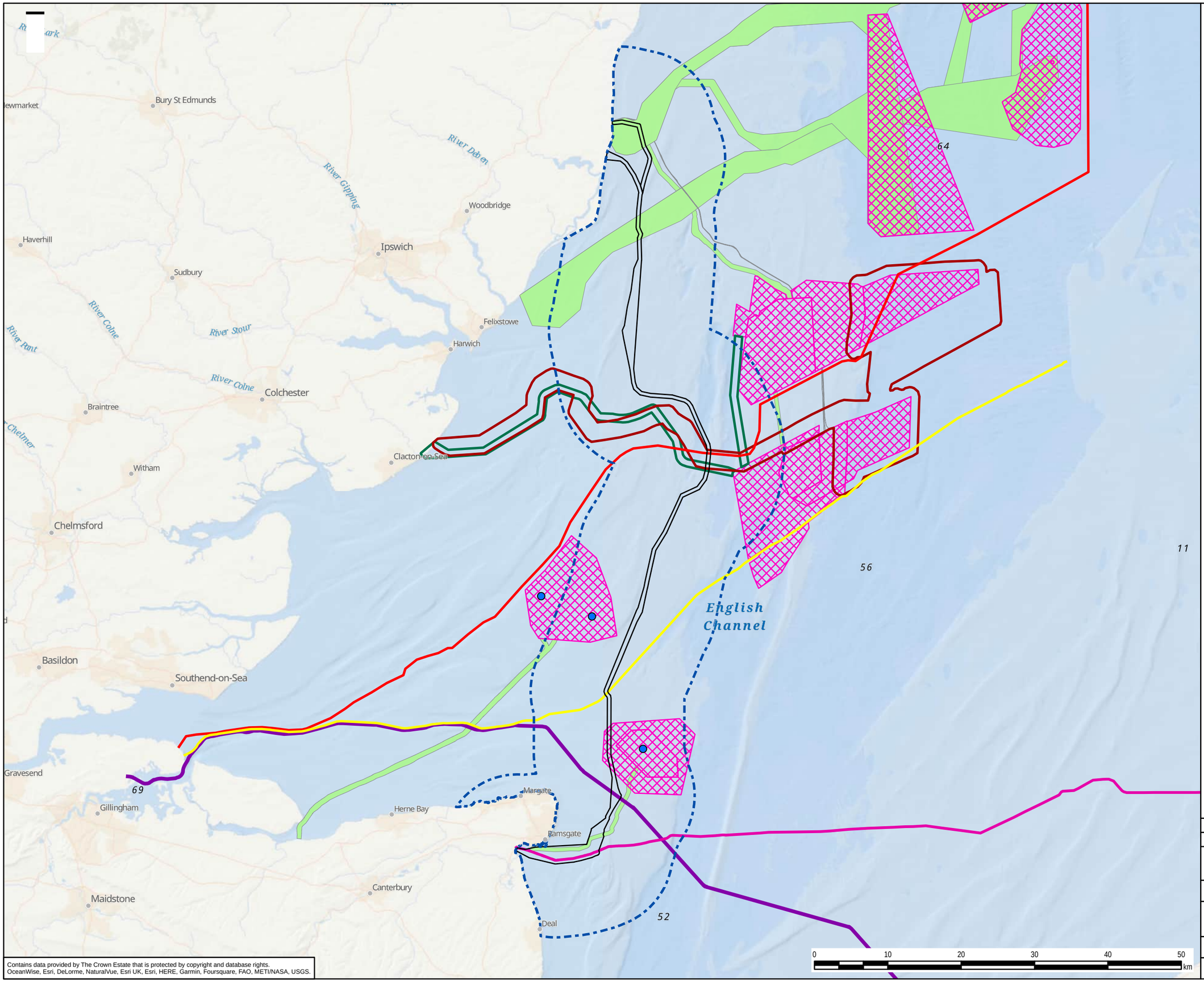
Document Title: COMMMERCIAL FISHERIES STUDY AREA

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	25/08/2022	DF	25/08/2022	CC	25/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.9.1	1:700,000	A3	1	0

ICES Spatial Facility, ICES, Copenhagen.
OceanWise, Esri, DeLorme, NaturalVue, Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-9-1_Commercial_Fisheries_Study_Area_20220825_EB.aprx



Contains data provided by The Crown Estate that is protected by copyright and database rights.
OceanWise, Esri, DeLorme, NaturalVue, Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS.

Legend

- Offshore Scheme Scoping Boundary
- Other Sea Users Study Area
- Offshore Substation

Cables & Pipelines

- BritNed
- GridLink
- Nemo Link
- NeuConnect
- North Falls Cable Corridors
- Five Estuaries Offshore Site Investigation

Wind Farms

- Offshore Wind Farms & Site Agreements
- Offshore Wind Farm Export Cable

Rev	Date	Description	GIS	Chk	App
0	25/08/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

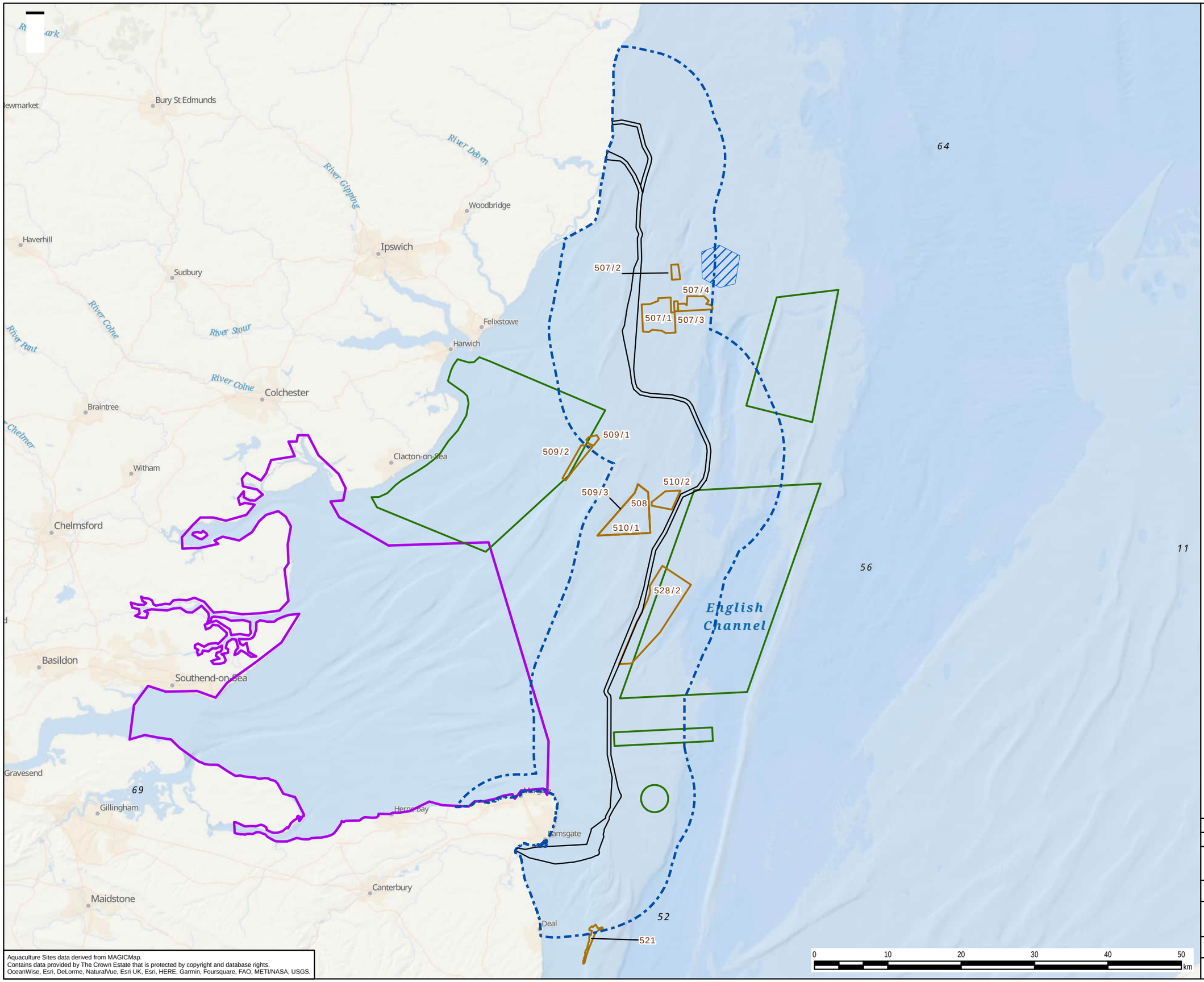
Scheme: SEA LINK

Document Title: OFFSHORE INFRASTRUCTURE IN THE STUDY AREA - SHEET 1 OF 3

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	25/08/2022	DF	25/08/2022	KS	25/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.10.1	1:475,000	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-10-1_Offshore_Infrastructure_in_Study_Area_Sheet_1_of_3_202208025_EB.aprx



Aquaculture Sites data derived from MAGICMap.
Contains data provided by The Crown Estate that is protected by copyright and database rights.
OceanWise, Esri, DeLorme, NaturalVue, Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS.

Rev	Date	Description	GIS	Chk	App
0	19/10/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

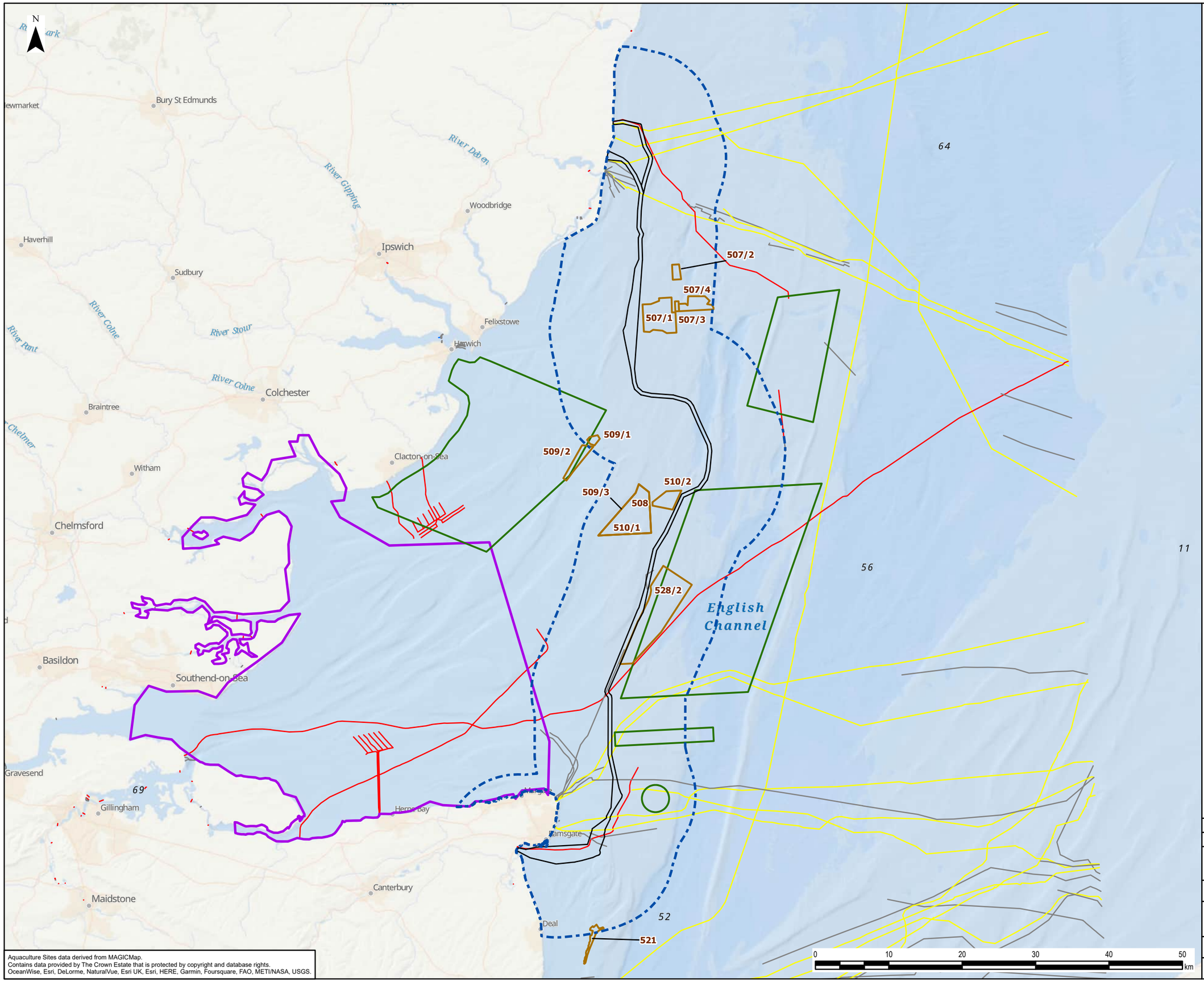
Scheme: SEA LINK

Document Title: OFFSHORE INFRASTRUCTURE IN THE STUDY AREA - SHEET 2 OF 3

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	19/10/2022	DF	19/10/2022	KS	19/10/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.10.1	1:475,000	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-10-1_Offshore_Infrastructure_in_Study_Area_Sheet_2_of_3_20221019_DF.aprx



Legend

- Offshore Scheme Scoping Boundary
- Other Sea Users Study Area
- Military Practice Area
- Mineral & Aggregate Extraction Site
- Shellfish Waters

Marine Cable

- Mooring cable/chain
- Power line
- Telephone
- Undefined

Aquaculture Sites data derived from MAGICMap.
Contains data provided by The Crown Estate that is protected by copyright and database rights.
OceanWise, Esri, DeLorme, NaturalVue, Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS.

Rev	Date	Description	GIS	Chk	App
0	07/10/2022	SCOPING REPORT	EB	DF	KS

nationalgrid

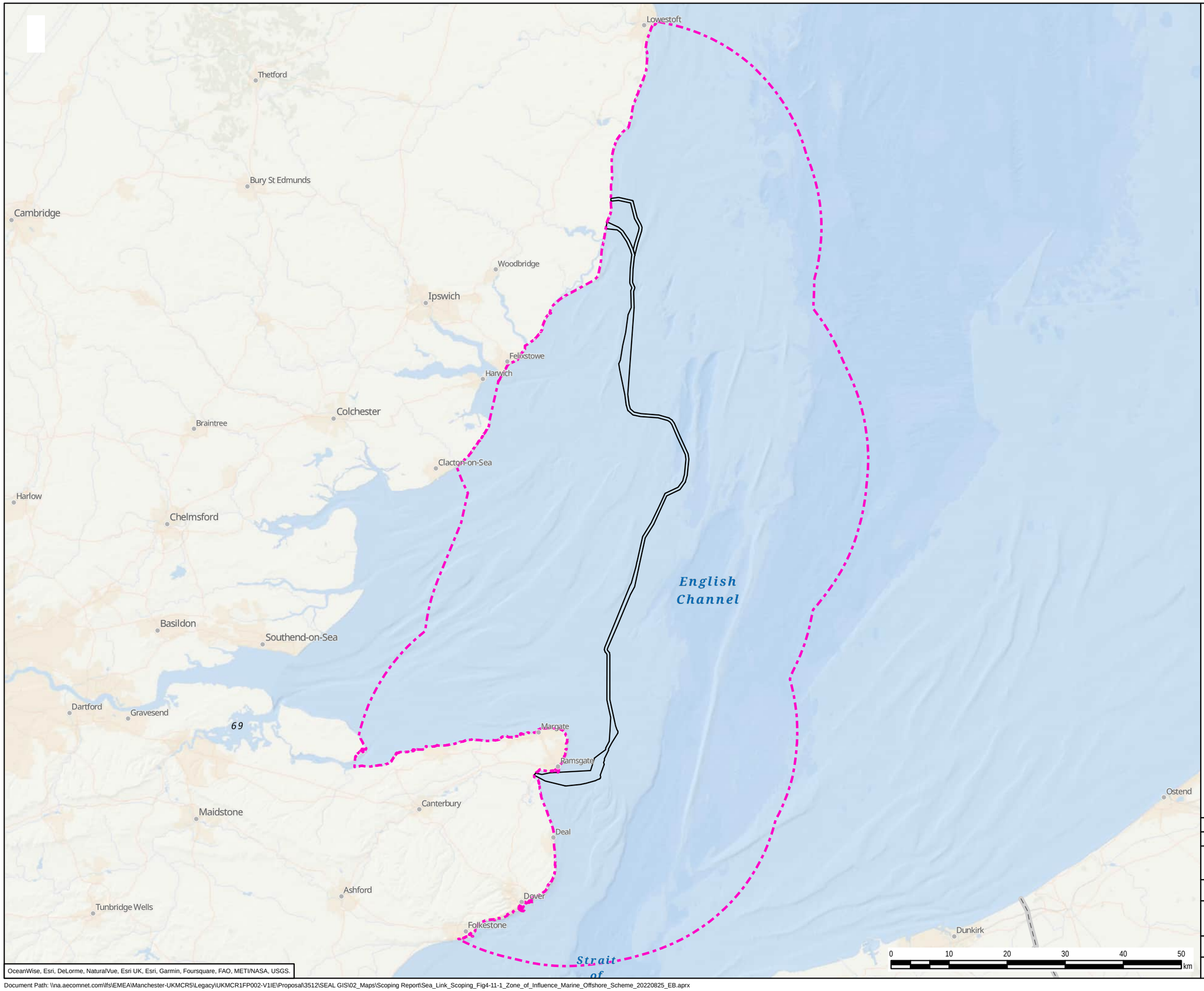
Scheme: SEA LINK

Document Title: OFFSHORE INFRASTRUCTURE IN THE STUDY AREA - SHEET 3 OF 3

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	07/10/2022	DF	07/10/2022	KS	07/10/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.10.1	1:475,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-10-1_Offshore_Infrastructure_in_Study_Area_Sheet_3_of_3_20221007_EB.aprx



Legend

- Offshore Scheme Scoping Boundary
- Cumulative Assessment Zone of Influence

Rev	Date	Description	GIS	Chk	App
0	25/08/2022	SCOPING REPORT	EB	DF	SA

nationalgrid

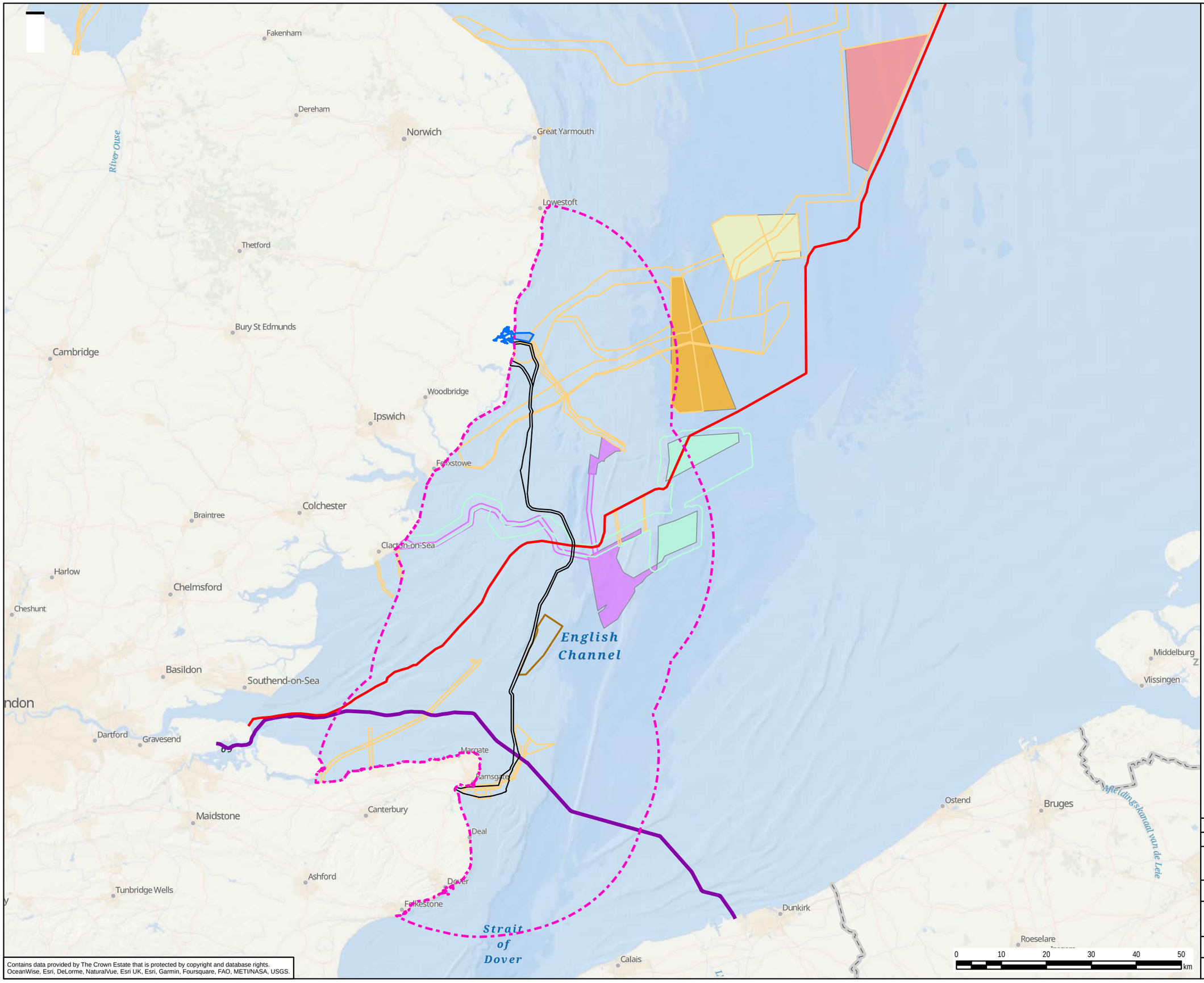
Scheme: SEA LINK

Document Title: ZONE OF INFLUENCE FOR MARINE OFFSHORE SCHEME

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	25/08/2022	DF	25/08/2022	SA	25/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.11.1	1:600,000	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-11-1_Zone_of_Influence_Marine_Offshore_Scheme_20220825_EB.aprx



Contains data provided by The Crown Estate that is protected by copyright and database rights. OceanWise, Esri, DeLorme, NaturalVue, Esri UK, Esri, Garmin, Foursquare, FAO, METI/NASA, USGS.

Legend

- Offshore Scheme Scoping Boundary
- Cumulative Assessment Zone of Influence
- GridLink
- NeuConnect
- Sizewell C Nuclear Power Station
- North Falls Cable Corridors
- Five Estuaries Cable Corridors
- Export Cable Corridors
- North Falls Offshore Wind Farm
- East Anglia One North Offshore Wind Farm
- East Anglia Two Offshore Wind Farm
- Five Estuaries Offshore Wind Farm
- East Anglia Three Offshore Wind Farm
- Hanson Aggregates Marine Ltd Area 528/2

Rev	Date	Description			
0	21/10/2022	SCOPING REPORT	EB	DF	SA

nationalgrid

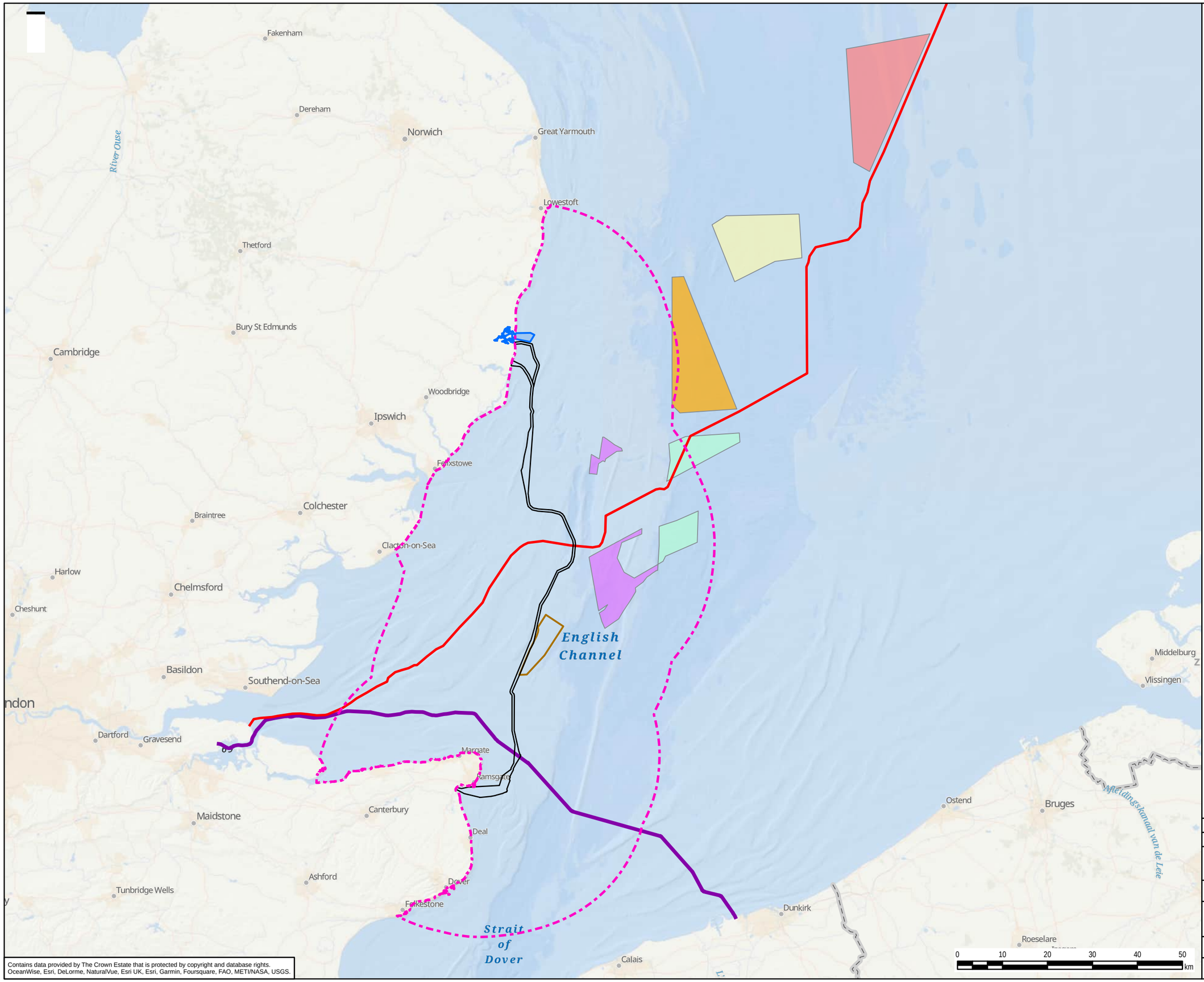
Scheme: SEA LINK

Document Title: LONG LIST PROJECTS WITHIN THE ZONE OF INFLUENCE

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	21/10/2022	DF	21/10/2022	SA	21/10/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.11.2	1:775,000	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Superseded\Sea_Link_Scoping_Fig4-11-2_Long_List_Projects_within_Zone_of_Influence_20221021_DF.aprx



Contains data provided by The Crown Estate that is protected by copyright and database rights.
OceanWise, Esri, DeLorme, NaturalVue, Esri UK, Esri, Garmin, Foursquare, FAO, METI/NASA, USGS.

Legend

- Offshore Scheme Scoping Boundary
- Cumulative Assessment Zone of Influence
- GridLink
- NeuConnect
- Sizewell C Nuclear Power Station
- North Falls Offshore Wind Farm
- East Anglia One North Offshore Wind Farm
- East Anglia Two Offshore Wind Farm
- Five Estuaries Offshore Wind Farm
- East Anglia Three Offshore Wind Farm
- Hanson Aggregates Marine Ltd Area 528/2

Rev	Date	Description	GIS	Chk	App
0	25/08/2022	SCOPING REPORT	EB	DF	SA

nationalgrid

Scheme: SEA LINK

Document Title: PROJECTS PROPOSED TO BE TAKEN TO STAGE 2 FOR THE OFFSHORE SCHEME

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	25/08/2022	DF	25/08/2022	SA	25/08/2022

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4.11.3	1:775,000	A3	1	0

Document Path: \\na.aecomnet.com\lfs\EMEA\Manchester-UKMCR5\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Scoping Report\Sea_Link_Scoping_Fig4-11-3_Projects_Proposed_Stage_2_for_Offshore_Scheme_20220825_EB.aprx

3. Section 3 EIA Scoping Opinion

The Planning Inspectorate
Yr Arolygiaeth Gynllunio

SCOPING OPINION:

Proposed Sea Link

Case Reference: EN020026

Adopted by the Planning Inspectorate (on behalf of the Secretary of State) pursuant to Regulation 10 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

01 December 2022

TABLE OF CONTENTS

1. INTRODUCTION 1

2. OVERARCHING COMMENTS 3

2.1 Description of the Proposed Development 3
2.2 EIA Methodology and Scope of Assessment 6

3. ENVIRONMENTAL ASPECT COMMENTS – SUFFOLK ONSHORE SCHEME 7

3.1 Landscape and Visual 7
3.2 Ecology and Biodiversity 12
3.3 Cultural Heritage 15
3.4 Water Environment 17
3.5 Geology and Hydrogeology 24
3.6 Agriculture and Soils 30
3.7 Traffic and Transport 34
3.8 Air Quality 36
3.9 Noise and Vibration 38
3.10 Socio-economic Recreation and Tourism 40
3.11 Health and Wellbeing 42
3.12 Cumulative Effects 44

4. ENVIRONMENTAL ASPECT COMMENTS – KENT ONSHORE SCHEME ... 45

4.1 Landscape and Visual 45
4.2 Ecology and Biodiversity 48
4.3 Cultural Heritage 52
4.4 Water Environment 54
4.5 Geology and Hydrogeology 57
4.6 Agriculture and Soils 62
4.7 Traffic and Transport 66
4.8 Air Quality 68
4.9 Noise and Vibration 70
4.10 Socio-economic Recreation and Tourism 72
4.11 Health and Wellbeing 73
4.12 Cumulative Effects 75

5. ENVIRONMENTAL ASPECT COMMENTS – OFFSHORE SCHEME 76

5.1 Physical Environment 76
5.2 Benthic Ecology 79
5.3 Fish and Shellfish 82
5.4 Marine Mammals 86
5.5 Marine Ornithology 89

5.6 Marine Archaeology 91
5.7 Shipping and Navigation 93
5.8 Commercial Fisheries 96
5.9 Other Sea Users 97
5.10 Cumulative Effects 99

6. ENVIRONMENTAL ASPECT COMMENTS – PROJECT WIDE EFFECTS . 100

6.1 Climate Change 100
6.2 Major Accidents and Disasters 101
6.3 Combined Effects of the Project 102

APPENDIX 1: CONSULTATION BODIES FORMALLY CONSULTED

APPENDIX 2: RESPONDENTS TO CONSULTATION AND COPIES OF REPLIES

1. INTRODUCTION

1.0.1 On 24 October 2022, the Planning Inspectorate (the Inspectorate) received an application for a Scoping Opinion from National Grid Electricity Transmission plc (NGET) (the 'Applicant') under Regulation 10 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations') for the proposed Sea Link (the 'Proposed Development'). The Applicant notified the Secretary of State (SoS) under Regulation 8(1)(b) of those regulations that they propose to provide an Environmental Statement (ES) in respect of the Proposed Development and by virtue of Regulation 6(2)(a), the Proposed Development is 'EIA development'.

1.0.2 The Applicant provided the necessary information to inform a request under EIA Regulation 10(3) in the form of a Scoping Report comprising seven parts and available from:

- Part 1 of 7 – Volume 1 – Introduction http://infrastructure.planninginspectorate.gov.uk/document/EN020026-000042
- Part 2 of 7 – Volume 1 – Suffolk Onshore Scheme http://infrastructure.planninginspectorate.gov.uk/document/EN020026-000043
- Part 3 of 7 – Volume 1 – Kent Onshore Scheme http://infrastructure.planninginspectorate.gov.uk/document/EN020026-000044
- Part 4 of 7 – Volume 1 – Offshore Scheme http://infrastructure.planninginspectorate.gov.uk/document/EN020026-000045
- Part 5 of 7 – Volume 1 – Project Wide Effects http://infrastructure.planninginspectorate.gov.uk/document/EN020026-000046
- Part 6 of 7 – Volume 2 – Appendices http://infrastructure.planninginspectorate.gov.uk/document/EN020026-000047
- Part 7 of 7 – Volume 3 – Figures http://infrastructure.planninginspectorate.gov.uk/document/EN020026-000048

1.0.3 This document is the Scoping Opinion (the 'Opinion') adopted by the Inspectorate on behalf of the SoS. This Opinion is made on the basis of the information provided in the Scoping Report, reflecting the Proposed Development as currently described by the Applicant. This Opinion should be read in conjunction with the Applicant's Scoping Report.

1.0.4 The Inspectorate has set out in the following sections of this Opinion where it has/has not agreed to scope out certain aspects/matters on the basis of the information provided as part of the Scoping Report. The Inspectorate is content that the receipt of this Scoping Opinion should not prevent the Applicant from

subsequently agreeing with the relevant consultation bodies to scope such aspects/matters out of the ES, where further evidence has been provided to justify this approach. However, in order to demonstrate that the aspects/ matters have been appropriately addressed, the ES should explain the reasoning for scoping them out and justify the approach taken.

1.0.5 Before adopting this Opinion, the Inspectorate has consulted the 'consultation bodies' listed in Appendix 1 in accordance with EIA Regulation 10(6). A list of those consultation bodies who replied within the statutory timeframe (along with copies of their comments) is provided in Appendix 2. These comments have been taken into account in the preparation of this Opinion.

1.0.6 The Inspectorate has published a series of advice notes on the National Infrastructure Planning website, including Advice Note 7: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping (AN7). Advice Note 7 (AN7) and its annexes provide guidance on EIA processes during the pre-application stages and advice to support applicants in the preparation of their ES.

1.0.7 Applicants should have particular regard to the standing advice in AN7, alongside other advice notes on the Planning Act 2008 (PA2008) process, available from: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/

1.0.8 This Opinion should not be construed as implying that the Inspectorate agrees with the information or comments provided by the Applicant in their request for an opinion from the Inspectorate. In particular, comments from the Inspectorate in this Opinion are without prejudice to any later decisions taken (eg on formal submission of the application) that any development identified by the Applicant is necessarily to be treated as part of a Nationally Significant Infrastructure Project (NSIP) or Associated Development or development that does not require development consent.

2. OVERARCHING COMMENTS

2.1 Description of the Proposed Development

(Scoping Report Volume 1, Part 1, Section 1.4)

ID	Ref	Description	Inspectorate's comments
2.1.1	Volume 1, Part 1, Paragraphs 1.3.4.66 to 1.3.4.67	Co-ordination of projects – cumulative effects	The Inspectorate encourages the Applicant to make effort to coordinate the delivery of the Proposed Development with other relevant developments in the area. This may include sharing infrastructure requirements eg converter stations and/or cabling, where possible in effort to reduce the cumulative impacts and significant effects.
2.1.2	Volume 1, Part 1, Paragraph 1.4.2.5	Friston substation	The Scoping Report contains a limited description of the likely parameters for the works at Friston substation. The ES should clearly set out the worst-case parameters for the assessment, in particular in relation to landscape and visual impacts.
2.1.3	Volume 1, Part 1, Paragraph 1.4.2.23	Offshore High Voltage Direct Current (HVDC) cable	Noting the statement that the offshore cable system is still under development at this stage, the ES should clearly set out the parameters for the offshore HVDC cabling system that have been applied for the assessment.
2.1.4	Volume 1, Part 1, Paragraph 1.4.3.17	Construction programme - converter stations	The Scoping Report states construction of the converter stations would take '*…between 27 months*.' It is unclear if this is intended to be a range or an approximation. The construction programme for the Proposed Development is also not consistent between chapters of the Scoping Report. The ES should clearly state the anticipated construction programme used for the assessment and ensure aspect chapters are consistent in this regard.

ID	Ref	Description	Inspectorate's comments
2.1.5	Volume 1, Part 1, Paragraph 1.4.3.20	Overhead High Voltage Alternating Current (HVAC) Connection - pylon foundations	It is unclear whether the final choice of pylon foundation would be made prior to the Development Consent Order (DCO) application or whether flexibility is to be sought. The ES should clearly state the assumptions made with regards to foundation type.
2.1.6	Volume 1, Part 1, Paragraphs 1.4.3.29 to 1.4.3.30 and 1.4.3.42 to 1.4.3.44	Onshore cable installation – crossings	As the landfall and onshore route is still being defined, it is not yet clear where any temporary or permanent crossings of watercourses, major roads and/or railways would be required. The ES should identify the locations and types of all such crossings. The Applicant should also seek to agree the depths of any trenchless crossings (such as Horizontal Directional Drilling (HDD)) to be undertaken below obstacles such as watercourses and flood defences with the relevant consultation bodies, including the Environment Agency (EA) and Internal Drainage Boards (IDBs), as appropriate. The ES should also provide detail of protocols/measures to be put in place to prevent break outs or frack-outs of bentonite from occurring or to minimise impacts should such events occur.
2.1.7	Volume 1, Part 1, Paragraphs 1.4.3.64 and 1.4.3.81	Vessel movements	The ES should detail the type, number and frequency of vessel movements required to construct and operate the Proposed Development. If these are unknown, then the ES should explain the assumptions that have been made about vessel movements to inform the worst case assessment.
2.1.8	Volume 1, Part 1, Sections 1.4.4 and 1.4.5	Operation and maintenance	The ES should provide a full description of the nature and scope of operation and maintenance activities, including types of activity, frequency, and how works will be carried out for both offshore and onshore elements of the Proposed Development. This should include consideration of potential overlapping of activities with the co-ordinated projects (where applicable) and other consented projects

ID	Ref	Description	Inspectorate's comments
			such as the East Anglia Offshore Windfarms One North/Two and Sizewell C Nuclear Power Station, where possible.
2.1.9	Volume 1, Part 1, Paragraph 1.4.6.6	Decommissioning of marine cable	The Scoping Report states that marine cables may either be removed or left in-situ, in the event that the Proposed Development is decommissioned. The Inspectorate notes that a decommissioning plan will be prepared post-consent and updated across the lifetime of the development. However, in order to ensure that all likely significant effects associated with the Proposed Development are included in the ES, the ES should include an assessment of decommissioning effects based on a reasonable worst case scenario.
2.1.10	Volume 1, Part 2 Paragraph 2.8.5.3 and Volume 1, Part 3 Paragraph 3.8.1.3	Impacts to utilities	The Scoping Report states that trenchless methods will be used where utilities are required to be crossed by the Proposed Development. For clarity, the embedded measures/design should first consider avoidance of such infrastructure (where possible), then consider trenchless techniques. This should include potential impacts to wastewater infrastructure, which has not been identified as a utility consideration in the Scoping Report.

2.2 EIA Methodology and Scope of Assessment

(Scoping Report Volume 1, Part 1, Sections 1.5 and 1.6)

ID	Ref	Description	Inspectorate's comments
2.2.1	Volume 1, Part 1, Image 1.5.4	Intra-project assessment methodology	The Inspectorate queries whether the yes/no arrows in this flowchart image are correct. For example, where a receptor 'is impacted by more than one type of effect' at stage 1 pre-screening stage, whether it should be carried forward to the stage 2 screening stage. The ES should clarify the approach.
2.2.2	Volume 1, Part 1, Section 1.5	Definition of significance	Whilst it is noted that Section 1.5 sets out the overarching approach to be taken when determining the significance of effects, the phraseology used in Table 1.5.1 is not applied consistently throughout the Scoping Report. The ES should apply such phraseology consistently, where aspect assessments depart from this approach it should be clearly stated and provide reasons for the approach.
2.2.3	Volume 3: Figure 2.2.3; Figure 2.8.1; Figure 2.11.1; Figure 3.8.1 and Figure 2.4.1	Figures	There are a number of Figures where the legends/keys make it difficult to distinguish varying features. For example, Figure 2.2.3 contains two hatchings of very similar colour, thus making it difficult to distinguish between the regional Landscape Character Types 0 and 16. Figure 2.11.1 is missing the legend/key and the Conservation Areas of Aldeburgh, Thorpeness, Leiston, and Saxmundham are not apparent on Figure 2.4.1, despite being included in the legend/key. The ES should include clearly labelled figures with a clear legend/key to enable interpretation of the information.

3. ENVIRONMENTAL ASPECT COMMENTS – SUFFOLK ONSHORE SCHEME

3.1 Landscape and Visual

(Scoping Report Volume 1, Part 2, Section 2.2)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.1.1	Volume 1, Part 2, Table 2.2.6	Alteration to landscape character and visual amenity as a result of operational lighting at the converter station (operation)	The Scoping Report states this is to be scoped out on the basis that "*any additional lighting will be limited to maintaining site security and safety and would be within the context* [of]*existing settlement.*" It also acknowledges that should the approach to lighting change, this aspect will be scoped into the landscape and visual assessments. The Inspectorate does not agree that operational lighting of the convertor station can be scoped out at this stage due to the uncertainties regarding chosen location and in the absence of information confirming the type and location of any such lighting in the context of its surrounds. The ES should include an assessment of operational lighting on sensitive landscape and visual receptors, where likely significant effects could occur.
3.1.2	Volume 1, Part 2, Table 2.2.6	Alteration to landscape character and visual amenity as a result of operational lighting to the operational extension to the proposed Friston substation (operation)	This potential operational effect is scoped out on the basis that the extension will be minimal and within the context of existing energy infrastructure. However, it is acknowledged that should the design of the proposals at the proposed Friston substation become more substantial operational effects will be scoped into the landscape and visual assessment. The Scoping Report contains limited detail with regards to proposed lighting at the substation. The ES should include a description of lighting and assess effects on landscape character and visual amenity as a result of lighting, where likely significant effects could occur.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.1.3	Volume 1, Part 2, Table 2.2.6	Alteration to landscape character and visual amenity as a result of the HVAC and HVDC underground cables (operation)	The Inspectorate agrees that in general the introduction of the underground HVAC and HVDC cables is unlikely to give rise to significant long-term effects on landscape character during operation of the Proposed Development. However, it is unclear whether any easement required would result in permanent landscape changes and the potential for such effects should be considered. The ES should assess the potential for significant short-term effects during the beginning of the operational phase, as proposed reinstatement measures mature along the cable route.
3.1.4	Volume 1, Part 2, Table 2.2.7, Table 2.2.8, Table 2.2.9, Table 2.2.10 and Table 2.2.11	Permanent alteration to landscape character as a result of the operational converter station on the following receptors (operation): Suffolk Coastal Landscape Character Assessment (SCLCA) Local Character Area (LCA) 01 (Benhall Estate Sandlands) and Seascape Character Assessment of Suffolk, South Norfolk and North Essex (SCASNE) Seascape Character Type (SCT) 3 (Nearshore Waters) and for the following converter site options: • Suffolk Site 1 Emerging Preference • Suffolk Site 1 Alternative • Suffolk Site 3 Emerging Preference	The Scoping Report proposes to scope out these landscape character receptors from the assessment of the permanent alteration to landscape character as a result of the operational converter station (for all five converter site options) on the basis that the "*Suffolk Scoping Boundary does not lie within the LCA and SCT. Whilst there is the potential for indirect effects on the perceptual qualities of the LCA and SCT there is less potential that the effects would be significant.*" The Inspectorate considers that it would have been helpful to overlay the various site options with the landscape character areas and seascape types to aid interpretation of the scoping out of effects associated with the various sites. This similarly applies to the consideration of the Area of Outstanding Natural Beauty (AONB) below. The Inspectorate is of the view that both SCLCA LCA 01 and SCASNE SCT 3 can be scoped out of the landscape assessment for these converter site options on the basis that potential effects are likely to be of limited scale or extent due to the relative distance between these character areas/types and the converter sites.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
		• Suffolk Site 3 Alternative (Option 1) • Suffolk Site 3 Alternative (Option 2)	
3.1.5	Volume 1, Part 2, Table 2.2.9, Table 2.2.10 and Table 2.2.11	Permanent alteration to landscape character as a result of the operational converter station on the Suffolk Coast and Heaths AONB for the following converter site options: • Suffolk Site 3 Emerging Preference • Suffolk Site 3 Alternative (Option 1) • Suffolk Site 3 Alternative (Option 2)	The Scoping Report proposes to scope out operational effects on the AONB as a result of the site 3 convertor station locations (emerging preference and alternatives) on the basis of proximity. The Inspectorate is of the view that operational effects on the AONB from the operation of converter site 3 (emerging preference or alternatives) can be scoped out of the landscape assessment on the basis that potential effects are likely to be of limited scale or extent due to the relative distance between these features and the AONB.

ID	Ref	Description	Inspectorate's comments
3.1.6	Volume 1, Part 2, Section 2.2.3	Study area	The Inspectorate notes the current study area of 3km from the two emerging preferred converter station areas and 1km from the boundary for all other elements. It is unclear at this stage whether the Friston substation would be included in the Proposed Development and thus whether a 3km study area from this substation (if applicable) is also to be applied.

ID	Ref	Description	Inspectorate's comments
			The ES should confirm this information and the Applicant should keep the preferred study area under review as the design and location of the Proposed Development evolves, so that the introduction of any additional visually intrusive elements, which may affect sensitive receptors can be properly taken account of in the assessment. The Applicant should make efforts to agree the study area with relevant consultation bodies. The study area in the ES must be defined sufficiently so that all potentially significant effects are assessed.
3.1.7	Volume 1, Part 2, Paragraph 2.2.4.11	Suffolk Heritage Coast	The ES should include an assessment of effects on the Heritage Coast, where significant effects are likely.
3.1.8	Volume 1, Part 2, Paragraphs 2.2.4.18 and 2.2.4.19 and Figure 2.2.5	Seascape Character	Figure 2.2.5 includes regional seascape character area SCT01: Inland Navigable Waters, which is not identified in the chapter text. The ES should include consideration of all relevant seascape character types.
3.1.9	Volume 1, Part 2, Paragraph 2.2.4.20	Receptors – England Coast Path National Trail	The Applicant's attention is directed to the comments of Suffolk County Council and Natural England at Appendix 2 to this Opinion with regards to the recent approval of the England Coast Path National Trail within Suffolk, which is located within the Suffolk Onshore Scoping Boundary. The ES should include an assessment of effects on this proposed National Trail, where likely significant effects could occur.

ID	Ref	Description	Inspectorate's comments
3.1.10	Volume 1, Part 2, Tables 2.2.1 to 2.2.4	Representative viewpoints	The viewpoints to be used for assessment should be agreed with the relevant consultation bodies, including the Local Authorities and Natural England. It is unclear whether the works to the Friston substation (whether the extension or entire build) have been included in the consideration of viewpoints, which focuses on the converter stations. The ES should include an assessment of impacts resulting from the proposals at Friston substation.
3.1.11	Volume 1, Part 2, Tables 2.2.1 to 2.2.4 and Chapter 2.4	Viewpoints and cultural heritage receptors	The Applicant is advised to include heritage specific viewpoints, as appropriate, to support the heritage assessment. Suitable cross-referencing between the LVIA aspect chapter and Cultural Heritage aspect chapter should be included.
3.1.12	Volume 1, Part 2, Tables 2.2.7 to 2.2.11, and Paragraph 2.2.1.3	Receptors	The Inspectorate notes that impacts of alterations to Public Rights of Way (PRoW) and users of PRoW are not identified in the potential impact pathway tables. It is further noted that Paragraph 2.2.1.3 does not reference the other aspect chapters that should be read in conjunction with the Landscape and Visual chapter. The ES should include appropriate cross-references to other relevant aspect chapters, such as Cultural Heritage, Traffic and Transport, and Noise and Vibration aspect chapters.
3.1.13	Volume 1, Part 2, Paragraph 2.2.4.32	Visualisations	The Inspectorate notes the statement that no visualisations are proposed for the extension works to the proposed Friston substation as the works are considered to be minor. The ES should include visualisations where the DCO application includes for the construction of the Friston substation in full.

3.2 Ecology and Biodiversity

(Scoping Report Volume 1, Part 2, Section 2.3)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.2.1	Volume 1, Part 2, Table 2.3.4, Table 2.3.5, Table 2.3.6, Table 2.3.7, and Table 2.3.8	Incidental mortality of protected or notable species of invertebrates (construction, operation and decommissioning) for the following converter site options: • Suffolk Site 1 Emerging Preference • Suffolk Site 1 Alternative • Suffolk Site 3 Emerging Preference • Suffolk Site 3 Alternative (Option 1) • Suffolk Site 3 Alternative (Option 2)	This matter is scoped out on the basis that it is unlikely that notable population assemblages will be significantly affected by direct mortality once mitigation measures are in place, as such populations will be linked to habitat. The Scoping Report notes the possible presence of notable invertebrate assemblages within designated sites potentially affected by the Proposed Development, including Leiston-Aldeburgh Site of Special Scientific Interest (SSSI). Furthermore, the Scoping Report states that the likely presence of notable invertebrate assemblages will be determined through the Phase 1 habitat surveys to be undertaken. Natural England in its response at Appendix 2 to this Opinion also identify that further SSSIs and the Sandlings Special Protection Area (SPA) support invertebrate assemblages and may require further invertebrate surveys. In the absence of baseline information on notable invertebrate assemblages, the Inspectorate is not in a position to agree to scope this matter from the assessment. The ES should include an assessment of this matters, or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of a likely significant effect.

ID	Ref	Description	Inspectorate's comments
3.2.2	Volume 3, Figure 2.3.1	Figures	The location and extent of Sandlings SPA is not clear from Figure 2.3.1. Figures accompanying ES should clearly show and label the location and extent of designated sites.
3.2.3	Volume 1, Part 2, Table 2.3.1	Outer Thames Estuary SPA	The description of the Outer Thames Estuary SPA does not reference the little tern and common tern qualifying features. The ES should include reference to all relevant ecological receptors.
3.2.4	Volume 1, Part 2, Paragraph 2.3.3.3	Study area for designated sites	The ES should clearly define and justify the study area, based on the Zone of Influence (ZoI) from the Proposed Development and the potential effect pathways to designated sites, particularly the use of the 10km zone and in light of comments received by Natural England in this regard.
3.2.5	Volume 1, Part 2, Paragraph 2.3.4.30	Surveys for bird species	The Scoping Report does not at this stage provide an indication of the likely spatial extent of the potential suite of bird surveys. The ES should confirm the extent of bird surveys undertaken, supported by clear figures. The ES should also consider whether any areas of functionally linked land would be affected by the Proposed Development.
3.2.6	Volume 1, Part 2, Section 2.3.4	Baseline and effects on waterbodies, fish and freshwater species	Surveys are proposed for riparian mammals (otter and water vole); however, impacts to fish and other freshwater species have not been considered in the Biodiversity aspect chapter of the Scoping Report. The ES should state whether fish and other freshwater species are present as important ecological receptors and include an assessment of effects on fish and other freshwater species, where likely significant effects could occur. This should be supported by desk study information and surveys as necessary. Effort should be made to agree the methodology with the relevant consultation bodies.

ID	Ref	Description	Inspectorate's comments
3.2.7	Volume 1, Part 2, Table 2.3.1 and Volume 3, Figure 2.3.1	Snape Warren SSSI	The Scoping Report does not identify Snape Warren SSSI as a receptor although it is located within 10km of the red line boundary and also located on Figure 2.3.1. The ES should assess significant effects to this receptor where they are likely to occur.
3.2.8	n/a	Confidential Annexes	Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ecological features. Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication of the information, should be provided in the ES as a confidential annex. All other assessment information should be included in an ES chapter, as normal, with a placeholder explaining that a confidential annex has been submitted to the Inspectorate and may be made available subject to request.

3.3 Cultural Heritage

(Scoping Report Volume 1, Part 2, Section 2.4)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.3.1	Volume 1, Part 2, Table 2.4.1	Physical impacts on non-designated assets (maintenance and decommissioning)	The ES should clearly state the approach to non-designated assets encountered during construction, such as whether preservation in-situ is proposed, and confirm where non-designated assets have been preserved in situ. The ES should consider the potential for effects on non-designated assets during the maintenance and decommissioning stage, where likely significant effects could occur.
3.3.2	Volume 1, Part 2, Table 2.4.1	Temporary impacts on the setting of heritage assets resulting from plant/machinery (maintenance and decommissioning)	The Inspectorate agrees that settings effects on heritage assets arising from the presence of plant and machinery during the maintenance phase can be scoped out of the assessment on the basis of the likely small scale and temporary nature of likely maintenance and decommissioning activities.
3.3.3	Volume 1, Part 2, Table 2.4.1	Temporary impacts on the setting of heritage assets from construction compounds introducing light and noise pollution (decommissioning)	The Inspectorate agrees that impacts on the setting of heritage assets from construction compounds introducing light and noise pollution during the decommissioning stage are likely to be small scale and of a temporary nature, and thus this matter can be scoped out of the assessment.

ID	Ref	Description	Inspectorate's comments
3.3.4	Volume 1, Part 2, Section 2.4.3 and	Study area	Noting that the proposed study area is to be refined during the assessment process, the study area should be determined using the ZoI from the Proposed Development, to ensure that all heritage assets likely to be significantly affected by the Proposed Development

ID	Ref	Description	Inspectorate's comments
	paragraph 2.4.7.3		have been included in the assessment. This should include consideration of those assets that contribute to setting.
3.3.5	Volume 1, Part 2, Section 2.4.4 and Volume 2, Appendix 2.4A	Heritage receptors	The Applicant's attention is directed to the comments of East Suffolk Council and Friston Parish Council at Appendix 2 to this Opinion, which identify additional heritage assets to be considered in the assessment. The Applicant should seek to agree the heritage receptors to be included within the heritage assessment with relevant consultation bodies and include an assessment on these receptors, where significant effects are likely to occur.
3.3.6	Volume 1, Part 2, Paragraph 2.4.6.5	Sources of construction impacts - groundwater	The ES should consider and assess effects to archaeological receptors resulting from impacts to groundwater levels from the Proposed Development, where likely significant effects could occur. The ES should include suitable cross-references between the Cultural Heritage and the Geology and Hydrogeology aspect chapter.
3.3.7	Volume 1, Part 2, Section 2.4.7	Proposed assessment methodology	The Inspectorate notes that the need for any additional survey work will be determined following the desk-based assessment (DBA). Investigative works should be accompanied by a Written Scheme of Investigation (WSI), it is recommended that a draft WSI by provided with the ES. The Applicant is advised to seek to agree the scope of the site investigations and WSI with relevant consultation bodies, including the Local Authority and Historic England.
3.3.8	Volume 1, Part 2, Table 2.4.7 and 2.4.9	Assessment methodology – heritage value	Table 2.4.9 determining significance of effect includes for a heritage value of 'Very High'; however, Table 2.4.7 used to define heritage value only includes up to a value of 'high'. The ES should provide a clear explanation of the assessment methodology applied.

3.4 Water Environment

(Scoping Report Volume 1, Part 2, Section 2.5)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.4.1	Volume 1, Part 2, Table 2.5.1; Table 2.5.2; Table 2.5.3; Table 2.5.4; Table 2.5.5; Table 2.5.6 and Table 2.5.9	Various – Proposed scope of the assessment	The list of potential effects by receptor as identified in Table 2.5.9 'Proposed Scope of the assessment' do not in all cases match with the earlier scope of the options in Tables 2.5.2 to 2.5.6, which makes it difficult to comment on the proposed scope of this aspect chapter. There are also discrepancies between the overarching Table 2.5.1: Sources and impacts and Tables 2.5.2 to 2.5.6. For example, Table 2.5.2 scopes in 'pollution of watercourses and physical disturbance' from maintenance activities; however, this matter is scoped out in Tables 2.5.3 to 2.5.6. Furthermore, it is not always clear which phase/stage of the Proposed Development a scoped out effect relates to in Tables 2.5.2 to 2.5.6, although this is more clearly stated in Table 2.5.9. The ES should include robust justification for scoping matters out of the assessment.
3.4.2	Volume 1, Part 2, Paragraphs 2.5.6.12 to 2.5.6.16 and Table 2.5.1	Pollution of watercourses associated with operational discharges and runoff from above ground infrastructure (AGI) – water quality effects (operation)	This matter is proposed to be scoped out on the basis of no impact pathway given treatment through Sustainable Drainage System (SuDS) provision. The Inspectorate agrees that, provided the measures to mitigate the risks of pollution of watercourses are clearly described in the ES and secured in the draft DCO (dDCO), this matter can be scoped out of further assessment.
3.4.3	Volume 1, Part 2, Paragraphs	Increased flood risk from operational discharges and runoff	This matter is proposed to be scoped out on the basis of no impact pathway given attenuation of runoff through SuDS provision.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
	2.5.6.12 to 2.5.6.16 and Table 2.5.1	from AGI and loss of floodplain storage (operation)	The Inspectorate agrees that, provided the operational control measures in the form of SuDS are clearly described in the ES and secured through the dDCO, this would ensure no pathway of effect to result in increased flood risk from operational discharges and runoff from AGI or loss of floodplain storage.
3.4.4	Volume 1, Part 2, Paragraphs 2.5.6.12 to 2.5.6.16 and Table 2.5.1	Physical disturbance, impact to flow regimes (watercourse crossings) from operational infrastructure (AGI and watercourse crossings) (operation)	This matter is proposed to be scoped out on the basis that there would be no impact pathway, as there would be no physical disturbance during operation. The Inspectorate agrees that following construction further physical disturbance or impact on flow regimes at watercourse crossings is unlikely and therefore this matter can be scoped out of the assessment.
3.4.5	Volume 1, Part 2, Table 2.5.2; Table 2.5.3; Table 2.5.4; Table 2.5.5; Table 2.5.6 and Table 2.5.9	Increased surface water runoff from converter station drainage during operation on receptors 'existing land uses and infrastructure' for the following converter site options: • Suffolk Site 1 Emerging Preference • Suffolk Site 1 Alternative • Suffolk Site 3 Emerging Preference • Suffolk Site 3 Alternative (Option 1)	This matter is proposed to be scoped out on the basis of no impact pathway, given the attenuation of runoff through the SuDS provision. Table 2.5.9 indicates this applies to the operation and maintenance stages. The Inspectorate agrees that SuDS provision would remove/reduce the likelihood of surface water runoff from the convertor site during operation and thus ensure any such effects would be fully mitigated. The Inspectorate therefore agrees this matter can be scoped out of the assessment.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
		• Suffolk Site 3 Alternative (Option 2)	
3.4.6	Volume 1, Part 2, Table 2.5.2; Table 2.5.3; Table 2.5.4; Table 2.5.5; and Table 2.5.6	Increased flood risk due to permanent loss of floodplain storage/impediment of floodplain flows on receptors 'Fluvial and coastal floodplain' for the following converter site options: • Suffolk Site 1 Emerging Preference • Suffolk Site 1 Alternative • Suffolk Site 3 Emerging Preference • Suffolk Site 3 Alternative (Option 1) • Suffolk Site 3 Alternative (Option 2)	This matter is proposed to be scoped out on the basis that there would be no impact pathway, as there would be no permanent works in the floodplain. The Inspectorate considers it would have been helpful to overlay the converter site options with the flood mapping. The ES should include a clear plan showing the chosen converter site location (or options, where being pursued) and flood risk zones. At this stage of design and from the information provided, the Inspectorate understands that none of the converter site options are located within the floodplain and thus agrees that consideration of permanent loss of fluvial and coastal floodplain as a result of the converter site can be scoped out of the assessment. However, should this not be the case, the ES should include an assessment of any such likely significant effects.
3.4.7	Volume 1, Part 2, Table 2.5.1,Table 2.5.2 and Table 2.5.9 Volume 1, Part 2, Table 2.5.3; Table 2.5.6	Permanent physical disturbance and change to flow regime on the following receptors (operation and maintenance): • 'Unnamed ordinary watercourses' for the following converter site option: Suffolk Site 1 Emerging Preference	This matter is proposed to be scoped out on the basis that there would be no impact pathway as cables would be buried. Although not explicitly stated in Table 2.5.2, the Inspectorate assumes this is for the operational and maintenance stage only as per Tables 2.5.1 and 2.5.9. Although it is also noted that Table 2.5.1 scopes in "*…physical disturbance*" at the maintenance stage. The Scoping Report does not clearly identify the location of these watercourse receptors and their proximity to converter site options.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
	and Table 2.5.9 Volume 1, Part 2, Table 2.5.4 Volume 1, Part 2, Table 2.5.5 and Table 2.5.9	• 'Hundred River and ordinary watercourse tributaries' for the following converter site options: Suffolk Site 1 Alternative; and Suffolk Site 3 Alternative (Option 2) • 'Ordinary watercourses' (and 'land drains in River Fromus catchment' indicated by Table 2.5.9) for the converter site option: Suffolk Site 3 Emerging Preference • 'Hundred River, Leiston Beck and ordinary watercourse tributaries' (and 'land drains in Hundred River catchment' indicated by Table 2.5.9) for converter site option: Suffolk Site 3 Alternative (Option 1)	To aid the reader the ES should clearly identify these receptors on an accompanying figure. The Inspectorate agrees that following construction further physical disturbance or impact on flow regimes at watercourses during operation is unlikely and therefore permanent physical disturbance and change to flow regime effects during operation can be scoped out of the assessment. On the basis that the ES describes the maintenance activities and demonstrates how permanent physical disturbance and change to flow regime on these receptors for the identified converter site options will be avoided so that significant effects are not likely to occur, the Inspectorate agrees to scope this matter out.
3.4.8	Volume 1, Part 2, Table 2.5.1 and Table 2.5.2 Volume 1, Part 2, Table 2.5.3 and Table 2.5.6	Pollution of watercourses and physical disturbance during maintenance on the following receptors (maintenance): • 'Unnamed ordinary watercourses, ditches, reservoir' for the following converter site option: Suffolk Site 1 Emerging Preference	This matter is proposed to be scoped out on the basis of no impact pathway for a significant effect given the likely nature and scale of maintenance activities. As noted at point 3.4.1 of the Opinion above, Table 2.5.1 scopes in 'pollution of watercourses and physical disturbance' from maintenance activities; however, this matter is scoped out in Table 2.5.2. Summary Table 2.5.9 does not reference pollution effects during maintenance at all. The ES should make clear whether maintenance activities have been scoped in/out of the assessment.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
	Volume 1, Part 2, Table 2.5.4 Volume 1, Part 2, Table 2.5.5	• 'Hundred River and ordinary watercourse tributaries' for the following converter site options: Suffolk Site 1 Alternative and Suffolk Site 3 Alternative (Option 2) • 'Unnamed ordinary watercourses' for the converter site option: Suffolk Site 3 Emerging Preference • 'Hundred River, Leiston Beck and ordinary watercourse tributaries' for converter site option: Suffolk Site 3 Alternative (Option 1)	The Scoping Report also does not identify the location of the reservoir, the unnamed ordinary watercourses, or ditches to be scoped out of an assessment of pollution effects for this converter site option. The ES should clearly identify these receptors on a figure. On the basis that the maintenance activities and measures to avoid pollution of, and physical disturbance to watercourses are clearly described in the ES and secured through the dDCO, the Inspectorate agrees this matter can be scoped out of the assessment.
3.4.9	Volume 1, Part 2, Table 2.5.3 and Table 2.5.6	Temporary loss of floodplain storage/impediment of floodplain flows due to spoil storage during construction and decommissioning on receptors 'Coastal and fluvial floodplain' for the following converter site options (construction and decommissioning): • Suffolk Site 1 Alternative • Suffolk Site 3 Alternative (Option 2)	This matter is proposed to be scoped out on the basis that areas of floodplain are very localised and could be avoided. Provided the ES, supported by the Flood Risk Assessment (FRA), demonstrates how the loss of floodplain/impediment of floodplain flows will be avoided during construction and decommissioning and mitigation measures are secured through the dDCO, the Inspectorate agrees to scope this matter out.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.4.10	Volume 1, Part 2, Table 2.5.9	Reduced water availability to support abstractions and assimilate discharges ('existing water interests') for all stages and all options	This matter is referenced in the Summary Table 2.5.9, but no information is provided to explain why this matter is to be scoped out of the assessment, such as a description of the 'existing water interests' receptors, the need for the Proposed Development to abstract water and the likelihood (or otherwise) of reduced water availability as a result of the Proposed Development. In the absence of supporting information the Inspectorate cannot agree to scope out this matter at this stage. The ES should provide further justification to support scoping out of this matter or an assessment, where likely significant effects could occur.

ID	Ref	Description	Inspectorate's comments
3.4.11	Volume 1, Part 2, Paragraph 2.5.3.1 and Figure 2.5.1	Study area	The Scoping Report identifies a 500m buffer around the Suffolk Onshore Scheme Scoping Boundary but does not give reasons for the choice of study area. The ES should clearly define the study area, based on the ZoI from the Proposed Development, together with a justification for the selection.
3.4.12	Volume 1, Part 2, Paragraph 2.5.5.5 to 2.5.5.6	Embedded measures/design – watercourse crossings	The Scoping Report does not currently identify the types of crossings to be applied, but states that 'suitable crossing designs would be selected with the aim of reducing impacts'. The Applicant's attention is directed to the comments of the EA at Appendix 2 to this Opinion with regards to the culverting of watercourses, which the EA would oppose.
3.4.13	Volume 1, Part 2, Table 2.5.6	Receptors	Examples in this table do not reference property, businesses or people. The ES should provide justification for the receptors identified for the assessment.

ID	Ref	Description	Inspectorate's comments
3.4.14	Volume 1, Part 2, Table 2.5.8	Assessment methodology – magnitude criteria	Examples within this table include reference to fishery value or designated nature conservation sites, although such receptor types are not explicitly mentioned in this aspect chapter. The Water Environment aspect chapter of the ES should include appropriate cross-references to other relevant aspect chapters such as Ecology and Biodiversity.

3.5 Geology and Hydrogeology

(Scoping Report Volume 1, Part 2, Section 2.6)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.5.1	Volume 1, Part 2, Table 2.6.2	Connection of two aquifer units at trenchless crossings as a result of the excavation of trenchless crossings (construction)	This matter is proposed to be scoped out on the basis that it is not likely to result in a significant effect due to the incorporation of the mitigation by design. Table 2.6.2 does not expand on the specific 'mitigation by design' proposed to ensure this does not occur. It is noted that Code of Construction Practice (CoCP) measure GH02 comprises "*Construction methods such as appropriate piling techniques (if required) to minimise the risk of mixing of aquifer bodies through the creation of new pathways*…" However, it is unclear whether this reference to piling methods would apply to trenchless crossings such that it would mitigate for effects. In the absence of supporting information on the location of crossings, proposed techniques including depths, and mitigation, the Inspectorate cannot agree to scope out this matter. The ES should include an assessment where likely significant effects could occur or provide further justification as to why this would not arise.
3.5.2	Volume 1, Part 2, Table 2.6.2	Introduction of new potential contaminants to the environment from leaks, spills, fuels and oils from construction activities (construction, maintenance, and decommissioning)	This matter is proposed to be scoped out on the basis that it is not likely to result in a significant effect due to the incorporation of the mitigation by design. The Inspectorate is content to scope this matter out on the basis that such matters are capable of mitigation by standard measures. The ES must provide specific details regarding the mitigation measures to be adopted to demonstrate that such measures will be monitored and effective. However, as noted at point 2.1.6 above, there is some concern with regards to the potential for break outs or frack-outs of

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			bentonite during HDD activities. The ES should provide details of protocols/measures to be put in place to prevent break outs or frack-outs of bentonite from occurring or minimise impacts should such events occur.
3.5.3	Volume 1, Part 2, Table 2.6.2	Physical and chemical changes to groundwater as a result of discharge of groundwater from dewatering (construction)	This matter is proposed to be scoped out on the basis that it is not likely to result in a significant effect due to the incorporation of the mitigation by design. The Scoping Report does not expand on the specific mitigation that would address this potential impact. The Inspectorate notes measure GH07 of the CoCP relating to temporary dewatering in accordance with EA guidance, and an abstraction licence and Environmental Permit (EP) for the discharge (if required), and that dewatering activities during construction more generally are scoped into the assessment. The Inspectorate agrees that control measures applied would ensure no change to physical and chemical changes to groundwater and this matter can be scoped out of the assessment.
3.5.4	Volume 1, Part 2, Table 2.6.2	Effects on construction activities and the built development (at the operational phase) from natural geological hazards (ie dissolution features/soft ground/landslides/ aggressive ground conditions etc) (construction)	This matter is proposed to be scoped out on the basis that it is not likely to result in a significant effect due to the incorporation of the mitigation by design. As previously, the Scoping Report does not expand on the specific measure to mitigate such effects, but it is assumed this relates to the inclusion of GH01, intrusive ground investigations and assessment will be undertaken prior to construction to inform appropriate geotechnical design in relation to the site/structure specific ground conditions including ground instability/adverse ground conditions. Alternatively, it may also relate to the initial project design and route/site selection.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			On the basis that natural hazards would be considered during the engineering design of the Proposed Development and avoided where possible, the Inspectorate is in agreement that this matter can be scoped out of the ES. The Applicant should clearly describe the consideration that has been given to avoiding natural geological hazards within the alternatives section of the ES.
3.5.5	Volume 1, Part 2, Table 2.6.2 to Table 2.6.7	Human health exposure to existing contamination – site workers and neighbours – all convertor site options (operation and maintenance)	This matter is proposed to be scoped out on the basis that it is not likely to result in a significant effect due to the nature of the project and the incorporation of the mitigation by design. The Inspectorate agrees, given the nature of the Proposed Development and existing legislation, that such effects are unlikely during the operation and maintenance stage and can be scoped out of the impact assessment.
3.5.6	Volume 1, Part 2, Table 2.6.2	Introduction of new potential contaminants to the environment from leaks, spills, fuels and oils during the operational phase (operation and maintenance)	This matter is proposed to be scoped out on the basis that it is not likely to result in a significant effect given the nature of the project and in consideration of best practice measures and maintenance. The Inspectorate agrees that such effects are unlikely during the operation and maintenance stage and can be scoped out of the impact assessment.
3.5.7	Volume 1, Part 2, Table 2.6.2	Changes to groundwater levels and/or recharge rates as a result of the introduction of impermeable surfaces (operation)	This matter is proposed to be scoped out on the basis that it is not likely to result in significant effects due to the small surface area of the built parts of the Proposed Development. Any new areas of hardstanding would be designed to meet current drainage standards. The Scoping Report does not confirm the likely area of the convertor site that would comprise hardstanding. Similarly, it does not confirm likely run-off rates and measures controlling these. The Inspectorate therefore cannot agree to scope this matter out at this stage. Details

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			of the design of the convertor site and the location of drainage should be included in the ES, together with an assessment of their effectiveness at mitigating operational discharges and runoff. The ES should assess effects on groundwater levels and/or recharge rates as a result of impermeable surfaces, where significant effects are likely to occur.
3.5.8	Volume 1, Part 2, Table 2.6.3; Table 2.6.4; Table 2.6.5; Table 2.6.6; Table 2.6.7;	Mobilisation of existing contamination during general construction, impacting on land and/or groundwater quality on environmentally sensitive sites, groundwater, Groundwater Dependant Terrestrial Ecosystems (GWDTE), surface water, land quality for all converter site options (operation and maintenance)	No reasoning is provided within the Scoping Report for the scoping out of this matter. Despite this, the Inspectorate is of the view that provided a comprehensive construction stage assessment of this matter has been provided and mitigation/remedial measures are secured (as appropriate) that effects during the operation and maintenance stage can be scoped out of the assessment.
3.5.9	Volume 1, Part 2, Table 2.6.3; Table 2.6.4; Table 2.6.5; Table 2.6.6; Table 2.6.7;	Changes to groundwater levels, quality and groundwater flow direction caused by dewatering and discharge on environmentally sensitive sites, groundwater, GWDTE, and surface water for all converter site options (operation, decommissioning, and maintenance)	The Inspectorate agrees that such effects are unlikely during the operation, maintenance and decommissioning stages and can be scoped out of the impact assessment.
3.5.10	Volume 1, Part 2, Table 2.6.3; Table 2.6.4;	Damage to/destruction of designated sites of geological importance (operation, maintenance and	The Inspectorate notes that summary Table 2.6.12 (Proposed scope of the assessment) states that this matter is scoped out for all converter site options. However, this matter is only included in Table

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
	Table 2.6.7; and Table 2.6.12	decommissioning) for all converter site options.	2.6.3, 2.6.4 and 2.6.7. The Inspectorate has considered scoping out for all converter site options. On the basis that the nearest feature of any designated sites of geological importance is located approximately 9km from the Suffolk Scoping Boundary and there are no potential effect pathways, the Inspectorate agrees that this matter can be scoped out of the assessment for all converter site options.
3.5.11	Volume 1, Part 2, Table 2.6.3; Table 2.6.4; Table 2.6.5; Table 2.6.6; Table 2.6.7; and Table 2.6.12	Sterilisation of safeguarded minerals for all converter site options (maintenance and decommissioning)	The Scoping Report confirms mineral reserves are present within the study area which could be damaged and result in significant effects during construction and operation. This matter is however scoped out for maintenance and decommissioning. Although no reason is provided as to why this matter is to be scoped out, the Inspectorate considers that mineral safeguarding will be considered at the construction stage and on the basis of the likely nature and scale of maintenance activities and on the basis that decommissioning does not further sterilise, undisturbed mineral resources, this matter can be excluded for the maintenance and decommissioning stages.

ID	Ref	Description	Inspectorate's comments
3.5.12	Volume 1, Part 2, Paragraph 2.6.7.6	Assessment methodology	The Inspectorate notes that a Tier 0 assessment will be undertaken as a first stage screening and that "*where a very low or low risk rating is assessed, these areas will not be taken forward for further assessment in the ES on the basis they have a low likelihood of significant effects*." The Inspectorate notes that this approach diverges from the standard Land Contamination Risk Management

ID	Ref	Description	Inspectorate's comments
			approach. The Applicant should seek to agree the methodology with relevant consultation bodies, including the EA.
3.5.13	Volume 1, Part 2, Table 2.6.2 and Section 2.6.5	Mitigation by design and scoping out	This aspect chapter relies on 'mitigation by design' to scope out various matters; however, what measures encompass mitigation by design is not clear in the chapter. 'Mitigation by Design' is defined in Chapter 2.11 (Socio-economics, Recreation and Tourism) , which states "*Mitigation measures will be included in the design (Mitigation by Design) where practicable to help avoid, prevent or reduce effects on the environment.*" However, in the case of the Geology and Hydrogeology chapter it appears to also relate to mitigation measures secured through the CoCP. The ES should make clear what measures are being relied upon to avoid/reduce impacts, and how these are to be delivered/secured through the dDCO.

3.6 Agriculture and Soils

(Scoping Report Volume 1, Part 2, Section 2.7)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.6.1	Volume 1, Part 2, Table 2.7.1	Temporary removal of land from agricultural production - construction, maintenance and decommissioning	The Applicant proposes to scope out the temporary removal of land from agricultural production on the basis that all land required temporarily would be reinstated, the footprint of the permanent infrastructure is limited and impacts on agricultural operations will be dealt with through compensation agreements which lie outside of the ES process. The Inspectorate considers that effects of temporary removal may be scoped out from further assessment; however, the ES should provide an estimate of the quantity of Best and Most Versatile (BMV) land to be affected by the temporary works, the duration of such works and any long term changes in land use introduced by associated easements.
3.6.2	Volume 1, Part 2, Table 2.7.1	Permanent removal of land from agricultural production - operation	The Applicant proposes to scope out the permanent removal of land from agricultural production on the basis that all land required temporarily would be reinstated, the footprint of the permanent infrastructure is limited and impacts on agricultural operations would be dealt with through compensation agreements which lie outside of the ES process. The Inspectorate agrees this matter can be scoped out on the basis the ES confirms the amount of agricultural land to be permanently lost and explains why this is considered 'limited' and not likely to lead to significant effects. Reinstatement of land, and the proposed soil management and handling measures, should be clearly described in the ES and secured through the dDCO.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.6.3	Volume 1, Part 2, Table 2.7.1	Temporary disruption and disturbance to agricultural operations (from noise, fragmentation and disruption to water supplies and land drainage) - construction, maintenance and decommissioning	The Applicant proposes to scope out these matters on the basis that they will be managed through mitigation measures set out within the outline CoCP, all land required temporarily would be reinstated and impacts on agricultural operations would be dealt with through compensation agreements which lie outside of the ES process. The Inspectorate agrees to scope out this matter on this basis.
3.6.4	Volume 1, Part 2, Paragraphs 2.7.6.13 – 2.7.6.14 and Table 2.7.1	Effects of Electromagnetic Fields (EMFs) on land use - operation	The Applicant proposes to scope out the effects of EMFs on land use during operation of the Proposed Development on the basis that there is little evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs has any agriculturally significant consequences. The Applicant proposes to undertake a walkover survey of the indicative alignment to identify land use and activities that may require additional clearance of the conductors. The Applicant will also provide the relevant information on EMFs in a separate document submitted as part of the application for development consent which will demonstrate compliance in accordance with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines and paragraph 2.10.9 of EN-5. On this basis, the Inspectorate agrees to scope out operational effects from EMFs on land use.
3.6.5	Volume 1, Part 2, Paragraph 2.7.6.12	Economic effects on landowners – construction, operation, maintenance, and decommissioning	Paragraph 2.7.6.12 of the Scoping Report proposes to scope out economic effects on individual landowners and farmers on the basis that most of the land will be reinstated by the end of the construction phase and any claims regarding compensation will be addressed outside of the EIA process.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			The Inspectorate agrees that significant effects are unlikely and is therefore content that this matter can be scoped out of further assessment.

ID	Ref	Description	Inspectorate's comments
3.6.6	Volume 1, Part 2, Paragraphs 2.7.6.5 - 2.7.6.6 and Table 2.7.1	Temporary loss of BMV land and temporary disturbance to soils and associated ecosystem services – construction, maintenance, and decommissioning	Paragraph 2.7.6.6 of the Scoping Report states that until soil surveys have been undertaken to understand sensitivity of soils to handling, storage and reinstatement, construction effects on soils and Agricultural Land Classification (ALC) will be scoped into the ES. The ES should include the necessary information to demonstrate impacts can be avoided or reduced to exclude significant effects or provide an assessment where likely significant effects could occur.
3.6.7	Volume 1, Part 2, Paragraph 2.7.6.7 and Table 2.7.1	Permanent loss of BMV land and permanent disturbance to soils and associated ecosystem services - operation	Paragraph 2.7.6.7 of the Scoping Report states that the land grades and soil types affected would be confirmed through the assessment process and as such, permanent impacts on soils and ALC system will initially be scoped into the assessment. It is further stated that if the site survey confirms that the permanent land affected is not BMV land or that the cumulative loss is below the magnitude threshold for a likely significant effect, then permanent loss of agricultural land during operation would be scoped out of the ES. The Inspectorate is satisfied with this approach.
3.6.8	Volume 1, Part 2, Paragraph	Temporary loss of BMV land and temporary disturbance to soils and associated ecosystem services – maintenance	Paragraph 2.7.6.8 of the Scoping Report states that any maintenance or repair works required which would result in disturbance to soils during operation of the project would be undertaken in accordance with good practice soil handling methods. It's further stated that no likely significant effects on soils or ALC during operational

ID	Ref	Description	Inspectorate's comments
	2.7.6.8 and Table 2.7.1		maintenance or repair activities are therefore concluded and this aspect is scoped out of the ES. This is in contradiction to the information contained within Table 2.7.1, which proposes to scope in the temporary loss of BMV land and temporary disturbance to soils and associated ecosystem services from maintenance activities (to be reviewed once soil surveys are complete). The ES should clearly define the scope for the aspect and the Inspectorate considers that an assessment of the effects arising from the temporary loss of BMV land and temporary disturbance to soils and associated ecosystem services should be included within the ES, where significant effects are likely to occur.

3.7 Traffic and Transport

(Scoping Report Volume 1, Part 2, Section 2.8)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.7.1	Volume 1, Part 2, Paragraph 2.8.6.6	Traffic and Transport effects – operational and maintenance phase	The Applicant proposes to scope out transport effects on roads and users associated with the operational phase and maintenance activities on the basis that vehicle movements associated with the operation of the site and maintenance requirements are anticipated to be infrequent and low. The Inspectorate agrees that on this basis, this matter can be scoped out from further assessment. The ES should provide a description of the likely number and type of vehicles required during all phases of development to support this conclusion.
3.7.2	Paragraph 2.8.6.8 and Table 2.8.1	Hazardous loads – operational and maintenance phase	The Applicant proposes to scope out impacts from hazardous and dangerous loads during the operational and maintenance phase on the basis that few hazardous loads are anticipated. The Inspectorate agrees to scope this matter out but would expect the ES to provide a reasoned justification as to why such loads are likely to be infrequent during the operation and maintenance phase.
3.7.3	Volume 1, Part 2, Table 2.8.2 to 2.8.6 and Table 2.8.11	Driver delay on PRoW and National/regional walking and cycling routes for all converter site options – construction and decommissioning	The Inspectorate agrees to scope these matters out on the basis that PRoW and national and regional walking and cycling routes are not utilised by drivers limiting the impact pathway.
3.7.4		Decline in road safety on PRoW and national/regional walking and cycling routes for all converter site	

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
		options – construction and decommissioning	
3.7.5		Additional hazardous loads on PRoW and national/regional walking and cycling routes for all converter site options – construction and decommissioning	
3.7.6	Volume 1, Part 2, Table 2.8.2 and Table 2.8.11	PRoW diversions or closures impacts to road links, road junctions and national/regional walking and cycling routes for all converter site options – construction and decommissioning	The Inspectorate agrees that significant effects on road links, road junctions and national/regional walking and cycling routes as a result of closures or diversions of PRoW during construction and decommissioning are unlikely and this matter can be scoped out.

ID	Ref	Description	Inspectorate's comments
3.7.7	Volume 1, Part 2, Section 2.8.3	Study area	Whilst it is acknowledged that the study area is yet to be confirmed, this should be informed by the extent of the affected road network.
3.7.8	Volume 1, Part 2, Section 2.8.4	Receptors – 'England Coast Path' National Trail	The Applicant's attention is directed to the comments of Suffolk County Council and Natural England at Appendix 2 to this Opinion with regards to the recent approval of the England Coast Path National Trail within Suffolk, which is located within the Suffolk Onshore Scoping Boundary. The ES should include an assessment of effects on this proposed National Trail, where likely significant effects could occur.

3.8 Air Quality

(Scoping Report Volume 1, Part 2, Section 2.9)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.8.1	Volume 1, Part 2, Table 2.9.1 and Table 2.9.6	Air quality impacts from an increase in vehicle emissions - construction, operation, maintenance, and decommissioning	The Scoping Report proposes to scope out these matters on the basis that it is not considered that construction, operational, maintenance and decommissioning traffic flows associated with the Proposed Development would exceed the Institute of Air Quality Management (IAQM) criteria for a detailed air quality assessment. The Inspectorate would expect the ES to provide a detailed explanation of the likely traffic flows during all phases of the Proposed Development to justify not undertaking further assessment. Cross-reference should be made to the assessments of effects on Ecology and Biodiversity and on Human Health.
3.8.2	Volume 1, Part 2, Table 2.9.1 and Table 2.9.6	Emissions from Non-Road Mobile Machinery (NRMM) - construction and decommissioning	The Scoping Report proposes to scope out this matter on the basis that emissions would not be significant due to the temporary and transient nature of construction activity and incorporation of best practice measures included within the CoCP. Whilst the Inspectorate considers that emissions from NRMM are unlikely to be significant in most cases, in the absence of detail regarding the location of construction works with respect to receptors and the type and duration of NRMM to be deployed, the Inspectorate does not consider that this matter may be scoped out based on current evidence. The ES should include an assessment of emissions from NRMM on sensitive receptors where significant effects are likely.

ID	Ref	Description	Inspectorate's comments
3.8.3	n/a	n/a	n/a

3.9 Noise and Vibration

(Scoping Report Volume 1, Part 2, Section 2.10)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.9.1	Volume 1, Part 2, Table 2.10.4 and Table 2.10.11	Operational vibration – all options	The Inspectorate does not agree to scope this matter out given the uncertainties regarding the chosen location of the converter station and the proximity to sensitive receptors. The Scoping Report provides limited information regarding anticipated operational vibration levels. The ES should provide an assessment of operational vibration or the information demonstrating agreement with relevant stakeholders and the absence of likely significant effects.
3.9.2	Volume 1, Part 2, Table 2. 10.11, Table 2.10.3 and Table 2.10.4	Operational road traffic noise and vibration – all options	The Inspectorate agrees to scope this matter out on the basis that operational traffic movements are likely to be infrequent and unlikely to give rise to likely significant effects.
3.9.3	Volume 1, Part 2, Table 2.10.3 and Table 2.10.4	Construction traffic vibration	Construction vehicle routes are currently unknown and therefore so is the distance to sensitive receptors. In addition, the number and type of vehicles have not yet been confirmed. In the absence of this detail, the Inspectorate does not agree to scope out construction traffic vibration for the construction phase at this time.
3.9.4	Volume 1, Part 2, Table 2.10.3 and Table 2.10.4	Switchgear operational noise	This matter is proposed to be scoped out on the basis that switchgear noise emissions would be impulsive in character and operation would be infrequent. It is further stated that auxiliary plant comprising standby generators and air compressors would contribute to the

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			broadband noise; however, these would not run continuously and would be housed and used as emergency back-up only. The Inspectorate agrees that this matter can be scoped out of further assessment. The ES should contain relevant engineering specifications to demonstrate that switchgear operation is unlikely to result in significant effects and should demonstrate that consultation has been undertaken with the relevant consultation bodies.
3.9.5	Volume 1, Part 2, Table 2.10.3	Operational noise and vibration from underground cables - operation	The Inspectorate agrees that operational noise and vibration from underground cables is unlikely to result in significant effects and agrees that this matter can be scoped out of the ES.

ID	Ref	Description	Inspectorate's comments
3.9.6	Volume 1, Part 2, Paragraph 2.10.5.2	Mitigation measures	The Scoping Report refers to noise mitigation measures which include screening and enclosures. The ES should address the potential adverse effects of mitigation measures in the relevant aspect chapters of the ES (eg Landscape and Visual) where significant effects are likely to occur.

3.10 Socio-economic Recreation and Tourism

(Scoping Report Volume 1, Part 2, Section 2.11)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.10.1	Volume 1, Part 2, Table 2.11.3; Table 2.11.4; Table 2.11.5; Table 2.11.6; Table 2.11.7; and Table 2.11.8	Creation of permanent operational phase employment, training and apprenticeship opportunities, both directly at work sites and indirectly in East Suffolk (operation)	The matter is to be scoped out on the basis that the scale of operational employment generated is likely to be very limited. The Inspectorate agrees that this matter can be scoped out of the assessment for the operational stage on this basis. The ES description of the Proposed Development should, however, explain the level of employment generation in operation.
3.10.2	Volume 1, Part 2, Table 2.11.3; Table 2.11.4; Table 2.11.5; Table 2.11.6; Table 2.11.7; and Table 2.11.8	Generation of Gross value added (GVA) in East Suffolk during the operational phase (operation)	This matter is to be scoped out on the basis that the scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small. The Inspectorate is content for this matter to be scoped out on this basis.

ID	Ref	Description	Inspectorate's comments
3.10.3	Volume 1, Part 2, Paragraph 2.11.3	Study area	The study area for local communities identified as being impacted only accounts for those connected by recreational routes and public rights of way, however, the Inspectorate considers this should also include routes connected via the road network and the study area for landscape and visual impacts and traffic and transport.

ID	Ref	Description	Inspectorate's comments
			The study area identified in the ES should include the extent of potential impacts on receptors from changes in the road network from the Proposed Development. Effort should be made to agree the study area with relevant consultation bodies.

3.11 Health and Wellbeing

(Scoping Report Volume 1, Part 2, Section 2.12)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.11.1	Volume 1, Part 2, Paragraph 2.12.5.2 and Tables 2.12.2 and 2.12.9	All phases – EMF	The Inspectorate agrees this matter can be scoped out on the basis that the ES demonstrates the design is compliant with the International Commission on Non-Ionizing Radiation Protection guidelines (1998) in ensuring that the threshold for impacts to humans is not met/exceeded.

ID	Ref	Description	Inspectorate's comments
3.11.2	Volume 1, Part 2, Paragraph 3.12.4.2	Census data	Where new census data from 2021 is available, this should be used to inform baseline data and the ES assessment.
3.11.3	Volume 1, Part 2, Tables 2.12.2, 2.12.3 and 2.12.4	Study area	The study area for impacts from severance vary between 1km and 500m however, the Inspectorate considers severance can be caused by changes in traffic movements and type. The assessment of potential severance impacts on receptors from changes in the road network from the Proposed Development should consider the entirety of the affected road network rather than an arbitrary buffer zone.

ID	Ref	Description	Inspectorate's comments
3.11.4	Volume 1, Part 2, Paragraph 2.12.7.12 and Table 2.12.8	Judgement of significance	Scoping Report paragraph 2.12.7.12 states that the proposed guidance does not provide a methodology for assessing the significance of effects. The ES should describe the methodology for determining the significance of effects and report the significance of effects on human health. The Applicants attention is directed to the response of UK Health Security Agency at Appendix 2 to this Opinion with regards to this matter.

3.12 Cumulative Effects

(Scoping Report Volume 1, Part 2, Section 2.13)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.12.1	n/a	n/a	No matters have been proposed to be scoped out of the assessment

ID	Ref	Description	Inspectorate's comments
3.12.2	Volume 1, Part 2, Table 2.13.1 and Volume 1, Part 2, Table 3.13.1	Intra-cumulative/intra-project effects on ecological, notable habitats, and non-designated heritage assets	Table 2.13.1 omits potential intra-cumulative/intra-project effects on receptors arising from multiple impacts. For example, impacts from traffic and transport and noise on ecological receptors and landscape and visual impacts on non-designated heritage assets. This table is also inconsistent with the pre-screening Table 3.13.1 for the Kent Onshore Scheme without explanation why. For example, landscape and visual impacts on designated heritage assets are included in Table 3.13.1 (Kent Onshore Scheme) but not present in Table 2.13.1 (Suffolk Onshore Scheme). The ES should appropriately justify where impacts are omitted from the intra-cumulative assessment or else include them in the assessment.
3.12.3	Volume 1, Part 2, Table 2.13.3 and Appendix 1.5A	Projects to be included in the assessment	Table 2.13.3 is inconsistent with Appendix 1.5A in terms of projects taken to Stage 2 for assessment. The ES should ensure that these lists are consistent and effort is made to agree them with relevant statutory consultees.

4. ENVIRONMENTAL ASPECT COMMENTS – KENT ONSHORE SCHEME

4.1 Landscape and Visual

(Scoping Report Volume 1, Part 3, Section 3.2)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.1.1	Volume 1, Part 3, Table 3.2.2	Alteration to landscape character and visual amenity as a result of operational lighting for the convertor station (operation)	This matter is to be scoped out on the basis that there is less potential that significant effects will result on landscape character or visual amenity as any additional lighting will be limited to maintaining site security and safety and would be within the context of existing lighting at Richborough Energy Park and adjacent development. The Scoping Report also acknowledges that should the approach to lighting change, this aspect will be scoped into the landscape and visual assessments. Reference to this effect is not included in Table 3.2.9 (Proposed scope of the assessment). The Inspectorate does not agree that operational lighting of the convertor station can be scoped out at this stage in the absence of information confirming the type and location of any such lighting, and in the context of the existing environment. The ES should include an assessment of operational lighting on sensitive landscape and visual receptors, where likely significant effects could occur.
4.1.2	Volume 1, Part 3, Table 3.2.2 and Table 3.2.9	Alteration to visual amenity from the Operational HVAC overhead line (to be decided) (operation)	The Scoping Report states that this matter is to be scoped out on the basis that "*The introduction of an overhead line HVAC connection has less potential to result in significant effects on visual amenity at operation given the existing context of vertical structures, including a wind turbine, communication masts and numerous overhead lines terminating at Richborough substation.*" However, it also states that "*in order to ensure that potential effects on the additional wirescape are adequately covered, it will be scoped into the visual assessment.*"

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			Table 3.2.9 states that this matter is scoped in for receptors including: settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers. For the avoidance of doubt, the Inspectorate considers this matter should be scoped in to the assessment, where likely significant effects on sensitive visual receptors could occur.
4.1.3	Volume 1, Part 3, Table 3.2.2	Alteration to landscape character and visual amenity from operational HVDC underground cable (and HVAC if underground)	This matter is proposed to be scoped out on the basis of there being less potential to have significant effects on landscape character and visual amenity at operation. It is stated that the landscape will be returned to previous land use and landscape components lost at construction will be reinstated as soon as reasonably practical after construction. The Inspectorate considers that the ES should address the potential for permanent landscape character effects due to any planting restrictions introduced for any easement required.
4.1.4	Volume 1, Part 3, Table 3.2.3	Permanent alteration to landscape character and perceptual qualities as a result of the operational converter station on the following receptors: Thanet District Council Landscape Character Assessment (TDLCA) LCA A1: Manston Chalk Plateau, and Dover District Council Landscape Character Assessment (DDLCA) LCAs B1: Great Stour Sandwich Corridor, D1: Preston,	This matter is proposed to be scoped out on the basis that the Kent Scoping Boundary does not lie within these LCAs. Whilst there is the potential for indirect effects on the perceptual qualities of these LCAs there is less potential that the effects would be significant. The Inspectorate is of the view that these LCAs can be scoped out of the landscape assessment for the operational converter site on the basis of the likely nature of potential effects relative to the distance between these LCAs.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
		and H1: Richborough Bluff (operation)	
4.1.5	Volume 1, Part 3, Table 3.2.3	Temporary and permanent alteration to landscape character and perceptual qualities as a result of the construction and operation of the converter station, HVDC and HVAC on the following receptors: TDLCA Local Character Areas C1: St Nicholas at Wade Undulating Chalk Farmland and LCA C2: Central Thanet Undulating Chalk Farmland (all stages)	Scoped out on the basis of there being no theoretical visibility between any aspect of the Kent Scoping Boundary during construction and operation and consequently there are not considered to be any effects on these LCAs. The Inspectorate is of the view that these LCAs can be scoped out of the landscape assessment on the basis of no pathway of effect between the Proposed Development and these LCAs.

ID	Ref	Description	Inspectorate's comments
4.1.6	Volume 1, Part 3, Table 3.2.1 and Volume 3, Figure 3.2.6	Representative viewpoints	The viewpoints to be used for assessment should be agreed with the relevant consultation bodies, including the Local Authorities. The Applicant's attention is directed to the comments of Thanet District Council at Appendix 2 of this Opinion with regards to requested additional viewpoints.
4.1.7	Volume 1, Part 3, Table 3.2.1 and Chapter 3.4	Viewpoints and cultural heritage receptors	The Applicant is advised to consider, and include as appropriate, heritage specific viewpoints to support the heritage assessment. Suitable cross-referencing between the LVIA aspect chapter and Cultural Heritage aspect chapter should be included.

4.2 Ecology and Biodiversity

(Scoping Report Volume 1, Part 3, Section 3.3)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.2.1	Volume 1, Part 3, Table 3.3.3	Permanent habitat loss (intertidal) as a result of construction of converter station and underground cables/overhead line, construction of any temporary works areas, potential pollution from maintenance crews, and traffic movements during maintenance works (construction and maintenance)	This matter is to be scoped out on the basis that no permanent infrastructure is to be installed above ground level within the intertidal zone. Similarly, no day-to-day maintenance of underground cables would be required in the intertidal zone. In the absence of information on the likely activities in the intertidal area and the habitats present, the Inspectorate cannot agree to scope out this potential effect at this stage. The ES should include an assessment of permanent habitat loss in the intertidal area, where likely significant effects could occur.
4.2.2	Volume 1, Part 3, Table 3.3.3	Temporary habitat loss/disturbance (terrestrial and intertidal) from temporary works areas and traffic movements during maintenance works (operation)	These matters are scoped out on the basis that it is considered unlikely that significant additional habitat loss would occur through operation. The Inspectorate agrees that the operation of the Proposed Development would not give rise to further temporary habitat loss/disturbance and can be scoped out of the assessment. The Inspectorate notes that 'traffic movements during maintenance works' during the construction and maintenance stages is scoped in (Table 3.3.3) but the same activity is stated to be scoped out for operation. For clarity, 'traffic movements during maintenance works' should be scoped in to the assessment.
4.2.3	Volume 1, Part 3, Table 3.3.4	Permanent habitat loss to Margate and Long Sands Special Area of	These designated sites are stated to be scoped out of this assessment as they are marine sites with qualifying features that are considered likely to be not affected by the onshore activities associated with the

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
		Conservation (SAC) and Outer Thames Estuary SPA (all stages)	Proposed Development due to the absence of a potential effect pathway from onshore activities. They will however be considered for the offshore activities. The Inspectorate agrees that permanent habitat loss to Margate and Long Sands SAC (designated for 'Sandbanks which are slightly covered by sea water all the time') and the Outer Thames Estuary SPA (designated for wintering red-throated diver and foraging breeding little tern and common tern) can scoped out of the assessment of the Kent Onshore Scheme for all stages due to a likely absence of potential effect pathway from the onshore activities and on the understanding that effects on these designated sites from the Offshore Scheme activities will be considered in the relevant aspect chapters, namely Benthic Ecology and Marine Ornithology.
4.2.4	Volume 1, Part 3, Table 3.3.4	Permanent habitat loss to Stodmarsh SAC and Thanet Coast SAC (all stages)	Stodmarsh SAC and Thanet Coast SAC are stated to be screened out due to an absence of impact pathway. Stodmarsh SAC is described as being upstream of the Kent Onshore Scheme (at a distance of 5.8km from the Kent Onshore Scheme) and is designated for Desmoulin's whorl snail. Thanet Coast SAC (2.1km from the Kent Onshore Scheme) is designated for reefs and sea caves, which are stated as being outside of the Kent Onshore Scheme boundary and therefore no impact pathway exists. The ES should include evidence to demonstrate that activities during construction, operation and decommissioning would have no potential to affect these sites or their features. If this information is provided the Inspectorate agrees to scope out the assessment of permanent habitat loss to these designated sites from the ES.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.2.5	Volume 1, Part 3, Table 3.3.4	Permanent habitat loss of Notable Habitats (all stages)	The Scoping Report states that "*hedgerows, arable field margins and other notable habitats could be impacted by cable installation. However, a combination of routeing, HDD where possible and habitat re-instatement and replacement will be employed as mitigation and reduce these impacts to temporary. These impacts will therefore be assessed as temporary rather than permanent. The converter station would be located within an arable field so will not result in permanent loss of notable habitats.*" At this stage and in the absence of information regarding location of notable habitats, routing and installation techniques, and mitigation, the Inspectorate cannot agree to scope out permanent loss of notable habitats at this stage. The ES should include an assessment of this matter, where likely significant effects could occur.
4.2.6	Volume 1, Part 3, Table 3.3.4	Incidental mortality of protected or notable invertebrate species (all stages)	This matter is scoped out on the basis that it is unlikely that notable population assemblages will be significantly affected by direct mortality once mitigation measures are in place, as such populations will be linked to habitat. The Scoping Report states that the likely presence of notable invertebrate assemblages will be determined through the Phase 1 habitat surveys to be undertaken and there are habitats present that may support notable invertebrates, such as grazing marsh, semi-improved grassland, hedgerows and coastal habitats. In the absence of baseline information on notable invertebrate assemblages, the Inspectorate is not in a position to agree to scope these matters from the assessment. The ES should include an assessment of these matters, or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of a likely significant effect.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.2.7	Volume 1, Part 3, Tables 3.3.4 and 3.3.7	Incidental mortality of protected or notable intertidal and terrestrial non-breeding bird species (all stages)	This matter is identified as being scoped in for non-breeding birds during operation due to the potential for bird strike on new overhead line in Table 3.3.4, but it is stated to be scoped out for all stages in Table 3.3.7. Without reasoning as to why this matter is proposed to be scoped out and considering the potential for bird strike on new overhead lines, the Inspectorate cannot agree to scope this matter out at this stage. The ES should include an assessment of incidental mortality on non-breeding birds (terrestrial and intertidal) for all stages, where likely significant effects could occur.
4.2.8	Volume 1, Part 3, Table 3.3.7	Incidental mortality of protected or notable riparian mammal species (otter, water vole and beaver) (all stages)	This matter was not described in Table 3.3.4 but is noted to be included in Table 3.3.7. No reasoning is provided to scope this matter out. The Inspectorate considers there is potential for impacts during construction and decommissioning in particular and therefore, the Inspectorate does not agree to scope this matter out. The ES should assess incidental mortality of protected or notable riparian mammal species where significant effects are likely to occur.

ID	Ref	Description	Inspectorate's comments
4.2.9	Volume 1, Part 3, Chapter 3.3	Study area, surveys for bird species, and confidential annexes	See comments 3.2.4, 3.2.5, 3.2.8 for Suffolk Onshore Scheme above, which are equally applicable to the Kent Onshore Scheme.
4.2.10	Volume 1, Part 3, Paragraph 3.3.4.40	Beaver	The Applicant should note that from 1 October 2022, Eurasian beavers in England became a European Protected Species, being listed in Schedule 2 of the Conservation of Habitats and Species Regulations.

4.3 Cultural Heritage

(Scoping Report Volume 1, Part 3, Section 3.4)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.3.1	Volume 1, Part 3, Table 3.4.1	Physical impacts on non-designated assets (maintenance and decommissioning)	The ES should clearly state the approach to non-designated assets encountered during construction, such as whether preservation in-situ is proposed, and confirm where non-designated assets have been preserved in situ. The ES should consider the potential for effects on non-designated assets during the maintenance and decommissioning stage, where likely significant effects could occur.
4.3.2	Volume 1, Part 3, Table 3.4.1	Temporary impacts on the setting of heritage assets resulting from plant/machinery (maintenance and decommissioning)	The Inspectorate agrees that significant setting effects on heritage assets arising from the presence of plant and machinery during the maintenance phase are unlikely. The ES should explain the likely number of machinery/plant required for decommissioning or the likely duration of decommissioning activities to demonstrate why such effects would not be significant.
4.3.3	Volume 1, Part 3, Table 3.4.1	Temporary impacts on the setting of heritage assets from construction compounds introducing light and noise pollution (decommissioning)	The Inspectorate agrees that significant setting effects on heritage assets arising from light and noise are unlikely. The ES should outline the mitigation measures required for decommissioning and the likely duration of decommissioning activities to demonstrate why such effects would not be significant.

ID	Ref	Description	Inspectorate's comments
4.3.4	Volume 1, Part 3, Chapter 3.4	Sources of construction impacts - groundwater, and assessment methodology	See also comments 3.3.6 and 3.3.7 above made in respect to the Suffolk Onshore Scheme, which equally apply to the Kent Onshore Scheme.

ID	Ref	Description	Inspectorate's comments
4.3.5	Volume 1, Part 3, Paragraph 3.4.4.3 and 3.4.7.3	Heritage receptors – schedule monument	The ES should consider likely effects on the setting of the scheduled monument 'A Saxon Shore fort, Roman port and associated remains at Richborough' (1014642), where likely significant effects could occur. Although this scheduled monument is located beyond the 2km study area, the Inspectorate notes the settings assessment will be informed by the ZTV and the statement that some assets beyond the ZTV and 2km study area may also be considered. Cross-referencing to relevant information in the LVIA aspect chapter and/or supporting appendices should be included.
4.3.6	Volume 1, Part 3, Table 3.4.1, 3.4.2 and 3.4.6	Impacts scoped in	Table 3.4.6 does not include all of the impacts identified as scoped in within Tables 3.4.1, namely temporary impacts on the settings of designated assets during construction. For the avoidance of doubt, the ES should include an assessment of these effects.
4.3.7	Volume 1, Part 3, Chapter 3.4 and Volume 2, Appendix 3.4.A	Wantsum Sea Channel	Kent County Council (at Appendix 2 to this Opinion) have identified Wantsum Sea Channel as a heritage asset that should be included in the assessment but is not identified in Scoping Report Chapter 3.4 or in Appendix 3.4.A. The Applicant should seek to agree the heritage receptors to be included within the heritage assessment with relevant consultation bodies and include an assessment on this receptor where significant effects are likely to occur.

4.4 Water Environment

(Scoping Report Volume 1, Part 3, Section 3.5)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.4.1	Volume 1, Part 3, Table 3.5.1	Pollution of watercourses associated with operational discharges and runoff from above ground infrastructure (AGI) – water quality effects (operation)	This matter is scoped out on the basis of no impact pathway given treatment through SUDs provision. The Inspectorate agrees that, provided the measures to mitigate the risks of pollution of watercourses are clearly described in the ES and secured in the dDCO, this matter can be scoped out of further assessment.
4.4.2	Volume 1, Part 3, Table 3.5.1	Increased flood risk from operational discharges and runoff from AGI and loss of floodplain storage (operation)	This matter is proposed to be scoped out on the basis of no impact pathway given attenuation of runoff through SuDS provision. The Inspectorate agrees that, provided the operational control measures in the form of SuDS are clearly described in the ES and secured through the dDCO, this would ensure no pathway of effect to result in increased flood risk from operational discharges and runoff from AGI or loss of floodplain storage.
4.4.3	Volume 1, Part 3, Table 3.5.1	Physical disturbance, impact to flow regimes (watercourse crossings) from operational infrastructure (AGI and watercourse crossings) (operation)	This matter is proposed to be scoped out on the basis that there would be no impact pathway, as there would be no physical disturbance during operation. The Inspectorate agrees that following construction there would be no further physical disturbance or impact on flow regimes at watercourse crossings and therefore this matter can be scoped out of the assessment.
4.4.4	Volume 1, Part 3, Table 3.5.1	Effects from maintenance activities (maintenance)	This matter is proposed to be scoped out on the basis of the nature of the proposed maintenance activities which would not provide an impact pathway. However, the activities associated with maintenance

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
	and Paragraph 3.5.6.1.8		as listed in Scoping Report paragraph 3.5.6.1.8 suggest multiple impact pathways. The ES should either assess impacts from maintenance activities where significant effects are likely to occur or explain why there are no impact pathways. It is also noted that maintenance activities are scoped in for the Suffolk Onshore Scheme at Table 2.5.1. This matter should be clarified in the ES.
4.4.5	Volume 1, Part 3, Table 3.5.2	Increased surface water runoff from converter station drainage during operation on receptors 'existing land uses and infrastructure' (operation)	This matter is scoped out on the basis of no impact pathway given attenuation of runoff through SuDS provision. The Inspectorate agrees that SuDS provision would remove/reduce the likelihood of surface water runoff from the convertor site during operation and thus ensure any such effects would be fully mitigated. The Inspectorate therefore agrees this matter can be scoped out of the assessment.
4.4.6	Volume 1, Part 3, Table 3.5.2 and Table 3.5.5	Increased flood risk due to permanent loss of floodplain storage/impediment of floodplain flows on floodplains, landowners and infrastructure (operation)	Scoped out on the basis that there would be no impact pathway as there would be no above ground operational infrastructure in the floodplain and therefore no construction works required in the flood plain. Provided this is demonstrated in the ES, supported by the FRA, the Inspectorate agrees to scope this matter out.
4.4.7	Volume 1, Part 3, Table 3.5.2 and Paragraph3. 5.6.15	Permanent impacts on land drainage regimes of ordinary watercourses, land drains and existing land uses (operation)	This is scoped out on the basis that there are no impact pathways, as land drainage routes would be reinstated or re-provided. The ES should demonstrate how land drainage routes would be reinstated/re-provided and secured through the dDCO. On the basis of this being evidence in the ES, the Inspectorate agrees to scope this matter out.

ID	Ref	Description	Inspectorate's comments
4.4.8	Volume 1, Part 3, Paragraph 3.5.4.7	Impacts to water abstractions/interests	The existence, location and number of abstraction sites in the Kent Onshore Scheme scoping boundary are currently unknown and are proposed to be determined through review of the EA's register. The Suffolk Onshore Scheme at Table 2.5.9 requested to scope out 'Reduced water availability to support abstractions and assimilate discharges' on 'existing water interests', although this does not feature in the scoping in/out tables for the Kent Onshore Scheme. The ES should provide information on the water abstractions/interests that may be affected by the Proposed Development and include an assessment on these receptors, where likely significant effects could occur.
4.4.9	Volume 1, Part 3, Chapter 3.5	Study area, embedded measures, and assessment methodology	See comments 3.4.11, 3.4.12, and 3.4.14 for the Suffolk Onshore Scheme above, which are also applicable to the Kent Onshore Scheme.

4.5 Geology and Hydrogeology

(Scoping Report Volume 1, Part 3, Section 3.6)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.5.1	Volume 1, Part 3, Table 3.6.2	Connection of two aquifer units at trenchless crossings as a result of the excavation of trenchless crossings (construction)	This matter is proposed to be scoped out on the basis that it is not likely to result in a significant effect due to the incorporation of the mitigation by design. Table 3.6.2 does not expand on the specific 'mitigation by design' proposed to ensure this does not occur. It is noted that CoCP measure GH02 comprises "*Construction methods such as appropriate piling techniques (if required) to minimise the risk of mixing of aquifer bodies through the creation of new pathways…*" However, it is unclear whether this reference to piling methods would apply to trenchless crossings such that it would mitigate for effects. In the absence of supporting information on the location of crossings, proposed techniques including depths, and mitigation, the Inspectorate cannot agree to scope out this matter. The ES should include an assessment where likely significant effects could occur or provide further justification as to why this would not arise.
4.5.2	Volume 1, Part 3, Table 3.6.2	Introduction of new potential contaminants to the environment from leaks, spills, fuels and oils from construction activities (construction, maintenance, and decommissioning)	This matter is proposed to be scoped out on the basis that it is not likely to result in a significant effect due to the incorporation of the mitigation by design. The Inspectorate is content to scope this matter out on the basis that such matters are capable of mitigation by standard measures. The ES must provide specific details regarding the mitigation measures to be adopted to demonstrate that such measures will be monitored and effective. However, as noted at point 2.1.6 above, there is some concern with regards to the potential for break outs or frack-outs of bentonite during HDD activities. The ES should provide details of

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			protocols/measures to be put in place to prevent break outs or frack-outs of bentonite from occurring or minimise impacts should such events occur.
4.5.3	Volume 1, Part 3, Table 3.6.2	Physical and chemical changes to groundwater as a result of discharge of groundwater from dewatering (construction)	This matter is proposed to be scoped out on the basis that it is not likely to result in a significant effect due to the incorporation of the mitigation by design. The Scoping Report does not expand on the specific mitigation that would address this potential impact. The Inspectorate notes measure GH07 of the CoCP relating to temporary dewatering in accordance with EA guidance and an abstraction licence and EP (if required) and that dewatering activities during construction more generally are scoped into the assessment. The Inspectorate agrees that control measures applied would ensure no change to physical and chemical changes to groundwater and this matter can be scoped out of the assessment.
4.5.4	Volume 1, Part 3, Table 3.6.2	Effects on construction activities and the built development (at the operational phase) from natural geological hazards (ie dissolution features/soft ground/landslides/ aggressive ground conditions etc) (construction)	This matter is proposed to be scoped out on the basis that it is not likely to result in a significant effect due to the incorporation of the mitigation by design. As previously, the Scoping Report does not expand on the specific measure to mitigate such effects, but it is assumed this relates to the inclusion of GH01, intrusive ground investigations and assessment will be undertaken prior to construction to inform appropriate geotechnical design in relation to the site/structure specific ground conditions including ground instability/adverse ground conditions. On the basis that natural hazards would be considered during the engineering design of the Proposed Development and avoided where

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			possible, the Inspectorate is in agreement that this matter can be scoped out of the ES."
4.5.5	Volume 1, Part 3, Table 3.6.2 and Paragraphs 3.6.4.14 to 3.6.4.15	Sterilisation of safeguarded minerals (construction and operation)	On the basis that no safeguarded minerals have been identified in the scoping study area through a desk-based assessment, the Inspectorate agrees to scope this matter out.
4.5.6	Volume 1, Part 3, Table 3.6.2 and Paragraph 3.6.3	Human health exposure to existing contamination – site workers and neighbours (operation and maintenance)	This matter is proposed to be scoped out on the basis that it is not likely to result in a significant effect due to the nature of the project and the incorporation of the mitigation by design. The Inspectorate agrees, given the nature of the Proposed Development and existing legislation, that such effects are unlikely during the operation and maintenance stage and can be scoped out of the impact assessment.
4.5.7	Volume 1, Part 3, Table 3.6.2	Introduction of new potential contaminants to the environment from leaks, spills, fuels and oils during the operational phase (operation and maintenance)	This matter is proposed to be scoped out on the basis that it is not likely to result in a significant effect given the nature of the project and in consideration of best practice measures and maintenance. The Inspectorate agrees that such effects are unlikely during the operation and maintenance stage and can be scoped out of the impact assessment.
4.5.8	Volume 1, Part 3, Table 3.6.2	Changes to groundwater levels and/or recharge rates as a result of the introduction of impermeable surfaces (operation)	This matter is proposed to be scoped out on the basis that it is not likely to result in significant effects due to the small surface area of the built parts of the Proposed Development. Any new areas of hardstanding would be designed to meet current drainage standards.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			The Scoping Report does not confirm the likely area of the convertor site that would comprise hardstanding. Similarly, it does not confirm likely run-off rates and measures controlling these. The Inspectorate therefore cannot agree to scope this matter out at this stage. Details of the design of the convertor site and the location of drainage should be included in the ES, together with an assessment of their effectiveness at mitigating operational discharges and runoff. The ES should assess effects on groundwater levels and/or recharge rates as a result of impermeable surfaces, where significant effects are likely to occur.
4.5.9	Volume 1, Part 3, Table 3.6.2	All phases - ground instability effects relating to historical coal mining	The historical coal mining located within the scoping boundary is at 'significant depth' and is relatively thin and it is not located in a high risk area (Scoping Report paragraphs 3.6.4.11 and 3.6.4.12). Provided the ES demonstrates that construction would not interact with the historical coal mining measures, the Inspectorate agrees to scoped this matter out.
4.5.10	Volume 1, Part 3, Table 3.6.3	Mobilisation of existing contamination during general construction, impacting on land and/or groundwater quality on environmentally sensitive sites, groundwater, GWDTE, surface water, land quality (operation and maintenance)	No reasoning is provided within the Scoping Report for the scoping out of this matter. Despite this, the Inspectorate is of the view that provided a comprehensive construction stage assessment of this matter has been provided and mitigation/remedial measures are secured (as appropriate) that effects during the operation and maintenance stage can be scoped out of the assessment.
4.5.11	Volume 1, Part 3, Table 3.6.3	Changes to groundwater levels, quality and groundwater flow direction caused by dewatering and discharge on environmentally sensitive sites, groundwater,	The Inspectorate agrees that such effects are unlikely during the operation, maintenance and decommissioning stages and can be scoped out of the impact assessment.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
		GWDTE, and surface water (operation, decommissioning, and maintenance)	
4.5.12	Volume 1, Part 3, Table 3.6.3	Damage to/destruction of designated sites of geological importance (operation, maintenance and decommissioning)	Scoping Report paragraph 3.6.4.13 identifies that the Sandwich Bay to Hacklinge Marshes SSSI is designated as a geological conservation review site. The Scoping Report has not explained why there would be no impact pathway to this site during the operation, maintenance and decommissioning of the Proposed Development, therefore the Inspectorate does not agree to scope this matter out. The ES should explain what impact pathways there are to any geologically designated sites and assess significant effects where they are likely to occur.

ID	Ref	Description	Inspectorate's comments
4.5.13	Volume 1, Part 3, Paragraph 3.6.7.6	Assessment methodology	See comment 3.5.12 in respect of Suffolk Onshore Scheme, which is also applicable to the Kent Offshore Scheme.

4.6 Agriculture and Soils

(Scoping Report Volume 1, Part 3, Section 3.7)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.6.1	Volume 1, Part 3, Table 3.7.1	Temporary removal of land from agricultural production (construction, maintenance and decommissioning)	The Applicant proposes to scope out the temporary removal of land from agricultural production on the basis that all land required temporarily would be reinstated, the footprint of the permanent infrastructure is limited and impacts on agricultural operations will be dealt with through compensation agreements which lie outside of the ES process. The Inspectorate considers that effects of temporary removal may be scoped out from further assessment, however the ES should provide an estimate of the quantity of BMV land to be affected by the temporary works, the duration of such works and any long term changes in land use introduced by associated easements.
4.6.2	Volume 1, Part 3, Table 3.7.1	Permanent removal of land from agricultural production (operation)	The Applicant proposes to scope out the permanent removal of land from agricultural production on the basis that all land required temporarily would be reinstated, the footprint of the permanent infrastructure is limited and impacts on agricultural operations would be dealt with through compensation agreements which lie outside of the ES process. The Inspectorate agrees this matter can be scoped out on the basis the ES confirms the amount of agricultural land to be permanently lost and explains why this is considered 'limited' and not likely to lead to significant effects. Reinstatement of land, and the proposed soil management and handling measures, should be clearly described in the ES and secured through the dDCO.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.6.3	Volume 1, Part 3, Table 3.7.1	Temporary disruption and disturbance to agricultural operations from noise, fragmentation and disruption to water supplies and land drainage (construction, maintenance and decommissioning)	The Applicant proposes to scope out these matters on the basis that they will be managed through mitigation measures set out within the outline CoCP, all land required temporarily would be reinstated and impacts on agricultural operations would be dealt with through compensation agreements which lie outside of the ES process. The Inspectorate agrees to scope out this matter on this basis.
4.6.4	Volume 1, Part 3, Paragraphs 3.7.6.13 to 3.7.6.14 and Table 3.7.1	EMFs on land use - operation	The Applicant proposes to scope out the effects of EMFs on land use during operation of the Proposed Development on the basis that there is little evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs has any agriculturally significant consequences. The Applicant proposes to undertake a walkover survey of the indicative alignment to identify land use and activities that may require additional clearance of the conductors. The Applicant will also provide the relevant information on EMFs in a separate document submitted as part of the application for development consent which will demonstrate compliance in accordance with the ICNIRP guidelines and paragraph 2.10.9 of EN-5. On this basis, the Inspectorate agrees to scope out operational effects from EMFs on land use.
4.6.5	Volume 1, Part 3, Paragraph 3.7.6.12	Economic effects on landowners (construction, operation, maintenance, and decommissioning)	Paragraph 3.7.6.12 of the Scoping Report proposes to scope out economic effects on individual landowners and farmers on the basis that most of the land will be reinstated by the end of the construction phase and any claims regarding compensation will be addressed outside of the EIA process. The Inspectorate agrees that significant effects are unlikely and is therefore content that this matter can be scoped out of further assessment.

ID	Ref	Description	Inspectorate's comments
4.6.6	Volume 1, Part 3, Paragraph 3.7.6.5 to 3.7.6.6 and Table 3.7.1	Temporary loss of BMV land and temporary disturbance to soils and associated ecosystem services (construction, maintenance, and decommissioning)	Paragraph 3.7.6.6 of the Scoping Report states that until soil surveys have been undertaken to understand sensitivity of soils to handling, storage and reinstatement, construction effects on soils and ALC will be scoped into the ES. The ES should include the necessary information to demonstrate impacts can be avoided or reduced to exclude significant effects or provide an assessment where likely significant effects could occur.
4.6.7	Volume 1, Part 3, Paragraph 3.7.6.7 and Table 3.7.1	Permanent loss of BMV land and permanent disturbance to soils and associated ecosystem services (operation)	Paragraph 3.7.6.7 of the Scoping Report states that the land grades and soil types affected would be confirmed through the assessment process and as such, permanent impacts on soils and ALC will initially be scoped into the assessment. It's further stated that if the site survey confirms that the permanent land affected is not BMV land or that the cumulative loss is below the magnitude threshold for a likely significant effect, then permanent loss of agricultural land during operation would be scoped out of the ES. The Inspectorate agrees with this approach and considers that an assessment of the effects arising from the loss of BMV land during operation should be included within the ES, where significant effects are likely to occur.
4.6.8	Volume 1, Part 3, Paragraph 3.7.6.8 and Table 3.7.1	Temporary loss of BMV land and temporary disturbance to soils and associated ecosystem services (maintenance)	Paragraph 3.7.6.8 of the Scoping Report states that any maintenance or repair works required which would result in disturbance to soils during operation of the project would be undertaken in accordance with good practice soil handling methods. It's further stated that no likely significant effects on soils or ALC during operational maintenance or repair activities are therefore concluded and this aspect is scoped out of the ES. This is in contradiction to the information contained within Table 3.7.1 which proposes to scope in the temporary loss of BMV land and

ID	Ref	Description	Inspectorate's comments
			temporary disturbance to soils and associated ecosystem services from maintenance activities (to be reviewed once soil surveys are complete). The ES should clearly define the scope for the aspect and the Inspectorate considers that an assessment of the effects arising from the temporary loss of BMV land and temporary disturbance to soils and associated ecosystem services should be included within the ES, where significant effects are likely to occur.

4.7 Traffic and Transport

(Scoping Report Volume 1, Part 3, Section 3.8)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.7.1	Volume 1, Part 3, Paragraph 3.8.2.6	Traffic and Transport effects – operational and maintenance phase	The Applicant proposes to scope out transport effects on roads and users associated with the operational phase and maintenance activities on the basis that vehicle movements associated with the operation of the site and maintenance requirements are anticipated to be infrequent and low. The Inspectorate agrees that on this basis, this matter can be scoped out from further assessment. The ES should provide a description of the likely number and type of vehicles required during all phases of development to support this conclusion.
4.7.2	Volume 1, Part 3, Paragraph 3.8.2.8 and Table 3.8.1	Hazardous loads – operational and maintenance phase	The Applicant proposes to scope out impacts from hazardous and dangerous loads during the operational and maintenance phase on the basis that few hazardous loads are anticipated. The Inspectorate agrees to scope this matter out but would expect the ES to provide a reasoned justification as to why such loads are likely to be infrequent during the operation and maintenance phase.
4.7.3	Volume 1, Part 3, Table 3.8.2 and Table 3.8.7	Driver delay on PRoW and National/regional walking and cycling routes – construction and decommissioning	The Inspectorate agrees to scope this matter out on the basis that PRoW and national and regional walking and cycling routes are not utilised by drivers limiting the impact pathway.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.7.4		Decline in road safety on PRoW and national/regional walking and cycling routes – construction and decommissioning	
4.7.5		Additional hazardous loads on PRoW and national/regional walking and cycling routes – construction and decommissioning	
4.7.6	Volume 1, Part 3, Table 3.8.2 and Table 3.8.7	PRoW diversions or closures on road links, road junctions and national/regional walking and cycling routes – construction and decommissioning	The Inspectorate agrees that significant effects on road links, road junctions and national/regional walking and cycling routes as a result of closures or diversions of PRoW during construction and decommissioning are unlikely and this matter can be scoped out.

ID	Ref	Description	Inspectorate's comments
4.7.7	Volume 1, Part 3, Section 3.8.3	Study area	Whilst it is acknowledged that the study area is yet to be confirmed, this should be informed by the extent of the affected road network.

4.8 Air Quality

(Scoping Report Volume 1, Part 3, Section 3.9)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.8.1	Volume 1, Part 3, Table 3.9.1 and Table 3.9.6	Air quality impacts from an increase in vehicle emissions - construction, operation maintenance, and decommissioning	The Scoping Report proposes to scope out these matters on the basis that it is not considered that construction, operational, maintenance and decommissioning traffic flows associated with the Proposed Development would exceed the Institute of Air Quality Management (IAQM) criteria for a detailed air quality assessment. The Inspectorate would expect the ES to provide a detailed explanation of the likely traffic flows during all phases of the Proposed Development to justify not undertaking further assessment. Cross-reference should be made to the assessments of effects on Ecology and Biodiversity and on Human Health.
4.8.2	Volume 1, Part 3, Table 3.9.1 and Table 3.9.6	Emissions from NRMM - construction and decommissioning	The Scoping Report proposes to scope out this matter on the basis that emissions would not be significant due to the temporary and transient nature of construction activity and incorporation of best practice measures included within the CoCP. Whilst the Inspectorate considers that emissions from NRMM are unlikely to be significant in most cases, in the absence of detail regarding the location of construction works with respect to receptors and the type and duration of NRMM to be deployed, the Inspectorate does not consider that this matter may be scoped out based on current evidence. The ES should include an assessment of emissions from NRMM on sensitive receptors where significant effects are likely.

ID	Ref	Description	Inspectorate's comments
4.8.3	n/a	n/a	n/a

4.9 Noise and Vibration

(Scoping Report Volume 1, Part 3, Section 3.10)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.9.1	Volume 1, Part 3, Table 3.10.4 and Table 3.10.11	Operational vibration	The Inspectorate does not agree to scope this matter out given the uncertainties regarding the chosen location of the converter station and the proximity to sensitive receptors. The Scoping Report provides limited information regarding anticipated operational vibration levels. The ES should provide an assessment of operational vibration or the information demonstrating agreement with relevant stakeholders and the absence of likely significant effects.
4.9.2	Volume 1, Part 3, Table 3. 10.11, Table 3.10.3 and Table 3.10.4	Operational road traffic noise and vibration – all options	The Inspectorate agrees to scope this matter out on the basis that operational traffic movements are likely to be infrequent and unlikely to give rise to significant effects.
4.9.3	Volume 1, Part 3, Table 3.10.3 and Table 3.10.4	Construction traffic vibration	Construction vehicle routes are currently unknown and therefore so is the distance to sensitive receptors. In addition, the number and type of vehicles have not yet been confirmed. In the absence of this detail, the Inspectorate does not agree to scope out construction traffic vibration for the construction phase at this time.
4.9.4	Volume 1, Part 3, Table 3.10.3 and Table 3.10.4	Switchgear operational noise	This matter is proposed to be scoped out on the basis that switchgear noise emissions would be impulsive in character and operation would be infrequent. It is further stated that auxiliary plant comprising standby generators and air compressors would contribute to the

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			broadband noise, however, these would not run continuously and would be housed and used as emergency back-up only. The Inspectorate agrees that this matter can be scoped out of further assessment. The ES should contain relevant engineering specifications to demonstrate that switchgear operation is unlikely to result in significant effects and should demonstrate that consultation has been undertaken with the relevant consultation bodies.
4.9.5	Volume 1, Part 3, Table 3.10.3	Operational noise and vibration from underground cables (operation)	The Inspectorate agrees that operational noise and vibration from underground cables is unlikely to result in significant effects and agrees that this matter can be scoped out of the ES.
4.9.6	Volume 1, Part 3, Table 3.10.3 and Table 3.10.11	Overhead line noise (operation)	The Inspectorate agrees to scope out the operational effects of overheard line noise on the basis that the nearest noise sensitive receptor would be approximately 500m away from the closest potential proposed overhear line. Based on the nature of the noise emissions and the predicted distance from receptors, the Inspectorate considers that this matter may be scoped out.

ID	Ref	Description	Inspectorate's comments
4.9.7	Paragraph 3.10.5.2	Mitigation measures	The Scoping Report refers to noise mitigation measures which include screening and enclosures. The ES should address the potential adverse effects of mitigation measures in the relevant aspect chapters of the ES (eg Landscape and Visual) where significant effects are likely to occur.

4.10 Socio-economic Recreation and Tourism

(Scoping Report Volume 1, Part 3, Section 3.11)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.10.1	Volume 1, Part 3, Tables 3.11.1, 3.11.2 and 3.11.3	Creation of permanent operational phase employment, training and apprenticeship opportunities, both directly at work sites and indirectly	The matter is to be scoped out on the basis that the scale of operational employment generated is likely to be very limited. The Inspectorate agrees that this matter can be scoped out of the assessment for the operational stage on this basis. The ES description of development should, however, explain the level of employment generation in operation.
4.10.2	Volume 1, Part 3, Table 3.11.1, 3.11.2 and 3.11.3	GVA during the operational phase	This matter is to be scoped out on the basis that the scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small. The Inspectorate is content for this matter to be scoped out on this basis.

ID	Ref	Description	Inspectorate's comments
4.10.3	Volume 1, Part 3, Paragraph 3.11.3	Study area	The study area for local communities identified as being impacted only accounts for those connected by recreational routes and public rights of way; however, the Inspectorate considers this should also include routes connected via the road network and the study area for landscape and visual impacts and traffic and transport. The study area identified in the ES should include the extent of potential impacts on receptors from changes in the road network from the Proposed Development. Effort should be made to agree the study area with relevant consultation bodies.

4.11 Health and Wellbeing

(Scoping Report Volume 1, Part 3, Section 3.12)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.11.1	Volume 1, Part 3, Paragraph 3.12.5.2 and Tables 3.12.2 and 3.12.9	All phases –EMF	The Inspectorate agrees this matter can be scoped out on the basis that the ES demonstrates the design is compliant with the International Commission on Non-Ionizing Radiation Protection guidelines (1998) in ensuring that the threshold for impacts to humans is not met/exceeded.

ID	Ref	Description	Inspectorate's comments
4.11.2	Volume 1, Part 3, Paragraph 3.12.4.2	Census data	Where new census data from 2021 is available, this should be used to inform baseline data and the ES assessment.
4.11.3	Volume 1, Part 3, Tables 3.12.1, 3.12.2 and 3.12.3	Study area	The study area for impacts from severance vary between 1km and 500m however, the Inspectorate considers severance can be caused by changes in traffic movements and type. The assessment of potential severance impacts on receptors from changes in the road network from the Proposed Development should consider the entirety of the affected road network rather than an arbitrary buffer zone.

ID	Ref	Description	Inspectorate's comments
4.11.4	Volume 1, Part 3, 3.12.7.12 and Table 3.12.4	Judgement of significance	Scoping Report paragraph 2.12.7.12 states that the proposed guidance does not provide a methodology for assessing the significance of effects. The ES should describe the methodology for determining the significance of effects and report the significance of effects on human health. The Applicants attention is directed to the response of UK Health Security Agency at Appendix 2 to this Opinion with regards to this matter.

4.12 Cumulative Effects

(Scoping Report Volume 1, Part 3, Section 3.13)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.12.1	n/a	n/a	No matters have been proposed to be scoped out of the assessment

ID	Ref	Description	Inspectorate's comments
4.12.2	Volume 1, Part 3, Table 3.13.1	Intra-cumulative/intra-project effects on ecological, notable habitats, and non-designated heritage assets	Table 3.13.1 omits potential intra-cumulative/intra-project effects on receptors arising from multiple impacts. For example, impacts from traffic and transport and noise on ecological receptors and landscape and visual impacts on non-designated heritage assets. This table is also inconsistent with the pre-screening Table 3.13.1 without explanation why, for example, landscape and visual impacts on designated heritage assets are included in Table 3.13.1 but not in Table 2.13.1. The ES should appropriately justify where impacts are omitted from the intra-cumulative assessment or else include them in the assessment.
4.12.3	Volume 1, Part 3, Table 3.13.3 and Appendix 1.5A	Projects to be included in the assessment	Table 2.13.3 is inconsistent with Appendix 1.5A in terms of projects taken to Stage 2 for assessment. The ES should ensure that these lists are consistent and agreed with relevant statutory consultees.

5. ENVIRONMENTAL ASPECT COMMENTS – OFFSHORE SCHEME

5.1 Physical Environment

(Scoping Report Volume 1, Part 4, Section 4.2)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
5.1.1	Volume 1, Part 4, Table 4.2.4 and Paragraph 4.2.5.3	Alteration of water quality due to accidental leaks and spills from vessels during cable installation/removal including route clearance and cable lay activities – construction, maintenance, and decommissioning	The Applicant proposes to scope this matter out on the basis that changes in water quality are likely to be temporary and the significance of potential impacts is considered to be negligible due to the measures referred to within the outline CoCP. The Planning Inspectorate agrees that this matter can be scoped out on the basis that the mitigation measures proposed within the outline CoCP should be sufficient to address the likely impacts and avoid a likely significant effect. The ES should include details of the mitigation and explain how its delivery is assured with reference to relevant documents.
5.1.2	Volume 1, Part 4, Table 4.2.4	Changes in metocean conditions - construction, maintenance, operation and decommissioning	The Applicant proposes to scope this matter out on the basis that installation of the subsea cable and the presence of other vessels and other equipment are considered to be relatively small-scale and transient and would therefore would not influence metocean conditions such as water levels, currents and waves. The Applicant is directed to the comments of Natural England (see Appendix 2 of this Opinion) who are of the view that in shallow nearshore areas there is potential for ancillary infrastructure or seabed excavation to cause modification of nearshore hydrodynamics and give rise to morphological change and in the absence of information regarding route selection, depth of water and likely cable crossings, changes in metocean conditions in the shallow nearshore areas should not be scoped out at this stage. The ES should provide

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			an assessment of changes to metocean conditions in shallow nearshore areas and for cable landfall works areas, where likely significant effects could occur.

ID	Ref	Description	Inspectorate's comments
5.1.3	Volume 1, Part 4, Table 4.2.10	Coastal erosion at the marine cable route area due to changes to the local hydrodynamic regime as a result of climate change - operation	The Applicant has not provided a rationale for scoping this matter out. However, the Inspectorate notes that this matter has been scoped in for the proposed landfalls. The Inspectorate considers that coastal erosion at the coastline resulting from climate change is unlikely to occur at the marine cable route area and therefore agrees that this matter can be scoped out from further assessment.
5.1.4	Volume 1, Part 4, 4.2.6	Potential significant effects	Natural England have identified a number of potentially significant effects within their response (see Appendix 2 of this Opinion) which they advise should be scoped in for further assessment. The Applicant is strongly encouraged to seek to agree the assessment scope with relevant stakeholders and to provide evidence of that agreement in the ES.
5.1.5	Volume 1, Part 4, 4.2.4.15	Geological features	The Applicant has not identified any sensitive geological features in the vicinity of the proposed cable route. However, as raised by Natural England in their advice (see Appendix 2 of this Opinion) geological interest features listed in the Sandwich Bay to Hacklinge Marshes SSSI citation are of high value. The ES should identify all sensitive geological features and provide an assessment where likely significant effects could occur.

ID	Ref	Description	Inspectorate's comments
5.1.6	Volume 1, Part 4, Section 4.2.4	Baseline conditions	Natural England have identified a number of elements within their response (see Appendix 2 of this Opinion) which they advise should be investigated as part of the baseline characterisation. The Applicant is strongly encouraged to seek to agree the baseline data with relevant stakeholders and to provide evidence of that agreement in the ES.

5.2 Benthic Ecology

(Scoping Report Volume 1, Part 4, Section 4.3)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
5.2.1	Volume 1, Part 4, Table 4.3.2 and Paragraph 4.3.5.5	Changes to marine water quality during cable installation and cable lay from the use of HDD drilling fluids (construction)	The Applicant proposes to scope this matter out on the basis that the control and management measure LVS05 of the outline CoCP would be implemented meaning only inert (non-toxic), biodegradable drilling fluid will be used and disposed of at a licenced disposal site. The Inspectorate agrees that this matter can be scoped out on the basis that the mitigation measures proposed within the outline CoCP should be sufficient to address the likely impacts and avoid a likely significant effect. The ES should include details of the mitigation and explain how its delivery is assured with reference to relevant documents.
5.2.2	Volume 1, Part 4, Table 4.3.2 and Paragraph 4.3.5.5	Changes to marine water quality from accidental leaks and spills from vessels, including loss of fuel oils (construction, maintenance and decommissioning)	The Applicant proposes to scope this matter out on the basis that the control and management measures referred to within the outline CoCP create limited potential for accidental spills to occur and should an accidental spill or leak occur, it would be small in extent and subject to immediate control measures, dilution and rapid dispersal within the marine environment. The Inspectorate agrees that this matter can be scoped out on the basis that the mitigation measures proposed within the outline CoCP should be sufficient to address the likely impacts and avoid a likely significant effect. The ES should include details of the mitigation and explain how its delivery is assured with reference to relevant documents.
5.2.3	Volume 1, Part 4,	Introduction and spread of invasive non-native species (INNS) via	The Applicant proposes to scope this matter out on the basis that the control and management measures referred to within the outline

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
	Table 4.3.2 and paragraph 4.3.5.5	vessel hull or ballast water (construction, maintenance and decommissioning)	CoCP make the introduction of INNS through ship hulls and ballast water unlikely. The Inspectorate agrees that this matter can be scoped out on the basis that the mitigation measures proposed within the outline CoCP such as the Biosecurity Plan should be sufficient to address the likely impacts and avoid a likely significant effect. The ES should include details of the mitigation and explain how its delivery is assured with reference to relevant documents.
5.2.4	Volume 1, Part 4, Table 4.3.3 and Table 4.3.6	Underwater sound impacts on marine invertebrates (intertidal and subtidal ecology) (construction, maintenance and decommissioning)	The Applicant proposes to scope this matter out on the basis that the type and duration of underwater sound that will be generated by the Proposed Development will not have any significant effects on benthic invertebrates or benthic communities. In the absence of confirmed construction, details the Inspectorate considers that this matter should be scoped in for further assessment.
5.2.5	Volume 1, Part 4, Table 4.3.3 and Table 4.3.6	EMF emissions (operation)	The Applicant proposes to scope this matter out on the basis that significant effects from EMF are unlikely to occur due to the depth of cable burial and the limited sensitivity of benthic species. In the absence of an estimation of EMFs arising from cables the Inspectorate considers that this matter should be scoped in for further assessment.

ID	Ref	Description	Inspectorate's comments
5.2.6	n/a	Methodology for bringing cables onshore	It is not clear what method will be used to bring the cables onshore from the subtidal to intertidal area. The Applicants attention is drawn to the advice from the EA (see Appendix 2 of this Opinion) which advises that for all potential

ID	Ref	Description	Inspectorate's comments
			methods for bringing cables onshore, potential disturbances to benthic ecology are scoped in. The Inspectorate agrees that this level of detail will support the assessment and the understanding of likely significant effects associated.
5.2.7	Volume 1, Part 4, Section 4.3.4	Subtidal benthic habitats	The Inspectorate notes that the Scoping Report does not refer to benthic habitats surveyed within or adjacent to Marine Conservation Zones (MCZs). The ES should clearly identify protected features within or adjacent to designated sites such as Goodwin Sands MCZ and Kentish Knock East MCZ.

5.3 Fish and Shellfish

(Scoping Report Volume 1, Part 4, Section 4.4)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
5.3.1	Volume 1, Part 4, Paragraph 4.4.4.9	Impacts on spawning grounds for Dover sole, lemon sole, whiting and sprat	The Scoping Report seeks to scope this matter out on the grounds that these species are pelagic spawners which release eggs into the water column, leading to the eggs being transported away by water movement. The Inspectorate notes that these species have not been highlighted as being of particular concern by any of the consultees and therefore agrees that this matter can be scoped out of further assessment.
5.3.2	Volume 1, Part 4, Table 4.4.4	Effects on marine water quality from use of HDD drilling fluids during construction	The Scoping Report seeks to scope this matter out because the proposed mitigation measures include a commitment to only use inert, biodegradable drilling fluids which would be disposed of at a licenced disposal site. The Inspectorate agrees that this matter can be scoped out of further assessment. However, as noted in point 2.1.6 above, the ES should provide information on the mitigation measures relied on to avoid likely significant effects, including the measures which would be employed in the event of an accidental leak of drilling fluids.
5.3.3	Volume 1, Part 4, Table 4.4.4	Leaks and spills from vessels for all phases	The Scoping Report seeks to scope out this matter on the grounds that the measures contained in the CoCP would make the risk of accidental spills/leaks negligible. The Inspectorate agrees that, provided the measures to mitigate the risks of leaks and spills are clearly described in the ES and secured in the dDCO, this matter can be scoped out of further assessment.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
5.3.4	Volume 1, Part 4, Table 4.4.5	Disturbance from subsea cable thermal emissions (operation)	The Scoping Report states that cable thermal emissions have been scoped in because of the potential to alter community structure within the sediment. However, it also then states that cables have negligible capacity to heat the overlying water column. The Inspectorate has interpreted this as meaning that effects from thermal heating of the water column would not be assessed and agrees that this matter can be scoped out of further assessment.
5.3.5	Volume 1, Part 4, Table 4.4.5	Disturbance to shellfish from EMF	The Scoping Report cites published research in support of the position that while benthic invertebrates (including shellfish) may be able to detect EMF changes, significant interaction is considered to be very unlikely. The Inspectorate agrees that this matter can be scoped out of further assessment.

ID	Ref	Description	Inspectorate's comments
5.3.6	Volume 1, Part 4, Paragraph 4.4.3.1	Definition of study area	The study area shown on Figure 4.4.1 of the Scoping Report is stated to cover the ZoI for the Proposed Development. However, the advice from the Marine Management Organisation (MMO) (see Appendix 2 of this Opinion) is that the spawning grounds of the Thames/Blackwater herring should also be included in the assessments in the ES. Accordingly, the study area for this aspect should be extended to include the spawning grounds for this species at Herne Bay and at the Eagle Bank and Osea Island in the Blackwater Estuary. The Applicant should seek to agree the extent of the study area with relevant stakeholders, including the MMO.
5.3.7	Volume 1, Part 4,	Regional approach to identifying designated sites with migratory fish features	The Scoping Report states that in addition to a screening distance of 50km, a regional approach will also be used to scope in any designated sites beyond this distance. The Scoping Report does not

ID	Ref	Description	Inspectorate's comments
	Paragraph 4.4.3.2		explain how this regional approach would be employed to decide which additional sites could be affected. The Applicant is advised to agree which designated sites should be included with relevant stakeholders; the ES should explain how these sites have been identified. The Applicant's attention is drawn to the comments from Natural England on potential impacts on migratory fish in Appendix 2 of this Opinion.
5.3.8	Volume 1, Part 4, Section 4.4.4	Species included in the assessment	The Inspectorate notes that the advice from Natural England identifies several other species which they consider should be included in the assessment in the ES. The Applicant should seek to agree which species should be included in the assessment with relevant stakeholders; supporting evidence of this agreement should be provided in the ES.
5.3.9	Volume 1, Part 4, Tables 4.4.1 and 4.4.2	Baseline conditions	The Inspectorate notes that the data referred to in identifying spawning/nursery grounds is at least 20 years old. The ES should be based on the most up to date information available – the Applicant's attention is drawn to the advice from Natural England on this point (see Appendix 2 of this Opinion). The Applicant should seek to agree the appropriate baseline data with relevant stakeholders.
5.3.10	Volume 1, Part 4, Table 4.4.4	Impacts not identified in Scoping Report	The Applicant's attention is drawn to the advice from the EA (see Appendix 2 of this Opinion) on the potential for onshore impacts on water quality to affect the designated shellfish waters on the North Kent coast. The Inspectorate notes that the CoCP would describe mitigation measures required to avoid likely significant effects. The ES should explain how this potential impact on shellfish waters has been addressed.

ID	Ref	Description	Inspectorate's comments
5.3.11	Volume 1, Part 4, Table 4.4.4	Impacts not identified in Scoping Report	Natural England's advice (see Appendix 2 of this document) identifies potential impacts on fish and shellfish populations from the colonisation of artificial substrates associated with the Proposed Development. The Inspectorate considers that these impacts should be addressed in the ES.
5.3.12	Volume 1, Part 4, Section 4.4.7	Proposed assessment methodology	The Scoping Report provides a detailed explanation of how the significance of effects would be determined, based on the relevant guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM). However, no description has been provided of the methods that will be used to assess impacts and whether these will be quantitative or qualitative. The methodologies used must be described and their use justified with reference to appropriate guidance and/or agreement with relevant stakeholders. The Applicant's attention is drawn to the advice from the MMO in Appendix 2 of this Opinion in relation to assessment of effects on herring larvae (MMO response paragraph 3.5.4) and assessment of underwater noise on fish populations (MMO response paragraph 3.5.8). The assessments in the ES should address these points.

5.4 Marine Mammals

(Scoping Report Volume 1, Part 4, Section 4.5)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
5.4.1	Volume 1, Part 4, Table 4.5.3	Leaks and spills from vessels during all phases	The Scoping Report seeks to scope out this matter on the grounds that embedded mitigation and good practice measures would ensure that accidental spills/leaks would be very limited. The Inspectorate agrees that, provided the measures to mitigate the risks of leaks and spills are clearly described in the ES and secured in the dDCO, this matter can be scoped out of further assessment.
5.4.2	Volume 1, Part 4, Table 4.5.4	Temporary increase in suspended sediments concentrations (SSC) and deposition during all phases	The Scoping Report seeks to scope this matter out on the grounds that increases in SSC are expected to be minimal and confined to the lower reaches of the water column. In addition, it cites research which indicates that marine mammals do not typically experience severe impacts from increased SSC. The Inspectorate agrees that this matter can be scoped out from further assessment in the ES.
5.4.3	Volume 1, Part 4, Table 4.5.4	Disturbance to marine mammals due to cable thermal emissions during operation	The Scoping Report seeks to scope out this matter on the grounds that cables have a negligible capacity to heat the overlying water column. The Inspectorate agrees that this matter can be scoped out of further assessment in the ES.

ID	Ref	Description	Inspectorate's comments
5.4.4	Volume 1, Part 4, Paragraph 4.5.3.6	Identification of designated sites	The Inspectorate queries whether relying on a screening distance of 50km will be sufficient to identify all the relevant designated sites with cetacean qualifying features, given that harbour porpoise and bottlenose dolphin are highly mobile. We note that Natural England shares this concern and has also flagged the potential for grey and

ID	Ref	Description	Inspectorate's comments
			harbour seals to travel over greater distances than have been identified in the Scoping Report (see Appendix 2 of this Opinion). The Applicant should seek to agree the species to be included in the assessments and the appropriate screening distances to be used with relevant stakeholders, particularly Natural England.
5.4.5	Volume 1, Part 4, Paragraph 4.5.7.1	Baseline data	The Scoping Report only refers to published sources of data so it appears (although this is not explicitly stated) that the baseline would be entirely based on published data rather than any surveys of the study area. The Applicant's attention is drawn to the comments from Natural England (see Appendix 2 of this Opinion) on the need to clarify which species are actually being included in the assessments in the ES and the data used to characterise the baseline environment. The Applicant should seek to agree the approach to gathering baseline data with relevant stakeholders and provide evidence of that agreement in the ES. The ES must present the baseline data clearly, including information on the predicted numbers of individuals of each species likely to be affected by the Proposed Development. The ES must also explain how the baseline data has been derived from published sources.
5.4.6	Volume 1, Part 4, Table 4.5.3	Underwater noise impacts	Table 4.5.3 identifies various sources of underwater noise which could affect marine mammals but does not include any reference to noise from any underwater surveys (such as geophysical surveys). Where such surveys are proposed at the pre-construction stage then the related underwater noise impacts should be assessed in the ES.
5.4.7	Volume 1, Part 4, Section 4.5.7	Proposed assessment methodology	The Scoping Report provides a detailed explanation of how the significance of effects would be determined, based on the CIEEM guidance. However, no description has been provided of the methods that will be used to assess impacts and whether these will be quantitative or qualitative. Unless otherwise agreed with relevant stakeholders (and evidence of that agreement is provided in the ES),

ID	Ref	Description	Inspectorate's comments
			the assessment should include modelling of underwater noise propagation during construction and decommissioning and the area affected by increased noise levels should be shown on figures within the ES.

5.5 Marine Ornithology

(Scoping Report Volume 1, Part 4, Section 4.6)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
5.5.1	Volume 1, Part 4, Table 4.6.1	Leaks and spills from vessels during all phases	The Scoping Report seeks to scope out this matter on the grounds that the measures contained in the CoCP would make the risk of accidental spills/leaks negligible. The Inspectorate agrees that, provided the measures to mitigate the risks of leaks and spills are clearly described in the ES and secured in the draft DCO (dDCO), this matter can be scoped out of further assessment.

ID	Ref	Description	Inspectorate's comments
5.5.2	Volume 1, Part 4, Paragraph 4.6.4.1	Bird species to be considered in assessment	Paragraph 4.6.4.1 states that that only species which are qualifying features of statutory wildlife sites are considered within the Scoping Report. As a minimum, the ES should also include assessments of effects on any other species present within the ZoI which are legally protected or which qualify as species of principal importance. It is noted that intertidal and shoreline bird surveys are ongoing. The Scoping Report does not explain how baseline data will be compiled for the offshore parts of the study area although the references to published data sources implies this will be based on desk studies. The Applicant should seek to agree the approach to gathering baseline data with relevant stakeholders and provide evidence of that agreement in the ES. The ES must present the baseline data clearly, including information on the predicted numbers of individuals of each species likely to be affected by the Proposed Development. The ES must also explain how the baseline data has been derived from published sources. The Applicant's attention is drawn to the comments from Natural England on the need for further information

ID	Ref	Description	Inspectorate's comments
			on the approach to gathering baseline data (see Appendix 2 of this Opinion).
5.5.3	Volume 1, Part 4, Section 4.6.7	Proposed assessment methodology	The Scoping Report provides a detailed explanation of how the significance of effects would be determined, based on the relevant guidance from CIEEM. However, no description has been provided of the methods that will be used to assess impacts and whether these will be quantitative or qualitative. This is a matter of some concern to the Inspectorate, given that the Proposed Development passes through a section of the Outer Thames Estuary SPA. The SPA qualifying features include species such as red-throated diver which are known to be vulnerable to disturbance and which could be affected by construction and maintenance activities. The ES should clearly describe the methods used to quantify the extent of disturbance to the qualifying features. The methodologies used must be described and their use justified with reference to appropriate guidance and/or agreement with relevant consultation bodies/stakeholders.

5.6 Marine Archaeology

(Scoping Report Volume 1, Part 4, Section 4.7)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
5.6.1	n/a	n/a	No matters have been proposed to be scoped out of the assessment

ID	Ref	Description	Inspectorate's comments
5.6.2	Volume 1, Part 4, Section 4.7.3	Study area	The Scoping Report states that the study area is the offshore scoping boundary as shown on Figure 4.7.1. The Inspectorate notes that the extent of the study area will be subject to review and may be extended in future. The ES must provide a clear rationale for the definition of the study area which explains how the study area relates to the ZoI of the Proposed Development. The Applicant's attention is drawn to the comments from Historic England in Appendix 2 of this Opinion on the need to ensure that all impacted seabed areas are considered in the assessment, including areas which could be affected by vessel anchoring during construction.
5.6.3	Volume 1, Part 4, Sections 4.7.4 and 4.7.7	Baseline conditions	Historic England and Kent County Council have both identified additional sources of baseline data relevant to the assessment in the ES (see Appendix 2 of this Opinion). In addition, Historic England has also advised that the collection of further cores should be considered. The Applicant is strongly encouraged to seek to agree the baseline data with relevant stakeholders and to provide evidence of that agreement in the ES.
5.6.4	Volume 1, Part 4,	Archaeological exclusion zones (AEZ)	The Scoping Report states that AEZ will not be proposed for features of lower archaeological value but does not explain how the importance of features would be evaluated; it appears from the text

ID	Ref	Description	Inspectorate's comments
	Paragraph 4.7.5.6		that value and importance are being treated as equivalent but this is not explicitly stated. The ES must clearly explain the rationale used to determine the importance of archaeological features.
5.6.5	Volume 1, Part 4, Paragraph 4.7.5.11	WSI	It is noted that the mitigation for the Proposed Development includes a proposed WSI. As this measure may be relied on to avoid significant environmental effects, the Applicant is advised to submit an outline WSI with its application, in order to give confidence to the ExA and SoS regarding the conclusions of significance.

5.7 Shipping and Navigation

(Scoping Report Volume 1, Part 4, Section 4.8)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
5.7.1	Volume 1, Part 4, Table 4.8.3	Displacement leading to increased vessel to vessel collision risk (all phases)	The Scoping Report seeks to scope this matter out on the grounds that the project vessels would have a "*limited temporal and spatial presence*". However, the Scoping Report does not include any supporting evidence on the number of vessels likely to be required for the different phases of the Proposed Development or the number of third party vessels that could be displaced. In addition, the advice from the Maritime and Coastal Agency (MCA) is that no matters should be scoped out of assessment prior to the completion of the Navigation Risk Assessment (NRA) and further consultation (see Appendix 2 of this Opinion). It is the Inspectorate's view that scoping this matter out at this stage is premature. Accordingly, the ES should include an assessment of this matter or information demonstrating agreement with the relevant consultation bodies and the absence of a likely significant effect.

ID	Ref	Description	Inspectorate's comments
5.7.2	Volume 1, Part 4, Paragraph 4.8.3.1	Study area	The Scoping Report states that the 10 nautical mile (nm) buffer around the offshore scoping boundary reflects the ZoI of the Proposed Development but does not explain why. The ES should clearly justify why the final extent of the study area reflects the ZoI of the Proposed Development.
5.7.3	Volume 1, Part 4, Table 4.8.3	Impact pathways/hazard identification	While the Scoping Report identifies potential impacts from the Proposed Development in broad terms, the advice from the Maritime

ID	Ref	Description	Inspectorate's comments
	and Paragraph 4.8.7.16		and Coastguard Agency (MCA) identifies additional specific impacts which should be covered in assessments: • impacts on navigational safety; • visual intrusion and noise; • impacts on risk management and emergency responses including search and rescue; • risk to drifting recreational craft in poor weather or tidal conditions; and • displacement of small craft into the routes of larger commercial vessels. These impacts should be assessed in the ES unless otherwise agreed with the MCA, in which case evidence of such agreement must be provided in the ES.
5.7.4	Volume 1, Part 4, Section 4.8.7	Proposed assessment methodology	The MCA has provided advice on the appropriate methodology to be used in the assessment of under keel clearance (see Appendix 2 of this Opinion). The ES should explain how this methodology has been followed unless otherwise agreed with the MCA, in which case evidence of such agreement must be provided in the ES.
5.7.5	Volume 1, Part 4, Section 4.8.7	Proposed assessment methodology	The advice from the MCA (see Appendix 2 of this Opinion) identifies the need for a Burial Protection Index study and possibly an anchor penetration study. The Applicant should seek to agree with relevant consultation bodies which studies/risk assessments are necessary to support the assessment of likely significant effects in the ES and report them accordingly. The Applicant's attention is also drawn to the advice from the MCA that, in the event that cable protection is required, a reduction of 5% in the surrounding depths (with reference to Chart Datum) is

ID	Ref	Description	Inspectorate's comments
			acceptable. The ES should explain how the risk of reduced under keel clearance has been addressed and identify how it would be kept within an acceptable range with supporting evidence from any discussions with the MCA and Trinity House.

5.8 Commercial Fisheries

(Scoping Report Volume 1, Part 4, Section 4.9)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
5.8.1	Volume 1, Part 4, Table 4.9.2	Leaks and spills from vessels during all phases	The Scoping Report seeks to scope out this matter on the grounds that the measures contained in the CoCP would make the risk of accidental spills/leaks negligible. The Inspectorate agrees that, provided the measures to mitigate the risks of leaks and spills are clearly described in the ES and secured in the dDCO, this matter can be scoped out of further assessment.

ID	Ref	Description	Inspectorate's comments
5.8.2	Volume 1, Part 4, Section 4.9.7	Proposed assessment methodology	The Scoping Report identifies the data sources that would be used to inform the baseline and describes the criteria that would be used to determine the sensitivity of receptors and the magnitude of impacts. However, it is not clear from the Scoping Report what methods would be used to carry out the assessment and whether the assessments would be qualitative or quantitative. The methodologies used must be described and their use justified with reference to appropriate guidance and/or agreement with relevant stakeholders. The Applicant is strongly encouraged to ensure that they seek advice from all relevant stakeholders with expertise on this aspect, including the appropriate Inshore Fisheries and Conservation Authorities (IFCAs).

5.9 Other Sea Users

(Scoping Report Section Volume 1, Part 4, 4.10)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
5.9.1	n/a	n/a	No matters have been proposed to be scoped out of the assessment

ID	Ref	Description	Inspectorate's comments
5.9.2	Volume 1, Part 4, Paragraph 4.10.3.1	Study area	The Scoping Report states that the study area will consist of a 10km buffer around the offshore scoping boundary. The study area is stated to be defined by the extent of the potentially affected other sea users but does not explain how this relates to the ZoI of the Proposed Development. The ES should clearly justify why the extent of the study area reflects the ZoI of the Proposed Development.
5.9.3	Volume 1, Part 4, Paragraph 4.10.4.9	Recreational activity maps	The Scoping Report states that the baseline data will refer to the MMO recreation activity maps if these are published before the completion of the ES. Desk studies would be used in the event that the MMO maps are not published. The ES should explain the source of the relevant information (if the MMO maps have not been published) and if possible, demonstrate agreement with relevant stakeholders on the adequacy of the data.
5.9.4	Volume 1, Part 4, Paragraphs 4.10.7.4 to 4.10.7.5	Proposed assessment methodology	The Scoping Report identifies the data sources that would be used to inform the baseline and describes the criteria that may be used to determine the sensitivity of receptors and the magnitude of impacts. However, it is not clear from the Scoping Report what methods would be used to carry out the assessment and whether the assessments would be qualitative or quantitative. The methodologies used must be

ID	Ref	Description	Inspectorate's comments
			described and their use justified with reference to appropriate guidance and/or agreement with relevant stakeholders.
5.9.5	Volume 1, Part 4, Section 4.10.4	Baseline conditions	The Scoping Report identifies various users of the area potentially affected by the Proposed Development but does not include any reference to any defence interests such as Practice and Exercise Areas. The ES should either include an assessment of impacts on these interests or a justification as to why such an assessment is not required. The Applicant's attention is drawn to the comments from the Ministry of Defence in Appendix 2 of this Opinion.

5.10 Cumulative Effects

(Scoping Report Volume 1, Part 4, Section 4.11)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
5.10.1	n/a	n/a	No matters have been proposed to be scoped out of the assessment

ID	Ref	Description	Inspectorate's comments
5.10.2	Volume 1, Part 4, Section 4.11.2	Definition of ZoI for the Proposed Development	The Scoping Report has based the ZoI for cumulative offshore effects on the basis of the maximum distance over which marine mammals are expected to be disturbed during construction. The Applicant's attention is drawn to the comments from the MMO and Natural England in Appendix 2 of this Opinion, which highlight the possibility that the effects of underwater noise could extend over a greater area for fish species and marine mammals. The Applicant should seek to agree the ZoI for the offshore cumulative effects assessment with relevant stakeholders and if necessary, establish different ZoI for different aspects and different phases of the Proposed Development.

6. ENVIRONMENTAL ASPECT COMMENTS – PROJECT WIDE EFFECTS

6.1 Climate Change

(Scoping Report Volume 1, Part 5, Section 5.1)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
6.1.1	Volume 1, Part 5, Table 5.1.2	In-combination temperature change	Future temperature changes as a result of climate change are not anticipated to be exacerbated by the Proposed Development in combination with future conditions. The Inspectorate agrees that this matter can be scoped out.
6.1.2	Volume 1, Part 5, Table 5.1.2	In-combination sea level rise	Future sea level rise as a result of climate change is not anticipated to be exacerbated by the Proposed Development in combination with future conditions. The Inspectorate agrees that this matter can be scoped out.
6.1.3	Volume 1, Part 5, Table 5.1.2	In-combination precipitation change	Future precipitation changes as a result of climate change are not anticipated to be exacerbated by the Proposed Development in combination with future conditions. The Inspectorate agrees that this matter can be scoped out.
6.1.4	Volume 1, Part 5, Table 5.1.2	In-combination wind	Future wind as a result of climate change is not anticipated to be exacerbated by the Proposed Development in combination with future conditions. The Inspectorate agrees that this matter can be scoped out.

ID	Ref	Description	Inspectorate's comments
6.1.5	n/a	n/a	n/a

6.2 Major Accidents and Disasters

(Scoping Report Volume 1, Part 5, Section 5.2)

ID	Ref	Applicant's proposed aspect to scope out	Inspectorate's comments
6.2.1	Volume 1, Part 5, Table 5.2.4	Whole aspect	Scoping Report Appendix 5.2.A identifies the potential major accidents and disasters and that these can be mitigated or reduced by the processes and standards in place. The Project is also unlikely to generate any potential significant effects on the environment if a major accident or disaster were to occur. Therefore, the Inspectorate agrees to scope this aspect out.

ID	Ref	Description	Inspectorate's comments
6.2.2	n/a	n/a	n/a

6.3 Combined Effects of the Project

(Scoping Report Volume 1, Part 5, Section 5.3)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
6.3.1	n/a	n/a	No matters have been proposed to be scoped out of the assessment

ID	Ref	Description	Inspectorate's comments
6.3.2	Volume 1, Part 5, Table 5.3.1	Justification for scoping in/out receptor groups	Table 5.3.1 identifies where there is a potential pathway for effect both from the onshore and offshore elements of the Proposed Development on receptors. However, the potential for a combined effect is not identified; the ES should explain the pathways for effect for each receptor group.
6.3.3	Volume 1, Part 5, Paragraph 5.3.2.12	Methodology	The ES should set out the methodology(s) for assessing significant combined effects.

APPENDIX 1: CONSULTATION BODIES FORMALLY CONSULTED

TABLE A1: PRESCRIBED CONSULTATION BODIES[1]

SCHEDULE 1 DESCRIPTION	ORGANISATION
The Health and Safety Executive	Health and Safety Executive
The National Health Service Commissioning Board	NHS England
The relevant Integrated Care Board	NHS Mid and South Essex Integrated Care Board
	NHS Kent and Medway Integrated Care Board
Natural England	Natural England
The Historic Buildings and Monuments Commission for England	Historic England
The relevant fire and rescue authority	Kent Fire and Rescue Service
	Suffolk Fire and Rescue Service
The relevant police and crime commissioner	Kent Police and Crime Commissioner
	Suffolk Police and Crime Commissioner
The relevant parish councils	Aldeburgh Parish Council
	Aldringham cum Thorpe Parish Council
	Ash Parish Council
	Cliffsend Parish Council
	Friston Parish Council
	Kelsale cum Carlton Parish Council
	Knodishall Parish Council
	Leiston Parish Council

[1] Schedule 1 of The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (the 'APFP Regulations')

SCHEDULE 1 DESCRIPTION	ORGANISATION
	Minster Parish Council
	Ramsgate Parish Council
	Saxmundham Parish Council
	Sternfield Parish Council
	Theberton and Eastbridge Parish Council
	Worth Parish Council
The Environment Agency	The Environment Agency
The Joint Nature Conservation Committee	Joint Nature Conservation Committee
The Maritime and Coastguard Agency	The Maritime and Coastguard Agency
The Marine Management Organisation	Marine Management Organisation
The Civil Aviation Authority	Civil Aviation Authority
The Relevant Highways Authority	Suffolk County Council Highways Department
	Kent County Council Highways Department
The Coal Authority	The Coal Authority
The relevant internal drainage board	East Suffolk Internal Drainage Board
	River Stour (Kent) Internal Drainage Board
Trinity House	Trinity House
United Kingdom Health Security Agency, an executive agency of the Department of Health and Social Care	United Kingdom Health Security Agency
The Crown Estate Commissioners	The Crown Estate
The Forestry Commission	The Forestry Commission
The Secretary of State for Defence	Ministry of Defence

SCHEDULE 1 DESCRIPTION	ORGANISATION
The Office for Nuclear Regulation (the ONR)	The Office for Nuclear Regulation (the ONR)

TABLE A2: RELEVANT STATUTORY UNDERTAKERS[2]

STATUTORY UNDERTAKER	ORGANISATION
The relevant Integrated Care Board	NHS Mid and South Essex Integrated Care Board
	NHS Kent and Medway Integrated Care Board
The National Health Service Commissioning Board	NHS England
The relevant NHS Trust	East of England Ambulance Service NHS Trust
The relevant NHS Foundation Trust	South East Coast Ambulance Service NHS Foundation Trust
Railways	Network Rail Infrastructure Ltd
	Highways England Historical Railways Estate
Dock and Harbour authority	Thanet District Council
	Sandwich Port and Haven Commissioners
	Harwich Haven Authority
Civil Aviation Authority	Civil Aviation Authority
Universal Service Provider	Royal Mail Group
Homes and Communities Agency	Homes England
The relevant Environment Agency	The Environment Agency

[2] 'Statutory Undertaker' is defined in the APFP Regulations as having the same meaning as in Section 127 of the Planning Act 2008 (PA2008)

STATUTORY UNDERTAKER	ORGANISATION
The relevant water and sewage undertaker	Anglian Water
	Essex and Suffolk Water
	Southern Water
The relevant public gas transporter	Cadent Gas Limited
	Northern Gas Networks Limited
	Scotland Gas Networks Plc
	Southern Gas Networks Plc
	Wales and West Utilities Ltd
	Energy Assets Pipelines Limited
	ES Pipelines Ltd
	ESP Connections Ltd
	ESP Networks Ltd
	ESP Pipelines Ltd
	Fulcrum Pipelines Limited
	Harlaxton Gas Networks Limited
	GTC Pipelines Limited
	Independent Pipelines Limited
	Indigo Pipelines Limited
	Leep Gas Networks Limited
	Last Mile Gas Ltd
	Mua Gas Limited
	Quadrant Pipelines Limited
	Squire Energy Limited
	National Grid Gas Plc

STATUTORY UNDERTAKER	ORGANISATION
The relevant electricity generator with CPO Powers	EDF Energy Nuclear Generation Limited
	Eclipse Power Network Limited
	Energy Assets Networks Limited
	ESP Electricity Limited
	Fulcrum Electricity Assets Limited
	Harlaxton Energy Networks Limited
	Independent Power Networks Limited
	Indigo Power Limited
	Last Mile Electricity Ltd
	Leep Electricity Networks Limited
	Mua Electricity Limited
	Optimal Power Networks Limited
	The Electricity Network Company Limited
	UK Power Distribution Limited
	Utility Assets Limited
	Vattenfall Networks Limited
	UK Power Networks Limited
The relevant electricity transmitter with CPO Powers	Diamond Transmission Partners Galloper Limited
	Greater Gabbard OFTO Plc
	National Grid Electricity Transmission Plc
	National Grid Electricity System Operator Limited
	Thanet OFTO Limited
The relevant electricity interconnector with CPO Powers	BritNed Development Limited
	Gridlink Interconnector Limited

STATUTORY UNDERTAKER	ORGANISATION
	NeuConnect Britain Ltd

TABLE A3: SECTION 43 LOCAL AUTHORITIES (FOR THE PURPOSES OF SECTION 42(1)(B))[3]

LOCAL AUTHORITY[4]
Babergh District Council
Cambridgeshire County Council
Canterbury City Council
Dover District Council
East Suffolk Council
East Sussex County Council
Essex County Council
Folkestone and Hythe District Council
Great Yarmouth Borough Council
Ipswich Borough Council
Kent County Council
London Borough of Bexley
London Borough of Bromley
Medway Council
Mid Suffolk District
Norfolk County Council
South Norfolk District
Suffolk County Council
Surrey County Council

[3] Sections 43 and 42(B) of the PA2008

[4] As defined in Section 43(3) of the PA2008

LOCAL AUTHORITY[4]
Thanet District Council
The Broads National Park Authority
Thurrock County Council

TABLE A4: NON-PRESCRIBED CONSULTATION BODIES

ORGANISATION
Royal National Lifeboat Institution

APPENDIX 2: RESPONDENTS TO CONSULTATION AND COPIES OF REPLIES

CONSULTATION BODIES WHO REPLIED BY THE STATUTORY DEADLINE:
Aldeburgh Town Council
Aldringham-cum-Thorpe Parish Council
Anglian Water
Broads Authority
Canterbury City Council
Coal Authority
Dover District Council
East of England Ambulance Service NHS Trust
East Suffolk Council
Environment Agency
Folkestone and Hythe District Council
Forestry Commission
Friston Parish Council
Great Yarmouth Borough Council
Historic England
Joint Nature Conservation Committee
Kelsale-cum-Carlton Parish Council
Kent County Council
Leiston-cum-Sizewell Town Council
Marine Management Organisation
Maritime and Coastguard Agency
Ministry of Defence

Natural England
Network Rail
Northern Gas Networks
Office for Nuclear Regulation
Royal Mail
South Norfolk Council
Suffolk and North East Essex Integrated Care Board
Suffolk County Council
Surrey County Council
Thanet District Council
Theberton and Eastbridge Parish Council
UK Health Security Agency

Aldeburgh Town Council response to the

SeaLink Environmental Impact Assessment Scoping Report October 2022

(Due to the strict time frame and limited detail as to the technical solutions proposed by the Developer, Aldeburgh Town Council would respectfully reserve the right to add to their response.)

Introduction and project wide comments:

Aldeburgh is a coastal town in East Suffolk District council. It is bordered to the South by the River Alde, to the East by the North Sea. A large proportion of the town is in an AONB, with SSSI designated land, North Warren RSPB reserve/marshland and a local heritage Garratt Anderson Era area, as well as several areas in Flood Zones, and the land available for development is extremely limited. The economy of Aldeburgh is predominately tourism and retail/recreation & entertainment with a strong heritage in Music/the Arts and as an old fishing port (Slaughden).

The Town has its own Primary school, Community Hospital, GP Surgery, Library, Fire Station, RNLI Lifeboat station & Coastguard service with town allotments and recreational fields. A wide variation of independent shops, restaurants, pubs and hotels, independent Cinema and Bookshop, various community use spaces, a large second-home and formal and informal holiday let accommodation, along with a local resident population. Our road network is limited and we are actively exploring speed limits and parking strategies. Aldeburgh is famous and important within Suffolk as a year-long destination for day visitors and those staying, (as is the adjacent parish of Thorpeness and further up the coast Dunwich and Southwold – all areas to be impacted by various options of this project) with many festivals (documentary, poetry, theatre, music, food & drink etc) two yacht clubs, tennis courts and a golf course. The area is valued for its tranquillity, and preserved heritage (The Moot Hall a Tudor style Grade I listed building & award-winning Museum, and The Red House – home & archive centre of composer Benjamin Britten).

Aldeburgh Town Council and the residents it represents are supportive of renewable energy and off-shore wind generation in principle, but cannot support the proposed SeaLink project. We believe the main problems have resulted from the following;

The fact that where the energy is generated is not where the energy is needed, yet NG have failed to maintain or expand the overhead network system to accommodate this transition. (NG themselves admit the overhead lines support the old coal fire station layout only).

The offer of a connection in the 'Leiston area' onto the 400KV overhead lines should not have been made by NG if the powerlines are not able to transfer the energy to the South. It makes no sense and is not cost effective nor does the benefit outweigh the damage to the environment of bringing energy onshore on the Suffolk Coast and across to a new convertor station, new substation (Friston is still subject to JR) only to then send it back out to another new convertor station to a different new landfall out to a sea cable to Kent. Although the Developer says the cable would be two way they have confirmed verbally (evidence requested as yet received) that the majority of the flow will be from Suffolk to Kent where there is more demand. (In Suffolk the SZB nuclear power station has been and will be extended a further 35years which is beyond the life-time of this project). If power is needed in Kent from the wind-farms off the East Coast a link should go direct from off-shore infrastructure.

The SeaLink, EuroLink and Nautilus projects all propose to connect to the proposed new substation at Friston yet when consented by Sec of State this was only for SPR EA1N and EA2. The cumulative negative impact of these projects should require the original decision to be reconsidered as Developers are using the existence of this connection point/substation as the reason to justify locating projects here.

The Developer relies on the premise that the UK needs energy, and it's got to come ashore somewhere…we believe a pause should be imposed to enable better technology, true coordination and offshore infrastructure which would prevent negative impact to onshore areas, while still meeting net zero targets as the projects could then accelerate to completion with the right infrastructure.

The EIA has failed to adequately consider the above factors in the evolution of the Suffolk Onshore Scheme.

Co-ordination versus co-location

Throughout the EIA the Developer has stated that they are looking to coordinate landfall, cable runs, convertor stations because SCC, ES and other consultees have requested co-ordination (2.1.8.1). Yes, we have asked for strategic co-ordination on brown field sites, which would remove the need to duplicate or triplicate infrastructure…but all they are proposing is co-location of three sets of cable runs, and to site three convertor stations in the same place with very limited reduction on land take footprint or negative impact. This is not co-ordination. And more dangerously this precedent has now produced 'emerging preferred options' - with landfall area A2 the only one capable of taking three sets of cable runs. We also object to the questions put by the Developer in their consultations when asking if respondents want 'co-ordination'…which of course they will respond positively to..but again this is not true co-ordination where infrastructure would be shared and therefore land take minimized, it is co-location.

Value and protection of SSSI, AONB

We believe the value of SSSI, RSPB reserve land and areas without infrastructure has been minimized throughout the EIA by the Developer who has not included their true worth as vital elements of our economy as a tourism destination, and as a place of tranquillity which contributes towards physical well-being and mental health. For example, in their assumption that it is acceptable to consider potential landfall at S2 because although it "interacts with the Leiston to Aldeburgh SSSI and North Warren RSPB reserve but has minimal constraints on the marine approach and is not constrained by the presence of any other existing or proposed infrastructure." (Vol 1 Part 2. 2.1.8.14)

We would argue that areas where there is other infrastructure are less impacted by industrialization of this scale. The finding that there is no other infrastructure should not be a positive to encourage location. And although the marine approach will determine potential landfall – these features should not outweigh the potential damage and harm. Research shows that there are other locations for land fall which would not involve areas of outstanding natural beauty (AONB).

The protection which should apply to Sites of Special Scientific Interest (SSSIs) is well documented in planning guidance. The following references are from EN1 National Policy Statement for Energy Infrastructure:

5.3.10 Many SSSIs are also designated as sites of international importance and will be protected accordingly. Those that are not, or those features of SSSIs not covered by an international designation, should be given a high degree of protection. All National Nature Reserves are notified as SSSIs.

5.3.11 Where a proposed development on land within or outside an SSSI is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), development consent should not normally be granted. Where an adverse effect, after mitigation, on the site's notified special interest features is likely, an exception should only be made where the benefits (including need) of the development at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs.

ATC do not accept that the benefits outweigh the impacts in our area as the SeaLink project could use a different technical model and different siting options while still meeting net zero targets and delivering energy to where it is needed.

Development proposed within nationally designated landscapes

5.9.9 National Parks, the Broads and AONBs have been confirmed by the Government as having the highest status of protection in relation to landscape and scenic beauty. Each of these designated areas has specific statutory purposes which help ensure their continued protection and which the IPC should have regard to in its decisions. The conservation of the natural beauty of the landscape and countryside should be given substantial weight by the IPC in deciding on applications for development consent in these areas.

5.9.10 Nevertheless, the IPC may grant development consent in these areas in exceptional circumstances. The development should be demonstrated to be in the public interest and consideration of such applications should include an assessment of: ● the need for the development, including in terms of national considerations, and the impact of consenting or not consenting it upon the local economy; ● the cost of, and scope for, developing elsewhere outside the designated area or meeting the need for it in some other way, taking account of the policy on alternatives set out in Section 4.4; and ● any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

5.9.11 The IPC should ensure that any projects consented in these designated areas should be carried out to high environmental standards, including through the application of appropriate requirements where necessary

Developments outside nationally designated areas which might affect them

5.9.12 The duty to have regard to the purposes of nationally designated areas also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. The aim should be to avoid compromising the purposes of designation and such

projects should be designed sensitively given the various siting, operational, and other relevant constraints.

ATC believe the proposals will have a negative impact both in and adjacent to the AONB.

“Actions can be considered harmful to AONB if it results in the loss of, or material harm to any of the components of character that combine to form the area’s natural beauty and/or its constraints, achievement of AONB Management Plan objectives.”

*Note – throughout the Scoping report the applicant says the impact is minimal.

ATC believe in assessing the magnitude of harm that minimal is where the probability and magnitude of harm or discomfort anticipated in the proposed application is “not greater, in and of themselves, than those ordinarily encountered in daily lives of the general population.”

The following comments are specifically in response to Vol1 Part 2: Suffolk Onshore Scheme.

2.2: Landscape & Visual Impact Assessment

In an AONB/SSSI the project will cause significant harm to the landscape and views enjoyed by residents and visitors, the basis for the economy (tourism, peace, tranquillity, artists/creatives etc).

EN1 offers guidance on the negative Visual impact (5.9.18) “All proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites. The IPC will have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the project.”

*Note: The difficulty with EN1 is that it does not include visual impact of all the onshore infrastructure as the policy is out of date and overdue for review, however the implication is clear. Consideration must be that the project can be delivered elsewhere without the same disbenefit. ATC believes the Developer cannot reduce impact at any of the proposed locations, it is possible to landscape but takes years to mature.

Landscape reinstatement also is needed (landform & woodland screening, reinstatement of hedgerows and vegetation.) Developer proposes only a 5 year aftercare period.

EN1 National Policy Statement for Energy Infrastructure is clear with regard to loss of woodland: (5.3.14) “Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost it cannot be recreated. The IPC should not grant development consent for any development that would result in its loss or deterioration unless the benefits (including need) of the development, in that location outweigh the loss of the woodland habitat. Aged or ‘veteran’ trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided.”

*Note the benefits of the development, in this location do not outweigh the loss of woodland habitat. Woodland in the Aldringham area (site of cable routes) is designated as ‘ancient’ on Natural England’s Ancient Woodland inventory.

ATC would request that a full and detailed record kept of areas affected by an independent body with checks on visual resources after both during summer and winter.
We note that various area have been given high or low sensitivity ratings by the Developer, but this remains a judgement and open to bias (should be done by independent body).
Sensitivity of visual receptors is defined through appraisal of the viewing expectation or value placed on the view as identified in baseline study, and its susceptibility to change.
Temporary impacts to the landscape will be major for a significant construction period.
Visual impact should also be considered of traffic & welfare compounds, laydown areas etc.

2.3: Ecology/Biodiversity
The section (as with others) appears to be not the result of actual research, but more a list of possible research and hypothetical consequences. Difficult for Town/Parishes to comment.
Developer claims they are aiming for a 10% increase in biodiversity by providing new habitats.
Surveys would be necessary e.g. botanical, reptiles, great crested newts, badgers, woodlarks, nightjars.
Many places mentioned: Minsmere, Iken wood, Staverton Park, Sizewell marshes.
Mention of Trenchless techniques without precise description or feasibility studies.
Location of Convertor stations must be in brown field locations to minimize impact on habitats.
More information including impact assessment needed.

ATC does not believe that the Developer has adequately considered the impact of loss of green space, footpaths and walking areas. EN1 guidance as follows: (5.10.2) The Government's policy is to ensure there is adequate provision of high-quality open space (including green infrastructure) and sports and recreation facilities to meet the needs of local communities. Open spaces, sports and recreational facilities all help to underpin people's quality of life and have a vital role to play in promoting healthy living. Green infrastructure in particular will also play an increasingly important role in mitigating or adapting to the impacts of climate change.

(5.10.24) Rights of way, National Trails and other rights of access to land are important recreational facilities for example for walkers, cyclists and horse riders

ATC considers these proposals will remove large section of the open green space used for walking, tranquil recreation and healthy well-bring. A significant number of Public Rights of Way (PRoW) will be temporarily stopped up or diverted or will be lost permanently. After construction those reinstated will still be negatively impacted by noise and light pollution due to their proximity to the proposed development. Industrialising large areas of agricultural land will also have a negative impact on climate change/CO2 whereas other potential sites including previously brown field are available.

2.4: Heritage
A number of policy documents are noted, plus there is reference made to "Planning (Listed Buildings and Conservation Areas) Act 1990; and Ancient Monuments and Archaeological Areas Act 1979 (amended by the National Heritage Act 1983and 2002).
The developer themselves admits that "Effects to heritage assets may arise as a result of physical impacts to their fabric or through changes to their setting" as such this project is therefore harmful.

Two Scheduled Monuments and seven Grade 11 listed buildings are in the scoping area, majority are outside or adjacent to the scoping area.
The scoping document does list the various important sites and properties in the area and we would request that PINS takes this into serious consideration.
The reputation for the whole area in terms of Heritage is crucial to the economy and well-being of residents.

EN1 guidance on Heritage and Historic assets confirms a presumption in favour of the conservation of designated heritage assets. (5.8.14) "Once lost heritage assets cannot be replaced and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Loss affecting any designated heritage asset should require clear and convincing justification. Substantial harm to or loss of a grade II listed building park or garden should be exceptional. Substantial harm to or loss of designated assets of the highest significance, including Scheduled Monuments; registered battlefields; grade I and II* listed buildings; grade I and II* registered parks and gardens; and World Heritage Sites, should be wholly exceptional." The application proposal impacts several listed buildings which should be protected with the presumption in favour of conservation and we do not believe the EIA has given sufficient weight to this.

2.5: Water Environment and impact on coastal communities
Concern regarding impact on coastal erosion, sea/river and fluvial flooding, drainage and the environmental effect of changes to the water table.
Storage of spoil could also lead to problems.
Developer aims to have the Convertor Stations above the flood-plain, but many options are in or close to flood zones.
All the proposed locations for landfall are in areas subject to coastal change. EN1 includes guidance on the Impact on Coastal communities (5.5.1) "The Government's aim is to ensure that our coastal communities continue to prosper and adapt to coastal change. This means planning should: ● ensure that policies and decisions in coastal areas are based on an understanding of coastal change over time; ● prevent new development from being put at risk from coastal change by (i) avoiding inappropriate development in areas that are vulnerable to coastal change or any development that adds to the impacts of physical changes to the coast, and (ii) directing development away from areas vulnerable to coastal change; ● ensure that the risk to development which is, exceptionally, necessary in coastal change areas because it requires a coastal location and provides substantial economic and social benefits to communities, is managed over its planned lifetime; and ● ensure that plans are in place to secure the long-term sustainability of coastal areas."

There is no economic and social benefit to the local communities what so ever. A small % of jobs during construction could be local but unlikely as these are specific skills set. There is a small number of jobs in the Lowestoft area connected to the maintenance of off-shore wind farms. There is no social benefit and in fact there will be economic and social detriment. The development is not 'exceptionally necessary' as other locations exist which could provide a solution, especially if the wrong initial grid offer is challenged.

2.6: Geology and Hydrogeology

Concern regarding the potential for geology and hydrogeology effects through excavation/disturbance of potentially contaminated soil, creation of pathways for contamination during piling or foundation excavation, and changes to groundwater levels and flow (e.g. through dewatering) and changes to ground water levels and flow.

We would rely on expert advice and guidance from EA and others to fully understand the impact especially to the aquifer, water supply, receptors generally and in sensitive areas such as SSSIs.

2.7: Agriculture and Soils

Agriculture land survey would be needed. Avoid quality land 1,2,3a. Instead: 3b,4,5. Agriculture is an important element of our economy.

Arable land and urban development need to be studied and the research shared with Town/Parish councils to enable response.

Care of the soil needed, and must reinstate.

Very limited communications currently with affected landowners. Impact assessment would be needed.

Cliff areas are particular vulnerable.

2.8: Traffic and Transport

Concerns are primarily regarding navigating in and out of the wider area for residents and visitors.

Details of volume of vehicles and routes are unknown (such as shift patterns, weekend working, whether projects will be concurrent or sequential in their construction.)

Cumulative impact with proposed SZC project traffic in the same area.

Impact of worker's vehicles (rat-runs and rat-parking).

Vehicle compound areas and delivery of wide loads, and storage of large equipment.

How will diversions and PROW be managed in real time and what notice/communications in advance. How will access be maintained for landowners and residents affected?

Suffolk is limited in its transport network due to location of rivers, the coast. The project areas would be accessed via B roads, quiet lanes and areas of rurality often with no footpaths.

2.9: Air Quality

Developer states it the impacts of this project are likely to be below IAQM screening and monitoring levels, yet admits the volume of traffic required is unknown.

All construction projects impact on air quality both from vehicle emissions, and equipment drilling disturbing the soil which could change depending on what time of year construction takes place.

The areas proposed have very low baseline levels of pollution currently.

We are not reassured that site management and inspections will prevent bad practise such as vehicle idling.

2.10: Noise and Vibration.

Developer says no residential areas implicated, but people travel to/from and through these proposed sites, and some residential properties are located close by. Locations of Grade listed buildings.

Wildlife would be impacted by Noise and Vibration.

The proposed converter station & sub-station not yet designed (p310) so it is impossible to judge.

Anti-vibration mountings will be used for transformers and cooling.

Construction traffic will produce noise and there will be 'Broadbandf noise'.

Vibration and risks to the shoreline, cliffs etc. are not adequately addressed.
Developer claims vibration can be 'scoped out' and underground cables are silent.
Would we request that noise is assessed in accordance with BS 5228-1, taking account of guidance.
How does LOAL (Lowest Observed Effect Level) work with the Rochdale envelope approach of providing the worst-case scenario?

The following quotes from EN1 enforce the negative impact that excessive noise can have wide-ranging impacts on the quality of human life, health (for example owing to annoyance or sleep disturbance) and use and enjoyment of areas of value such as quiet places and areas with high landscape quality. (5.11.1) "The Government's policy on noise is set out in the Noise Policy Statement for England. It promotes good health and good quality of life through effective noise management. Similar considerations apply to vibration, which can also cause damage to buildings. In this section, in line with current legislation, references to "noise" below apply equally to assessment of impacts of vibration. " And (5.11.2) "Noise resulting from a proposed development can also have adverse impacts on wildlife and biodiversity. Noise effects of the proposed development on ecological receptors should be assessed by the IPC in accordance with the Biodiversity and Geological Conservation section of this NPS."

ATC does not consider that the Developer has included in the EIA robust considerations of:

● the characteristics of the existing noise environment; ● a prediction of how the noise environment will change with the proposed development; ● in the shorter term such as during the construction period; ● in the longer term during the operating life of the infrastructure; ● at particular times of the day, evening and night as appropriate.

The base noise level before these applications are proposed is extremely quiet compare to the choice of a more industrialized location, so therefore the negative impact and harm is greater.

2.11: Socioeconomics, Recreation and Tourism
Construction activities would negatively impact on tourism and the day to day life of residents. Specifically from the noise and light pollution, traffic, construction of temporary compounds and haul roads.
Permanent impact of Converter Station and extended Friston Substation.
Developer states that a contact number will be provided in case of excessive disturbance, we would note this is too late, and disturbance should be prevented by imposing limits or relocating project to an industrialized area where background levels for noise etc are higher.
Impact on leisure (public rights of ways/footpaths and bridleways) business, recreational facilities, and residential properties will be significant. Access to year round festivals and events will be impacted.
Developer states reduced impact will be achieved "through the use of best practice measures, including with regard to phasing of construction works and if necessary, providing diversions for users". Due to the scale of the project and the possible overlap with other projects during the same construction period ATC does not consider that it will be possible to divert users. Not clear if phasing will elongate time frames? Weekend, evening and bank holiday working should be excluded. Key tourism periods should be avoided, however significant funding has been spent to build this area into a 'year-round destination'…so how can this be adequately protected? There is no period of time that the roads in our area could be closed without causing disruption to our

socioeconomics, recreation or tourism. Our network of roads is very limited, (only one road north direct to Thorpeness). All three exit roads from Aldeburgh will be impacted by SeaLink proposals. Any employment generated is temporary (unlikely to be local workers and we have a very low level of unemployment) and those taking accommodation would displace other visitors so not a net gain to the economy.

ATC seeks reassurance that the Developer has adequately considered guidance from EN1 as follows:

5.12.2 Where the project is likely to have socio-economic impacts at local or regional levels, the applicant should undertake and include in their application an assessment of these impacts as part of the ES (see Section 4.2).

5.12.3 This assessment should consider all relevant socio-economic impacts, which may include: ● the creation of jobs and training opportunities; ● the provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities;

● effects on tourism; ● the impact of a changing influx of workers during the different construction, operation and decommissioning phases of the energy infrastructure. This could change the local population dynamics and could alter the demand for services and facilities in the settlements nearest to the construction work (including community facilities and physical infrastructure such as energy, water, transport and waste). There could also be effects on social cohesion depending on how populations and service provision change as a result of the development; and ● cumulative effects – if development consent were to be granted to for a number of projects within a region and these were developed in a similar timeframe, there could be some short-term negative effects, for example a potential shortage of construction workers to meet the needs of other industries and major projects within the region.

2.12: Health & Wellbeing
Same impact as those in Tourism.
Potential temporary and permanent impacts on the quality of life and safety of local residents, visitors and workers arising from construction of the Suffolk Onshore Scheme related to air quality, noise, landscape amenity, traffic and transport, loss of community cohesion, reduction in house/land values in option areas.
Stress and worry caused by a succession of energy projects/NSIP DCOs with limited support from District and County councils leaving Town/Parishes to engage and represent residents' views and concerns, means that significant damage has already been done to our communities. Individuals have lost their lives, their homes and their livelihoods due to the property blight and uncertainty.

2.13: Cumulative Effects
The Developer refers to Intra and Inter project (2.13 and 2.14) Although listed (2.13.3) we do not believe that the Developer has effectively considered the cumulative impact of these. Stating that inter and intra cumulative effects are "proposed to be scoped into the EIA and the results will be presented in the Environmental Statement (ES). We believe more focus should be on the cumulative impact of these projects and this should dictate from the very beginning the connection offers made by NG, not piecemeal.

We attach an artists' illustration set against OS map which evidences the potential cumulative impact of the proposed projects (SZC, EA1N, EA2, SeaLink, EuroLink).

Other issues:

ATC have primarily focussed on Vol 1 Part 2 Suffolk Onshore Scheme. We would also request that you research and seriously consider the impact on the Fishing industry at Aldeburgh and Sizewell.

We lack the expertise in many specific topics and as well as our own comments in this document, ATC supports representations from: SASES, SEAS, Aldringham cum Thorpeness Parish Council, Friston Parish Council, Snape Parish Council, East Coast Energy Alliance, Historic England, Natural England, RSPB Minsmere, Suffolk Coast and Heath AONB Partnership, Suffolk Preservation Society, Suffolk Wildlife Trust and The Woodland Trust.

Aldringham-cum-Thorpe Parish Council Comments on the Sea Link Scoping Report dated October 2022 including information to be scoped within the ES

1. Introduction

Aldringham-Cum-Thorpe Parish Council welcomes this opportunity to respond to National Grid's Sealink Interconnector Project to reinforce the energy network to meet the target set by Government of 50 gigawatts of offshore wind generation by 2030.

Aldringham-cum-Thorpe consists of the villages of Aldringham, Thorpeness and part of the hamlet of Sizewell.
This document consists in the main of our comments on onshore aspects relevant to this Parish.

This response is not comprehensive and we reserve the right to comment further on all aspects including project scope as more information becomes available during the NSIP pre-application and application processes.

2. Local Context

The local area that includes this Parish has already been heavily impacted by several other major Energy Infrastructure projects, including:

- Nuclear Power Stations at Sizewell A and B
- The proposed Sizewell C Nuclear Power Station
- ScottishPower Renewables (SPR)'s East Anglia ONE Offshore (EA1N) and East Anglia TWO (EA2) Offshore Wind Farms (consented 2022) - two cable corridors would pass through centre of this Parish

In addition to Sea Link, National Grid is also consulting on two additional projects:

- National Grid Ventures' Continental Interconnector project Nautilus
- National Grid Ventures' Continental Interconnector project Eurolink

The Sealink scheme in Suffolk involves underground and subsea cables connecting the network between the 'Leiston area' and Kent via high voltage converter stations, an extension to the planned Friston substation and a cable connection to a landfall point where it transfers to a marine cable. This particular project is programmed to start towards the end of 2024 with the most disruptive works, i.e. the groundworks involved in laying the cable from landfall to the converter Station, completed in the first two years. The construction of the station and the works to make the connection with the proposed Friston substation are targeted to finish around 2030.
Aldringham-Cum-Thorpe Parish Council has issues regarding these latter works. At the time of writing, the status of the Friston Substation is still questionable. There is a Judicial Review over its proposed role and suitability. When Friston was initially planned, it was conceived as the Substation to make the connection to the national grid for the two Scottish Power Projects, EA1N and EA2. It would seem it is now planned to be augmented and transformed into an Energy Hub for other energy schemes such as Sea Link to connect with the Grid.
There are other questions regarding the appropriateness of the site on six counts including flood risk and heritage, and that was before this project had its sights on their connection. We know that by the very nature of the Planning Process we must not comment here on other similar schemes. However, as was found in the Scottish Power hearings, the cumulative effects of a queue of up to ten Energy projects making their way across pristine Suffolk countryside must be taken into account. If there was ever a case of 'an elephant in the room', this is surely one of giant proportions. We will have already been living for several years of SPR's projects, before National Grid break ground in this area, with more to follow those. It must be also remembered that the £30 billion construction of Sizewell C Nuclear Power Station borders our Parish. Much of the land in Sizewell village south of Sizewell Gap lies within our parish.

National Grid Ventures will be looking for similar works within their Eurolink and Nautilus projects, using routes from landfall to grid connection at Friston. If, as it appears, there is a certain inevitability of these schemes, then it would make sense that provision should be made for duct and cable laying to be undertaken for all three schemes at one operation. We have always argued for a co-ordinated approach and this should be a perfect opportunity. It does however leave us with a complex of three converter stations, measuring 750 metres by 150 metres by 30 metres high, squatting unceremoniously to the south-west of Knodishall. It would take some most ingenious architecture to blend and disguise this into the landscape.

3. Project Scoping and Stakeholder Consultation

We believe that commencement of a Sea Link non statutory Consultation and submission of this Scoping Report is premature, since:

- The Sea Link Scoping Report assumes that connection connect to the National Grid would be made at Friston village. However, the creation of an energy hub and Grid connecting Substation at Friston village is subject to Judicial Review at the High Court. The final outcome of that has not yet been determined.
- National Grid is bringing forward two other projects (Nautilus and Eurolink) within the same time scale. These are also at pre Application Stage. The developers claim they are being coordinated with Sea Link. They are both highly likely to impact scoping, including Sea Link's design and onshore site selection. There are clearly interdependencies between all three projects.
- Renewables UK is working with National Grid, SSE Renewables and RWE Renewables UK with the intention of coordinating the design of North Falls and Five Estuaries Offshore wind farms with one or more or all of Sea Link, Nautilus and EuroLink projects. A decision on this is not yet available and may impact Sea Link design in a major way.
- In view of so many projects coming forward within the same timescale, all impacting the same approximately 4 square miles of the Suffolk's Heritage Coast and the communities therein, an overarching Energy programme for these separate but coordinated and interdependent NSIPs is essential before any individual project confirms its scope with PINS.

Should the Development change substantially once a decision on whether and how to coordinate a common onshore design with North Falls, Five Estuaries, and Eurolink has been made, the Applicant must be required to request a new Scoping Opinion.

National Grid is at present conducting concurrent consultations on:

- Sea Link Scoping Report (25 Oct 2022 – 22 Nov 2022),
- Sea Link non statutory consultation (25 Oct 2022 – 18 Dec 2022),
- Eurolink non statutory consultation (25 Oct 2022 – 18 Dec 2022).

In combination, these consultations are already imposing an unacceptable burden on the several onshore communities and councils, impacted by both projects. This is leading to confusion and consultation stress and fatigue. This situation is incomprehensible since PINS did advise the Sea Link project team on 20 June 2022 at a S51 meeting**(a)** to "at least wait for the Consultation period to close before submitting its scoping request".

(**a**) PINS Sea Link Project - s51 Advice https://infrastructure.planninginspectorate.gov.uk/projects/south-east/sea-link/?ipcsection=advice4. Suffolk Onshore Scheme

The scope of works are all similar in terms of the Construction works to what we have seen In SPR's previous projects with most items scoped in. There are some items that differ, notably working hours, which would look to include provision for 24/7 without requesting special notification. We understand a horizontal drilling element beneath the RSPB site at North Warren, such times would be permissible with the lower db level of sound. However without time limitations, a culture of permanent site occupancy prevails, where contractors suit themselves rather than the concerns of neighbouring parishioners and even with reduced noise levels there is light pollution at the work-face and the site compounds. Aldringham-cum-Thorpe Parish Council makes every effort to be a 'dark-skies' council when assessing planning applications in this rural and wildlife rich area. It is also of great concern regarding the Converter station and the Substation at Friston, once they are operable, that lighting for maintenance and security will exude an aurora glowing behind the wooded shielding.

There are other elements in the Scoping Report that have been scoped out but raise concerns. No plan is envisaged to deal with spillages of fuel and chemical works from those vessels and equipment involved in the maritime aspect of the project. Emphasis is purely that those vessels are licensed to carry out these works and bound by codes of conduct, but as we all know accidents happen. We feel that there should be some provision and policing of this element of construction.

We also note that there no specific plans within the project for engaging local labour from the East Suffolk locality. When asked about this at a local community consultation event, the Applicant's representative stated that temporary employment may be available during construction, but long term employment and training was unlikely. Perhaps there might be full time placements on the maintenance of the various substations, but in terms of training and well paid full time jobs, this is an opportunity missed.

We observe that that there is no indication of any sort of Construction Traffic Strategy or Plan in the document, or indeed that the Applicant has even established that access to construction sites would be feasible. That may be a consequence of the premature submission of the Consultation Report and Consultation material. We have not been able to see how construction and worker vehicles would access the alternative cable corridor routes and therefore It has not been possible for us to make a complete assessment of their relative merits and demerits.

There is no information on day-to-day movement of materials for the ducting and cable installation, the machinery for the drilling machinery and also the major pieces of plant within the converter stations. There is no 'meat on the bone' here. Is this to be in place at the next consultation stage?

4. Comments on Sea Link EIA Scoping Report (Main Text Parts 1 and 2)

Comments in the following sections of this response focus primarily on scoping aspects directly or indirectly relating to the Parish of Aldringham-cum-Thorpe.

4.1 Suffolk Onshore Scheme Scoping Boundary

A fundamental concern is that the Applicant has omitted Aldringham-cum-Thorpe from its list of settlements adjacent to the Project Scoping Boundary (ref. Para *1.1.4.3 of EIA Scoping Report - Volume 1 - Part 1 Introduction)* although it is clearly illustrated as being so in Figure 1.1.2.

A further concern is that 1.1.4.5 states that 'The Hundred River is crossed by the Scoping Boundary to the south of Aldringham. According to all maps of the parish it would cross at the North-South midpoint of Aldringham, cutting the village into two separate halves during construction phases.

4.2 The proposed Development

4.2.1 Onshore Site Selection

The Applicant's Site and Cable Route Selection work already carried out has been useful in narrowing onshore scope to S1 and S3. We therefore are assuming all other sites are now out of scope.

4.2.2 Coordination with NGET EuroLink and NGV Nautilus and EuroLink projects

We believe it is in the interest of the local communities that all three Converter Stations for these projects are located at the same place and as close together as is technically feasible.
Similarly, the cable corridors for all three projects should share a common route.
That is in order to mitigate the extent of impact on the East Suffolk Heritage Coast, its communities and Suffolk's tourist industry through inter alia:

- destruction of landscape
- construction activity
- noise during construction and operation phases
- disruption of local roads,
- light pollution
- ecological harm
- damage to Suffolk's tourist economy.

4.2.3 EIA Approach and Method

The Sea Link *Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES*) should not rely upon the *ScottishPower Renewables EA1N and EA2 2018 Extended Phase 1 Habitat Surveys - Part 1* of 2**(b).** It contains important omissions and errors in its documentation of habitats in Aldringham Hundred River Hundred Special Landscape Area. We recommend an independent survey of the area of riparian meadow (alleged to be 'Wet Woodland') between Aldeburgh Road and The Hundred River and the water meadow east of the Hundred River.

4.2.4 The Cumulative effects of emerging preferred options onshore – Aldringham-cum-Thorpe

The HVAC corridor and graduated swathe for 'Suffolk Site 1 alternative' and 'Suffolk Site 3 alternative (option 2)' would both pass through the centre of Aldringham.

We ask PINS to scope out those land areas within the parish that lie within the Sea Link proposed HVAC corridor 'Graduated Swathes' for Suffolk Site 1 alternative and Suffolk Site 3 alternative (option 2) that overlap the Cable Corridor Order Limits for the SPR EA1N or EA2 projects**(c)**.
Following planning consent in March 2022, we understand SPR has formal permission from the Secretary of State for its exclusive use of the **whole width** between the DCO Order Limits as certified within Part 2 of Schedule 17 of the EA1N and EA2 DCOs**(d)**.

Although SPR may later microsite and reduce footprint in some places, at this stage there is no certainty that any areas of overlap will be available for Sea Link to use as a cable route. They may not even be available at the time when a Sea Link DCO planning application is submitted to PINS, especially in view of SPR project delivery delays. It would be misleading to all concerned to leave them within the scope of this EIA.

(b) PINS East Anglia ONE North project – See Figure 22.4c of East Anglia ONE North Limited 6.2.22.4 Environmental Statement - Figure 22.4a-f - Extended Phase 1 Habitat Survey Results EA1N APP-277

PINS East Anglia ONE North Limited 6.3.22.3 Environmental Statement - Appendix 22.3 - Extended Phase 1 Habitat Survey (Part 1 of 2) EA1N APP-503

(c) PINS East Anglia ONE North project – Sheet 5 of East Anglia ONE North Limited Deadline 11 Submission - 2.3.2 EA1N Works Plan – Version 07 EA1N REP11-004

(d) PINS EA1N REP12-013 East Anglia ONE North Limited Deadline 12 Submission - 3.1 EA1N Draft Development Consent Order (Clean) (Version 8) EA1N REP12-013

The Applicant has recognised some of the difficulties and disadvantages of Suffolk Site 1 alternative' and 'Suffolk Site 3 alternative (option 2) in *EIA Scoping Report - Volume 1 – Main Text Part 1 Introduction 1.3.4.47* and EIA *Scoping Report - Volume 1 - Part 2 Main Text Suffolk Onshore Scheme 2.1.6.9* and *2.1.7.9.*

There is an ecological 'pinch point' where the route crosses the Hundred River, the B1122 and the area of 'Priority Deciduous Woodland' to the south of Aldringham Court. Options in Aldringham at that pinch point will be further significantly further constrained owing to the cumulative impact of any additional cable installations in combination with those that will be imposed by the construction of two cable corridors for SPR October 2021 East Anglia ONE North and East Anglia TWO wind farm projects in the same location and that have already received Secretary of State consent. This is a sensitive area of Priority Woodland river valley and is also classified by ESC as Flood Risk 3b. The local authority considered potential impact here and feasibility in its response to the non statutory Nautilus Consultation 2021, stating that it *"could not be satisfactorily mitigated and that there are other less constrained routes;* that present here *are particular ecological, landscape, heritage and residential amenity challenges at the pinch point and crossing of the Hundred River. Trenchless Cable Installation technologies such as HDD would be required in this locality, but this has not been demonstrated to be possible by other developers owing to the constrained width of the area available"*.

Please note that the Applicant has omitted to include East Anglia TWO project (already consented) in its 'zone of influence (ZOI) - *Appendix 1.5.A Inter-Project Cumulative Effects Long List of other developments within the ZOI.*

4.2.5 Noise and Vibration

Re: *Environmental Impact Assessment Scoping Report Volume 1 Main Text Part 2 Suffolk Onshore Scheme - Table 2.10.6 - Construction Noise effect levels at residential receptors*

Time Period: Local working hours should be those negotiated between ScottishPower Renewables (SPR) and the Local Authorities as specified in the DCO for EA1N and EA2 (i.e. not as specified in Table 2.10.6 which seems to imply the possibility of 24/7 working during Construction.

END

Anglian Water Services
Thorpe Wood House
Thorpe Wood
Peterborough
PE3 6WT

[redacted]
Our ref ScpR.SEAL.NSIP.22.ds

Marie Shoesmith
Senior EIA Advisor
The Planning Inspectorate

22 November 2022

Dear Marie

Sea Link
EIA Scoping Report consultation

Thank you for the opportunity to comment on the scoping report for the above project which is within Suffolk Coastal district.

Anglian Water is the appointed sewerage undertaker for the site shown on Figure 1.1.2 in Volume 3 Figures. The following response is submitted on behalf of Anglian Water in its statutory capacity and relates to wastewater and water recycling assets. With regard to potable water and water supply assets, although Anglian Water is not the statutory undertaker, we have assisted other national infrastructure projects (see Table 2.13.3) to seek to address water supply concerns, for example, during a project's construction phase. The water supply questions and the assessment of them are not though covered in this response. The promoter would be advised in liaison with the statutory water company to consider the Water Resources East draft Regional Plan which sets out the collective water companies position.

- The Scheme – Existing infrastructure

There are significant existing Anglian Water water recycling and network assets which serve the Leiston, Thorpeness, Aldeburgh and Saxmundham communities and businesses. These assets are also impacted by Sizewell C, its construction and related grid connection projects. The assets include the network connecting to the Leiston Valley Road Wastewater Recycling Centre the Thorpeness to Aldeburgh rising main and its continuation along Leiston Lane. The project has started liaison with our Asset Diversions team, and we would urge that early consideration and assessment is given to minimising the need to disrupt or divert utility assets which has a carbon impact and increases the risk of service disruption. Maps of Anglian Water's assets are available to view at the following address:

http://www.digdat.co.uk/

We note that other than a reference to a legislation (2.5.2.3) and general control measures (2.5.5.8) the promoter does not refer to the wastewater network or capacity. Anglian Water would want to ensure the location and nature of these assets is identified, disruption minimised, and services protected. To reduce the need for diversions and the attendant carbon impacts of those works, ground investigation would enable the promoter to design out these potential impacts and so also reduce the potential impact on services if construction works cause a pipe burst or damage to supporting infrastructure. This approach would accord with Code of Construction Practice approach (bullet 1 in 2.5.5.8).

Anglian Water welcomes that the promoter proposes (2.5.5.3) to follow the drainage hierarchy including Sustainable Drainage Systems (SuDS). We support the use of SuDS, for example at the Suffolk Converter Station site (2.5.6.13). With reference to Table 2.5.2 Anglian Water would welcome confirmation that SuDS will be used for all of the project and that there will be no connection to the public sewer network for construction or for operations in relation to built assets surface water management, for example. This would then negate the need for the draft DCO Order to provide for any connection and so require consequent Protective Provisions and Requirements to ensure any connections did not compromise the wastewater services of existing customers. Anglian Water would for the purposes of the surface water management then be able to concur with the proposal in the Scoping Report (Tables 2.5.3, 2.5.4. 2.5.5, 2.5.6) that the surface water drainage impacts may be scoped out.

The Scoping Report refers to the use of trenchless methods (2.8.5.3). Anglian Water would ask that the following standoff distances are applied for working each side of the medial line of pipes.

(a) 4 metres where the diameter of the pipe is less than 250 millimetres;
(b) 5 metres where the diameter of the pipe is between 250 and 400 millimetres, and
(c) a distance to be agreed on a case-by-case basis and before the submission of the Plan under sub-paragraph (1) is submitted where the diameter of the pipe exceeds 400 millimetres.

The Construction Management Plan should include steps to remove the risk of damage to Anglian Water assets from plant and machinery including haul roads. Further advice on minimising and then relocating Anglian Water existing assets can be obtained from:

connections@anglianwater.co.uk

A template set of Protective Provisions including the above will be sent to promoter with a view to establish the bespoke distances for any pipes that exceed 400 millimetres should design and route iteration prove unable to avoid work in the vicinity of Anglian Water pipes.

- New infrastructure

We support the inclusion of water (2.3.5.4 and Table 2.3.3) including water use in the Code of Construction Practice and Construction Management Plan. Again, there is no reference to waste water connections for site operatives or activities. Anglian Water notes that the applicant has not sought to scope these matters out by providing sufficient information to

reach a conclusion that the projects impact regarding wastewater, water recycling and water quality, are not significant.

- Engagement

Anglian Water would welcome the progression of discussions with National Grid as the prospective applicant, in line with the requirements of the 2008 Planning Act and guidance. Experience has shown that early engagement and agreement is required between NSIP applicants and statutory undertakers during design and assessment and well before submission of the draft DCO for examination. Consultation at the statutory PEIR stage would in our view be too late to inform design and may result in delays to the project. We would recommend discussion on the following issues:

1. Impact of development on Anglian Water's
2. The design of the project to minimise interaction with Anglian Water assets and specifically to avoid the need for diversions which have carbon costs
3. Requirement for water recycling connections (if any)

Confirmation of the project's cumulative impacts (if any) with Anglian Water projects

4. Draft Protective Provisions

Further advice wastewater capacity and options can be obtained by contacting Anglian Water's Pre-Development Team at:

planningliasion@anglianwater.co.uk

Please do not hesitate to contact me should you require clarification on the above response or during the pre- application to decision stages of the project.

Yours sincerely,

[redacted]

Darl Sweetland DMS MRTPI
Spatial Planning Manager

cc

Broads Authority

Yare House 62-64 Thorpe Road
Norwich Norfolk NR1 1RY
tel [redacted]
broads@broads-authority.gov.uk
www.broads-authority.gov.uk

Marie Shoesmith
The Planning Inspectorate
Environmental Services
Central Operations
Temple Quay House
2 The Square
Bristol, BS1 6PN

[redacted]
Senior Planning Officer
[redacted]

Date 3 November 2022 Our ref BA/2022/0402/SCOCON Your ref

Dear Marie Shoesmith

Application No : BA/2022/0402/SCOCON
Proposal : EIA Scoping Notification and Consultation for development consent for the Sea Link (the proposed development)
Address : Sea Link, , ,
Applicant : National Grid Electricity Transmission Plc

I write further to the above proposal. I can confirm that the Broads Authority does not have any comments to make regarding this EIA scoping consultation.

Yours sincerely

[redacted]
Senior Planning Officer

Date: 11 November 2022
Direct dial: [redacted]
Website: www.canterbury.gov.uk/planning

canterbury city council

Dear Sir/Madam,

Proposal: Environmental Scoping Opinion application by National Grid Electricity Transmission plc (the Applicant) for an Order granting Development Consent for the Sea Link (the Proposed Development)

Location: Suffolk to Kent (Pegwell Bay and Minster)

I am writing following the Planning Inspectorate's invitation to comment on information that should be provided in the Environmental Statement for the Sea Link project. I can confirm that we have no comments to make on what should be included as part of any forthcoming ES.

Yours sincerely,

[redacted]
Planning Services
Canterbury City Council

canterbury.gov.uk
[redacted]
DX99713 CANTERBURY-3
Printed on recycled paper

Canterbury City Council
Military Road
Canterbury
CT1 1YW

The Coal Authority
Resolving the impacts of mining

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG
T: [redacted]
E: planningconsultation@coal.gov.uk
www.gov.uk/coalauthority

For the attention of: Marie Shoesmith
Senior EIA Advisor
on behalf of the Secretary of State

[By email: southeastanglialink@planninginspectorate.gov.uk]

Your ref: EN020026

31 October 2022

Dear Marie

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11

Application by National Grid Electricity Transmission plc (the Applicant) for an Order granting Development Consent for the Sea Link (the Proposed Development)

Scoping consultation and notification of the Applicant's contact details and duty to make available information to the Applicant if requested

Thank you for your notification of 25 October 2022 on what relevant matters should be 'Scoped In' to any forthcoming Environmental Statement for the above project.

I have reviewed the location plan against our coal mining information and can confirm that, whilst part of the project site (Ramsgate Area) falls within the coalfield, it is located outside the Development High Risk Area as defined by the Coal Authority; meaning that there are no recorded coal mining legacy hazards at shallow depth that could pose a risk to land stability at the surface and / or a risk to public safety.

Accordingly, if you consider that the application is EIA development, there is no requirement for the applicant to consider coal mining legacy as part of their Environmental Impact Assessment.

I hope that this is helpful however please do not hesitate to contact me if you require any further assistance with this matter.

Yours sincerely

[redacted]

Planning & Development Manager

Disclaimer

The above consultation response is provided by The Coal Authority as a Statutory Consultee and is based upon the latest available data on the date of the response, and electronic consultation records held by The Coal Authority since 1 April 2013. The comments made are also based upon only the information provided to The Coal Authority by the Local Planning Authority and/or has been published on the Council's website for consultation purposes in relation to this specific planning application. The views and conclusions contained in this response may be subject to review and amendment by The Coal Authority if additional or new data/information (such as a revised Coal Mining Risk Assessment) is provided by the Local Planning Authority or the Applicant for consultation purposes.

Planning and Development Service
Council Offices
White Cliffs Business Park
Dover
Kent CT16 3PJ

Telephone: [redacted]
Fax:
DX:
Minicom:
Website: **uk**

The Planning Inspectorate
Environmental Services
Temple Quay House
2 The Square
Bristol BS1 6PN

Contact: [redacted]
E-mail:
Our ref: DOV/22/01391
Date: 22/11/2022

Dear Sir/Madam

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11

Application by National Grid Electricity Transmission plc (the Applicant) for an Order granting Development Consent for the Sea Link (the Proposed Development)

Scoping Consultation

Further to your request dated 25 October 2022 (your reference EN020026-000024-221025) please see the below response from Dover District Council.

Relevant Planning Policies and Guidance

Reference is made at Paragraphs 3.2.2.9 to 3.2.2.12 to Dover District Council Planning Policy. In relation to paragraph 3.2.2.10, the Regulation 19 Draft Local Plan was published on Friday 21st October 2022 and is a material consideration. The draft plan and evidence can be found at the following website address: https://www.doverdistrictlocalplan.co.uk/get-involved

The following Policies are considered to be relevant:

SP1 - Planning for Climate Change
SP2 - Planning for Healthy and Inclusive Communities
SP6 - Economic Growth
SP11 - Infrastructure and Developer Contributions
SP12 - Strategic Transport Infrastructure
SP13 - Protecting the District's Hierarchy of Designated Environmental Sites and Biodiversity Assets
SP14 - Enhancing Green Infrastructure and Biodiversity
SP15 - Protecting the District's Historic Environment
CC1 - Reducing Carbon Emissions
CC2 - Sustainable Design and Construction
CC3 - Renewable and Low Carbon Energy Development

CC4 - Water Efficiency
CC5 - Flood Risk
CC6 - Surface Water Management
CC7 - Coastal Change Management Areas
CC8 - Tree Planting and Protection
PM1 – Achieving High Quality Design, Place Making and the provision of Design Codes
TI1 – Sustainable Transport and Travel
TI2 – Transport Statements, Assessments and Travel Plans
NE1 – Biodiversity Net Gain
NE2 – Landscape Character and the Kent Downs AONB
NE3 – Thanet Coast and Sandwich Bay SPA Mitigation and Monitoring Strategy
NE4 – Air Quality
NE5 – Water Supply and Quality
HE1 – Designated and Non-designated Heritage Assets
HE3 - Archaeology

Landscape and Visual

The zone of theoretical visibility is based on the preference area for the converter station, set at a maximum height of 30m. This has informed the locations of the representative viewpoints which have been chosen; viewpoints 4, 6, 11, 12 and 13 are within the Dover District. These viewpoints are considered acceptable and will enable careful consideration of the wider landscape impacts of the proposals having regard for the Landscape Character Assessment.

Ecology and Biodiversity

The proposed ecological surveys identified are considered to be acceptable, noting the comments below from Dover District Councils Senior Natural Environment Officer. It is requested that incidental mortality of riparian mammals is scoped into the EIA and that beavers are included as receptors identified in Table 3.3.4.

Cultural Heritage

The scope of the information to be included in the ES should enable adequate consideration of the impacts on archaeology (subject to consideration by KCC Archaeology), Listed Buildings and other designated and non-designated heritage assets in the surrounding area.

Water Environment

The scope of the information and flood risk assessment to be included in the ES is considered to be acceptable to enable review by KCC as Lead Local Flood Authority, Environment Agency and the IDB.

Geology and Hydrogeology

The scope of this assessment appears acceptable and would be informed by KCC in respect of waste and minerals and the Environment Agency in respect of ground water, given the location of source protection zones to the north and further south of the proposed swathes.

Agriculture and Soils

The scope of the information to be included in the ES is considered to be acceptable.

Traffic and Transport

The scope of this assessment is considered to be acceptable and will require engagement with the local highway authority (KCC).

Air Quality

The scope of this part of the assessment is considered to be acceptable.

Noise and Vibration

The scope of this part of the assessment is considered to be acceptable and no further information has been requested to be included by Dover District Council Environmental Protection Officers.

Socio-economics, Recreation and Tourism

The effects on users of Public Rights of Way are included in the ES and a 500m buffer has been shown on figure 3.11.1. Due to the potential for long distance views across the Ash Levels towards the site, we consider that the visitor attraction of Richborough Castle should also be assessed in the ES.

Health and Wellbeing

The scope of this assessment is considered to be acceptable.

Cumulative Effects

Paragraph 3.13.3.8 identifies that allocated sites in Local Plans or other Development Plans which were not yet subject to planning applications have also been identified on the long list. A number of sites are proposed for residential development as part of the housing allocation within the Regulation 19 draft Local Plan. Several sites proposed as part of the Regulation 18 plan referred to in the scoping report have been removed and the list of sites will therefore need to be updated. The plan and list of sites can be found at the following website address: https://www.doverdistrictlocalplan.co.uk/get-involved

Consultee Responses:

Senior Natural Environment Officer:

I am broadly satisfied with the proposed scope of the ecological aspects of the Sea Link project EIA (Kent Onshore Scheme). I am satisfied with the proposed suite of ecological surveys and advise that these must be undertaken by appropriately experienced ecologists in accordance with good practice methodologies (unless an alternative is adequately justified).

I note in table 3.3.7 that 'Incidental mortality of riparian mammals' is scoped out, but this contradicts the commentary in Table 3.3.4, which scopes this in in case the HDD and route selection cannot avoid suitable habitat. I advise that incidental mortality of riparian mammals is scoped into the EIA.

With respect to the Assessment Methodology, I advise that the proposed data sources (3.3.7.1) should include post-construction monitoring reports for the Nemo Link project, to ascertain how the habitats recovered.

I note that beavers are not specifically listed in Table 3.3.4, but this seems to just be an error rather than deliberate omission.

Environmental Protection Officer:

Environmental Protection have been invited to comment on the above submission.
After reviewing the submission Environmental Protection have no comments on the information provided.

Summary

This completes the formal scoping opinion of the Local Planning Authority at this stage. The "scoped in" potential effects identified in the scoping report are considered to be appropriate and additional "scoped out" potential effects identified above should be included in the ES to be submitted.

EIA is an iterative process and this formal scoping opinion does not preclude the Local Authority from requesting further information should it be necessary to fully and properly consider the proposal.

Yours sincerely

[redacted]
Senior Planning Officer

On behalf of [redacted]
Head of Planning and Development

By Email Only:

southeastanglialink@planninginspectorate.gov.uk

Marie Shoesmith
Environmental Services
The Planning Inspectorate
Temple Quay House
2 The Square
Bristol, BS1 6PN

East of England Ambulance Service NHS Trust
Hammond Road
Bedford
MK41 0RG

Date: 17th November 2022

Our Ref: Sealink/ZM

Dear Ms Shoesmith

THE SEA LINK PROJECT
PLANNING INSPECTORATE REFERENCE No. EN020026-000024-221025

Scoping Report by National Grid Electricity Transmission PLC concerning an Order granting Development Consent to reinforce the transmission network in the South East of England & East Anglia, requesting the Planning Inspectorate's Scoping Opinion pursuant to The Planning Act 2008 (as amended) & the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 – Interested Party Submission by The East of England Ambulance Service NHS Trust (EEAST)

We write in response to the Planning Inspectorate's letter dated 25th October 2022, inviting comment from consultation bodies and interested parties as to the information considered to be included within the Sea Link Environmental Statement.

EEAST is an **INTERESTED PARTY** in this planning process and notes the timeline for submitting comments by 23:59 on 22nd November 2022.

NHS Suffolk and North East Essex Integrated Care Board and Suffolk County Council are aware we are submitting comments under separate cover.

EEAST has reviewed the Scoping Report documentation submitted by National Grid Electricity Transmission PLC (NGET) and a summary of the key areas for inclusion within the Environmental Statement (ES) from its operational perspective are set out overleaf:

Suffolk Onshore Scheme & Offshore Scheme (Suffolk & Essex Coast)

- **Scoping Work –** is required to determine a suitable study area, baseline assessment & approach to identify the likely effects (impacts) of the Project on EEAST's operations

- **Scheme Design, Mitigation & Management Measures -** are required to avoid, reduce, mitigate & compensate for the likely Project impact on EEAST's operations during the construction phase of the development

- **Suitable DCO Requirements &/or Heads of Terms of Agreement, either via a Section 106 planning obligation or Deed of Obligation –** are required to secure funding & new facilities provision, as required, to increase the capacity, response capability & Project Preparedness for EEAST's staff, vehicle fleet and estate assets to mitigate & manage the impacts arising

- **Suitable Terms of Reference, Membership & a Communications Strategy for a Transport, Community Safety, Health & Wellbeing Working Group -** are required to inform & assist the management of the construction, operational and decommissioning phases of the Project, requiring a coordinated response from EEAST along with its health & blue light partners, as well as organisations such as the Royal National Lifeboat Institution

EEAST, together with the Suffolk and North East Essex (SNEE) Integrated Care Board (ICB), Suffolk Constabulary and Suffolk Fire & Rescue Service is therefore keen to work with NGET to address these points and agree and secure suitable mitigation and management measures either as a DCO Requirement and/ or a Section 106 planning obligation (or Deed of Obligation), at an early stage of the DCO process.

If it is deemed that the matters raised by EEAST are more appropriately addressed by a supporting technical assessment to the ES, rather than as 'other effects' within the ES, then we would be agreeable to this.

East of England Ambulance Service NHS Trust

EEAST is commissioned by NHS Suffolk and North East Essex Integrated Care Board (SNEE) on behalf of all ICB/ICSs to provide emergency and urgent care services throughout Bedfordshire, Cambridgeshire, Essex, Hertfordshire, Norfolk and Suffolk, and transports patients to 17 acute hospitals amongst other healthcare settings, including within the Broadland DC, North Norfolk DC, Norwich CC and South Norfolk DC areas covering the location of the 'on – shore' Order Limits of the Sherringham & Dudgeon Scheme.

EEAST covers an area of approximately 7,500 sq miles with a resident population of over six million people and employs approximately 4,000 staff operating from 130 sites.

The 999 service is free for the public to call and is available 24 hours a day, 7 days a week, 365 days a year, to respond to the population with a personalised contact service when patients:

- Require rapid transportation with life threatening illness/injury or emergencies - category 1 and 2

- Present with lower acuity urgent and less urgent conditions - category 3 and 4 requiring clinical interventions

- Patients may be passed to 999 via other NHS health care systems, including NHS 111

- EEAST receives over 1 million emergency (999) calls per year and 800,000 calls for patients booking non-emergency transport.

EEAST also provides urgent and emergency responses to Healthcare Professionals requiring ambulance assistance, and inter-facility transfers between hospitals and other healthcare settings, where patients require treatment at alternative sites to their current setting.

Details of EEAST's service remit, priorities, staff, vehicle fleet and estate assets, service targets, co-working relationship with other healthcare and blue light partners, along with its operational standards and thresholds, are set out for information at **Annex 1 & Annex 2**.

Sea Link Project Proposals – Location & Overview

The Project proposes to reinforce the transmission system in the South East and East Anglia.

This would be achieved by reinforcing the network with a High Voltage Direct Current (HVDC) Link between the proposed Friston substation in the Sizewell area of Suffolk, and the existing Richborough to Canterbury 400kv overhead line close to Richborough in Kent.

The Project would comprise of the following elements;

- Underground HVAC cable between the proposed Friston substation & a new converter station in Suffolk

- New converter station in Suffolk

- Underground HVDC cable between a new converter station in Suffolk & a landfall on the Suffolk coast, either between Aldeburgh & Thorpeness or at Sizewell Gap

- Marine HVDC cable between a landfall on the Suffolk Coast & a landfall in Pegwell Bay in Kent

- Underground HVDC cable between a landfall in Pegwell Bay & a new converter station in Kent

- A HVAC connection (either by overhead line or underground cables) between a new converter station in Kent & the existing Canterbury to Richborough overhead line.

Construction, Operation & Decommissioning Phases

Construction Phase

Subject to gaining development consent, construction works are expected to start in 2026 and be completed by 2030, with the Suffolk and Kent Onshore works and all Offshore works generally running concurrently.

A construction workforce (at its peak) is likely to be in the order of 300 – 400 workers across the whole project.

The main construction activities are summarised below;

Onshore including Landfall

- Enabling works, including the widening of existing accesses & new accesses to the public highway, top soil stripping, formation of access tracks, watercourse culverting, drainage & construction works area fencing
- Substation & Converter Station construction
- Underground HVAC & HVDC cable trenching (up to 2km lengths for direct buried configuration & 200-300m lengths for cable ducting) & installation;
- For constraint areas to be crossed using a trenchless method - pipe jacking/ auger bores, horizontal directional drill rig, tunnel boring machines to be employed
- Barge mounted excavators for working in the inter-tidal zones in landfall locations

Offshore Marine Cable

- Marine pre-installation activities, including cable clearance, pre-sweeping, removal/ disposal of any unexploded ordinance
- Marine HVDC cable installation – incorporating ground cable preparation & cable laying within the inter-tidal zones
- Pre-lay seabed activities along the route
- Installation & burial of subsea cables
- Placement of external pipe protection, incorporating rock placement, concrete matresses, rock/gravel/sand/grout bags or cast-iron shells
- Vessel activities, incorporating cable lay vessels, cable burial vessels, guard vessels, support vessels, rock placement vessels & cable lay barges.

Operational Phase

Once operational the Project Substations would be operated in line with NGET's usual procedures for operating all other Substations on the network.

For the Converter Stations, following a period of commissioning and testing they would operate continuously throughout the year with a minimum of two operators present at all times, and a maximum of six operators divided into three 8-hour shifts over a 24-hour period.

During operation the HVDC link and Marine Cable would transmit electricity from the proposed Friston substation to the existing network in Kent, or vice versa, depending on the supply & demand at the time.

The Kent overhead HVAC connection would transmit electricity from the proposed Kent converter station onto the existing network in the South East of England.

Planned and unplanned maintenance would be undertaken on an ongoing basis for the substations, with periodic surveys and inspections for all the other Project components.

Decommissioning Phase

The lifespan of substation equipment is approximately 40-years, and similarly for the converter stations, although interim plant replacement and refurbishment would extend the life.

For all the other Project components, if decommissioning is required, this would be undertaken in line with construction and waste management best practice applicable at the time.

The Suffolk Onshore scheme is located within the administrative boundary of Suffolk County Council and East Suffolk Council local authority areas, and the Kent Onshore scheme is located within the administrative boundary of Kent County Council and Thanet District Council and Dover District Council.

The Offshore scheme is located wholly within English Territorial Waters, and within the East Inshore and South East Inshore Marine Plan Areas. The Project Scoping Boundary crosses the Suffolk Coastal Waters, East Anglian Shipping Waters, Eastern English Channel Approaches and the Goodwin Sands and North Dover Strait Marine Character Areas.

The principal areas of geographical interest likely to affect EEAST's operations (working in partnership with its health and blue light partners, including the Royal National Lifeboat Institution, therefore relate to the Onshore components of the Project within East Suffolk District and the Offshore components within the East Inshore Marine Plan area, along with a further section of inshore waters running south of Felixstowe to the mouth of the River Thames.

Potential Impacts on EEAST Service Areas & Capacity

Project Environmental & Social Effects

Review of the NGET EIA Scoping Report documentation indicates that the Project's potential effects (impacts) on EEAST's operational capacity, efficiency and resources (namely staff, vehicle fleet and estate assets) are not included – they are not therefore currently proposed to be baselined or assessed, and no potential mitigation parameters are outlined.

EEAST therefore request that the NGET EIA scoping process (and/or an accompanying technical assessment) be undertaken to determine the likely Project effects (impacts) on EEAST, and we are keen to work with NGET to ensure this omission is addressed by information being prepared to inform a robust DCO Application for examination.

This approach would assist the DCO process, and looking ahead, EEAST wish to agree and secure suitable mitigation and management measures as part of the DCO Requirements and/ or via a Section 106 planning obligation (or Deed of Obligation) and reflect this position in advance of the Examination.

EEAST's principal areas of interest and concern are summarised below.

EEAST Principal Areas of Interest & Concern

Information for Inclusion Within Scope of the Environmental Statement &/or within a Technical Assessment with Related Mitigation & Management Measures

The principal areas of Project interest which are likely to significantly impact on EEAST's operational capacity, efficiency and resources requiring necessary and appropriate mitigation and management measures are outlined below - in light of the information and assumptions presented in the EGET Scoping Report documentation.

Highways, Traffic, Transport & Articulated Indivisible Loads (AIL's)

It is evident that a major level of onshore construction works incorporating cable corridors, trenchless crossings, haul roads and works compounds, potentially requiring road closures and route diversions - along with the potential for significant HGV (and an unspecified number of additional/ AIL led) traffic movements are envisaged.

This would take place as part of an extensive 4-year construction phase program, required to implement the Sea Link Project.

Information to determine the effects arising from the construction phase of the Project and the likely impact on EEAST's operational capacity, efficiency and resources (including the likely highway disruption and delay) and any related mitigation measures, therefore need to be included within the scope of the ES and/ or within technical work accompanying an application for a DCO.

Once this information is presented and assessed, any necessary mitigation and management measures ought to be secured and implemented through DCO Requirements, and/ or via a Section 106 planning obligation or Deed of Obligation, as part of any Development Consent Order approval.

Major Accidents & Disasters

It is evident that a significant level and duration of construction phase work reliant on the use of sea-based construction vessels, heavy lift plant and specialist machinery/ equipment, producing noise, heat, vibration and dust (with work carried out during potentially adverse weather conditions) is likely to present construction site hazards and dangers both at sea and on land.

Working at sea, and on coastal, cliff edge and uneven ground, with moving machinery lifting and transporting materials, and working at depth, including the potential for trench collapse, for example, underlines the risks associated with the construction related activities – requiring both urgent and other medical interventions and transport conveyance (including specialised airborne tasking/ conveyance) to be appropriately planned for and provided.

Indeed, HSE's construction publications (for Great Britain) indicate that work related incidents involving serious injury and fatalities, are statistically significantly higher for the construction industry as compared to the 'all industry' rate.

Information to determine the effect of the construction phase and its impact on EEAST's operational capacity, efficiency and resources is currently absent from the EIA Scoping Report, along with any potential mitigation measure parameters.

In the event of a construction phase accident, on land or at sea, appropriate procedures would need to be put in place for emergency access, on-site triage, medical assessment and patient identification, stabilisation and transfer to an appropriate healthcare setting.

The processes and procedures developed by NGET, and any outsourced construction organisations, should refer to legislation and technical guidance which places a duty on NGET to have its own response and medical mitigation to take the patient to a place of 'normal access' and handover to EEAST crews.

EEAST would expect any trench collapse to fall under the confined space regulations and EGET, the construction company and/or contractor(s) should have access to a confined space trained team that could extricate a casualty safely.

Plans and contingencies for facilitating emergency access, on-site triage, medical assessment, patient identification, stabilisation, clinical information, safe and efficient handover to EEAST responders, whilst sustaining operationally optimal attendance times (noting the likely delay factors above) which in urgent cases may require Helicopter Emergency Medical Services (HEMS) and/or Air-Sea Rescue/ RNLI access, is therefore considered to be necessary.

The incidence and impact of major accidents (and disasters) on EEAST and its HEMS partner operational capacity, efficiency and resources, including EEAST hazardous area response teams – HART, (which may also require co-ordination and joint tasking with the Maritime & Coastguard Agency and RNLI) needs to be presented and assessed, with any

necessary mitigation and management measures secured and implemented through DCO Requirements, and/ or via a Section 106 planning obligation or Deed of Obligation, as part of any Development Consent Order approval.

Population Increase, Health & Wellbeing

It is evident that during the anticipated 4 - year construction period, a significant number of construction workers are required to implement the components of the Scheme.

Information to determine the nature of the construction workforce, their home origin, health status, clinical dependencies, location of any temporary accommodation, which are factors likely to directly impact on EEAST's operational capacity, efficiency and resources, including its co-ordinated response with healthcare and blue light partners, is currently absent from the EIA scope, and any related technical report scoping.

This information therefore ought to be presented and assessed, with any necessary mitigation and management measures secured and implemented through DCO Requirements, and/ or via a Section 106 planning obligation or Deed of Obligation, as part of any Development Consent Order approval.

Joint Working With EEAST, Health & Blue Light Partners

Transport, Community Safety, Health & Wellbeing Working Group

In the light of the above, EEAST recommend that appropriate Terms of Reference, Membership and a Communications Strategy for a Transport, Community Safety, Health and Wellbeing Working Group - is established at an early stage in the DCO preparation process, and in advance of the Examination.

This would help to inform and assist the management of relevant aspects of the Project requiring a coordinated response from 'health and blue light partners', incorporating representatives from EEAST, the SNEE ICB, Norfolk & Suffolk Constabulary and Suffolk Fire and Rescue Service, with liaison maintained with any other relevant organisations such as Air-Sea Rescue/ RNLI.

The South East Coast Ambulance Service NHS Foundation Trust would need to be contacted in relation to similar Project impacts arising within its own administrative area, covering Kent.

Concluding Remarks

EEAST welcomes the opportunity to respond to the Sea Link EIA Scoping Report, and following review of the documentation, con that it is currently deficient in its proposed assessment of the potential Project impacts on EEAST as outlined above.

EEAST considers that the Project is likely to give rise to significant effects on its operational capacity, efficiency and resources (incorporating its staff, vehicle fleet and estate assets) which ought to be baselined and assessed in order to determine appropriate mitigation and management measures.

The Project is therefore considered likely to adversely affect EEAST's ability to meet and deliver its targets and priorities (statutory duties) as a key healthcare and emergency services provider.

Identified impacts arising from the Project should therefore be addressed by employing appropriate mitigation and management measures - to be secured and implemented through DCO Requirements, and/ or via a Section 106 planning obligation or Deed of Obligation, as part of any Development Consent Order approval.

This approach ought to be reflected in a Statement of Common Ground to clarify the position reached and inform the forthcoming Examination process.

The measures ought to include a process to assist EEAST and its health and blue light partners to plan for and implement co-ordinated responses to construction phase (and any operational and decommissioning phase) Project impacts and incidents, to optimise patient outcomes.

We trust this is of assistance and look forward to working with NGET to satisfactorily address the points raised.

[redacted]
Head of Business Relationships

cc:
Roland Arbon, Suffolk County Council
Jane Taylor, NHS Suffolk and North East Essex Integrated Care Board

ANNEX 1

EEAST KEY FACTS & SERVICE INFORMATION

This section summarises EEAST's service remit, priorities, staff, vehicle fleet and estate assets, and co-working relationship with other healthcare and blue light partners and service targets

Service Remit & Priorities

The East of England Ambulance Service NHS Trust provide accident and emergency services and non-emergency patient transport services across the East of England.

The Trust Headquarters is in Melbourn, Cambridgeshire and there are Ambulance Operations Centres (AOC) at each of the three locality offices in Bedford, Chelmsford and Norwich who receive over 1 million emergency calls from across the region each year, as well as 800,000+ calls for patients booking non-emergency transport.

The 999 service is part of the wider NHS system providing integrated patient care. Provision of 999 services is aligned closely with national and regional initiatives driven by:

- Sustainability and Transformational Partnerships
- Integrated Care System
- Integrated Urgent Care systems, i.e. NHS 111, Clinical Assessment Services, Urgent Treatment Centres, GP Out of Hours Services.

Additionally, regional Ambulance Trusts may collaborate closely with other ambulance services, the wider emergency services or wider system providers to deliver appropriate patient care.

To support the service transformation agenda, the key requirements are:

- To deliver the core response and clinical outcome standards as defined by the Ambulance Response Programme
- To fulfil statutory duties relating to emergency preparedness, resilience and response (EPRR)
- Optimisation of call handling and appropriate responses through virtual alignment of NHS 111/999 and call/CAD transfer between ambulance services
- Increase the percentage of lower acuity calls managed through "hear and treat" and "see and treat" options
- Utilise a virtual delivery model to support wider workforce integration for paramedics, call handlers and specialist staff with local urgent care delivery models
- Facilitate cross boundary working and the flexible use of ambulance service resources to support the development of regional Sustainability and Transformational Plans and Integrated Care Systems.

The 999 service is free for the public to call and is available 24 hours a day, 7 days a week, 365 days a year, to respond to the population with a personalised contact service when patients:

- Require rapid transportation with life threatening illness/injury or emergencies - category 1 and 2
- Present with lower acuity urgent and less urgent conditions - category 3 and 4 requiring clinical interventions
- Patients may be passed to 999 via other NHS health care systems, including NHS 111
- EEAST receives over 1 million emergency (999) calls per year and 800,000 calls for patients booking non-emergency transport.

EEAST also provides urgent and emergency responses to Healthcare Professionals requiring ambulance assistance, and inter-facility transfers between hospitals and other healthcare settings, where patients require treatment at alternative sites to their current setting.

Non-Emergency Patient Transport Services (NEPTS) provide an essential lifeline for people unable to use public or other transport due to their medical condition. These much-needed journeys support patients who are:

- Attending hospital outpatient clinics or other healthcare location
- Being admitted to or discharged from hospital wards
- Needing life-saving treatments such as radiotherapy, chemotherapy, renal dialysis or DVT treatment.

Service Assets

EEAST clinicians:

- Emergency Care Support Workers
- Emergency Medical Technicians
- Paramedics
- Specialist Paramedics
- Critical Care Paramedics.

Types and models of response:

- Community First Responder (CFR)
- Patient Transport Service (PTS)
- Clinical See and Treat
- Clinical Hear and Treat (telephone triage)
- Early Intervention Team (EIT)
- Rapid Response Vehicle (RRV)
- Double Staff Ambulance (DSA)
- Hazardous Area Response Team (HART)
- Specialist Operations Response Team (SORT)

- Helicopter Emergency Medical Service (HEMS), EEAST utilise 5 aircraft across 3 charities within the region

    - Magpas – 1 x aircraft from RAF Wyton
    - East Anglian Air Ambulance – 2 x aircraft form Cambridge and Norwich Airport
    - Essex and Herts Air Ambulance – 2 x aircraft form North Weald and Earls Colne

Ambulance Operations Centre (AOC) staff:

- 999 Call Handlers
- Emergency Medical Dispatchers
- Tactical Operations Staff.

EEAST support services staff cover all other corporate and administrative functions across the region.

Estates

The Trust is rolling out a Hub and Spoke network with up to 18 hubs to provide regional premises for delivery of operational responses to calls, flow of ambulance preparation via the Make Ready function (cleaning and restocking of ambulances) and despatch of ambulances to local spokes (reporting posts/response posts/standby locations). Support services such as workshop facilities, clinical engineering (medical equipment store and workshop), consumable product stores and support office accommodation are also provided from Hubs.

- Ambulance Station Central Reporting Post - A 24/7 - Permanent reporting base for staff and primary response location for one or more vehicles. Provision of staff facilities.
- Ambulance Station Response Post - A primary response location, which includes staff facilities but is not a reporting base for staff.
- Standby Location - Strategic locations where crews are placed to reach patients quickly. Facilities used by staff are provided on an informal basis only by agreement with the relevant landowner.

Ambulance Stations in the Sea Link Suffolk Onshore Project area are:

Saxumundham

Ambulance Stations in the Sea Link Suffolk Onshore Project surrounding area which may provide support are:

Beccles
Lowestoft
Martlesham
Ipswich

Vehicle Fleet

- 387 front line ambulances
- 178 rapid response vehicles

- 175 non-emergency ambulances (PTS and HCRTs vehicles)
- 46 HART/major incident/resilience vehicles located at 2 x Hazardous Area Response Team (HART) bases with a number of specialist vehicle resources.

Workforce & Equipment

Approximately 4,000 staff and 800+ volunteers across 120 sites. Each resource has equipment specific to the operational function of the vehicle and skill level of the staff.

Specialisms

EEAST works collaboratively across our blue light partners and have joint working groups with Police and Fire Services across the region, working in partnership managing responses to incidents and undertaking joint exercises with our dedicated resources to prepare for specialist rescue, major incidents and mass casualty incidents.

EEAST is a Category 1 Responder under the Civil Contingencies Act, 2004, playing a key role in developing multi-agency plans against the county and national risk registers. EEAST also works closely with the Military, US Air Force, Royal Protection Service, Stansted Airport and the Port of Felixstowe Police, Fire and Ambulance services.

EEAST's Emergency Preparedness Resilience Response (EPRR) team lead on the Joint Emergency Services Interoperability Principles (JESIP) working in close partnership with all blue light agencies, the Coastguard and Local Authorities. Specialist resources work with the Police in counter terrorism and developing response plans in the event of a major incident.

EEAST are an integral part of the locality's resilience response sitting on a number of safety advisory groups, east coast flood working groups and hospital emergency planning groups.

Co-working Relationship with other Blue-Light and Healthcare Partners

EEAST is an integral part of the wider healthcare system working closely with the NHS Suffolk and North East Essex Integrated Care Board to deliver emergency and urgent care and are key stakeholders in supporting wider healthcare initiatives.

Within North Essex, EEAST work with the ICBs in delivering additional care pathways focussing on hospital admission avoidance, this is a partnership with the local acute providers and local authorities. EEAST operate Early Intervention Response vehicles and a Rapid Intervention Vehicle. These resources work collaboratively within the system to offer holistic care to patients whilst reducing pressure on Emergency Departments.

This is EEAST's response to the requirements of the NHS Long Term Plan, with the clear narrative that in order to bring the NHS into financial balance all NHS providers must find

mechanisms to treat patients in the community and out of the most expensive care setting, which are acute hospitals. This not only saves the NHS critical funding, but it also improves patient outcomes.

EPRR and Specialist Operations teams routinely train with other blue light agencies in preparedness for major incidents such as terrorist attacks and major incidents with statutory training obligations to respond to local and national incidents.

In continuing to respond to the COVID-19 Pandemic, EEAST is working collaboratively with Private Ambulance providers, the Military, volunteer Ambulance Services (such as St John Ambulance and British Red Cross) and local Fire and Rescue Services, to increase its capacity and maintain service delivery to meet the additional demand.

EEAST Service Targets

All NHS organisations are required to report against a set of Core Quality Indicators (CQIs) relevant to their type of organisation. For ambulance trusts, both performance and clinical indicators are set as well as indicators relating to patient safety and experience.

NHS organisations are also required to demonstrate their performance against these indicators to both their commissioners and Regulators (NHS England/Improvement).

It is important to note that EEAST is also measured on how quickly a patient is transported to an appropriate location for definitive care, often in time critical circumstances.

Failure to deliver against these indicators will result in a Contract Performance Notice and could result in payment being withheld, as prescribed in NHS Standard Contract 20/21 General Conditions (Full Length) GC9 9.15.

ANNEX 2

EEAST Operational Standards & Thresholds
Ambulance Service Response Times

Operational Standards	Threshold	Consequence of Breach
Category 1 (life-threatening) calls – proportion of calls resulting in a response arriving within 15 minutes	Operating standard that 90th centile is no greater than 15 minutes	Issue of a Contract Performance Notice and subsequent process in accordance with GC9. For each second by which the Provider's actual 90th centile performance exceeds 15 minutes, £2.50 per 1,000 Category 1 calls received in the Quarter
Category 1 (life-threatening) calls – mean time taken for a response to arrive	Mean is no greater than 7 minutes	Issue of a Contract Performance Notice and subsequent process in accordance with GC9
Category 2 (emergency) calls – proportion of calls resulting in an appropriate response arriving within 40 minutes	Operating standard that 90th centile is no greater than 40 minutes	Issue of a Contract Performance Notice and subsequent process in accordance with GC9. For each second by which the Provider's actual 90th centile performance exceeds 40 minutes, £2.50 per 1,000 Category 2 calls received in the Quarter
Category 2 (emergency) calls – mean time taken for an appropriate response to arrive	Mean is no greater than 18 minutes	Issue of a Contract Performance Notice and subsequent process in accordance with GC9
Category 3 (urgent) calls – proportion of calls resulting in an appropriate response arriving within 120 minutes	Operating standard that 90th centile is no greater than 120 minutes	Issue of a Contract Performance Notice and subsequent in process accordance with GC9. For each second by which the Provider's actual 90th centile performance exceeds 120 minutes, £2.50 per 1,000 Category 3 calls received in the Quarter
Category 4 (less non-urgent "assess, treat, transport" calls only) – proportion of calls resulting in an appropriate response arriving within 180 minutes	Operating standard that 90th centile is no greater than 180 minutes	Issue of a Contract Performance Notice and subsequent process in accordance with GC9. For each second by which the Provider's actual 90th centile performance exceeds 180 minutes, £2.50 per 1,000 Category 4 calls received in the Quarter

For All Indicators:

Method of Measurement:	See AQI System Indicator Specification at: https://www.england.nhs.uk/statistics/statistical-work-areas/ambulance-quality-indicators/ Review of Service Quality Performance Reports
Timing of Application of Consequence	Quarterly for all indicators
Application	AM

FAO Marie Shoesmith
Environmental Services
Central Operations
Temple Quay House
2 The Square
Bristol
BS1 6PN

Your ref:	Sealink Scoping Res
Our ref:	EN020026-000024-221025
Date:	22 November 2022
Please ask for:	Naomi Goold
Customer Services:	[redacted]
Direct dial:	[redacted]
Email:	[redacted]

southeastanglialink@planninginspectorate.gov.uk

Dear Marie Shoesmith,

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11

Application by National Grid Electricity Transmission plc (the Applicant) for an Order granting Development Consent for the Sea Link (the Proposed Development)

Scoping consultation and notification of the Applicant's contact details and duty to make available information to the Applicant if requested

East Suffolk Council (ESC) welcomes the opportunity to comment on the Sea Link Scoping Report dated October 2022. This letter comprises ESC's response under Section 43(1) of the Planning Act 2008. The Council's detailed comments in relation to the Scoping Report can be found in Appendix 1 of this letter.

ESC would like to highlight that the Sea Link project is one of several Nationally Significant Infrastructure Projects (NSIPs) currently proposed, or recently consented but not yet constructed[1], within the district. It is therefore essential that the project is not considered in isolation, and the full cumulative effects of Sea Link with other projects and proposals is adequately and appropriately assessed, mitigated and where appropriate compensated. In addition to the NSIPs that are

[1] Consented: Sizewell C New Nuclear Power Station, East Anglia One North, East Anglia Two and East Anglia Three Offshore Wind Farms
Proposed: Eurolink and Nautilus Multi-purpose Interconnectors, Sea Link Subsea Link, North Falls Offshore Windfarm, Five Estuaries Offshore Wind Farm

consented/proposed in the east Suffolk area, there are also several projects consented and proposed in the wider Suffolk and East Anglia region which also need to be considered in terms of the wider reaching impacts.

Since 2018, the Council has been engaging with the Government regarding the unstructured, non-collaborative approach to energy development. The Council would like to be supportive of well-developed coordinated projects, that enable the goal of Net Zero and the interim targets. This however cannot be at the expense of Suffolk's environment and communities. The succession of individual proposals impacting our communities without visible strategic over-sight, or collaboration to minimise impacts, creates a very challenging and unsustainable situation.

Notwithstanding the Council's overarching positions on the projects, ESC has previously requested National Grid comprehensively and robustly explore every opportunity for coordination of the Sea Link project with other proposed and consented projects at all stages of the development consent process. This is necessary to reduce the adverse impacts of the developments on east Suffolk's sensitive and valued environment and the local communities, who have been hit by a constant barrage of energy projects and will be subject to years of disruption from associated construction works, if they are consented.

ESC welcomes the work the developer has undertaken in conjunction with National Grid Ventures to consider opportunities for coordination. This work needs to continue and extend beyond the consideration of co-location to ensure that genuine coordination at all stages of the process is secured.

If you have any questions regarding the detailed comments provided in Appendix 1, please do not hesitate to contact me.

Yours sincerely,



Head of Planning and Coastal Management
East Suffolk Council

Appendix 1 – ESC's Detailed Comments on the Sea Link Scoping Report

1. Volume 1 Main Text – Part 1 Introduction

Need for the Project – 1.1.2

1.1. Paragraph 1.1.2.3 identifies the potential additional generation, interconnectors, and energy storage which could be expected to connect in the East of England Region by 2035, established by the National Grid Electricity System Operator in the Future Energy Scenarios. Further information and clarification is required on whether the need relates to the current projects with grid connection offers in the district, future anticipated connections, or both. It would be helpful to clearly understand, based on the current known projects, at what point the reinforcements proposed are required. Whilst it is stated that the project aims to be delivered by 2029/30, that could potentially be after East Anglia One North, Two, and Three offshore wind projects are delivered, although it would be in advance of the Sizewell C project. Given the increasing difficulties developers are having identifying deliverable landfall locations along the east Suffolk coastline, the lack of offshore wind farm leasing options in the region in Round 4, and now the potential option for the Nautilus project to connect to the Isle of Grain, if the degree of predicted generation, interconnection and storage in the region is not realised, would this change the need case for the project or the date by which it is necessary?

The Need for an Environmental Impact Assessment – 1.1.3

1.2. ESC agrees and supports National Grid and their commitment to undertake an Environment Impact Assessment.

Geographical Context – 1.1.4

1.3. If site 3 is selected following further detailed review of the site and design options, it is noted that the potential temporary access which would be required during construction to prevent vehicles travelling through Saxmundham, has not been included within the Suffolk Onshore Scheme Boundary. Given that it is known this temporary access would be required, this is considered an omission which should be addressed.

1.4. It is important that all temporary and permanent access arrangements are included within the Suffolk Onshore Scheme Boundary, including means of access for any early works in advance of formal commencement.

Net Gain Commitment – 1.1.8

1.5. National Grid has committed to a minimum of 10% Biodiversity Net Gain (BNG) across the project. Whilst this commitment is welcomed, as the project has two distinct geographic locations (Suffolk and Kent) it must be ensured that a minimum of 10% BNG is delivered in both areas. Delivery of greater BNG should not be proposed in one location at the expense of the other.

Key Legislation

1.6. ESC fully supports the Secretary of State's decision to issue a Direction that confirmed the project should be treated as a development for which a Development Consent Order (DCO) under the Planning Act 2008 is required. ESC requested that National Grid seek a Direction and provided a letter of support to be submitted with the application.

1.7. ESC notes the key legislation identified in section 1.2.2 and welcomes the recognition of the draft National Policy Statements EN-1 and EN-5, which ESC considers will be important and relevant, in addition to any further draft versions published.

Main Alternatives Considered – Section 1.3

1.8. The converter station site options areas are all identified on the basis that the infrastructure should be within a 5km radius of the network connection point (paragraph 1.3.4.16). The connection sites explored were at Sizewell, the proposed Friston substation, and a new connection location on the existing 400kV overhead lines. Connection at the proposed Friston substation was identified as the Sizewell options were considered too constrained and 'c*onnecting into a new connection point in the area, with an associated additional substation, was not preferred'.* This however does not consider that the proposed Friston substation is subject to two legal challenges, the outcomes of which are not yet known. If for example, the East Anglia One North and East Anglia Two DCOs are quashed, the Friston site would also comprise 'a new connection point in the area' and therefore be considered in the same light as new connection points elsewhere.

1.9. It is essential that National Grid commits to further consideration of their site options assessment following the High Court's decision on the Judicial Reviews, and dependent on the outcomes, this may require the assessment to be retaken. Without this commitment, the requirement to consider alternatives would be based on incorrect assumptions regarding the proposed Friston connection site.

Stakeholder Engagement

1.10. ESC welcomes the additional work National Grid has undertaken to consider the concept of co-location of converter stations, shared cable corridors, and consolidation of landfalls (paragraph 1.3.4.67). ESC comments stated above similarly apply to the work undertaken; the site options considered for co-location are based on the assumption that the Nautilus and Eurolink projects are connecting to the grid at the proposed Friston substation. As the outcome of the legal challenges is not yet known, this work will need to be revisited and potentially re-assessed, dependent on the decision from the High Court.

1.11. ESC would like to emphasise that we requested all opportunities for coordination be explored during all phases of the development, both pre and post consent. This will extend beyond just co-location opportunities, although this is a fundamental consideration.

Project Description – Section 1.4

1.12. Paragraph 1.4.2.4 states that the proposed works at the Friston substation would comprise the installation of one Air Insulated Switchgear (AIS) bay, alternatively paragraph 1.4.2.5 states that if the Friston substation consented under the East Anglia One North and East Anglia Two offshore windfarms does not come forward, a new AIS substation would be constructed. The comments made above regarding the Judicial Reviews on the East Anglia One North and East Anglia Two DCOs apply, and therefore the project description in paragraph 1.4.2.5 may need to revisited subject to the High Court's decision.

1.13. If the High Court's decision is found in favour of the Secretary of State, or the decision does not affect the consented DCOs under which the proposed Friston substation is granted, it is considered that the project description should include the option to deliver an AIS or Gas Insulated Switchgear (GIS) extension/bay or new substation. The East Anglia One North and East Anglia Two DCOs included the option of delivering a GIS or AIS National Grid substation. It has not yet been confirmed publicly what technology the proposed Friston substation will utilise and therefore it would be appropriate to ensure both options remain available.

1.14. The inclusion of this flexibility is considered especially important with the potential development of GIS substations which are not reliant on sulphur hexafluoride (SF^6). The assessment should include consideration of the use of GIS technology to reduce the footprint of the infrastructure.

1.15. Whilst it is appropriate that the assessment takes account of whether the proposed Friston substation comes forward under the East Anglia One North and East Anglia Two DCOs or as a new substation proposed under this project, the assessment should include consideration of the use of GIS technology to reduce the footprint of the infrastructure.

1.16. The comments provided going forward within this document are made notwithstanding the comments regarding the proposed Friston substation and the potential need for further consideration of the grid connection location and site selection options following the outcome of the Judicial Reviews, which will continue to apply.

1.17. Table 1.4.1 provides a summary of the typical characteristics of High Voltage Alternating Current (HVAC) cables in Suffolk. The Council welcomes the inclusion within the assessment of the provision of up to 12 ducts. Coordination of the corridors and cabling works for the HVAC cables between the converter station site and National Grid substation is essential. It would be helpful if details were provided as to the typical characteristics of a coordinated HVAC cable corridor above just that of the potential width.

1.18. Paragraph 1.4.2.10 states that the proposed converter station would be up to 10 hectares and 30m in height. ESC would like to take the opportunity to highlight that comprehensive and detailed justification will be required as to why the converter station for the proposed project is required to be this size when other similar converter stations for other projects are lower and occupy approximately half the footprint. Similarly robust justification will be required as to why the cable corridor for the project alone HVAC cabling needs to be 60m, ESC has experience of the East Anglia One North and East Anglia Two projects which proposed corridors widths of around half the width proposed by the Sea Link project.

1.19. ESC notes Table 1.4.2 provides details of the typical characteristics of HVDC underground cabling for Suffolk and welcomes the commitment in paragraph 1.4.2.13 to explore the ability to install cable ducts for other projects. Details of the characteristics of the coordinated HVDC cabling options would be welcomed. Also, similarly to the HVAC cabling, robust justification needs to be provided for the proposed cabling widths and why they cannot be reduced.

Construction – 1.4.3

1.20. ESC notes Table 1.4.5 provides an indicative construction programme for the Project based on the premise that the proposed Friston substation is constructed under the East Anglia One North and East Anglia Two DCOs. This identifies that construction could begin in 2026 and continue into 2030. The construction works could therefore coincide with the

construction works associated with several other consented and proposed NSIPs. The full cumulative impacts of the potential simultaneous or sequential construction programmes on the environment and local community needs to be carefully and robustly assessed.

1.21. ESC notes peak workforce is anticipated to be 300-400 across the project.

1.22. The enabling works and access and site preparation works identified within paragraphs 1.4.3.5 to 1.4.3.11 are noted. Given that enabling works are often sought to be undertaken pre-commencement, ESC would like to highlight at this early stage that the local authority is likely to require appropriate management of these works through a separate management plan, if the main management plans are not triggered until commencement.

1.23. Paragraph 1.4.3.9 discusses possible reuse of aggregate; in addition to removal of the aggregate to an appropriate facility, consideration should also be given to retention or reuse by another project in the locality.

1.24. ESC's comments in paragraphs 1.13 to 1.16 apply to paragraph 1.4.3.12 which describes the proposed Friston substation construction works.

1.25. Paragraph 1.4.3.15 states that the construction of a new National Grid substation at Friston would take approximately 18-24 months. It was understood under the East Anglia One North and East Anglia Two applications that this work could be spread over a four-year period due to the need to time the works with outages. ESC would welcome confirmation and clarification if there has been further refinement of the construction timescales since the granting of the East Anglia One North and Two DCOs.

1.26. Paragraph 1.4.3.29 states that the proposed HVAC and HVDC cables will typically be undertaken in an 80m and 40m wide working width respectively. ESC requires the minimal working width necessary to reduce the impact on the environment and local communities. Justification will be necessary to address to why 80m and 40m working widths are necessary when similar projects have demonstrated that they can achieve much narrower working widths. ESC also requests, as previously stated, that all opportunities for coordination are explored which includes consideration of the relative timings of the projects i.e., simultaneously or consecutively, and the potential for shared or coordinated cable corridors to reduce the impacts caused during construction.

1.27. Paragraph 1.4.3.46 confirms that no decision has yet been reached as to whether the landfall will be constructed using trenched or trenchless techniques. ESC supports further

investigations into trenchless techniques to reduce the impacts on the coastal environment and designated habitats.

Decommissioning – 1.4.6

1.28. Decommissioning of the proposed Friston substation (paragraph 1.4.6.1), dependent on the number of connections, could become quite complex and requires careful consideration of any decommissioning plans.

1.29. Further clarification is necessary to understand the relationships between the relative lifespans of the National Grid substation in comparison to the converter station. Paragraph 1.4.6.2 states that refurbishment and plant replacement could extend the life of the converter station beyond 40 years, whilst the lifespan of the National Grid substation is stated to be 40 years only. In addition to this, how will decommissioning of the National Grid substation also be managed when it connects multiple projects to the grid and is therefore subject to multiple DCOs.

1.30. Paragraphs 1.4.6.5 and 1.4.6.6 refer to different methods to decommission the onshore cables and marine cables. Full consideration of the impacts of the different techniques is required.

EIA Approach and Methodology – Section 1.5

1.31. Paragraph 1.5.2.3 references the need to identify environmental effects and, if any, propose project specific mitigation measures to avoid, reduce, or offset adverse environmental effects. The means to prevent the effect should also be included in this hierarchy.

1.32. The need for the Rochdale Envelope approach ahead of detailed design of the project is noted and accepted (paragraph 1.5.2.5). Whilst this is accepted to ensure a realistic 'worst case' assessment, it is essential that there is a commitment from the developer that all reasonable efforts will be made post consent to seek reductions in the parameters set on the 'worst case' basis. The developer should seek to achieve the delivery of a 'best-case' project to reduce the actual impacts of the project.

1.33. Further clarification will be required in relation to the definition of temporary and permanent effects provided in paragraph 1.5.3.7. Whilst there are some effects that will cease when the activity or work is stopped or removed, the activity will occur over such an extended period of time that they should be considered permanent in assessment terms.

1.34. ESC notes that major and moderate effects are typically considered to be significant in EIA terms whilst minor and negligible effects are not significant (paragraph 1.5.4.12). ESC welcomes the acknowledgement that when intra-project cumulative effects are taken into consideration, individual not-significant impacts could become significant when their interrelationship is assessed (paragraph 1.5.5.3).

1.35. ESC notes the approach to be taken to assessing inter-project cumulative effects. Whilst the approach to the Zone of Influence (ZOI) is noted, this is reliant on the original area within which potential effects of the project will occur being accurately set. Further comments on this will be provided within the topic specific sections of this response.

1.36. ESC has noted some errors and points of clarification in Appendix 1.5.A which have been outlined below. It would also be helpful in the future if the lists relevant to the Suffolk and Kent onshore areas could be more clearly separated.

- The distance identified between the East Anglia Two project and the Sea Link Suffolk Scoping boundary states 1.62km, this is incorrect as the two areas overlaps at specific locations, this also conflicts with the distance identified for East Anglia One North.
- The East Anglia One North project has been incorrectly identified as not being within the Suffolk Onshore Scheme ZOI.
- The distance between the Nautilus project and Suffolk Scoping boundary is 0.66km, again given the same connection location has been identified for both projects this needs clarification and amending.
- It is noted that Brightwell Lakes (DC/18/4644/VOC, DC/17/1435/OUT, DC/18/2774/ARM) has been scoped out of the cumulative assessment as the development is outside the ZOI. Dependent on where the construction vehicles for the Sea Link project originate from, there could be cumulative impacts on shared junctions on the A12 and therefore further consideration should be given to this project.

2. <u>Volume 1 Main Text – Part 2 Suffolk Onshore Scheme</u>

Evolution of the Suffolk Onshore Scheme 2.1

2.1. As stated in paragraphs 1.9 and 1.10 of this response, the identification of the proposed Friston substation as the preferred grid connection location does not take into consideration the existing Judicial Reviews and their outcomes. The network connection point will need to be reviewed considering the High Court decision and any subsequent

decision made in the higher-level courts, should the matter be progressed. The converter station option areas were identified based on the grid connection at the proposed Friston substation, and therefore the siting options will need to similarly be reviewed and potentially a new siting and routeing options assessment undertaken dependent on the outcome of the legal challenge.

2.2. ESC fully supports the undergrounding of the HVAC and HVDC cabling which is committed to in paragraph 2.1.5.21.

2.3. ESC welcomes the work that the developer has undertaken with National Grid Ventures to explore opportunities for coordination in terms of the converter site, landfalls, and terrestrial cable corridors.

2.4. Paragraph 2.1.9.1 does not include the connection infrastructure required for the development in the form of extensions to the proposed Friston substation or the potential construction of a new substation. The project description does not refer to the potential to lay ducting for future projects which was referenced in paragraphs 1.4.2.8 and 1.4.2.13.

Landscape and Visual 2.2

2.5. The Scoping Report makes appropriate reference to relevant landscape related policy both at National level and District Council level (paragraphs 2.2.2.3 to 2.2.2.13). It is noted and accepted that the District Council's Settlement Sensitivity Assessments should be discounted because of their specific reference to housing and commercial development scenarios with no accommodation for energy related projects of the type under consideration (paragraph 2.2.2.11).

2.6. Due reference is also made to Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) planning practice guidance documents (paragraph 2.2.2.12), the AONB boundary line, the presence of Tree Preservation Orders, and Ancient Woodlands (paragraph 2.2.4.6). Other designations are also considered but scoped out of the Landscape and Visual Impact Assessment (LVIA) as not being of specific landscape relevance in respect of this assessment (paragraph 2.2.4.9). These assumptions are noted and understood.

2.7. The full suite of landscape character assessments from National level to District level is listed as part of the assessment, together with the relevant Seascape Character Assessments; also noted and accepted (paragraphs 2.2.4.12 to 2.2.4.17).

2.8. In addition to the seascape character documents identified, the developer should note and include reference to the Suffolk, South Norfolk, and North Essex Seascape Character Assessment (LDA Report Template (suffolklandscape.org.uk).

2.9. The scope of the visual impact assessment in terms of potential receptors is comprehensive and noted (paragraph 2.2.4.20).

2.10. The initial locations of representative viewpoints for the converter sites are shown in Figures 2.2.9 and 2.2.10 are noted but it is recommended that final positions are micro-sited on site to ensure that the given view is a genuine representation of the locality and not unnecessarily reliant on minor instances of screening vegetation that are not generally typical of the locality. Similarly, the limitations of using Zone of Theoretical Visibility (ZTV) for locating viewpoints should be understood and final positioning should be determined by on-site observation. ESC would therefore reserve the right to request the inclusion of additional or revised viewpoints.

2.11. The Council is concerned that Figures 2.2.9 and 2.2.10 show that same viewpoints for both Converter Station option sites plus their respective cable route options. This seems to suggest that viewpoint options for each alternative were compromised to achieve this uniformity across both main alternatives. The Council advises that this combined suite of viewpoints be reviewed to ensure that they have specific relevance to each project and that additional ones be added where it is apparent that there may be gaps in the informative.

2.12. None of the viewpoints relate to the grid connection works proposed. ESC recommends that the site of the proposed Friston substation is appropriately assessed, and viewpoints included for this purpose.

2.13. In addition to the representative viewpoints, the Council expects the inclusion of illustrative viewpoints including both photomontages and wireframes in order to demonstrate the widest understanding and depiction of the projects, not least of all for improved public understanding of what is being presented. Further, if new landscape planting is being relied on in mitigation for significantly adverse effects, this should be realistically shown in viewpoint illustrations. For the avoidance of doubt, anticipated growth rates of any new planting that is relied on to mitigate significantly adverse effects should be discussed and agreed with the Council prior to being depicted in illustrations.

Visualisations

2.14. The principle of visualisations being based on maximum development parameters is noted and accepted (paragraph 2.2.4.31). The inclusion of any proposed mitigation planting must be realistic to ensure that the effectiveness of this planting is represented as accurately as possible. It is therefore requested that the growth rates for the planting are agreed with ESC prior to the preparation of the visualisations.

2.15. It is not accepted as stated in paragraph 2.2.4.32 that the extensions to the National Grid substation are minor, especially when considered cumulatively with the development consented under the East Anglia One North and East Anglia Two DCOs. Volume 1 of the Scoping Report also discussed the possibility, should the proposed Friston substation not come forward, for the application to include a new National Grid substation in this location. Appropriate visualisations should therefore be prepared to consider the landscape and visual impacts at this site.

Embedded and Control & Management Measures – 2.2.5

2.16. The consideration of embedded and control and management measures in respect of potential mitigation provision is noted. Where reliance is placed on new planting to restore lost landscape fabric or to achieve screening benefit, full acknowledgement will need to be given to the potential limitations of achieving successful new planting in East Anglia given the recent trend for prolonged rainless periods of weather in the critical spring and early summer period. Such risks to successful plant establishment will need to be fully acknowledged and accounted for in planting strategies and specifications.

2.17. The outline control measures for protecting landscape features during construction are noted as the basis for further discussions. In paragraph 2.2.5.4 it is stated that a five-year aftercare period will be established for all reinstatement and mitigation planting. Whilst it is accepted that this may be an appropriate period for the hedgerow planting, a longer period is considered necessary to ensure the successful establishment of the landscaping which is likely to be necessary around the converter station sites and potentially proposed Friston substation. Due to the risks to successful planting establishment described above, ESC wishes to highlight the need to consider adaptive management measures.

2.18. It should be noted that all important hedgerows within the onshore area should be identified in accordance with the Hedgerow Regulations 1997.

2.19. In respect of potential impacts outlined in Table 2.2.6, the Council has some concerns regarding the following assumptions:

- *Operational lighting at converter stations* - This has been scoped out as being of limited potential for significant effects partly because of the context of existing settlements. This does not seem to be a safe assumption given the relatively isolated location of potential converter station sites away from existing settlements. This assumption will need further justification.

- *Operational extension to the proposed Friston substation* – This has been scoped out as it is considered there is less potential that significant effects will result on the landscape character or visual amenity. The Examining Authority took a different view when considering extensions to the proposed Friston substation in relation to the Nautilus and Eurolink projects during the East Anglia One North and East Anglia Two examinations. The Examining Authority's conclusions taken from the Secretary of State's letter (paragraph 5.21) are set out below:

  'The extension of National Grid Substation Appraisal demonstrated a significant worsening of potential adverse effects for relevant VPs and for landscape character. The extension of the National Grid substation would intensify and worsen the effects of the Proposed Development on both the local landscape and on visual receptors.'

  There is also no consideration of the potential need for a new substation to be constructed should the proposed Friston substation not come forward under separate DCOs. It is essential that the cumulative impacts of the project with the consented East Anglia One North and East Anglia Two projects and proposed Nautilus and EuroLink Multi-purpose Interconnectors are understood and assessed ensuring that any further mitigation required is delivered. The scoping out of the impacts of the connection works is not accepted or considered justified.

2.20. The described Landscape and Visual Impact Assessment methodology is accepted. It would however be helpful to include a definition of short, medium, and long term.

2.21. A construction and operational lighting plan should be developed to consider, manage and mitigate the impact from temporary and fixed lighting associated with the construction and operation of the infrastructure.

Ecology and Biodiversity – 2.3

2.22. ESC broadly agrees with the scope of the ecological assessments to be included within the EIA. The Council does however have some comments on the detail of some of the ecological receptors and proposed assessments identified within the Scoping Report which will need to be addressed in the assessments.

2.23. Paragraph 2.3.2.5 and 2.3.2.6 reference Biodiversity Net Gain and the Council's previous comments in paragraph 1.6 of this response apply.

Statutory Designated Sites

2.24. It appears that there may be statutory designated sites missing from the list of those identified in Table 2.3.1, for example Snape Warren Site of Special Scientific Interest (SSSI) does not appear to be listed despite being within 5km of the Suffolk Onshore Scheme area. It should also be noted that The Haven, Aldeburgh is a Local Nature Reserve (LNR) not a National Nature Reserve (NNR) as referenced in Table 2.3.1.

2.25. Also, please ensure that all interest features of the identified designated sites are considered as part of the assessment. For example, section 2.3.4.26 identifies that the Outer Thames Estuary Special Protection Area (SPA) is designated for wintering red-throated diver (Gavia stellata), whilst this is correct the SPA is also designated for breeding common tern (Sterna hirundo) and little tern (Sternula albifrons) which must be included as part of the assessment.

Non-statutory Designated Sites

2.26. It is noted that data on County Wildlife Sites (CWSs) and Roadside Nature Reserves (RNRs) is still being collected from Suffolk Biodiversity Information Service (SBIS), it must be ensured that this information is incorporated into the scoping considerations set out in Tables 2.3.4 to 2.38 so that potential impacts on such sites are fully assessed.

Protected Species (Surveys)

2.27. Bats - Section 2.3.4.34 identifies that bat activity surveys will be undertaken on all habitats where permanent infrastructure will be built along the route. It is considered that such surveys must also be undertaken on all habitats which will be temporarily impacted by the proposed development as well, as such construction can result in temporary impacts which occur for relatively long periods of time (such as hedgerow removal and replanting as part of cable installation).

2.28. Hazel Dormouse – Whilst hazel dormouse is included as a consideration within Tables 2.3.4 to 2.3.8, they are not listed as a species to be surveyed for in section 2.3.4.3. It is noted that the consideration of this species in section 2.3.4.35 states that no records of this species were returned from the desk study area, however a record does exist from approximately 1km to the west of the Suffolk Onshore Scheme Scoping Area Boundary (Figure 1.1.2 Rev 6 in Volume 3) and therefore it is considered that surveys for this species should be undertaken where suitable habitat is present and likely to be impacted by the proposed development.

Survey Methodologies

2.29. All ecological surveys must be undertaken by suitably qualified ecologists following published best practice guidelines. Survey methodologies, coverage, and locations should be agreed with the Local Planning Authority prior to survey work commencing.

Potential for Significant Effects

2.30. Clarification is required as to why Tables 2.3.4 to 2.3.8 do not scope in protected and notable species as receptors for the permanent habitat loss (terrestrial) impact pathway. Given the number of options currently included, it appears that permanent habitat loss which impacts on protected and notable species could occur as part of the development and therefore this must be included as part of the assessment.

Cultural Heritage – 2.4

2.31. Paragraph 2.4.2.3 identifies the Local Policy Framework applicable to the consideration of heritage assets. Whilst the reference to the East Suffolk Council Local Plan is correct, the policies identified are not current. The relevant policies have been listed below:

- Policy SCLP10.4: Landscape Character
- Policy SCLP11.1: Design Quality
- Policy SCLP11.3: Historic Environment
- Policy SCLP11.4: Listed Buildings
- Policy SCLP11.5: Conservation Areas
- Policy SCLP11.6 Non-Designated Heritage Assets
- Policy SCLP11.7: Archaeology
- Policy SCLP11.8: Parks and Gardens of Historic Landscape Interest

2.32. ESC notes the 1km buffer boundary identified on Figure 2.4.1 and the heritage assets identified within this area listed within Appendix 2.4.A. There are however some assets

which have not been included within the tables which ESC considers should have been. These have been listed below:

- The Watch-House, Sizewell Gap, Leiston (Grade II Listed Building)
- Ogilvie Homes, Leiston Road, Aldringham (Grade II Listed Building)
- Southview, Mill Lane, Aldringham (Grade II Listed Building)
- The Ogilvie Almshouses, Church Lane, Aldringham (Grade II Listed Building)
- Church of St. Andrew, Church Lane, Aldringham (Grade II Listed Building)
- The Pantiles, Aldringham (Grade II Listed Building)
- The Watch-House, Sizewell Gap, Leiston (Grade II Listed Building)
- 24 Westward-Ho, Leiston The Watch-House, Sizewell Gap, Leiston (Grade II Listed Building)
- Fisher's Farmhouse, Abbey Lane, Leiston (Grade II Listed Building)
- Retreat House, Abbey Road, Leiston (Grade II Listed Building)
- Barn at Abbey Farm, Abbey Road, Leiston (Grade II Listed Building)
- The Guesten Hall at Abbey Farm, Abbey Road, Leiston (Grade II Listed Building)
- Moat Farmhouse, Moat Road, Theberton (Grade II Listed Building)
- Peakhill Cottages, Theberton Road, Kelsale (Grade II Listed Building)
- Elm Tree Farmhouse, Aldeburgh Road, Aldringham (Grade II Listed Building)

2.33. Although Conservation Areas have been identified within the criteria for assessing the value of heritage assets – Table 2.4.7 and mentioned briefly in paragraph 2.4.4.5, the potentially affected Conservation Areas have not been specifically identified within the Scoping Report. ESC wishes to highlight that it will be expected that Conservations Areas are considered within the assessment, specifically Saxmundham, Aldeburgh and Thorpeness Conservation Areas.

2.34. The sources of construction impacts are noted in paragraphs 2.4.6.5 and 2.4.6.6 which include both the converter station and substation impacts on the setting of heritage assets. Paragraph 2.4.6.7 identifies the sources of operational impacts and whilst the new converter station is highlighted, the extension to the proposed Friston substation is not, nor is the possibility of a new substation referenced. Table 2.4.1 however confirms that the converter and substation infrastructure has been scoped in. Consideration should also be given to the need for a new substation, should this be necessary.

2.35. Direct and indirect impacts through the alteration of the historic landscape should also be considered and scoped in. There is a significant amount of information available in relation to the historic landscape character of the Friston substation site submitted as part of the East Anglia One North and East Anglia Two DCOs. Appendix 1 of the Council's joint Local Impact Report written in relation to the East Anglia One North and East Anglia

Two projects provides an assessment of the historic landscape of Friston and Knodishall (EN010077-002772-DL1 - Suffolk County Council - LIR.pdf (planninginspectorate.gov.uk). Whilst paragraph 1.4.A.3.2 in the Appendices has been noted. ESC requests that known non-designated assets not yet on the HER should be considered within the assessment.

2.36. ESC would also like to highlight Sloe Lane and Nuttery Lane, whilst also not recorded on the HER these are historic roads, the impact of the proposals on these assets should be considered.

Water Environment – 2.5

2.37. ESC will primarily defer to the Lead Local Flood Authority and the Environment Agency for their technical review of this section of the Scoping Report. The Council would however like to take the opportunity to highlight the importance of adequately and robustly assessing flood risk from all forms of flooding including surface water flooding. Reviewing the converter station sites on the Environment Agency's surface water flood map identifies several flow water paths which could be affected by the project.

2.38. In relation to the grid connection location, there is a significant amount of published material available on the Planning Inspectorate's website submitted as part of the East Anglia One North and East Anglia Two DCO examinations. Friston village has been subject to surface water flooding on a number of occasions. A Surface Water Management Plan (SWMP) for the catchment of Friston village was commissioned by Suffolk County Council (SCC) as the Lead Local Flood Authority. This includes a detailed assessment of the catchment topography and characteristics to accurately model surface water flow paths. Dependent on whether the Sea Link project seeks extensions to the proposed Friston substation or proposes a new substation, there is potential for the development to interact with the flow paths identified by the SWMP.

2.39. The project will also have implications for the drainage solutions identified at the Friston site including requiring the removal of one of the consented drainage basins to accommodate the National Grid extensions. It is essential the full cumulative impacts of the developments are carefully assessed and fully understood.

2.40. The Council notes that the operational impacts of the projects have been scoped out of the assessment. This is not supported or considered to have been sufficiently justified within the Scoping Report. Operational impacts associated with the projects should be scoped in.

Geology and Hydrology – 2.6

2.41. ESC will primarily defer to the Environment Agency for their technical comments on this section of the Scoping Report in relation to groundwater matters.

2.42. There is an expectation that land within the development area will be subject to assessment for land contamination in line with relevant guidance and legislation (including BS10175:2011+A2:2017 and the Land Contamination Risk Management (LCRM)) to ensure that contamination is identified and dealt with appropriately in respect of the development and sensitive receptors both onsite and offsite.

2.43. The developer should also develop a robust discovery strategy to cover the eventuality that unexpected contamination is encountered and appropriately addressed.

2.44. The developer should also take measures to identify Private Water Supplies in the vicinity of construction works so that they can be planned and undertaken in such a way as to prevent impact to those supplies.

Traffic and Transport – 2.8

2.45. Whilst ESC defers to SCC as the Local Highway Authority for their technical input on this section of the Scoping Report, ESC would like to make some high-level comments.

2.46. The commitment within paragraph 2.8.3.3 to review the proposed study area for traffic and transport identified in Figure 2.8.1 is welcomed. ESC would like to be included in these discussions given the Council's detailed knowledge of the district and the linkages with effects on air quality. At present it is considered that the study area is too narrowly defined and further consideration of junctions outside of this area will be necessary. For example, the study area does not extend to the A12 and therefore excludes the junctions between the A12 and A1094 and A12 and B1121. The Council would have expected to see the transport impact modelled as far westward as, and including, the A12. It is also considered there is potentially the need to assess network locations beyond the point where the construction traffic would connect to the A12.

2.47. As previously identified, the site access to Site 3 has not been included within the Onshore Boundary which should be addressed.

2.48. The widening of the study area is considered particularly important due to the potential inter-project cumulative impacts during the construction phase of the project with consented and proposed NSIPs and other major projects. These impacts need to be

carefully considered and appropriately and adequately assessed and mitigated. Assessing the onshore study area only is considered inadequate.

Air Quality – 2.9

2.49. The developer has considered air quality in respect of vehicle emission issues locally and dust in respect of construction activities.

2.50. In respect of dust, the Outline Code of Construction Practice (OCoCP) includes dust in respect of the Construction Environmental Management Plan (CEMP). ESC would welcome inputting into this document. Given the soil conditions in the local area, it is likely dust could be a significant issue and so consideration should be given to Dust Management Plans to ensure that mitigation is designed and deployed appropriately, and these should be approved by the local planning authority.

2.51. The developer has stated that a detailed assessment of vehicle emissions is to be scoped out as traffic flows are expected to be below the Institute of Air Quality Management (IAQM) screening criteria but goes on to say that they do not yet know vehicle numbers (Section 2.9.3). As it is an unknown quantity this should remain scoped in. Furthermore, HGV and vehicle numbers are a sensitive issue in respect of cumulative impacts with other projects and so consideration should be given to detailed assessment in respect of that cumulative impact.

2.52. The developer has stated that Euro 6 will be the standard for HGVs (paragraph 2.9.5.3), which is welcomed, along with the Construction Traffic Management Plan (CTMP) providing for GPS monitoring of HGVs and the use of authorised construction routes (paragraph 2.8.5.6).

2.53. The developer has stated the Suffolk scoping boundary is outside or not close to the Air Quality Management Area (AQMA). This may be the case, but construction related traffic has the potential to cause impact further afield than that assessed, especially if traffic travels through the AQMA at Stratford St Andrew. ESC suggests a wider scoping boundary should be considered, as previously highlighted in this response, to include impacts on the wider road network and potential impacts on junctions, considering cumulative effects with other developments.

2.54. It is stated that emissions from Non-Road Mobile Machinery (NRMM) should be scoped out due to the transient nature and incorporation of “best practice measures”. This is premature as there is not yet sufficient detail to state that emissions from NRMM will not be an issue and this will need to be considered further.

Noise and Vibration – 2.10

2.55. ESC considers that the developer has broadly considered the relevant areas in terms of noise and vibration impact, however further surveys are required moving forward and there is an expectation that the developer will design and manage this project with the minimisation and mitigation of noise and vibration impacts in mind.

Construction Noise and Vibration

2.56. The proposed study area of 300m from construction areas is accepted (2.10.3.2), although this will not prejudice complaints from noise sensitive receptors from further afield in the event the project is consented and implemented.

2.57. The developer has stated that BS5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Noise and BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Vibration (BS5228), and specifically the "ABC" methodology of those standards, are to be used in relation to impact from construction noise and vibration. This is accepted as suitable (paragraph 2.10.3.2).

2.58. The developer had committed to Best Practicable Means (BPM), as defined in the Control of Pollution Act 1974 and expanded upon in BS5228: 2009+A1: 2014, in respect of site operations and mitigation for noise and vibration and this is welcomed. It is important that all relevant sections of BS5228 are considered and implemented, including section 8 – Control of Noise.

2.59. The developer has provided an OCoCP which includes noise and vibration management as is expected for this type of development and should be secured in a requirement in terms of compliance. The OCoCP provides a relatively high-level view of noise and vibration management and mitigation and commits for CEMPs to provide the detail in respect of specific works. The local planning authority should have some input into construction activities in terms of mitigation and monitoring for noise and vibration and therefore should be included in approving the CEMPs, if this is not possible and that position is justified there may be a need for a more detailed Noise Management Plan (NMP) as an appendix to the CoCP and consideration of adopting a Control of Pollution Act 1974 Section 61 approvals process.

2.60. The developer should produce a detailed complaints and monitoring plan including when and how they intend to inform the local planning authority, this should form part of the OCoCP, CEMP, NMP, S.61 as appropriate.

2.61. The developer has considered noise and vibration from construction traffic, it is assumed this is in respect of highway noise and vibration which is a Highways Authority matter, and that site construction traffic noise and vibration will be considered in respect of the overarching construction noise and vibration requirements under BS5228 and in the OCoCP.

2.62. The developer has ascribed significance in respect of construction noise and vibration, and this should be in line with the BS5228 "ABC" methodology as proposed.

Operational Noise and Vibration

2.63. The proposed study area of 1000m from the proposed substation sites and the Friston site is accepted, along with the developer's emphasis on closer proximity Noise Sensitive Receptors (paragraph 2.10.3.5). In respect to location, the developer is advised that the proposed Friston substation is included in the East Anglia One North and East Anglia Two rating level for the site and as such this is a site wide constraint that they will have to meet.

2.64. The developer has proposed BS 4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound (BS4142) in respect of operational noise assessment, and this is accepted (paragraph 2.10.7.14). The developer has also stated that the DCO will contain a requirement with an appropriate noise level, and this will need to be determined as a rating level using BS4142 in order to take account of any acoustic character to sound emissions and importantly to take account of the local context.

2.65. In respect of that context, the developer has correctly stated that the majority of the area is quiet, rural, and residential in nature. Therefore, there is potential for the introduction of a 24 hour a day 7 days a week industrial noise source to have significant adverse impact, and this is to be avoided, along with adverse impact mitigated and minimised in line with NPS EN-1 and the Noise Policy Statement for England.

2.66. The developer is also required to consider cumulative effects with other committed or consented major projects, principally, but not necessarily limited to, Sizewell C, East Anglia One North and East Anglia Two, as well as other proposed major projects such as Eurolink and Nautilus where there is information available to consider. "Noise creep" is a significant issue with the number of projects both planned and consented and needs to be considered, minimised, and where possible prevented entirely.

2.67. The developer ascribes significance criteria to operational noise in line with NPS EN-1 and states that a significant adverse effect is considered to occur at large or medium magnitudes of impact which Table 2.10.9 describes as a rating level between 5 and 9dB above background and more than 10dB above background respectively. As Significant Adverse Effects are to be avoided it is therefore assumed the developer is expecting to achieve 4dB above background or less as a rating level.

2.68. ESC's current stance on noise from developments of this nature in this district may be summed up by the following condition used in Town and Country Planning Act 1990 applications but is equally relevant here and has been stated for other DCO projects we are involved with:

Noise from fixed plant or machinery (e.g. heat pumps, compressors, extractor systems, fans, pumps, air conditioning plant or refrigeration plant) can be annoying and disruptive. This is particularly the case when noise is impulsive or has tonal characteristics. A noise assessment should therefore be submitted to include all plant and machinery and be based on BS4142:2014. A rating level (LAeq) of at least 5dB below the typical background (LA90) should be achieved. Where the rating level cannot be achieved, the noise mitigation measures considered should be explained and the achievable noise level should be identified and justified.

2.69. Due to the size of this type of project, the 5dB below background is an aspirational target and one ESC asks developers to consider as the appropriate limit. Deviation from this level will require robust justification and the aim in all cases should be to achieve the lowest possible sound level which we will also require robust justification for. This should be in line with all relevant standards, guidance and policy. The developer is reminded of the overarching principles of NPS EN-1 in terms of noise and vibration; in particular the requirement to mitigate and minimise noise impact although they appear very familiar with these principles which is comforting at this stage. Section 2.10.7.20 also implies that adverse effects will be avoided, and the rating level will be set below background so that the impact is negligible as is "standard practice", if this is the case it is to be welcomed.

2.70. The overall expectation for operational noise is that a robust assessment will be undertaken using BS4142, that an appropriate rating level will be proposed relative to an appropriate representative background sound level, and that it will inform design and mitigation so as to reduce noise impact to an absolute minimum. A requirement in the DCO will be needed, and dependent on the rating level that is proposed, there may be a need for a further requirement with a commitment to reduce that rating level further should it be possible to do so at a later detailed design and implementation stage. The

need to keep impact from operational noise to an absolute minimum cannot be understated and we will require robust justification in reaching agreement.

2.71. In terms of scoping, operational vibration has been scoped out and this is accepted, all areas that have been scoped in are agreed. The developer has however stated that noise from switchgear and emergency equipment such as generators and compressors should be scoped out, this is currently not agreed as it will be dependent on the likely frequency, duration, and mitigation for these events and therefore further justification should be provided.

Socio-economics, Recreation and Tourism – 2.11

Study Area

2.72. The scale of the scheme, as indicated in the Suffolk Onshore Scoping Boundary, shows that irrespective of the preferred route and locations for the project, a large swathe of east Suffolk will be affected, whether on a temporary or permanent basis.

2.73. In considering the Suffolk Onshore Scoping Boundary, ESC would like to ensure that the impact of the project is not evaluated solely within the boundary limits nor in isolation from the wider district. The Council question whether the 500m and 1km assessment limits described are appropriate (paragraphs 2.11.3.4 and 2.11.3.5), particularly when considering the permanence of the converter station and substation, and the visual impact for example. It is therefore considered that greater distances should be considered. Consideration needs to be given to an assessment of this interdependency and the impacts (including reputational and perceptual impacts) beyond the Suffolk Onshore Scoping Boundary, and the current 500m and 1km assessment limits.

2.74. The visitor economy is one of largest economic sectors in east Suffolk and provides a good illustration of how the impact of the scheme extends beyond the boundary limits. There is a high degree of interdependency between visitor destinations, employment, and supply chains within east Suffolk.

2.75. A successful visitor economy in east Suffolk is dependent on its reputation as a holiday destination, and the overall experience offered to visitors. The East Suffolk Visitor Economy Strategy identifies that together, the coastline, towns and places, natural landscape, and cultural offer present a compelling experiential proposition for the visitor. Visitors move from destination to destination using the 'B' roads identified within the scoping boundary, employees need to access their employment, and the potential for the displacement of visitors during construction, should not be ignored.

2.76. ESC is concerned that disruption to the visitor experience will have a consequential impact on the perception of east Suffolk as a holiday destination and therefore negatively affect the visitor economy throughout the lifetime of the project.

Planning Policy

2.77. ESC has recently published two relevant economic strategies which should be considered within the assessment:

- East Suffolk Economic Strategy 2022 – 2027 (Link)
- East Suffolk Visitor Economy Strategy 2022 – 2027 (Link)

2.78. In addition, ESC has commissioned a Cultural Strategy which is due to be published in early 2023.

Baseline Conditions

2.79. The baseline assessments draw heavily on desk-based research and digital modelling for the identified receptors:

- Employment levels in East Suffolk
- Local economy within East Suffolk
- Users of public rights of way and recreational routes
- Local communities
- Residential properties
- Businesses
- Visitor attractions
- Development land

2.80. Whilst the identified receptors conform with expectations, ESC believes that there is a need for caution as an over reliance on desk-based research and digital modelling could present a 'two-dimensional' assessment of the baseline. Field assessments including visitor, business, and resident surveys should be conducted to establish a baseline for some of the more qualitative or intangible impacts of the scheme. Especially, the perception of business owners and visitors towards the scheme, the impact on the visitor experience and reputation throughout the project life cycle, and the impact on the movement of residents and visitors during the construction phase.

Potential for Significant Effects

2.81. The Council agrees with the identified sources and impacts that are likely to occur during the construction, operation, maintenance, and decommissioning of the project.

2.82. ESC agrees with the identified effects, and degree of effects, on the socio-economic, recreation, and tourism activities within east Suffolk. However, there needs to be additional consideration given to the combined or cumulative effect of other potential and confirmed construction projects such as Sizewell C, onshore infrastructure in support of the wind farms (East Anglia One North and East Anglia Two), and the proposed Eurolink and Nautilus projects. If the landfall at Aldeburgh is taken forward for Sea Link and the interconnectors and construction works overlap, there will be a significant concentration of construction work and associated vehicle movements in this honeypot location. If the timing of this work coincided with the peak tourist season, this would cause significant additional traffic pressures in the area. The resultant traffic pressure in addition to the disruption caused by the construction works could have significant impacts on local tourism. Consideration must be given to the timing of the works within the assessment. The implications of restricting the timings of the work would then need to be considered carefully within different topic areas of the EIA and balanced against any other associated impacts.

Effects - Construction, maintenance, and decommissioning

2.83. It is noted that the project will generate direct and indirect temporary employment, training, and apprenticeship opportunities, both on site and in the supply chain during the construction, maintenance, and decommissioning phases. The Council would like to be reassured that any direct or indirect employment opportunities are accessible to the resident population of East Suffolk, and that any potentially negative effects on employment within the visitor economy and wider business population are suitably assessed and mitigated.

2.84. It is agreed that the employment and wider economic activity created during the construction, maintenance and decommissioning phases will generate Gross Value Added (GVA) within the local East Suffolk economies. ESC would however need to be reassured that the additional GVA created through the scheme is not negated by adverse impacts on the wider economy. The Council also considers that the assessment should consider the net gain in GVA, and not only assess the direct and indirect contribution of the scheme but also examine any potentially negative impact on GVA within the wider economy.

2.85. It is noted that disruption to public rights of way network or other recreational routes during the construction maintenance and decommissioning phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with SCC. Whilst

diversions may be unavoidable, the impact of re-routing traffic, and potential delays needs to be explored, particularly regarding the impact on businesses, and the visitor experience.

2.86. ESC notes that a number of residential properties, local businesses, visitor attractions, community facilities, open spaces, and development land allocations have been identified within the study area which could be impacted by land take or amenity impacts. Any impacts should be temporary whenever possible and affected receptors should be suitably consulted and engaged with during the life cycle of the scheme.

Effects – Operation

2.87. The Scoping Report states that the scale of operational employment generated is likely to be very limited. The energy sector, both onshore and offshore, is a significant employer in East Suffolk, and the opportunities to attract the current and future workforce into high-skilled, high-value employment within the sector should be explored during the operational phase. The scale of operational employment generated is identified as likely to be very limited and therefore any effect on GVA will be small. However, the lasting impact on indirect employment and business vitality within other key sectors should be explored, ensuring that the scheme delivers a net gain in GVA during the lifetime of the project.

Proposed Assessment Methodology

2.88. ESC has commented on the data sources and requests that recent economic and tourism strategies are considered within the assessment. Consulting with local stakeholders is also important, providing additional qualitative dimension to the analysis. ESC strongly agrees that the assessment methodology should entail the following:

- *Assessment of the likely scale, permanence and significance of effects associated with socioeconomics, recreation & tourism receptors; and*
- *An assessment of the potential cumulative impacts with other projects within the surrounding area*.

2.89. ESC also agrees with the statement that the socioeconomics, recreation, and tourism effects of the scheme will be assessed on:

- *Consideration of sensitivity to impact… and that 'the assessment will need to take account of the qualitative sensitivity of each receptor and, in particular, their ability to respond to change based on recent rates of change and turnover (if appropriate); and*

- *Scale of impact: this entails consideration of the size of the impact on people or business in the context of the area in which effects will be experienced.*

Health and Wellbeing – 2.12

2.90. ESC refers back to comments made in previous sections of this response as this topic area is influenced by technical assessments made in a number of other chapters of the EIA. It is considered that flood risk should also be taken into account.

2.91. The developer will be aware that effective community engagement and complaint response (and where appropriate resolution) is a key part of all stages of large-scale projects, including Sea Link. The nature of community engagement by a developer can have a significant impact on the local communities' experiences. The project should have well developed community engagement and complaint procedures, the latter should include notification to the local planning authority within a reasonable time period.

Cumulative Effects – 2.13

2.92. The previous comments highlighted within this response which relate to cumulative effects are relevant to this chapter of the Scoping Report. Section 2.13.3 sets out the methodology to be used for inter-project cumulative effects. The commitment in paragraph 2.13.3.2 by the developer to regularly review and update the list is welcomed.

2.93. Further clarity is sought regarding the topics to be included within the inter-project cumulative assessment. Table 2.13.2 identified study areas for some environmental topics, not all the topics have however been included within the table. Further clarification is required as to whether if a study area has not been identified, this then scopes the matter out from consideration within the assessment? The Council would like to make it clear that all topic areas should be included within the inter-project cumulative assessment given the current proposals for co-location of infrastructure with the Nautilus and Eurolink projects, notwithstanding the recently consented NSIPs in the locality. The topic areas which currently appear to be missing from the assessment are socio-economic, recreation and tourism, and health and wellbeing. These should be included.

2.94. ESC considers that further justification is required for the ZOI identified. Previous comments within the topic specific sections of this response are applicable.

2.95. Paragraph 2.13.3.5 states a 20km ZOI will be utilised to establish the long list of developments. Whilst that may be appropriate for major planning applications it is

considered that a larger ZOI is utilised in relation to NSIPs due to their scale and associated impacts.

2.96. ESC considers that amendments are necessary to Table 2.13.3 in relation to the distances between the projects and Sea Link's Project Scoping Boundary, particularly in relation to those which would share a connection location under the current proposals. The table has omitted reference to East Anglia One North, although East Anglia Two has been included. As stated above, it is considered that this list should include NSIPs within a wider search area.

2.97. It is welcomed that the list of projects to be included within the cumulative assessment will be continually reviewed.

2.98. ESC wants to highlight within the section on cumulative effects that the grid connection site at Friston is subject of a masterplan. Any future connections or works at Friston will need to carefully consider the implications of the works on the masterplan for the site, in addition to carefully considering the in-combination effects of the proposals. It is essential that the developer understands the sensitivity of the connection site. In the Examiner's Report on East Anglia One North and East Anglia Two the Examining Authority observes:

'… that effects of the cumulative delivery of the Proposed Development with the other East Anglia development on the transmission connection site near Friston are so substantially adverse that utmost care will be required in the consideration of any amendments or additions to those elements of the Proposed Development in this location.'

2.99. To accommodate additional extensions to the proposed Friston substation, not only was it acknowledged at the time of the examination that the landscape and visual effects would be intensified, but the development would also remove the land currently identified for a drainage basin. This would therefore require fundamental changes to the masterplan for the site.

3. Volume 1 Main Text – Part 4 Offshore Scheme

Physical Environment 4.2 - Coastal Management

3.1. The size of the site required for the permanent landfall take or during construction has not been specified further clarification on this is required. Table 2.2.6 identifies the sources and impacts; it is essential that an assessment of temporary and/or permanent 'coastal change' as a potential impact on the receptors at the landfall is included.

3.2. ESC would like to highlight that the Environment Agency has coastal management responsibility for the shoreline between Thorpeness and Aldeburgh and therefore must be included as a key consultee going forwards.

3.3. ESC wishes to raise in reference to paragraphs 4.2.4.1 and 4.2.4.2 that it will be important that National Grid provides a clear methodology as to how the baseline conditions will be surveyed and monitored, in addition to describing how project-induced deviation from the baseline will be ascertained.

3.4. The Environment Agency guidance referenced in paragraph 4.2.4.12 seems ubiquitous across the UK, rather than specific to the East Anglian coast. ESC requires the application of site-specific data rather than generic figures within the assessment.

3.5. In reference to Table 5.3.1, the Coralline Crag is the key geological receptor and ESC would not support any avoidable disruption of this geological feature.

3.6. Paragraph 4.2.4.29 states '*At the preferred Suffolk landfall, there is a net northerly sediment transport. Aldeburgh is situated south of the promontory of Thorpeness, which restricts the southward net littoral drift.'* Further research is needed to support this statement (presumably adapted from SMP7 Appendix C Coastal Processes). Other, more recent, investigations suggest alternative sediment transport directions as listed below:

The coast between Lowestoft and Orford Ness shows predominantly north to south transport. Localised reversal in net transport is evident at Benacre Ness and also at Thorpeness. Burninghan, H., and French, J. 2016. 'Shoreline – Shoreface Dynamics on the Suffolk Coast' The Crown Estate, 117 pages.

Divergence of longshore transport may occur locally, likely influencing the high alongshore variability. Alongshore Variability in the Response of a Mixed Sand and Gravel Beach to Bimodal Wave Direction by John Atkinson & Luciana S. Esteves, 2018.

Since the net alongshore sediment transport from Sizewell Bay is directed to the south, there must be mechanisms that facilitate sediment to move around the Ness and thereby maintain the beaches at Thorpeness. Mott Macdonald https://www.coasteast.org.uk/assets/img/1414342.pdf

3.7. ESC welcomes the research into trenchless cabling techniques such as Horizontal Directional Drilling (HDD) to minimise impact on the coastal environment, though some trenching is likely to be required.

3.8. Table 4.2.5 identifies erosion estimates for the Aldeburgh to Thorpeness coastline, and ESC requests the source of these erosion estimates be provided. ESC agrees that a desktop study be undertaken to investigate if the impact on the current coastline is significant. ESC would wish to see the desktop approach taken to coastal change assessment by Scottish Power Renewables (SPR) for the proposed East Anglia One North and East Anglia Two projects repeated in this scheme, as an example of good practice.

3.9. Paragraph 4.2.4.29 identifies further predicted erosion rates, and ESC requests the source for these forecasted erosion rates be provided.

3.10. Paragraph 4.10.4.16 states that there have been 17 bathing areas in the study area, none of the listed bathing areas are in Suffolk. The EA's official list of bathing waters (test sites) is not representative of the popularity of bathing beaches in Suffolk and especially between Aldeburgh and Thorpeness. Other recreational activities such as bathing and dog walking are also popular at Sizewell Gap. More research and consideration is required as to the impact of this scheme on coastal recreation in Suffolk.

The Planning Inspectorate
Environmental Services
Central Operations
Temple Quay House
2 The Square
Bristol, BS1 6PN

Our ref: AC/2022/131340/01-L01
Your ref: EN020026

Date: 22 November 2022

Dear Sir/Madam,

SEA LINK – SCOPING REPORT

Thank you for consulting the Environment Agency on the EIA Scoping Report for Sea Link. We have reviewed the Scoping Report as submitted to the Secretary of State on 24 October 2022 and wish to highlight the following comments for consideration.

We note that Part 2 of 7 – Volume 1 – Suffolk Onshore Scheme contains five options for the location of onshore infrastructure in Suffolk. We have not provided a comparison or preference for any option, and instead offer advice that can be applied to the chosen option as appropriate.

Water Environment
We have reviewed sections 2.5 Water Environment and 3.5 Water Environment in the Kent and Suffolk Onshore Scheme documents.

Flood Risk
We are satisfied with the criteria that has been scoped in, and that the report has identified the relevant flood risk policies from both the East Suffolk Council – Suffolk Coastal Local Plan and the Dover District Council Core Strategy and the Dover District Local Plan. The report also confirms that a site-specific Flood Risk Assessment will be submitted, which will consider all sources of flood risk during both construction and operation and incorporate allowances for climate change.

The scheme incorporates main river crossings, including the Thorpeness Hundred and the River Stour. The Environmental Permitting (England and Wales) Regulations 2016 require a permit to be obtained for any activities which will take place:

- on or within 8 metres of a main river (16 metres if tidal)
- on or within 8 metres of a flood defence structure or culverted main river (16 metres if tidal)
- on or within 16 metres of a sea defence
- involving quarrying or excavation within 16 metres of any main river, flood defence (including a remote defence) or culvert
- in the floodplain of a main river if the activity could affect flood flow or storage and potential impacts are not controlled by a planning permission

We would oppose the culverting of any watercourses and instead prefer the installation of a temporary clear-span bridge crossing. This is in line with the Environment Agency's anti-culverting policy. We will normally only grant a permit for a culvert if there is no reasonably practical alternative, and if the detrimental effects would be sufficiently minor that a more costly alternative would not be justified or there are reasons of overriding public/economic interest.

Water Quality

Sections 2.5.5 and 3.5.5 Embedded and Control & Management Measures identifies the measures relevant to the control and management of impacts that could affect flood risk and land drainage within the Outline Code of Construction Practice. We agree with these measures and note that designated shellfish waters are located on the North Kent coast, which increases the need for pollution prevention measures to controlled waters, including groundwater.

We welcome the reference to a Water Framework Directive (WFD) Screening Assessment, the scope of which will be agreed with the relevant stakeholders but will include all those WFD waterbodies with the potential to be affected. We note that 'the assessment will identify how the Project design will avoid waterbody deterioration, as well as any other mitigation necessary'. We consider preventing waterbody deterioration as the minimum requirement and would like the assessment to additionally consider ways that waterbody enhancements can be made through the Project design.

Ecology and Biodiversity

We are satisfied that the appropriate topics have been scoped in. Trenchless construction techniques are proposed as the method for crossing main rivers. This is welcome, as open trenching of a watercourse does bring impacts on species present and potential geomorphological impact. Our concerns include impacts on water voles, direct impact on fish species, issues with diffuse pollution and creation of silt clouds. Opportunities for beneficial restoration at main river crossings should be explored in any construction scenario.

As of 1 October 2022, the Eurasian Beaver (Castor fiber) has been granted native species status and is fully protected as a European protected species under The Conservation of Habitats and Species Regulation 2017 in England. Any works that may impact beavers and/or their dwellings/ resting places may require a licence from Natural England.

All measures described within sections 2.5.5 and 3.5.5 Embedded and Control & Management Methods must be strictly adhered to, particularly when working in or near water. The Biodiversity Net Gain assessments for these works must also include a River Condition Assessment where the River Stour is likely to be impacted.

Benthic Ecology

We are satisfied with the topics that have been scoped in which deal with the Physical Environment and Benthic Ecology for the Offshore Scheme, as shown in Tables 4.2.4, 4.2.5 and 4.3.6.

However, it is not clear what method will be used to bring the cables onshore from the subtidal to intertidal area. For all potential methods we request that the potential disturbances are scoped in. If a large vessel being grounded is the favoured option, then we advise that an assessment for this will be required in addition to the normal

Cont/d..

assessment of the cable route. The intertidal impact assessment surveys for this must include the maximum potential footprint from a large, anchored vessel on the lower subtidal area of the shore in addition to the footprint of the cable burial corridor across the intertidal mudflats.

We requested a copy of "Environmental Survey Report: SEA Link Marine Survey. September – October 2021. National Grid | October 2022" that is referenced on page 43 of Part 4: Offshore Scheme. We also requested the full data for any subtidal and intertidal surveys that were used to inform this report, including a raw Benthic taxa list. However, we did not receive this before the EIA Scoping Report deadline. After we have reviewed this information, we may have further advice on what needs to be scoped in.

Additionally, we wish to reiterate the need for Horizontal Directional Drilling (HDD) methods crossing the salt marsh area in Pegwell bay. We would oppose a method other than HDD at the chosen landfall as previous trenching damaged features of the site and the site has yet to recover. If a different construction method is taken forward, we would welcome early engagement on this matter.

We are pleased that thought has been given to the cumulative effects of the project. We look forward to reviewing the intra-project and inter-project cumulative effects assessment for the whole lifetime of the projects in due course. We will be particularly interested regarding impacts on the Benthic Ecology and Salt Marsh habitats.

Geology and Hydrogeology
We are satisfied that the appropriate topics have been scoped in which deal with groundwater protection and will provide further relevant details for assessment in the Environmental Statement.

Temporary physical disturbance and changes to watercourse flow regimes (for several months) are likely to require permits from the Environment Agency as temporary physical disturbance and changes to watercourse flow regimes could still have the potential to interrupt or reduce local licensed abstraction if at or upstream of a point of abstraction. Dewatering activities may also require an abstraction licence or transfer licence from the Environment Agency for the same reasons.

We note that the Potential Effect of 'Changes to groundwater levels, quality and groundwater flow direction caused by dewatering' to 'Environmentally sensitive sites, groundwater, GWDTE, surface water' has been scoped in to the Assessment, as shown in Tables 2.6.2, 2.6.3, 3.6.2 and 3.6.3. We look forward to reviewing this at the appropriate time.

We trust this advice is useful.

Yours sincerely,

[redacted]
Sustainable Places - Planning Specialist
Planning.EastAnglia@environment-agency.gov.uk

[redacted]
Sustainable Places – Planning Advisor
KSLPlanning@environment-agency.gov.uk

End

NOTIFICATION OF DECISION OF THE LOCAL PLANNING AUTHORITY

Date of Decision: 18th November 2022

Folkestone & Hythe District Council

Email: planning@folkestone-hythe.gov.uk

The Planning Inspectorate
Environmental Services
Central Operations
Temple Quay House
2 The Square
Bristol
BS1 6PN

Scoping Consultation under Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulation – Regulations 10 and 11.

Application No: **22/1822/FH**

Development: **Consultation request in respect of EIA Scoping Opinion under regulations 10 and 11 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017**

Site Location: **Sea Link, South East, Kent**

The Council does not have any comments on the above consultation, in accordance with your request dated 25/10/2022.

[redacted]

Issued by the Chief Planning Officer

This decision notice consists of 1 pages

From: [redacted]
To: South East Anglia Link
Subject: EN020026 - Sea Link - EIA Scoping Notification and Consultation
Date: 09 November 2022 09:40:02
Attachments: [redacted]

Dear Mr. Brumwell,

Thank you for consulting the Forestry Commission on this proposal. As the Governments forestry experts we endeavour to provide as much relevant information to enable the project to reduce any impact on irreplaceable habitat such as Ancient \semi natural Woodland as well as other woodland. We are particularly concerned about any impact on Ancient Semi natural Woodland and will expect to see careful consideration of any impact and any weightings which might be applied to any assessments of route options/or site choice. This is because Ancient woodland is an irreplaceable habitat, they have high biodiversity and a long history with many heritage features remaining undisturbed. Paragraph 180 (c) of the National Planning Policy Framework states ;

'planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss'

This applies both to Ancient Semi Natural Woodland (ASNW) and Plantations on Ancient Woodland Sites (PAWS).

The Sea Link Environmental Impact Assessment Scoping Report. Volume 1 Main Text. Part 2 Suffolk Onshore Scheme states on page 5, 2.1.5.6 that the Sub Station Site Options Area D and E include two ancient woodlands; Great Wood and Grove Wood.
In addition Table 2.3.4 Suffolk Site Emerging Preferences on page 105, the same ancient woodlands could be impacted by cable installation. Similarly Table 2.3.6. Suffolk Site 3 Emerging Preference on page 110, and Table 2.3.7. Suffolk Site 3 Preference Alternative (Option 1) page 115 and (Option 2) on page 120 all state that the same ancient woodlands could be impacted by cabling.

One of the most important features of Ancient woodlands is the quality and inherent biodiversity of the soil; being relatively undisturbed physically or chemically it is also a major seed bank. Direct impacts of development that could result in the loss or deterioration of ancient woodland or ancient and veteran trees include:

- damaging or destroying all or part of them (including their soils, ground flora or fungi)
- damaging roots and understorey (all the vegetation under the taller trees)
- damaging or compacting soil around the tree

roots

- polluting the ground around them
- changing the water table or drainage of woodland or individual trees
- damaging undisturbed archaeological features or heritage assets

It is essential that the ancient woodland identified is considered appropriately to avoid the above impacts that might be caused by routing cables, stock piles of construction materials. It is also essential that fuels, chemicals, or waste materials such as topsoil, minerals or hard-core are not stored on ancient woodland soils or under the woodland canopy, and due to the irreplaceable nature of ancient woodland most 'temporary' uses will result in irreplaceable damage. We particularly refer you to further technical information set out in Natural England and Forestry Commission's Standing Advice on Ancient Woodland – plus supporting Assessment Guide and Case Decisions.

Local Nature Recovery Networks (LNRNs) are now a key part of the Environment Act (2021), and reflects the role of ancient woodland within these wider networks. It is important to recognise their function within the wider local ecological network.

Further Information

In addition to protection of Ancient Semi natural Woodland the UK Forestry Standard (UKFS) sets out the UK government's approach to sustainable forestry and woodland management, including standards and requirements as a basis for regulation, monitoring and reporting requirements. The UKFS has a general presumption against deforestation. Page 23 of the Standard states that: "Areas of woodland are material considerations in the planning process…."
In addition, lowland mixed deciduous woodland is on the Priority Habitat Inventory (England). This recognises that under the UK Biodiversity Action Plan they were recognised as being the most threatened and requiring conservation action. The UK Biodiversity Action Plan has now been superseded by the UK Post-2010 Biodiversity Framework but this priority status remains.

It is expected that there will be a thorough assessment of any loss of all trees and woodlands within the project boundary and the development of mitigation measures to minimise any risk of net deforestation because of the scheme. A scheme that bisects any woodland will not only result in significant loss of woodland cover but will also reduce ecological value and natural heritage impacts due to habitat fragmentation, and a huge negative impact on the ability of the biodiversity (flora and fauna) to respond to the impacts of climate change. Woodland provides habitat for a range of Section 41 Priority Species including all bats.

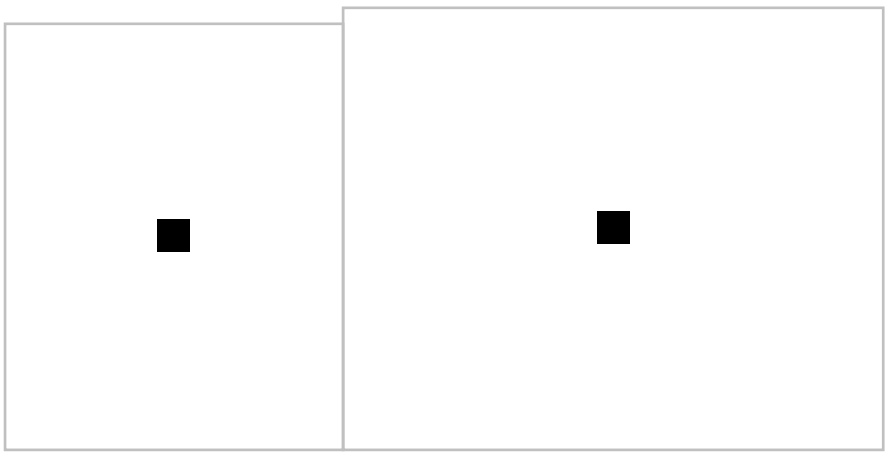
Included within that assessment should be an assessment of any woodlands under an existing woodland grant scheme and / or a felling licence agreement to ensure these agreements will not be negatively impacted and

public money wasted.
Where woodland loss is unavoidable, it is expected that there will be significant compensation and the use of buffer zones to enhance the resilience of neighbouring woodlands. These zones could include further tree planting or a mosaic of semi-natural habitats.

For any woodland within the development boundary, land required for temporary use or land where rights are required for the diversion of utilities you must take into consideration the Root Protection Zone. The Root Protection Zone (as specified in British Standard 5837) is there to protect the roots of trees, which often spread out further than the tree canopy. Protection measures include taking care not to cut tree roots (e.g., by trenching) or causing soil compaction around trees (e.g., through vehicle movements or stacking heavy equipment) or contamination from poisons (e.g., site stored fuel or chemicals).

Effective and practicable proposals for managing the boundary of the woodland and any likely increased access, proportionate to the degree of likely future access, planned or unplanned will need to be planned carefully and hedgerows and individual trees within a development site considered in terms of their overall connectivity between woodlands affected by the development.

It is recommended that a mitigation hierarchy is applied with regard to all priority habitats including ancient woodlands. The hierarchy is :



The starting point should be a presumption against deforestation.
Mitigation examples – dampening down tracks to minimise dust impacts in woodland, minimising lighting.

Ancient woodland cannot be compensated for, once it is gone it's gone forever and its loss should be avoided. However, if it is decided a development is necessary and that there will be loss of woodland (of all types) then compensation will need to be delivered. All loss of woodland should result in compensatory woodland.

Mitigation includes elements to reduce damage to woodlands that are not lost. The CIEEM Guidelines on Ecological Impact Assessment define Mitigation

as 6.2 “Mitigation includes measures to avoid or reduce the negative impacts of a project, for example careful timing of an activity to prevent an impact occurring.” And Compensation as 6.5 “Compensation describes measures taken to offset residual effects resulting in the loss of, or permanent damage to, ecological features despite mitigation”

Yours sincerely,

[redacted]

Local Partnership Advisor
East and East Midlands
[redacted] [redacted]

[redacted]

Disclaimer

The information contained in this communication from the sender is confidential. It is intended solely for use by the recipient and others authorised to receive it. If you are not the recipient, you are hereby notified that any disclosure, copying, distribution or taking action in relation of the contents of this information is strictly prohibited and may be unlawful.

This email has been scanned for viruses and malware.

From: [redacted]
[redacted] South East Anglia Link
Subject: Friston Parish Council Response to Sea Link Scoping Report
Date: 22 November 2022 13:11:18
Attachments: FPC response to Sea Link Scoping final.pdf
PINS Meeting Note 20622[1].pdf

Dear Sir/Madam,

Please find attached the response to the Sea Link scoping report from Friston Parish Council. Also attached is the PINs meeting note from the 20th June 2022 which is referred to in our response.

Kind regards,

[redacted]

Parish Clerk

Friston Parish Council

[redacted]

[redacted]

Please note this is a part time job and emails are not checked everyday.

Confidentiality and Privilege: This email and its attachments are intended for the above named only and may be confidential. If they have come to you in error you must take no action based on them, nor must you copy or show them to anyone; please reply to this email and highlight the error. This document is privileged and the benefit of the privilege belongs to Friston Parish Council. The provision of this document does not amount to any waiver of privilege. This document is provided to Friston Parish Council correspondents in complete confidence and should not be disclosed to any other person without Friston Parish Council's prior consent.

Security Warning and Viruses: Please note that this email has been created in the knowledge that internet email is not a 100% secure communications medium. We advise that you understand and accept this lack of security when emailing us. Although we have taken steps to ensure that this email and attachments are free from any virus, we advise that in keeping with good computing practice the recipient should ensure they are actively virus free.

Please see the Council privacy policy on our website [redacted]

National Grid Electricity Transmission plc
Sea Link project Scoping Report (EIA) submitted to the Secretary of State on 24th October 2022

Comments by Friston Parish Council
22nd November 2022

Introduction

1. The Sea Link project is one of three projects being promoted by the National Grid Group to make connections at the proposed NG substation in Friston, which in itself was an NSIP included within the DCO Applications made by Scottish Power Renewables (SPR) for the East Anglia One North (EA1N) and East Anglia Two (EA2) projects. The proposed NG substation is more accurately described as a "connection hub" as this NSIP includes three large cable sealing ends at the same site plus realignment of the existing pylons involving the replacement of two pylons and one additional pylon. These DCOs were granted on 31st March 2022 but are currently subject to judicial review with the hearing taking place on 16 and 17 November 2022. Judgement is currently awaited. Should the judgement be to quash the grant of these DCOs the proposed NG connection hub will no longer have planning consent.

2. Following the Examination of the EA1N, EA2 and the NG connection hub NSIP, the Examining Authority (ExA) issued its Recommendation Reports on 6 October 2021, one report for each of EA1N and EA2 with the NG connection hub included in each report. References in this document to the ExA report will be to the EA1N report as the reports are identical in all material respects.

3. It should be noted that during the course of the examinations SPR sought to deny there was any certainty about the prospect of two or more other energy projects connecting at Friston. Further NG largely absented itself from the examination process despite one of the projects being examined being its own.

4. In Volume 2 of this Report, Chapter 28, Conclusions on the Case for Development Consent on page 274, the ExA state at paragraph 28.4.5

5. *"the ExA observes that effects of the cumulative delivery of the Proposed Development with the other East Anglia development on the transmission connection site near Friston are* ***so substantially adverse that utmost care will be required in the consideration of any amendments or additions to those elements of the Proposed Development in this location****."*

6. Paragraph 28.4.6 goes on to say:

   "In relation to this conclusion, the ExA observes that particular regard needs to be had at this location to flood and drainage effects (where additional impermeable surfaces within

the existing development site have the potential to affect the proposed flood management solution), to landscape and visual impacts and to impacts on the historic built environment, should these arise from additional development proposals in the future.

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010077/EN010077-009800-EA1N-Recommendation%20Report-Vol2_Ch18-31%20COMPLETED.pdf

7. It is clear from the Sea Link Scoping Report that NGET has not considered these substantial adverse effects at Friston and in fact is attempting to scope many of these issues out. This is unacceptable.

8. Further the scoping report shows a disturbing lack of familiarity with key determinations set out in the ExA report. NG has drafted the scoping report as if key topics had not been the subject of detailed consideration in the EA1N and EA2 examinations as reflected in the ExA report. For example landscape issues arising from the extension of the NG connection hub, the noise environment at Friston and what is acceptable in terms of construction hours and noise. Friston Parish Council does not necessarily accept all the findings of the ExA but many areas of the EA1N and EA2 projects were improved from the original applications submitted by SPR. Accordingly it would be much more efficient for all concerned, and less of a burden on the local community, if NG used the topic positions determined by the ExA in its report as the starting position for the scoping report and its ES to which further improvements should be made to reduce environmental impacts.

Friston Parish Council's Position

9. Friston Parish Council ("FPC") opposes the onshore elements of the Sea Link, Eurolink and Nautilus projects in East Suffolk. It should be noted that these projects do not generate any renewable energy. Further they do not improve energy security for the United Kingdom or reduce prices for consumers. However without prejudice to this position of opposition FPC has the following comments on the scoping report. Please note that FPC has not had the benefit of expert planning law advice or the advice of relevant technical experts. Accordingly FPC reserves the right should these projects proceed to examination to raise issues in relation to the environmental impacts of these projects which have not been referred to in this report including without limitation where FPC has misunderstood or not appreciated the potential environmental impacts of the Sea Link project. Further FPC relies on its members providing their time voluntarily to consider these projects, a situation which has not been helped by the limited time available to consider the scoping report and which has been exacerbated by National Grid ignoring the advice of the Planning Inspectorate referred to further below. FPC endorses the comments set out in the email from SASES dated 7 November 2022.

<u>Projects being promoted by the National Grid Group</u> ("NG")

10. National Grid Ventures' (NGV) Nautilus Interconnector project held its initial Non-Statutory Consultation in Friston and the surrounding area in October 2021. No Scoping Report has yet been submitted by NGV for this project. A joint meeting was held by the Planning Inspectorate with Sea Link and Nautilus on 20 June 2022 to discuss onshore co-ordination of these projects. a copy of the Meeting Note is attached as Annex 1 or at this link:
https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020026/EN020026-Advice-00005-1-220620%20SEA%20Link%20Nautilius%20Interconnector%20project%20update%20meeting%20note%20(Final).pdf

11. NGV is also promoting its Eurolink Interconnector and began its Non-Statutory Consultation on 24th October 2022 to run concurrently with the Sea Link consultation. Both consultations are due to conclude on 18th December 2022. However, no Scoping Report has been submitted in relation to Eurolink.

12. (FPC notes the intention in the Meeting Note of 22 June for Sea Link, Nautilus and Eurolink to connect to the proposed Friston Substation i.e. the NG connection hub. FPC also notes the following on page 2:-

    "The Inspectorate advised the Applicant (i.e. Sea Link) *to wait for the consultation period to close* ***<u>before</u>*** *submitting its scoping request."*

13. National Grid has not therefore followed the Inspectorate's advice by submitting its Scoping Report on the day of the commencement of the Non-Statutory Consultation on 24th October 2022 with a deadline for responses of 22 November 2022, a month before the end of the consultation. FPC also refer to comments by PINS on 20 June 2022 as follows:-

    "The Inspectorate responded that considering the amount of consultation in the East Anglia region, the Applicant should be aware of what procedures can be taken forward in a combined matter to minimise resourcing pressures. Also, ensuring that parties understand the differences between projects, as well as the timelines between them is crucial for a successful consultation."

14. This advice has not been heeded and it now appears that FPC and other Councils will need to respond to each Scoping Report separately. This of course makes any assessment of cumulative impact of the three projects (in addition to the impacts of Sizewell C and the SPR projects) far more difficult for all stakeholders. Again this is unacceptable.

15. What is even more concerning is the cavalier way National Grid has chosen to ignore the considered advice of the Planning Inspectorate. Subject to the outcome of the judicial review if these projects proceed National Grid's conduct so far does not bode well for the efficiency of the process for Sea Link, Eurolink and Nautilus.

16. FPC will however respond to the Scoping Report in so far as it is able at the present time given the consultation process is still going on, but will concentrate its comments on Volume 1, Part 2, the Suffolk Onshore Scheme, with emphasis on issues directly affecting Friston.

Site Selection

17. NG has chosen a preferred landfall at Option S2 between Aldeburgh and Thorpeness despite this having numerous constraints in terms of nature conservation sites (SSSI and RSPB) and ground conditions which are extremely wet. No survey work has been undertaken to confirm that a trenchless technique is feasible. The choice of this landfall site is therefore premature and requires considerable consultation with the statutory bodies and extensive survey work.

18. The preferred converter station site is at Option area E (Site 1) as shown in Figure 2.1.2. with a further option at Site 3 near Saxmundham. Site 3 requires considerably more disturbance with cabling than Site 1 and would likely require a construction access to be built from the B1121 in the environs of Hurts Hall (Listed Grade II) due to the constrained and congested access to the site. There is no plan provided showing where this new access road would be built.

19. Site 1 would however require all traffic to follow the A1094, which is planned as access for the EA1N, EA2 and NG connection hub projects and would impact on residents of Snape, Friston and Aldeburgh in terms of increased traffic levels, including HGVs and general construction traffic.

20. The Scoping Report describes both sites and cable-routes to be capable of co-ordination with two further projects (Eurolink and Nautilus). However Scoping Reports for these two other projects are not available. FPC is therefore handicapped in its response to the Sea Link project and cumulative impacts cannot be properly assessed.

Landscape and Visual

21. Of particular concern is the proposed extension to the Friston Substation by a 50M bay for Sea Link. This will be in addition to the extensions proposed for the Nautilus and Eurolink projects which are shown in the National Grid Substation Extension Appraisal submitted in the EA1N and EA2 examinations, see:

    https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010077/EN010077-004690-ExA.AS-32.D8.V1%20EA1N&EA2%20Extension%20of%20National%20Grid%20Substation%20Appraisal.pdf.

22. NG states that the extension will be by a 50 metre bay which is presumably the width but do not set out what the length or height of that extension will be.

23. In its Scoping Report, Sea Link propose that the production of visuals showing the increased size of the NG substation to be scoped out. This is totally unacceptable, and it is essential that proper visuals of the extended NG substation are provided in order to assess the extent of the loss of mitigation landscaping provided for under the EA1N and EA2 consents as well as any further opportunity for planting and landscaping to mitigate the three new extensions.

24. Visuals for other views are proposed at 1 year and 15 years. This is insufficient and there should be visuals provided at 5 years,10 and 20 years in addition.

25. In the ExA's Recommendation Report in relation to the SPR projects Volume 1, paragraph 7.5.58 (page 106) onwards, it discusses the Extension of National Grid Substation Appraisal and at para 7.5.60 it says:

26. "*The ExA therefore consider that the extension of the NG substation would intensify and worsen the effects of the Proposed Development on both the local landscape and on visual receptors. The ExA also consider that the extension of the NG substation would have an adverse effect on the landscape through other effects.* ***The western extension would remove land currently allocated for the proposed northerly SUDs basin.*** *This would presumably need to be re-located elsewhere and enlarged to accommodate the increased physical footprint of the NG substation. Whilst not considered or sited in the Appraisal, it is reasonably self-evident that an enlarged SUDs basin in the landscape would have adverse landscape effect and potentially adverse visual effects too.*

27. The proposed 5-year maintenance plan for planting is also wholly insufficient. East Anglia is an extremely and increasingly dry part of the country and the difficulty of establishing new planting is well-known. This plan is also completely inconsistent with the position in the Outline Landscape and Ecology Management Strategy accepted by the ESA for the NG connection hub together with EA1N and EA2 - see pages 48 – 50 which FPC still regards as inadequate given local knowledge about establishing and growing trees in this area.

    https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010077/EN010077-005607-8.7%20EA1N%20Outline%20Landscape%20and%20Ecological%20Management%20Strategy.pdf

28. The Scoping Report states that the EIA is proposed to focus on the construction phase as the effects of the operational phase are not considered to be significant. This is wrong and both construction and operational phases should be equally considered. Arguably the operational phase is even more important since it is a permanent impact. Further such an approach is completely illogical as the purpose of the EIA is in part to determine whether or not environmental effects are significant.

29. The converter stations and extensions to the NG connection hub are substantial buildings which will be incongruous in the tranquil rural landscape and the greatest sensitivity is required as identified by the ExA in its Recommendation Reports for EA1N and EA2.

30. Sea Link's Scoping Report proposes that the Operational Lighting at the Converter station should be scoped out of the assessment. FPC disagrees with this proposal and the effects and control of any lighting should be properly assessed, including its impacts on ecology. Again this shows complete unfamiliarity with the ExA report – see paragraph 13.2 .118, second bullet on page 244 where the ExA states:

31. *"The ExA concludes that important and relevant differences remain and resolved in the context of industrial sound sources introduced to Friston, a tranquil location* ***with dark skies"***

Ecology and Biodiversity

32. FPC is of the opinion that the landfall site between Aldeburgh and Thorpeness would be extremely detrimental to a wide range of wildlife and ecology and this must be thoroughly assessed by all relevant expert stakeholders, backed up by local knowledge and experience.

33. Friston currently enjoys a very rural landscape inhabited by a wide range of birdlife, bats, badgers, reptiles, insects etc. The proposal for three further industrial projects, in addition to those put forward by SPR, will yet further dramatically alter the balance of available habitats for wildlife. This has to be very fully and properly assessed.

Cultural Heritage

34. It would appear that Wood Farm, immediately adjacent to the proposed Site 3 near Saxmundham, has been omitted for the proposed assessment. Details of its Listing are to be found here:
https://historicengland.org.uk/listing/the-list/list-entry/1231179

35. Maintenance and de-commissioning of the Project has been scoped out of the assessment in relation to heritage assets. This is inappropriate and these matters should be assessed.

Flooding

36. This topic is of extreme concern to the village of Friston, which already has a history of flooding, particularly surface water flooding. The Scoping Report is ambiguous as to what forms of flooding are to be considered and assessed. It is vitally important that all forms of flooding, including surface water and groundwater flooding are fully and properly assessed. EN1 requires all sources of flooding to be considered including as part of site selection where the sequential test should be applied to all sources of flooding. NG seems to be unaware of basic policy requirements.

37. The Scoping Report says at paragraph 2.5.5.2 "*The. Suffolk Converter Station would be situated to avoid areas of Flood Zone 2 and 3. This would ensure that Project infrastructure*

is safe from flooding and would also avoid permanent losses of floodplain storage or disruption to floodplain flow paths, so avoid permanent impacts on offsite flood risk". This is an incorrect assumption as simply avoiding Flood Zone 2 and 3 does not address areas of existing surface water flooding, which can have many causes. Pluvial flood risk must be properly taken into account in accordance with policy

38. Tables 2.5.2, - 2.5.6 (page 161 onwards) list the matters proposed to be scoped in or out of the EIA. Of the matters to be scoped out is *"Increased surface water runoff from the converter station during operation"* with the potential for significant effects reported as *"NO – no impact pathway given attenuation of runoff".* It is vital that surface water runoff from the converter station is properly assessed and details of any attenuation properly agreed assuming of course that the relevant site is compliant with policy.

39. These tables also propose the scoping-out of the following matters in various locations:-
    - Increased flood risk due to permanent loss of floodplain storage/impediment of floodplain flows.
    - Permanent physical disturbance and change to flow regimes (watercourses).
    - Pollution of watercourses and physical disturbance during maintenance.
    - Temporary loss of floodplain storage/impediment of floodplain flow due to spoil storage during construction and decommissioning

40. All these issues should be scoped into the EIA so that the full extent of any flooding from whatever source are properly examined. Again EN1 requires all sources of flooding to be considered including as part of site selection where the sequential test should be applied to all sources of flooding. NG seems to be unaware of basic policy requirements.

Geology

41. The human health exposure to contaminants has been scoped out during operation and maintenance (page 195) with the reason *"Not likely to result in a significant effect due to the nature of the project and the incorporation of the mitigation by design".* Human health exposure to contaminants should be scoped in and properly assessed.

42. The introduction of impermeable surfaces in terms of its effects in 'changes to groundwater levels and/or recharge rates' has also been scoped out, saying that it is *"not likely to result in significant effects due to the small surface area of the built parts of the project. Any new areas of hardstanding would be designed to meet current drainage standards".* This is unacceptable and changes to groundwater must be scoped in and properly assessed.

Agriculture and Soils

43. The temporary removal of land from agricultural production is scoped out of the EIA assessment citing compensation agreements with landowners. It is important,

particularly in the context of a global food crisis resulting from the war in Ukraine, that landowners and the productivity of their land should not be excluded from the proper determination of the Sea Link project and therefore land use in the construction phase should not be scoped out regardless of compensation agreements and landowner consent.

44. At paragraph 16.5.11 of the ExA's report in respect of the SPR projects, it is stated that the ExA concludes that the local impact of the substation/National Grid infrastructure site in respect of land taken out of existing use is *major adverse*. Land at the Friston substation site is Grade 2 or 3 and is all BMV land and any extension to the NG substation will take further BMW land permanently out of agricultural production. As indicated above the global food crisis requires much greater weight to be placed on the loss of agricultural land particularly the best and most versatile agricultural land.

Traffic and Transport

45. The Scoping Report states that access links will only be assessed if there is a 30% increase in traffic. NG propose to assign *very low magnitude* to traffic as there is expected to be *fewer than 30 additional vehicle trips* ***per hour***. This cannot be a correct assessment of magnitude and is not considering the traffic impact cumulatively with the Eurolink and Nautilus projects or other projects in the area. It should be noted that there are proposed to be AILs involved in the construction of the Sea Link project.

46. There is no information on where vehicles will access the NG connection hub at Friston for construction works. Presumably an option would be via the new "operational" access road to be constructed off the B1121 between Friston and Sternfield under the SPR projects. Use of this access road would lead to increased traffic through the village of Friston and also along the very narrow winding road through Sternfield village which also requires the negotiation of a single lane humpback bridge.

47. The SR proposes that the distribution of workers is to be assessed on the 2011 Census, saying the 2021 census data is unavailable. The Census website reveals that its 2021 Phase 1 summaries were released on 28 June 2022 and all results will be published before 21 March 2023. Sea Link's distribution of workers should be re-assessed as soon as the 2021 information is available (if not already) so that reliable data is used.

48. There is confusion in the Scoping Report as to how long construction is to take with the traffic section saying 2 years and the socio-economic section saying 4 years. The length of time shown in Table 1.4.A.1 on page 7 of the appendices containing the Outline Code of Construction Practice would suggest work will start in 2026 and finish in 2030. https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020026/EN020026-000047-EN020026%20-%20Scoping%20Report%20-%20Volume%202%20-%20Appendices.pdf

Air Quality

49. Non-road vehicles are proposed to be scoped out of consideration for air quality. It is important that construction plant is properly considered regarding air pollution and also assessed cumulatively with other projects.

50. Emissions from Construction Traffic are also proposed to be scoped out on the basis that the numbers of vehicles are not high enough. That is incorrect and emissions should be properly considered both for the project and cumulatively with other proposed projects, including Sizewell C and the other NG projects in the area. There is also a possibility of cumulative impact with the SPR projects.

Noise and Vibration

51. Noise and vibration is an extremely complex technical subject as evidenced by the examinations for EA1N, EA2 and the NG connection hub. As noted above the ExA stated: *"The ExA concludes that important and relevant differences remain and resolved in the context of industrial sound sources introduced to Friston**, a tranquil location** with dark skies**"***

52. The ExA also stated at paragraph 13.2.113 of its report that:
*"**Friston is a quiet area** so the context must be considered in the respect of the introduction of new industrial sound sources"* and
*"the noise level is measured at SSR9 are consistent with **the inherently quiet rural noise climate of the Friston area**"*

53. Firstly, it must be fully understood that Friston is an extremely quiet rural area with very low background noise levels in some cases below those which can be measured by commonly used acoustic equipment. Second in this context it is wrong to exclude any noise source in this environment and therefore the scoping report should ensure that all sources of noise both during construction and operation are fully considered.

54. Third, FPC does not accept any of the statements made in the scoping opinion concerning technical noise matters. The policy requirement is as set out in EN1 with which Sea Link will have to comply and all sources of noise should be considered accordingly.

55. FPC makes a few specific points below:-

    a. FPC notes that it is proposed to scope out switchgear noise in the operational stage. This is unacceptable as this impulsive noise is capable of waking people from their sleep (as given in expert evidence in the EA1N and EA2 Examinations) even though the ExA failed to consider this point, a matter which is at issue in the current judicial review It is important that the nature and significance of the impacts are properly understood.

b. The Scoping Report states the following *"Modern switchgear of the Sulphur Hexafluoride (SF6) type operates with a "dull thud".* There is no statement as to how loud the "dull thud" is. National Grid are well aware that SF6 is a potent 'greenhouse gas' contributing to climate change and its use has been discontinued. SF6 is associated with gas insulated substations (GIS) whereas the Sealink project is proposed as an air-insulated substation not involving SF6. The comment made on modern switchgear of the SF6 type is therefore irrelevant and noise from switchgear must be assessed.

c. With regard to the NG connection hub extension at Friston, it is important that the cumulative sound levels of the proposed NG connection hub plus EA1N and EA2 are also incorporated into the overall noise level. FPC notes from paragraph 2.10.7.20 that the aim of the project is to have a negligible effect and struggles to see how noise from the project can be kept below background noise, given the very low level of background noise in Friston.

d. In respect of construction noise the scoping opinion again completely ignores the position which was reached in relation to the EA1N, EA2 and NG connection hub examinations. In relation to both noise and working hours the position in the EA1N and EA2 DCOs should be regarded as the starting point for construction noise impacts from which there should be further improvement in terms of lessening environmental impacts. The proposals for working hours and noise impacts in the scoping opinion are unacceptable.

e. For example the Scoping Report also proposes to scope out auxiliary plant such as diesel generators and air compressors from the noise assessment. These produce a significant amount of noise and can be in use for long periods. For that reason the noise from plant should <u>not</u> be scoped out. This links with the proposed scoping out of emissions from Construction Traffic and Non-road Vehicles in the Air Quality section and both noise and emissions directly affect the health and well-being of people living in the affected areas.

f. The assessment of vibration effect magnitudes at Table 2.10.7 is not acceptable. To suggest that a definition of a <u>medium</u> magnitude as *" likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents (SOAEL)"* is totally wrong. A level of vibration which leads to complaints cannot be described as medium magnitude. Residents should not be expected to tolerate that level of vibration, with or without warning or explanation.

<u>Socio-economics, Recreation and Tourism</u>

56. The creation of permanent operation phase employment, training and apprenticeships has been scoped out on the basis that this is likely to be very limited. It is important that the lack of any meaningful jobs during operation is recognised and included in the assessment as this fact is pertinent in the planning balance.

57. There is no information in the Scoping Report on the numbers of construction workers needed for this phase and whether it will be local or imported labour. This is said to become available in the PEIR. The numbers of workers and their accommodation must be assessed in conjunction with other projects, current or proposed, in the area as there is a danger of the communities being swamped by imported labour.

Health & Wellbeing

58. Electromagnetic fields (EMFs) are proposed to be scoped out of the assessment. Stakeholders should have the opportunity to comment on this issue to ensure that any new information can be assessed as the project progresses.

59. It is well known that substations/convertor stations can, and do, catch fire and the consequences for health and well-being of residents must be assessed. Further if a GIS option at the converter or NG connection hub were taken, then the use of SF6 gases would need to be considered in its impacts on climate change globally and the community locally.

Cumulative Effects

60. NG propose to include Sizewell C, EA2, Nautilus, Eurolink and EAG in their cumulative impact report (page 396 of the report). No mention is made of EA1N or of the proposed NG connection hub. EA1N and the NG connection hub at Friston should clearly be included. Neither are North Falls and Five Estuaries included in the list of projects to be considered cumulatively and they should rightly be included as there is the possibility they will connect to the Friston substation.

61. By way of reminder the ExA stated:
"the ExA observes that effects of the cumulative delivery of the Proposed Development with the other East Anglia development on the transmission connection site near Friston are so substantially adverse that utmost care will be required in the consideration of any amendments or additions to those elements of the Proposed Development in this location.

Conclusion

62. The Sea Link project is being promoted by NG, however it fails to recognise the issues which arose during the Examination of EA1N and EA2, including the NG connection hub NSIP, or in the Recommendation Report issued by the Examining Authority. Indeed, some important issues which arose are proposed to be scoped out. The ExA found that the "utmost care" should be taken. The scoping opinion does not demonstrate care let alone "utmost care".

63. In this context the DCO process should not be treated as a “negotiating game” whereby NG puts forward an unreasonable position in the Scoping Opinion and any movement from that is regarded as NG demonstrating how fair and reasonable it is as a developer. This is a waste of time and resources for everyone. It is also unfair to local communities and local authorities who have limited time and resources as opposed to NG which has relatively unlimited time and resources.

From: [redacted]
To: South East Anglia Link
Subject: Ref EN020026-000024-221025 - EIA Scoping Opinion Consultation - "Sea Link"
Date: 21 November 2022 10:41:43
Attachments: [redacted]

Dear Sir/Madam –

Thank you for consulting Great Yarmouth Borough Council on the EIA scoping opinion pertaining to the proposed Development Consent Order for the 'Sea Link'.

I can confirm that Great Yarmouth Borough Council does not have any comments to make on the above.

Regards, Kim

[redacted]
Principal Strategic Planner
Strategic Planning
Planning and Growth
Great Yarmouth Borough Council
[redacted]

To read our email disclaimer visit here: www.great-yarmouth.gov.uk/email-disclaimer

Historic England

EAST OF ENGLAND OFFICE

The Planning Inspectorate
Temple Quay House
2 The Square
Bristol
BS1 6PN

Our ref: PL00785922

Your ref: EN020026

Telephone [redacted]

BY EMAIL
contact@sealink.nationalgrid.com
southeastanglialink@planninginspectorate.gov.uk

21st November 2022

Dear SEALINK Team,

Request for a Formal EIA Scoping Opinion for the 'Sea Link Project'
Proposed by National Grid Electricity Transmission plc (National Grid)

Historic England has been notified about a scoping request for the proposed Sea Link electricity interconnector project by the Planning Inspectorate via an email (dated 25th October 2022). The Sea Link Project is a proposal by National Grid Electricity Transmission plc to reinforce the transmission network in the South East of England and East Anglia.

The Project is primarily required to reinforce the transmission network in the South East of England and East Anglia and accommodate power generated by renewable and low carbon energy generation schemes in East Anglia. We also note referral to expectation of additional interconnection with European neighbouring states.

The letter is accompanied by the seven volume Sea Link Environmental Impact Assessment Scoping Report (Volume 1 - 7 dated Oct 2022).

Historic England, as the governments lead advisors on the historic environment would like to offer our comments on this proposal, taking into consideration the information provided by the applicant in the scoping report.

POSITIVE ABOUT DISABLED PEOPLE
Stonewall DIVERSITY CHAMPION

We are aware that although not within the definition of a Nationally Significant Infrastructure Project (NSIP), a Paragraph 35 Direction under the Planning Act 2008 was granted by SoS Business, Energy and Industrial Strategy in March 2022 enabling this project to be determined under the Planning Act as an NSIP.

Furthermore, we note that although a cable project, such as Sea Link, is not identified within The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) which govern the EIA process for NSIP, it is clear that the Applicant considers the criteria in Schedule 3 to be applicable regarding the characteristics of the development and its location and will therefore produce an Environmental Statement. We support this approach.

Historic England Advice

Our primary concern in relation to this proposal is the impact of the development upon the significance of designated heritage assets and non-designated heritage assets, both from construction and within the area surrounding the development. Our comments are set out in sections that correspond to the report structure. The two landfall areas and the marine cable elements will be dealt with separately (Parts 2-4).

Suffolk (Part 2)

- Paragraph 2.1.9.1 summarises the onshore scheme elements, include underground cables and the construction of a convertor station. Elements of the scheme may also require trenchless cable installation approaches to minimise impacts to significant areas, such as the AONBs, SSSIs and RSPB reserve.
- It should be noted that all of these elements could directly impact the historic environment and we would recommend that appropriate evaluation measures are used to investigate and understand the potential and significance of the deposits that will be impacted, such as the development of deposit models, geophysical survey and intrusive investigations (boreholes, excavated trenches etc.).
- Paragraph 2.4.3 (Study Area) the project uses 1km for scoping; this is proposed to be refined to 0.5km from the proposed Order limits for detailed baseline and 2km for setting assessment. The 2km buffer will only be used in relation to areas with above ground infrastructure.
- Historic England supports the proposal to refine the study area from that used in the Scoping Assessment but cannot confirm if 2km is sufficient. The applicant should clearly demonstrate that the extent of the proposed study area is of the appropriate size to ensure that all heritage assets likely to be affected by this development have been included and can be properly assessed.

- Paragraph 2.4.6.13 - This option for the route corridor includes scheduled monument '*Two bowl barrows on Aldringham Green'* (LEN 1011378) within the corridor and is potentially located in the setting of two other monuments (*Two bowl barrows in Square Plantation* – LEN 1011376; and *Bowl barrow on Aldringham Common* – LEN 1011440). We recommend the temporary impacts on the setting of designated assets during construction are assessed as medium because of the frequency of assets
- Paragraph 2.4.6.15 - Temporary impacts on the setting of designated assets during construction should be assessed as medium. Again, this option for route corridor includes the scheduled monument of *Leiston Abbey* (second site) – LEN 1014520; which is adjacent to the corridor.
- Paragraph 2.4.6.16 - Temporary impacts on the setting of designated assets during construction should be assessed as medium as this option for the route corridor include the scheduled monument known as *Two bowl barrows on Aldringham Green* (LEN 1011378). The corridor is also potentially located in the setting of two other monuments (*Two bowl barrows in Square Plantation* – LEN 1011376; and *Bowl barrow on Aldringham Common* – LEN 1011440)
- Paragraph 2.4.6.5 summarises the permanent impacts that may occur during the construction phases, including physical damage and the changes to setting. We would recommend that the impact of the development on groundwater levels is also considered. Changes to groundwater levels may result in changes to the local preservation conditions, which in turn could lead to the damage and/or loss of vulnerable waterlogged archaeological remains that may be present within the development areas or in adjacent areas. This could include items such as wood, leather or palaeoenvironmental remains. If there is potential for the proposed work to impact groundwater levels, additional work may be required to understand the water environment, the nature and scale of any potential changes and how any impacts could be mitigated. We would therefore recommend that the Historic England document '*Preserving Archaeological Remains*' (2016) is referred to for this issue (https://historicengland.org.uk/images-books/publications/preserving-archaeological-remains/).
- Paragraph 2.4.7.1 - states that a Desk-based Assessment (DBA) will be produced, and that the findings of this work will be used to confirm whether any additional survey work is required. It would have been useful to outline here the sort of mitigation that may be required, such as geophysical surveys, borehole surveys and deposit modelling, Trial Trench evaluation excavations etc. We would expect to see the Written Schemes of Investigations (WSIs) for any elements of work.
- Paragraph 2.4.7.4 - We are pleased to see that geological mapping and borehole information held by the BGS will used to inform the DBA. We would recommend that this information, along with any other useful stratigraphic information (including archaeological and geotechnical data) is used to

construct preliminary deposit models to the areas of the scheme that could then be built on as further assessments are carried out. The deposit model would help to illustrate the depth, characteristics and potential of the deposits of archaeological interest and should inform any subsequent evaluation trenching, borehole sampling and/or geophysical survey. The deposit model will also help to guide elements of the proposed mitigation strategy, such as the choice of geophysical techniques that are utilised.

- We recommend that the Historic England document '*Deposit Modelling and Archaeology*' (2020) is referred to: https://historicengland.org.uk/images-books/publications/deposit-modelling-and-archaeology/
- We also recommend this report is prepared by a suitably qualified and experienced geoarchaeologist.
- Paragraph 2.4.7.4 – We support the proposed selection of the data sources to inform desk-based assessment.
- Paragraph 2.4.7.5 – We support the need for walkover survey; however, it needs to be recognised that its usefulness 'to determine the potential for previously unrecorded heritage assets' is limited to above ground remains only (such as historic buildings and landscape features, historic routes, etc.). We recommend the assessment of potential for unknown buried archaeological remains in the ES should be informed by different survey methods. This should include geophysical surveys, trial trench evaluation, etc.
- We recommend the walkover survey also include a Site Inspection of any heritage assets where a potential impact through changes to setting is identified; in order to inform the baseline setting assessment of heritage assets and impact assessment.
- Paragraph 2.4.7.10 – Table 2.4.9 contains Very High Heritage Value to demonstrate assessment of effect, however table 2.4.7 identified High Heritage Value as the highest possible category of significance of a heritage asset. The criteria for assessment of effects should be clarified.
- We recommend that the Historic England document *Preserving Archaeological Remains* (2016) is referred to aid the discussions of the potential impacts to the historic environment as well as the approaches used to investigate them: https://historicengland.org.uk/images-books/publications/preserving-archaeological-remains/.
- The Historic England document *Piling and Archaeology* (2019) should be also referred to as some of the elements of the development may involve piling: https://historicengland.org.uk/images-books/publications/piling-and-archaeology/
- Overall Historic England support the presented methodology and conclusions in Paragraph 2.4.8 that impact on the designated and non-designated heritage assets should be scoped in for all five options under consideration. The scheme as presented in the scoping report is consistent with the early pre-app discussions and we are continuing to engage with the applicant directly.

- Paragraph 2.4.8.2 - The presence of previously unknown assets in the landscape has been demonstrated by other infrastructure schemes and is acknowledged here. We agree with this conclusion, but also recommend the scope of additional archaeological surveys is discussed and agreed with Suffolk County Council Archaeological Services.
- Paragraphs 2.5 & 2.6, and Part 2, Chapter 5 - It is noted that several Paragraphs within the scoping report contain information that may also aid the assessment of the archaeological potential of the development area, for example, information about the Geology and Hydrogeology.
- In particular, it is important to understand how changes to the groundwater levels, water quality or the movement of water through deposits may impact the historic environment by altering the preservation of archaeological structures, features or remains, including palaeoenvironmental remains. This may be caused by construction activities, the compression of deposits, the reduction in recharge values, the need to dewater areas during construction, or the creation of pathways for contaminants or oxygen (see Paragraph 2.6.6).
- Paragraphs 2.5 & 2.6 - Additional works are planned to investigate the geology and hydrology/hydrogeology of the development area; we would recommend that the value of this information to inform the assessment of the historic environment should be considered and discussed with the project archaeological team.
- This will allow any opportunities to be maximised where possible, and it will also hopefully reduce any duplication of effort. For example, any intrusive works such as boreholes that are collected for ground investigation works or the development of a hydrogeological conceptual model (for example Paragraph 2.6.5.3) will potentially add to the understanding of the historic environment, as well as the likely preservation conditions that may be present on the site. The conceptual model will also add to the understanding of how the proposed development may impact the historic environment.
- We agree that maintenance and decommissioning phases can be reasonably scoped out.

Kent (Part 3)

- Paragraph 3.1.9 summarises the onshore scheme elements, which include overhead lines and/or underground cables and the construction of a new convertor station. These elements could directly impact the historic environment and we recommend that appropriate evaluation measures are used to investigate and understand the potential and significance of the deposits that will be impacted. Appropriate techniques would include the development of deposit models, geophysical survey and intrusive investigations (e.g. boreholes and excavated trenches).

- Paragraph 3.4.3 (Study Area) the project uses 1km for scoping; this is proposed to be refined to 0.5km from the proposed Order limits for detailed baseline and 2km for setting assessment. The 2km buffer will only be used in relation to areas with above ground infrastructure.
- Historic England support the proposal to refine the study area from that used in the Scoping Assessment but cannot confirm if 2km is sufficient. The applicant should clearly demonstrate that the extent of the proposed study area is of the appropriate size to ensure that all heritage assets likely to be affected by this development have been included and can be properly assessed.
- In particular we would consider it a requirement to include an assessment of the potential for harm to the scheduled monument '*A Saxon Shore fort, Roman port and associated remains at Richborough*' (1014642). Setting contributes quite highly to the significance of this site and although the monument is c. 2km away from the scoping boundary, the site is raised and has good visibility across the landscape. The LVIA recognises this potential through inclusion of a viewpoint near to the site (VP12).
- 3.4.4.3 (Baseline) Overall, we agree with the applicant's assessment, apart from Table 3.4.6 which is not complete and needs to be amended. It misses out potential significant effects scoped in in tables 3.4.1 and 3.4.2; namely temporary setting impacts during construction/from construction compounds on designated heritage assets.
- Tables 3.4.1 and 3.4.2 - temporary impacts during construction and from construction compounds on the setting of heritage assets has been scoped in for designated heritage assets only. In our view this would need to include non-designated heritage assets. This is because currently the value of these heritage assets remains to be fully assessed and significant effects could result.
- We agree that maintenance and decommissioning phases can be reasonably scoped out.
- Paragraph 3.4.6 summarises the impacts that may occur during the construction, operation, maintenance and decommissioning phases. These include physical damage and changes to setting. Given the location of the on-shore works, within the former Wantsum Channel, we recommend that the impact of the development on groundwater levels is also considered.
- Changes to groundwater levels may result in changes to local preservation conditions, which in turn could lead to the damage and loss of any vulnerable waterlogged archaeological remains present within the development areas or in adjacent areas. Such remains are rare and likely to be of considerable significance. This might include wooden structures and artefacts, leather or palaeoenvironmental remains.
- If there is potential for the proposed scheme to impact groundwater levels, additional work may be required to understand the water environment, the

nature and scale of any potential changes and how any impacts could be mitigated. Therefore, we recommend that the Historic England document '*Preserving Archaeological Remains*' (2016) is referred-to (https://historicengland.org.uk/images-books/publications/preserving-archaeological-remains/).

- Paragraph 3.4.7 states that a Desk-based Assessment (DBA) will be produced, and that the findings of this work will be used to confirm whether any additional survey work is required. It would have been useful to outline here the sort of survey that may be appropriate. Deposits of archaeological interest are likely to lie below the depth of standard geophysical survey across parts of the Minster Marshes and within the Head deposits on the valley side, as well as within Pegwell Bay.
- Standard geophysical survey and evaluation trenching will be appropriate for relatively shallow archaeological remains. However, boreholes and deep penetrating geophysical techniques are recommended where more deeply buried remains might be expected. Results should be informed-by and feed back into deposit models, to map the distribution and character of the buried deposit sequence. We would expect to be consulted on the Written Schemes of Investigations (WSIs) for any elements of work.
- Paragraph 3.4.7.4 - We are pleased to see that geological mapping and borehole information held by the BGS will used to inform the DBA. We recommend that this information, along with any other useful stratigraphic information (including archaeological and geotechnical data) is used to construct a preliminary deposit model for the on-shore route.
- The deposit model will help to illustrate the depth, characteristics and potential of the deposits of archaeological interest and should inform any subsequent evaluation trenching, borehole sampling and/or geophysical survey. We recommend that the Historic England document '*Deposit Modelling and Archaeology*' (2020) is referred to: https://historicengland.org.uk/images-books/publications/deposit-modelling-and-archaeology/. The KCC HER officers should also be contacted for relevant geoarchaeological reports from nearby sites that have provided information relevant to deposit modelling for the proposed scheme.
- As before we recommend this element of the application is prepared by a suitably qualified and experienced geoarchaeologist.
- Paragraph 3.4.7.5 noted the use of an archaeological walkover survey. This should just be a 'walkover survey'; reason: built heritage assets may be identified.
- The Walkover Survey should also include a Site Inspection of any heritage assets where a potential impact through changes to setting is identified; in order to inform the baseline setting assessment of heritage assets and impact assessment

- We also recommend that a programme of archaeological evaluation is undertaken in consultation with the LPA archaeological advisor at an early stage in the process. Preferably to inform the EIA.
- Several other paragraphs within the scoping report contain information relevant to archaeological potential, for example: Water Environment (3.5): as well as Geology and Hydrogeology (3.6).
- To assess impacts on archaeological remains that owe their significance to waterlogging, it is important to understand how changes to the groundwater levels, water quality and the movement of water through deposits may impact the preservation of archaeological structures, features or remains, including palaeoenvironmental remains. Such changes may be caused by construction activities, the compression of deposits, the reduction in recharge values, the need to dewater areas during construction, or the creation of pathways for contaminants or oxygen.
- We therefore recommend that any additional works planned to investigate the geology and hydrology/hydrogeology of the development area (Paragraphs 3.5 & 3.6) should be discussed with the project archaeological team. This will allow opportunities to be maximised, reducing duplication of effort. For example, boreholes collected for ground investigation works or the development of a hydrogeological conceptual model will potentially add to the understanding of the historic environment, as well as the likely preservation conditions that may be present on the site.
- A hydrogeological conceptual model will also add to the understanding of how the proposed development may directly or indirectly impact the historic environment, by changing the water environment and as a result the state of preservation of buried archaeological remains.

Marine Environment (Part 4)

- We concur with the topics to be scoped into the EIA exercise for this proposed development
- We recommend that a draft archaeological Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries accompanies any Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES);
- The draft Development Consent Order should provide for survey programmes conducted post-consent (should permission be obtained), but pre-commencement of any construction activities should be informed by archaeological advice through an agreed WSI.
- We understand that the proposed development will be located wholly within English Territorial Waters and spans the East Inshore and South East Marine

Plan Areas. We also appreciate the objective regarding 'Avoidance of known wrecks and areas of archaeological importance'

- Paragraph 1.4.3.48 describes the possible use of cable installation requiring up to four trenches across the foreshore, each approximately 3m wide and between 1m and 5m deep depending on sedimentary conditions. It is also explained that temporary work structures might be required within the intertidal zone, which could be cofferdam or sheet-piled structure, installed using vibratory piling or percussive piling to achieve design depth. Acknowledgment regarding 'additional mitigation' is therefore important.
- Paragraph 1.4.3.54 describes installation of marine HVDC cables as requiring ground preparation within the intertidal zone at the preferred landfall sites; and pre-lay seabed preparation along the route below MLWS, such as route clearance, pre-lay grapnel run and any pre-sweeping.
- Paragraph 1.4.3.55 provides detail regarding survey techniques to be employed, inclusive of Multi-Beam Echo Sounder (MBES), Side-Scan Sonar (SSS), Sub-Bottom Profiler (SBP), Magnetometer, visual inspection and geotechnical. While we appreciate the importance to this project of route clearance, as explained in paragraph 1.4.3.56, the completion of a Pre-Lay Grapnel Run (PLGR) must only occur after archaeological analysis of survey data has been completed and reported within a timeframe whereby such information informs optimum route selection and burial.
- Paragraph 1.4.3.57 mentions pre-sweeping through 'areas of large sand waves' and we consider it important to highlight necessity for prior sub-bottom archaeological assessment to determine the presence of any presently concealed sites of known or possible archaeological interest.
- Regarding the attention given to the risk of this project encountering Unexploded Ordnance (UXO), we note the attention given to a desktop study to assess risk of UXO and corroboration with geophysical and geotechnical seabed survey undertaken in 2021.
- Paragraph 1.4.3.59 - the attention given to 'micro-routing' is also relevant to archaeological risk and we encourage optimisation of data use to select a preferred route and design (e.g. four cables installed within two trenches).
- However, we note a statement in paragraph 1.4.3.62, that if laid separately the gap between cables could be 30m to 60m depending on water depth, it is therefore important that all survey work and subsequent analysis includes all impacted seabed areas.
- It is also apparent that other vessels may be required such as a Cable Lay Barge and Jack-Up platform (paragraph 1.4.3.64) when close inshore, it is therefore important that all survey work and subsequent analysis includes any seabed area that could be impacted by anchoring as might be required by these barges and/or platforms.
- Chapter 4.7 (Marine Archaeology) Historic England broadly supports the approach taken in the report.

- Paragraph 4.7.4 (Baseline Conditions), and paragraph 4.7.4.2 alludes to the known and presently unknown archaeological resources as might be encountered by this proposed project. Regarding the reference made to wreck recording through surveys conducted by the UK Hydrographic Office, it is important to highlight that these surveys will be focussed towards navigationally important routes. We therefore concur with the statement that there is potential for wreck, especially older and highly dispersed sites, to be discovered outside of defined navigation areas.
- The detail provided under 'UKHO records within the study area', 'NMHR records within the study area' and 'Suffolk records within the study area' provide important desk-based sources of information e.g. 151 records relating to possible shipwreck events and seven records relating to possible aircraft crash sites.
- Paragraphs 4.7.4.23 and 4.7.4.24 - The detail provided under 'Historic Seascape Characterisation' would need to be updated in any subsequent PEIR and ES as the data pre-dates the production of the national Historic Seascape Characterisation (HSC) consolidation in 2018. It is therefore necessary in the preparation of the PEIR and ES to use: https://archaeologydataservice.ac.uk/archives/view/seascape_he_2018/index.cfm.
- Paragraph 4.7.5 (Embedded and Control & Management Measures) – the description of 'embedded mitigation measures' includes the spatial identification of Archaeological Exclusion Zones (AEZs), which we appreciate can be identified as an embedded mitigation.
- The inclusion of geophysical and geotechnical survey data acquisition is however not embedded mitigation *per se* (*vis*. definition of embedded mitigation as included in the glossary in Volume 1, Part 1 Introduction). It is important that geophysical data acquired pre-consent should be subject to analysis and interpretation by an accredited, professional and experienced archaeological contractor and used within the PEIR and ES. Mention is made of using those data derived from geophysical or geotechnical surveys undertaken post-consent and post-construction.
- It is also important to clarify that such archaeological assessment and reporting procedures must be adequately provided for in any draft Development Consent Order (including Deemed Marine Licence) that supports any eventual application to the Planning Inspectorate. We would also recommend that archaeological specialists are included in the design of any geophysical or geotechnical/geoarchaeological survey campaigns to ensure that opportunities are maximised where possible.
- We therefore consider such measures to represent adaptive mitigation, especially survey campaigns conducted post-consent and pre-construction, as they should allow the project to be designed and delivered in full consideration

of presently unknown elements of the historic environment which might be discovered.

- Paragraph 4.7.5.4 We note the statement made here regarding palaeogeographic features such as palaeochannels as may occur in the proposed development area and further investigation of existing geotechnical samples or undertaking further samples. However, we are aware that loss (discarded) of geotechnical vibro-cores of archaeological interest has already occurred and that if consent is obtained that any subsequent geotechnical survey will need to be conducted in the same locations as previously identified of high and medium priority status.
- We would also recommend that geoarchaeological specialist are included in the design of any future sampling campaigns, and that they are allowed direct access to the cores to record them. This is because it is better to record and assess continuous core sequences rather than isolated deposits as this allows for greater reliability and confidence in the resulting conclusions.
- Paragraph 4.7.5.7 (Anomaly investigation) mentions methods for ground truthing assessment and we encourage coordination with UXO investigation campaigns.
- Paragraph 4.7.5.9 describes watching briefs in the intertidal or marine areas with a methodology presented in a method statement for consultation with Historic England and the MMO. However, for any and all watching briefs conducted in an intertidal area, the primary consultee will by the respective local authority curatorial bodies that serve Suffolk and Kent.
- Paragraph 4.7.5.10 (Reduction of indirect impacts) states that 'Once the design of the Offshore Scheme has been confirmed, it may be possible to ascertain measures to protect heritage assets that could be indirectly impacted.' However, we take this opportunity to refer you to Volume 1, Part 1 Introduction, paragraph 1.2.2.8 which quotes Part 5 of EIA Regulations 2017 regarding indirect significant effects.
- We also draw your attention to paragraph 1.5.4.6 and action to determine the significance of the residual effects, inclusive of indirect effects. It therefore seems appropriate that in order to effectively confirm the design of the proposed project that such indirect impacts are assessed in the PEIR and ES, and the project designed accordingly to avoid impact.
- We also refer you to the provisions to assess indirect impacts within the Overarching National Policy Statement for Energy (EN-1), e.g. paragraphs 4.2.1 and 4.9.3 and National Planning Policy Framework (2021) e.g. paragraph 203.
- Paragraph 4.7.5.11 (Control and Management Measures) includes 'MA01 – a Written Scheme of Investigation (WSI) including a Protocol for Archaeological Discoveries (PAD)'. We note that the scoping document refers to 'method statements' (paragraph 4.7.5.9) and also 'management measures'. It is

therefore important that the PEIR and ES adopts a consistent terminology, which should be achieved through consultation with Historic England.

- We also note the statement that the 'WSI would address unavoidable impacts associated with the worst-case scenario (Rochdale Envelope)'. However, the definition of 'Rochdale Envelope' used in the glossary (Volume 1) focusses on the benefits to the Applicant of a flexible approach i.e. 'some details of a project have not been confirmed'. Such matters and the approach to conducting an EIA exercise for this proposed development must be made clear in the PEIR and ES.
- We also recommend any marine geophysical or geotechnical surveys or other visual inspection surveys that occur post consent, should permission be secured, are to be assessed by a suitably qualified, experienced and accredited marine archaeological consultant in accordance with an agreed WSI and accompanying method statements.
- We also concur with 'MA02' whereby the WSI will detail the methodological approach to offsetting impacts by completing a palaeo-environmental assessment of deposits of high geoarchaeological potential which may be disturbed.
- We also agree with the matters as referenced MA03, MA04 and MA05. Regarding MPE01 (abandoned, lost or discarded fishing gear), we encourage the applicant to ensure that their archaeological consultant or retained archaeological advice service is directly involved in survey campaigns and data assessments to ensure, where possible, 'wreck' of possible or known archaeological interest can be avoided and left in-situ.
- Paragraph 4.7.6 (potential for significant effects) – we concur with Table 4.7.4 (sources and impacts) and the scoping in of the identified impacts. Paragraph 4.7.6.9 describes Table 4.7.5 as providing a summary of the impact pathways which are to be 'scoped into and or out of the benthic ecology assessment.' It is taken that this is an error and that referral should be to the marine archaeological assessment within any PEIR and ES to be produced. Overall, we concur with the matters to be scoped in as listed in Table 4.7.5.
- Regarding the inclusion of Historic Seascape Characterisation, we encourage the Applicant to focus assessment, ideally through a narrative approach, on deriving a perception of historic character by using the 2018 national database for the purposes of determining the capacity to accommodate change as proposed by this development. We make this point as it is not the same as equating change to impact *per se* and whether there is temporarily or permanently change in historic character as presently perceived.
- Paragraph 4.7.7 (proposed assessment methodology) – to enable an ES to be produced, further consideration is needed regarding additional coring as could be required to supplement the geoarchaeological evaluation of existing vibro-core logs. The seeking of 'grey literature' should include The Online System

for reporting Archaeological Investigations and linking research outputs and archives (https://oasis.ac.uk/).

- Paragraph 4.7.7.4 mentions that a '…palaeogeography baseline summary will be based on the geoarchaeological review of geotechnical and geophysical datasets gathered for the Offshore Scheme.' Given the situation explained to us by the Applicant regarding the loss of geotechnical core materials that has already occurred before geo-archaeological analysis could be completed; it is our advice that the WSI prepared in support of this proposed project details the geoarchaeological data capture programme to be initiated should consent be obtained.
- We also take this opportunity to confirm that the HSC exercise is to use the 2018 dataset (as referenced above) as necessary to supplement the individual HSC reports as referenced.
- Paragraph 4.7.8 provided a summary which demonstrates the attention given to available desk-based sources of information within the Historic England National Marine Heritage Record (NMHR) and the attention given to actual identifiable sites as well as the potential resource. The acknowledgement of the potential for entirely new discoveries is particularly relevant in consideration of the geographic location of this proposed development in reference to prehistoric, maritime and aviation (vis. Control and Management Measure MA05).
- We concur with the summary provided in Table 4.7.9 (proposed scope of the assessment) and the identification of potential significant effect at each defined project phase which are to be scoped into the assessment.

Summary

Overall, we are content with the applicant's approach to sources, baseline information and the assessment of heritages impact. We confirm however that historic environment represents a potentially significant issue in EIA terms, and confirm that the historic environment should be ‘scoped in’ to the assessment.

We note the applicant intends to produce an LVIA. We recommend the LVIA is supplemented with heritage specific viewpoints (both photographs and photomontages) that illustrate the ES and support the results of the heritage assessment. If these are to be presented in the Landscape and Visual chapter, then the assessment needs to be clearly set out and cross referenced with the heritage chapter. Ideally though a separate heritage viewpoints appendix should be produced.

The setting of heritage assets is not however just restricted to visual impacts and other factors should also be considered in assessments; in particular noise, light, traffic. Where relevant, the cultural heritage should also be cross-referenced to other relevant chapters, and as above we advise that all supporting technical heritage information is included as appendices.

We strongly recommend that the applicant involve the County Councils specialist advisers on archaeological matters and we recognise that they are best placed to provide advice on non-designated heritage assets and to give advice on how the proposal can be tailored to avoid and minimise potential adverse impacts on the historic environment; and of any required mitigation measures. Likewise, the local Conservation Officer will need to be consulted in relation to the built environment.

Whilst standardised EIA matrices are considered in some planning practices to be useful tools, we consider the analysis of setting (and the impact upon it) as a matter of qualitative and expert judgement which cannot be achieved solely by use of systematic matrices or scoring systems. Historic England therefore recommends that these should be in an appendix and seen only as material to support a clearly expressed and non-technical narrative argument within the cultural heritage chapter.

The ES should also use the ideas of benefit, harm and loss (as described in NPPF) to set out 'what matters and why' in terms of the heritage assets' significance and setting, together with the effects of the development upon them. Alongside appropriate mitigation to offset adverse effects on heritage assets we are also looking for explicit and demonstrable heritage enhancements and benefits from the scheme to be set out clearly in the application. This could include Interpretation, public engagement in the archaeological discoveries, heritage education and heritage focus in relation to design and placemaking.

Given the designated heritage asset within the area, we would welcome further discussions with the applicant in order to refine the approach to the scope of the ES, to the assessment, enhancements and mitigation.

Recommendation
We broadly accept the approach set out in the scoping report, but we have some concerns that would need to be addressed. These are set out in the specific bullets above. We consider further refining of the scope would be necessary taking these comments into consideration. This is to fully address heritage matters and to fully consider the impact on the historic environment in relation to policy.

We confirm the historic environment represents a potentially significant issue in EIA terms, and we would support the need for further work to support the publication of an ES.

If you have any queries about any of the above, or would like to discuss anything further, please contact me

Yours sincerely

[redacted]

Historic England, Brooklands, 24 Brooklands Avenue, Cambridge CB2 8BU
Telephone [redacted]
Please note that Historic England operates an access to information policy.
Correspondence or information which you send us may therefore become publicly available.

From: JNCC Offshore Industries Advice
To: South East Anglia Link
Subject: RE: EN020026 - Sea Link - EIA Scoping Notification and Consultation
Date: 01 November 2022 10:45:34
Attachments: image001.png
image002.png
image008.png
image009.png
image010.png
image003.jpg
image004.gif
image005.gif
image006.jpg
image011.jpg
image007.png

Dear Todd,

Thank you for your e-mail and consultation request. Upon reviewing this Sea Link proposal JNCC has identified the route to be entirely inshore (within territorial limits) and therefore not within our remit. As such defer to Natural England for all comments regarding nature conservation advice including any related to the Southern North Sea SAC and Outer Thames Estuary SPA.

Kind regards,

[redacted]

Acting admin officer
JNCC, Inverdee House, Baxter Street, Aberdeen, AB11 9QA

[redacted]

25 years delivering innovative solutions to realise the value of nature.

JNCC have been monitoring the outbreak of COVID-19 closely and developed a response plan. As a result, the vast majority of our staff are working from home and adhering to the government's advice on social distancing and travel restrictions. Whilst we are taking these actions we are available for business as usual. We will respond to enquiries as promptly as possible. However, there may be some delays due to the current constraints and we ask for your understanding and patience.

From: South East Anglia Link <SouthEastAngliaLink@planninginspectorate.gov.uk>
Sent: 25 October 2022 12:16
Subject: EN020026 - Sea Link - EIA Scoping Notification and Consultation

CAUTION: Please remember your Cyber Security training. This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Dear Sir/Madam

Please see attached correspondence on the proposed Sea Link.

Please note the deadline for consultation responses is **22 November 2022** and is a statutory requirement that cannot be extended.

Kind regards,

Todd Brumwell

[redacted]

Todd Brumwell | Associate EIA Advisor
The Planning Inspectorate
T [redacted]

[redacted]@PINSgov [redacted] The Planning Inspectorate [redacted] planninginspectorate.gov.uk

Ensuring fairness, openness and impartiality across all our services

This communication does not constitute legal advice.
Please view our Information Charter before sending information to the Planning Inspectorate. Our Customer Privacy Notice sets out how we handle personal data in accordance with the law.

Please take a moment to review the **Planning Inspectorate's Privacy Notice** which can be accessed by clicking this link.

Please note that the contents of this email and any attachments are privileged and/or confidential and intended solely for the use of the intended recipient. If you are not the intended recipient of this email and its attachments, you must take no action based upon them, nor must you copy or show them to anyone. Please contact the sender if you believe you have received this email in error and then delete this email from your system.

Recipients should note that e-mail traffic on Planning Inspectorate systems is subject to monitoring, recording and auditing to secure the effective operation of the system and for other lawful purposes. The Planning Inspectorate has taken steps to keep this e-mail and any attachments free from viruses. It accepts no liability for any loss or damage caused as a result of any virus being passed on. It is the responsibility of the recipient to perform all necessary checks.

The statements expressed in this e-mail are personal and do not necessarily reflect the opinions or policies of the Inspectorate.

DPC:76616c646f72

[redacted]

JNCC's response to the COVID-19 outbreak is focussed on protecting our people and partners to minimise the potential for the virus to spread. All staff are working from home and we are adhering to the Government's advice on social distancing and travel restrictions. We are also working with partners to ensure that the projects we support are compliant with the latest Government guidance, including the introduction of restrictions on fieldwork. (See https://jncc.gov.uk/our-work/surveillance-schemes/) Our staff continue to be available for business as usual and will respond to enquiries as promptly as possible, but there may be delays. We ask for your understanding and patience at this time.

For information on how we handle personal data please see our Privacy Notice at https://jncc.gov.uk/privacy

This email and any attachments, is intended for the named recipient(s) only. If you are not the named recipient then any copying, distribution, storage or other use of the information contained in them is strictly prohibited. In this case, please inform the sender straight away then destroy the email and any linked files.

JNCC may have to make this message, and any reply to it, public if asked to under the Freedom of Information Act, data protection legislation or for litigation. If you have a Freedom of Information/Environmental Information request please refer to our website page.

This message has been checked for all known viruses by JNCC through the MessageLabs Virus Control Centre however we can accept no responsibility once it has left our systems. The recipient should check any attachment before opening it.

JNCC Support Co. registered in England and Wales, Company No. 05380206. Registered Office: Monkstone House, City Road, Peterborough, Cambridgeshire PE1 1JY.
https://jncc.gov.uk/

Dear Sir/Madam,

Kelsale-cum-Carlton Parish Council has been identified by the Planning Inspectorate as a consultation body that must be consulted before adopting its scoping opinion. As such, we are writing to inform the Planning Inspectorate of information we consider should be provided by National Grid in the Environmental Statement.

1. **Alternative locations for the onshore substation** – National Grid has failed to provide any analysis whatsoever of alternative sites other than the Sizewell area of the Suffolk Heritage Coast, including brownfield sites, in its voluminous scoping report. It is assumed that this is the only option that makes sense and that there is no other option, but no justification is given except the implication that it is less expensive and more convenient. Other sites, such as brownfield sites, must be examined and properly considered in the ES given that the scoping boundary includes part of the Suffolk Coasts and Heath Area of Outstanding Natural Beauty (AONB), Sandlings Special Protection Area (SPA) and Sizewell Marshes Sites of Special Scientific Interest (SSSI). Further, National Grid goes on to list several other international and national designations as well as non-statutory designated sites of importance in this area. A thorough investigation of other sites must be done so that the Planning Inspectorate can properly consider all options rather than relying solely on National Grid's assumptions.

2. **Cumulative impacts of the now 9 energy projects in this area** – Whilst National Grid has addressed cumulative impact in its scoping report, its analysis is insufficient and does not fully illustrate the scope of industrialisation of the area. There is no holistic visualisation of how the massive onshore substations proposed by both National Grid and Scottish Power will change the landscape in this tiny area of the Suffolk Heritage Coast. This visualisation must form part of the ES so that cumulative impact can be thoroughly assessed by the Planning Inspectorate.

3. **Size and scale of the onshore substation** – The size and scale of the onshore substation is addressed, but only in isolation. Together with the other proposed onshore substations, size and scale will have a massive impact on the landscape and the environment and must be addressed in its totality.

Kelsale-cum-Carlton Parish Council respectfully asks that the Planning Inspectorate require National Grid to address these issues in the Environmental Statement.

Kind regards,

Councillor Traci Weaver
Kelsale-cum-Carlton Parish Council

Todd Brumwell
Associate EIA Advisor
on behalf of the Secretary of State
Environmental Services
Central Operations
Temple Quay House
2 The Square
Bristol, BS1 6PN

Growth and Communities

Invicta House
County Hall
Maidstone
Kent
ME14 1XX

[redacted]

BY EMAIL ONLY

22 November 2022

Dear Sir / Madam,

Re: Sea Link – EIA Scoping

Thank you for consulting Kent County Council (KCC) on the Environmental Impact Assessment (EIA) and Scoping Report for the Sea Link project. The County Council is responding separately to the Non-Statutory Consultation and will provide comments direct to the Applicant on the 16th December 2022.

The County Council has reviewed the document and for ease of reference, has provided comments structured under the chapter headings within the Scoping Report. The response largely focuses on the onshore infrastructure that is being delivered as part of this scheme.

Volume 1 Main Text – Part 1 Introduction

1.3 Main Alternatives Considered

Heritage Conservation: Due to the rich archaeological landscapes of Thanet, on 8th February 2022 the County Council, from a heritage conservation perspective, expressed a preference for a landfall area in Pegwell Bay (Option K1) and a converter site located in and around Richborough/Cliffsend (Option A), in a consultation on the emerging preferences for the project. Although a landfall area in Pegwell Bay (Option K1) may have more intertidal impacts on archaeological assets, this is preferred to the other options which included a landfall area between Broadstairs and Margate (Option K1a) and on the north Kent coast (Options K2-K5) that would have required an extensive connection that runs through rich archaeological landscapes. A converter site located in and around Richborough/Cliffsend (Option A) was also preferred given the reduced connection cabling and less likely overall impact. The County Council has drawn attention to the high archaeological and historic landscape value of the area associated with this option.

1.4 Description of the Project

Heritage Conservation: The County Council notes the description of the works involved for each of the elements within the Kent Onshore and Offshore areas. The works involve 10 hectares of land for the construction of the convertor station and 40m to 60m working widths and trenching areas for the cabling. The convertor station may be up to 30m high and pylons may be included in the scheme. These works will be taking place in an area that is highly sensitive for archaeological remains, both those that are found as buried archaeological landscapes and others that are extant as earthworks and built heritage. Other remains will be found in marine and intertidal areas and may include wrecks and structures as well as submerged sites.

KCC recommends that a thorough study is needed to establish a detailed baseline and to understand the significance of the archaeology of the area. This would need to be supported by survey and evaluation targeted at the potential impacts of the scheme, including areas of potential temporary and enabling works. As a principle, the County Council encourages minimising the areas of land take for construction works and careful siting of the routes of cables to avoid significant heritage assets. The impacts of the scheme on the historic landscape should be carefully considered and taken account of in the development of the scheme. This would particularly include those of the Wantsum Sea Channel and the setting of designated and undesignated heritage assets, including the Scheduled Monument of the Roman port of entry at Richborough and the undesignated potential Caesarian enclosure at Ebbsfleet. The County Council would expect to see a Historic Landscape Assessment as a specific outcome of the study.

The County Council welcomes the inclusion of Cultural Heritage as a chapter in the Kent Onshore assessment and that Marine Archaeology is identified in the Offshore scheme.

Volume 1 Main Text - Part 3 Kent Onshore Scheme

Public Rights of Way (PRoW): As a general statement, KCC is keen to ensure that its interests are represented with respect to the County Council's statutory duty to protect and improve PRoW in the County. The County Council is committed to working in partnership with the Applicant to achieve the aims contained within the KCC Rights of Way Improvement Plan and Framing Kent's Future Strategy (2022-2026).

Overall, KCC welcomes the inclusion of the PRoW network and the reference made to the ROWIP in the Scoping Report. Public Footpaths TE39, TE40, TE37, TE32, TE26, EE42 and TR32, Restricted Byways TE35 and TE36 would be affected by the development. It is noted that a Public Footpath carries pedestrian rights only and a Restricted Byway carries pedestrian, equestrian and all non-mechanical vehicle rights.

With reference to the National Policy Statement for National Networks (NPSNN), this project provides an opportunity to improve the existing PRoW network. KCC requires a specific Rights of Way Plan to be prepared as part of the application for Development Consent Order giving details of the impact on each affected route, including temporary closures, alternative routes, timescale and legal management. The County Council request that efforts should be

made to minimise path closures and retain popular routes during the project. Where temporary closures are required, convenient diversion routes should be provided to reduce disruption to path users. The Rights of Way Plan would be required to also address opportunities for enhancements to and development of the PRoW network as part of the project.

KCC would request that a form of long-term Trust or Fund is in place to provide lasting mitigation through legacy projects and continued improvements as the project evolves in the region. This is in common with other Nationally Significant Infrastructure Projects (NSIPs) looking beyond the scheme itself.

The County Council requests continued engagement with the Applicant as the project progresses, to review these impacts and consider PRoW network improvements which could be delivered to enhance the legacy of the project.

3.1 Evolution of the Kent Onshore Scheme

Heritage Conservation: With respect to the options appraisal and reaching a preferred option, other than mentioning the location of Scheduled Monuments, it is not clear on the extent to which heritage assets and the potential for heritage assets has influenced the selection. This needs to be set out in the forthcoming study given the general high level of sensitivity of the historic environment on and around the Isle of Thanet.

3.2 Landscape and Visual

PRoW: The County Council supports the inclusion of PRoW, the National Trail England Coast Path and Promoted Routes as viewpoints in Table 3.2.1. However, Figures 3.2.5 and 3.2.6 have wider inclusion for visual impact. The mitigation of screening and hedgerow planting is considered insufficient and the County Council would therefore advise a form of long-term Trust or Fund. This would provide substantial mitigation towards improvements and maintenance of the PRoW network in the area as compensation for the impact and the timescale of the scheme, as the project evolves in the region. This has similarly been undertaken in the Richborough Connection Project.

3.2.7 Proposed Assessment Methodology

Heritage Conservation: KCC understands that the scheme lies within and on the edges of the former Wantsum Sea Channel that was an important historic sea way and ancient harbour that was reclaimed from medieval times. The landscape is an important heritage asset and contains patterns of drainage and historic sea walls that evidence the reclamation of the former marshlands and sea, and features associated with its exploitation and use. The effects of the scheme on the historic landscape need to be fully considered and may require visuals of the effects from key features identified during walkover work, both for the Landscape and Visual Impact Assessment and for the Cultural Heritage assessment. The County Council notes that the proposed data sources set out in paragraph 3.2.7.1 refer to Historic England, but use should also be made of the Kent Historic Environment Record. The

former Wantsum Channel would fit within the landscape values outlined in paragraph 3.2.7.8.

3.3 Ecology and Biodiversity

Biodiversity: The County Council recognises that the project is proposing to achieve Biodiversity Net Gain and carry out a full range of ecological surveys to assess the impact on the designated sites and protected or notable species, as a result of the proposed development. As nothing of significance has been scoped out of the proposed EIA, KCC has minimal comments to make at this stage.

In regard to mitigation, the County Council would recommend that the Applicant reviews any monitoring associated with previous pipeline or wind farms. The design of the proposed mitigation can therefore be based on the previous projects and be improved based on the findings of the on-going monitoring. This will enable the Applicant to demonstrate that the mitigation can be achieved.

3.4 Cultural Heritage

Heritage Conservation: The County Council has been engaged with the Applicant during this pre-application stage of the processes and has had the opportunity to comment on the scope of the archaeological works alongside the Ground Investigation proposals, and provide archaeological advice to both District Councils. Impacts on the setting of Built Heritage will be led on by the District Conservation Officers and Historic England. It is also noted that Historic England will generally lead on advice with respect to Offshore archaeology below the Mean Low Water mark, while KCC's comments below also cover assessment of the Historic Landscape.

KCC notes the range of impacts that may affect heritage assets in Table 3.4.1. The construction impacts will need to consider temporary and enabling works as described in Volume 1 Main Text – Part 1 Introduction, and potentially any off site mitigation or compensation measures that may arise during the development of the scheme. The County Council is of the view that there remains some potential for maintenance and decommissioning works to affect heritage assets that may have been left preserved within the scheme areas or nearby and that this should not be scoped out of the EIA.

3.4.3 Study Area

Heritage Conservation: KCC notes that the study area for the Landscape and Visual Impact Assessment is set at 3km from the scheme boundary but at only 1km for the Cultural Heritage. This limitation would not include the important Scheduled Monument at Richborough and its setting. This monument is on an area of high land overlooking the mouth of the former Wantsum Sea Channel and the impact on its setting is an important consideration. It is also noted that a viewpoint is proposed from Richborough and this should be agreed with Historic England who manage the heritage site. The setting within the scheme from the Ebbsfleet Hill enclosure should be also considered.

The scoping boundary set out for the Cultural Heritage Study, both for the designated heritage assets in Figure 3.4.1 which shows the scoping boundary plus a 1km buffer, and the Non-Designated Assets in Figure 3.4.2, are not sufficient. The setting of designated heritage outside the 1km buffer is needed, especially as the setting of Richborough Castle Scheduled Monument has been highlighted. The scheme is set on low levels that are overlooked from both sides of the former Wantsum Channel.

The County Council considers that the limitations of the study area for the non-designated heritage will not provide a thorough enough understanding of the rich archaeological heritage of this area and the context for the heritage assets within the scheme. A wider understanding of the rich and unique archaeological heritage of the Isle of Thanet is needed and a study should be made of major archaeological works that have been undertaken on the island. KCC would welcome a discussion to advise further on this matter. The 1km buffer would provide an adequate study area for a detailed review of the non-designated heritage assets that can provide a more thorough understanding of the archaeological heritage and rich buried landscapes. KCC also notes the discussion of the study area in paragraph 3.4.7.3 and this needs to take account of the above comments.

3.4.4 Baseline Conditions

Heritage Conservation: KCC notes that the baseline described in paragraph 3.4.4 is limited by the boundary of the study area for the Scoping Report. Further baseline study needs to be thorough in examining aerial photographs, use of Light Detection and Ranging (LiDAR), analysis of investigation reports, including those which have not been added to the Historic Environment Record to date, and borehole records. This is particularly important within the area of the former marshlands where the modelling of the subsurface deposits is required to take place within the scheme area. The County Council advises early discussion with KCC with respect to available sources and the scope of the study.

3.4.7 Proposed Assessment Methodology

Heritage Conservation: The County Council supports the desk based assessment that will be prepared as a first step in the proposed assessment methodology and notes that KCC has generic specifications for a desk study that should be responded to.

KCC also welcomes the proposed walkover survey. It would be useful at an early stage for the County Council to visit the area with the Applicant's archaeologist. The walkover should be undertaken at an early stage and influence the final alignment, rather than checking it as set out in paragraph 3.4.7.5.

KCC have already provided some input into the scope of monitoring of geotechnical works and the results of this work and any modelling from it should be integrated into the study. Given the richness of the archaeological landscape, it is highly likely that further survey and evaluation, both intrusive and non-intrusive, will be needed to inform the assessment and identify significant heritage assists that may need to be taken account of in scheme design and layout. It will be important for continued dialogue to be maintained between the Applicant's archaeologists and the County Council throughout the study.

3.5 Water environment

Sustainable Urban Drainage Systems (SuDS): The County Council, as Lead Local Flood Authority, is pleased to note that this section details how the water environment assessment will be undertaken and notes that it will be supported by a Flood Risk Assessment (FRA) and Water Framework Directive (WFD) Screening Assessment.

Whilst KCC has no preference whether the Flood Risk Assessment forms part of an EIA or is a standalone document, the County Council would emphasise that the FRA should include a Surface Water Management Strategy to adequately demonstrate how surface water will be managed within the development.

In addition to the policies referenced in paragraph 3.5.5.4, the County Council would request that the following KCC policies are considered for designing a future surface water drainage scheme:

- Kent County Council's Drainage and Planning Policy Statement (2019) (Appendix A)
- Kent Design Guide Making it Happen - Appendix C2 Drainage Systems

The Drainage and Planning Policy Statement sets out how Kent County Council, as Lead Local Flood Authority and statutory consultee, will review drainage strategies and surface water management provisions associated with applications for major development. This document should be referred to for further details about the County Council's submission requirements.

Whilst further details of the drainage arrangements will be forthcoming within a future report, KCC would highlight that as of 10/05/2022, the Environment Agency's climate change allowances have been updated. As part of this update, revisions have been made to the *'Peak Rainfall Intensity Allowances'* that are used in applying climate change percentages to new drainage schemes. KCC would now expect all applications to adhere to this latest guidance and would draw attention to the following webpage for further information on the allowances and supporting allowances map.

3.6 Geology and Hydrogeology

Minerals and Waste: The County Council notes that the proposal would not significantly affect safeguarded land-won minerals in the Kent scoping area, however, there are some safeguarded Storm Beach (sand and gravel deposits) in the Minster area. There are safeguarded waste management facilities nearby, but none within the area detailed area of the scoping boundary.

Therefore, the land-won mineral safeguarding policies of the Kent Minerals and Waste Local Plan (KMWLP) (2013-30) will need to be addressed if any of the link structures would result in sterilisation of these deposits. Where the proposed development is coincident with safeguarded minerals, a Minerals Assessment will need to be undertaken if prior extraction is not possible or desirable. The Minerals Assessment will identify which exemption from the

presumption to safeguard the mineral resources is appropriate to invoke from Policy DM 7 of the KMWLP.

Waste Management: The County Council is pleased to note that reference has been made to the Cliffsend landfill, known as Pegwell Bay closed landfill site to KCC, in the Scoping Report, as the Kent Onshore Scheme looks to pass through or across this area. The County Council agrees with paragraph 3.6.6.6 which states that the potential for mobilisation of existing contamination shall be scoped in to the EIA. Detailed investigation and considered design will be required so that the potential risk from the closed landfill is managed and, where needed, mitigated as part of the project.

3.8 Traffic and Transport

Highways and Transportation: The County Council, as Local Highway Authority, is satisfied with the provisions that have been made to fully assess and manage the highway impacts of the proposal.

PRoW: The County Council is supportive of the PRoW detailed to be considered in paragraph 3.8.3.5. However, it is recommended that reference to the England Coast Path in this paragraph and in paragraph 3.8.4.16 is amended from '*Promoted Route'*. The England Coast Path is a National Trail of which there are only 16 in the country, and are considered to pass through some of the best landscapes in England and Wales.

Control and Management Measures

PRoW: The County Council welcomes the inclusion of PRoW within the Construction Traffic Management Plan and, if applicable, would advise temporary closures applied for at the earliest stage. KCC, as Local Highway Authority would also request engagement with the Applicant regarding timescales and the project schedule, to ensure user safety has priority.

Sources and Impacts (Step 1)

PRoW: KCC notes that construction traffic forecasts will be confirmed in the Environmental Statement and Transport Assessment in paragraph 3.8.2.11. KCC would highlight that PRoW must not be used as construction routes and that all routes affected by construction should be reinstated to an improved standard as mitigation.

In reference to Table 3.8.1, the County Council would agree that PRoW should be scoped in for construction impact, operation, maintenance and decommissioning purposes. Regarding Table 3.8.2, KCC supports the inclusion of PRoW for construction and decommissioning, but would recommend that reference is made to Restricted Byways as well as Footpaths and Bridleways, such as TE35 and TE36. The PRoW use is therefore pedestrian, equestrian, cyclist and non-mechanical vehicles. It is also noted that national or regional walking and cycling routes are also, in part, PRoW and should therefore be scoped in.

Proposed Assessment Methodology

PRoW: KCC recognises that paragraph 3.8.3.9 details potential traffic-related effects to be considered by other topics and notes that PRoW should be included in Noise, Air Quality, Socio-Recreation and Tourism.

Transport Assessment

PRoW: The County Council notes that the existing baseline conditions in the Transport Assessment in paragraph 3.8.3.19 must include Restricted Byways.

KCC would draw attention to paragraph 3.8.3.31 and would note that all PRoW Diversions or Closures must have the approval of the County Council. It is also recognised that the Institute for Environmental Management and Assessment (IEMA) guidelines state that the magnitude of each impact should be determined as the predicted deviation from the baseline conditions. KCC notes that user numbers are not necessarily the baseline, it is the protection of the public rights.

It is noted that Table 3.8.5 in the Scoping Report categorises the overall magnitude of effect of a PRoW diversion or closure, and KCC would emphasise that there should always be an alternative safe route provided.

In reference to Table 3.8.7, all PRoW benefits and amenities, including those to National or Regional routes, will be impacted during operation and this must be recognised within the Scoping Report. The mitigation of these impacts should therefore be included.

3.9 Air Quality

PRoW: The County Council would request the consideration of PRoW users in air quality, depending on the site layout and existing and temporary routes at all stages of construction and decommissioning.

3.10 Noise and Vibration

PRoW: KCC requests that the impact of the development on the PRoW network in respect of noise and vibration must be included regarding the construction, operation and decommissioning stages of the development.

The County Council must also be kept informed as to the works schedule to inform PRoW users of any impacts. A Communications Plan must be provided in the form of a webpage and social media outlets to both update public information and promote enhancements to routes provided by the project, as demonstrated with the Richborough Connection Project.

KCC notes that Table 3.10.11 of the Planning Practice Guidance for Noise (PPGN) noise exposure hierarchy should include PRoW users.

3.11 Socio-economics, Recreation & Tourism

Provision of County Council Community Infrastructure and Services: The County Council, as key infrastructure service provider, welcomes the inclusion of the St Augustine's Cross Memorial site and the Pegwell Bay Country Park as important visitor attractions and open space that may be impacted by this project.

However, the area considered for socio-economic impact needs to be wider than it is currently. KCC would request that additional high-value economic tourism assets are scoped in, as these may be impacted by the schedule of works, including road closures and noise. The impact on tourist visitor numbers to the area may be significant.

The County Council would request that additional leisure areas and attractions are considered for inclusion in the scoping exercise for the impact on tourism and economic development. These attractions stretch across the Districts of Dover and Thanet:

- Sandwich and Pegwell Bay
- Royal St George's Golf Course, Sandwich (home to the British Open) and neighbouring golf clubs
- The Viking Ship Hugin
- Minster Abbey and Minster village
- Ramsgate Royal Harbour
- Sandwich historical centre and Sandwich Quay
- Richborough Roman Fort and Amphitheatre

It is requested that the Sea Link landfall works causing the most disruption would not be scheduled during the summer months when tourism numbers in this part of Kent are at their highest.

PRoW: The County Council welcomes the consideration of PRoW regarding potentially significant socio-economic, recreation and tourism effects in paragraph 3.11.1.5, and in the Local Planning Policy Guidance mentioned in paragraph 3.11.2.8. KCC also welcomes the inclusion of the County Council's PRoW map to inform the baseline for recreational routes, and PRoW in paragraph 3.11.4.2.

In reference to paragraph 3.11.4.12. the listed recreational routes and PRoW that intersect the study area should also include Restricted Byways.

The County Council is supportive of PRoW being scoped in for construction, operational, maintenance and decommissioning impacts, with all matters to be approved by KCC. The County Council agrees with the 500m radius mentioned for PRoW in Table 3.11.2 of the impact pathways, and also in Table 3.11.3 of the proposed scope of the assessment, which includes both a 500m and 1km radius.

Country Parks: Pegwell Bay Country Park is a public park and community asset that provides many recreation and leisure opportunities. The site is well managed with its large wildlife population, varied habitats and daily customers to the park, and is a former landfill

site. As the Applicant's preference is for a landfall area in Pegwell Bay (Option K1), the County Council considers that there will be significant noise and amenity impacts to the Country Park from the project, which should be scoped into the EIA. There would be considerable disruption to the accessibility of the site during construction, with the Applicant likely to seek access for works through and across the Country Park car park, coastal path and internal paths of the site. KCC notes that the paths are not suitable for vehicles and works undertaken to widen and surface the paths would impact the habitats of the site and affect user safety. It would also be more difficult to promote the park as fully accessible to all, particularly those using pushchairs, people with disabilities and young families.

The project will also impact the business during construction and post construction and without the appropriate mitigation at these stages, there may be a negative impact on the visitor numbers. This could result in reduced income from parking, and from the licence fee as a result of the catering, as the business could potentially experience falling sales. The County Council seeks to work with the Applicant to minimise the impact on users of the Country Park. Another possible consequence is the displacement of visitors to surrounding and more sensitive areas of habitat and landscape.

The County Council would also draw attention to the impact of the Nemo Link Project on the Pegwell Bay Country Park. This project had a highly disruptive construction process, which resulted in a chalk berm that significantly changed the sites topography and accessibility and negatively affected visitor satisfaction levels, as noted within the Local Impact Report for the Thanet Windfarm Extension DCO (PINS Reference EN010084). Limited communication and information was shared with Country Park Rangers regarding closures and temporary rerouting of internal access routes. The County Council would therefore welcome continued engagement with the Applicant as the development progresses. The introduction of another cable to Pegwell Bay Country Park, possibly crossing the Nemo Link structure, could considerably impact the ability to graze and manage the site for wildlife and landscape.

3.12 Health and Wellbeing

PRoW: The County Council welcomes the inclusion of PRoW in paragraph 3.12.6.4, and in Tables 3.12.1 and 3.12.3. However, there should not be reference to the *'permanent'* closure of PRoW, as KCC would not agree to extinguishments or severance.

Volume 1 Main Text - Part 4 Offshore Scheme

4.7 Marine Archaeology

Heritage Conservation: The lead consultee with respect to the impact of the scheme on marine heritage will be with Historic England. The County Council will have a particular interest in the landfall area at Pegwell Bay (Option K1) where heritage assets are recorded within the intertidal areas, both buried within marine alluvials and as structures and wrecks / hulks. KCC draws attention to recent work by the Coastal and Intertidal Zone Archaeological Network (Citizan) Project that has focused on this area and is a useful source for information that may not yet be on the Kent Historic Environment Record.

KCC notes that Chapter 7 covers Marine Archaeology and heritage receptors are illustrated in Figure 4.7.1. The figure records only those features from the National Marine Heritage Record (NMHR) and UK Hydrographic Office (UKHO) data sources. The County Council recognises that in paragraph 4.7.4.21, the Scoping Report notes that there are no records on the Kent Historic Environment Record in or close to the study area. The intertidal areas will form part of the Kent Onshore assessment and will hopefully pick up heritage assets noted by Citizan and others that may not be on the Historic Environment Record. This information will inform the potential impacts in areas of Pegwell Bay below the low water mark. The County Council is supportive of paragraph 4.7.5.8, which notes that the intertidal area will be walked as part of the assessment.

The County Council welcomes the review of the geophysical and geotechnical survey data that will be undertaken for the purpose of the assessment. It would be useful for the marine archaeologists and geoarchaeologists working on the assessment to provide input into the scope and design of such surveys so optimum data can be acquired. KCC advises that there should be close liaison between geoarchaeologists and geotechnical specialists in scoping, taking, extracting and assessing bore hole samples.

KCC supports the proposed assessment methodology set out in paragraphs 4.7.7.2 to 4.7.7.8 that will identify heritage assets and their significance. Historic England will lead on considering the significance of marine heritage and the scope of assessment; however, the County Council welcomes the proposed scope in Table 4.7.9.

Volume 3 Figures

PRoW: The County Council is pleased to note that the Scoping Report shows the PRoW network, the England Coast Path National Trail and countywide Promoted Routes.

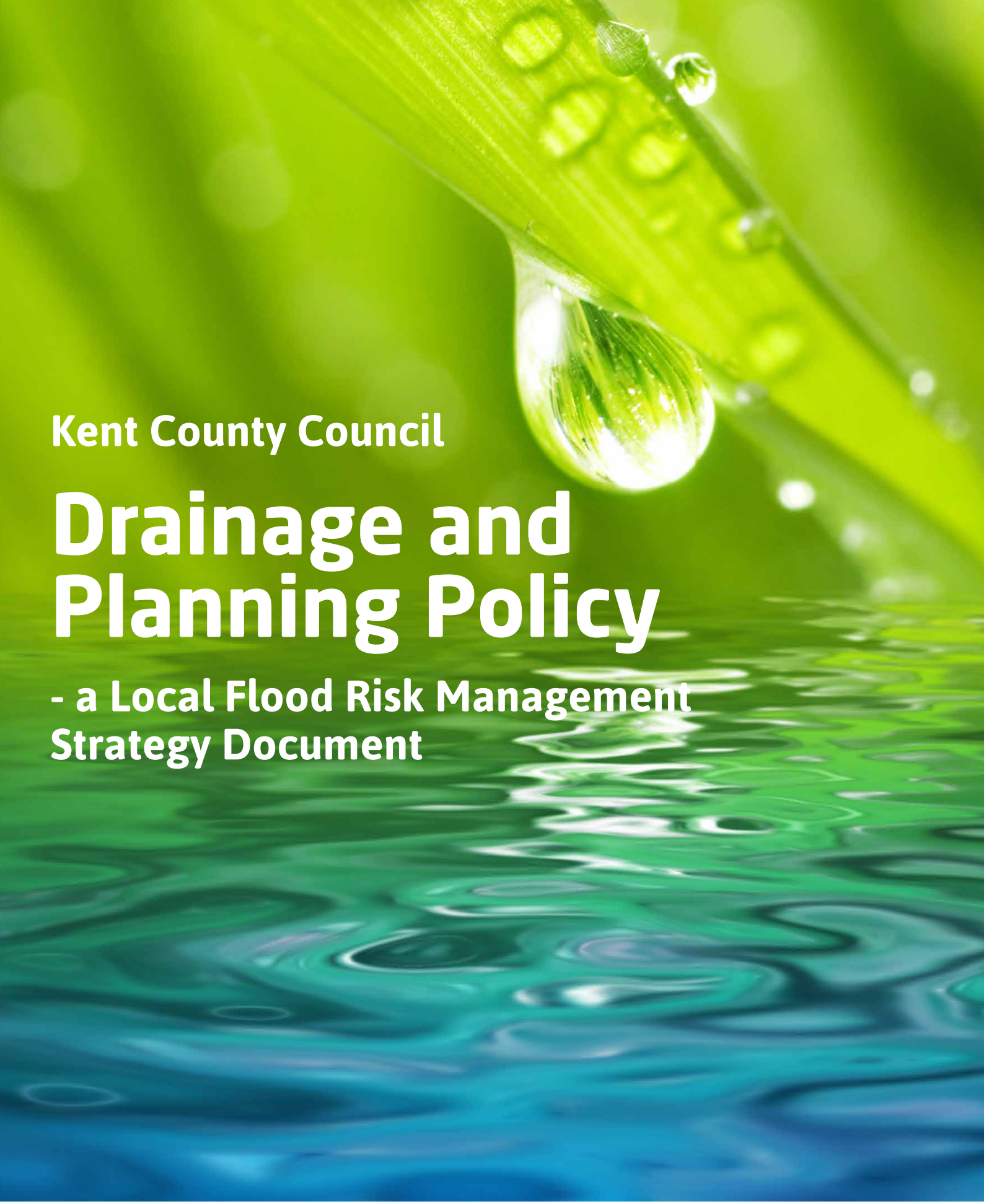
KCC would welcome continued engagement as this proposal progresses. If you require any further information or clarification on any matters raised above, please do not hesitate to contact me.

Yours sincerely,

[redacted]

Director for Growth and Communities

Encs:
Appendix A: Kent County Council Drainage and Planning Policy Statement



Kent County Council

Drainage and Planning Policy

- a Local Flood Risk Management Strategy Document

December 2019

Kent County Council
kent.gov.uk

Table of contents

1 Role of this Policy 3

2 Introduction 5

2.1 Background 5
2.2 Legislative Framework 6
2.3 Sustainable Drainage in Planning 7
2.4 Design Strategies 7
2.5 Strategic Consultation 7

3 Planning policy and guidance for drainage 8

3.1 NPPF 8
3.2 Water Environment Regulations 2003 9
3.3 Habitats Regulation 2017 10
3.4 Defra's 25-Year Environment Plan 10
3.5 Non-statutory technical standards for sustainable drainage 10
3.6 Local Authority Guidance 11

3.6.1 Local Plans and Neighbourhood Plans 11
3.6.2 Supplementary planning documents 11
3.6.3 Strategic Flood Risk Assessments (SFRA) 11

3.7 Kent County Council Guidance 12

3.7.1 Water. People. Places – a guide for master planning sustainable drainage into developments 11
3.7.2 Kent Design Guide Technical Appendices: Making It Happen 11
3.7.3 Land Drainage Policy 11
3.7.4 Surface Water Management Plans 11
3.7.5 Kent Environment Strategy 12

3.8 Other Guidance & Tools 13

3.8.1 CIRIA SuDS Manual (C753), 2015 13
3.8.2 Building Regulations 13
3.8.3 BS 8582:2013 Code of practice for surface water management for development sites 13
3.8.4 UK Sustainable Drainage Guidance 14
3.8.5 Long Term Flood Risk Information 14

4 Drainage Consultation 15

4.1 Introduction 15

4.2 Consultation Process 16

4.2.1 Overview 16
4.2.2 Pre-application Advice 16
4.2.3 Planning application submission 17

4.3 Consultation Submission Requirements 18

4.3.1 Introduction 18
4.3.2 Large scale development 20
4.3.3 Consultation for minor and low risk development 21

4.3.4 Easements and way leaves 21
4.3.5 Maintenance and verification 21
4.4 Adoptable highways and drainage 23

5 Policies for Sustainable Drainage 23

5.1 Introduction 23
5.2 Drainage policies 24
5.2.1 SuDS Policy 1: Follow the drainage hierarchy 24
5.2.2 SuDS 2: Deliver effective drainage design 27
5.2.3 SuDS Policy 3: Maintain Existing Drainage Flow Paths & Watercourses 31
5.2.4 SuDS Policy 4: Seek to Reduce and Avoid Existing Flood Risk 33
5.2.5 SuDS Policy 5: Drainage Sustainability and Resilience 35
5.2.6 SuDS Policy 6: Sustainable Maintenance 37
5.2.7 SuDS Policy 7: Safeguard Water Quality 39
5.2.8 SuDS Policy 8: Design for Amenity and Multi-Functionality 41
5.2.9 SuDS Policy 9: Enhance Biodiversity 43

Glossary 45
Appendix A. National Planning Policy Framework (Extract) 48
Appendix B. Non-Statutory Technical Standards for Sustainable Drainage 50
Appendix C. Drainage Strategy Summary Form 51
Appendix D: Drainage Asset Record Sheet for Verification Report 54

Date	Revisions details
October 2016	Clarification on technical matters; submission summary form.; pre-application advice; post-construction verification reports; standard advice.
June 2017	Further clarification of technical matters and amendments to general wording including revised M5-60, 50% reduction for brownfield sites, runoff control per soil type, discharge to highway systems, off-site drainage improvements and developer contributions.
November 2019	Clarification of drainage submission requirements and revised drainage policies to reflect latest changes in NPPF and include the requirements for a verification report and any changes as a result of consultation.

The overall policy will be assessed biennially and reviewed when National policy or other relevant policy changes occur.

1 Role of this Policy

This policy sets out how Kent County Council (KCC), as Lead Local Flood Authority (LLFA) and statutory consultee, will review drainage strategies and surface water management provisions associated with applications for major development. It is consistent with the Non-Statutory Technical Standards for Sustainable Drainage (as published by Defra in March 2015) and sets out the policy requirements KCC has for sustainable drainage. It should be read in conjunction with any other policies that promote sustainable drainage, specifically:

- the National Planning Policy Framework and,
- any specific policy set out by the relevant Local Planning Authority

This policy is also supported by KCC guidance and policy provided in:

- Kent Design Guide Technical appendices ('Making It Happen') 2019;
- Water. People. Places - a guide for Masterplanning sustainable drainage in developments;
- KCC Land Drainage Policy

The aim of this policy document is to clarify and reinforce these requirements. It also includes references to other design considerations which impact sustainable drainage design and delivery.

This policy should be used by:

- developers when considering their approach to the development of new sites or redevelopment of brownfield sites;
- developers or their consultants when preparing submissions to support a planning application for major development;
- professionals involved in developing drainage schemes including engineering and urban and landscape professionals;
- development management officers when considering development applications,
- Local Authorities when developing local planning and land-use policy.

With this current update, we seek to ensure that multifunctionality of open space is now emphasised within development master planning. This provides an opportunity for Kent to look to wider benefits of sustainable drainage and strengthen policies for the delivery of drainage systems which are fully sustainable, thus providing quantity control, quality improvement, biodiversity enhancement and amenity. Changes to the National Planning Policy Framework (NPPF) in 2019 and Defra's 25-Year Environmental Plan[1] promote a robust approach to sustainable development.

[1]25-year Environment Plan, published January 2018 on www.gov.uk/government/publications/25-year-environment-plan

2 Introduction

2.1 Background

KCC was made a LLFA for Kent by the Flood and Water Management Act 2010 (the Act). As LLFA, KCC has a strategic overview of 'local flooding'. Local flooding is defined by the Act as flooding which is caused by:

- Surface water,
- Groundwater,
- Ordinary Watercourses

The management of surface water within new development is a key factor in managing local flooding.

Since commencement of the Act in 2010, the Government has assessed various means of promoting sustainable drainage systems. In April 2015, LLFAs were made statutory consultees in planning for surface water. Our understanding of local drainage and local flood risk presents a strong platform from which to provide advice and guidance to Local Planning Authorities on the management of surface water.

In undertaking this role KCC coordinates with the 12 local authorities as well as Kent's own planning department and the Ebbsfleet Development Corporation. Where appropriate we will also liaise with other relevant flood risk management authorities, such as the Environment Agency, sewerage undertakers and the county's Internal Drainage Boards (IDB).

2.2 Legislative Framework

As a LLFA within Kent, KCC is required under Article 18 of the Town and Country Planning (Development Management Procedure) (England) Order 2015 ('the Development Management Procedure Order') to provide consultation response on the surface water drainage provisions associated with major development.

Major development is defined within the Development Management Procedure Order as development that involves any one or more of the following:

(a) the winning and working of minerals or the use of land for mineral-working deposits;
(b) waste development;
(c) the provision of dwelling houses where:
    (i) the number of dwelling houses to be provided is 10 or more; or
    (ii) the development is to be carried out on a site having an area of 0.5 hectares or more and it is not known whether the development falls within sub-paragraph (c)(i);
(d) the provision of a building or buildings where the floor space to be created by the development is 1,000 square metres or more; or
(e) development carried out on a site having an area of 1 hectare or more.

As a statutory consultee, KCC must provide a substantive response within 21 days of consultation (Article 22 of the Development Management Procedure Order). A substantive response is one which:

(a) states that the consultee has no comment to make;
(b) states that, on the basis of the information available, the consultee is content with the development proposed;
(c) refers the consultor to current standing advice by the consultee on the subject of the consultation; or
(d) provides advice to the consultor.

The Planning and Compulsory Purchase Act 2004 describes the duty to respond as a consultee, including the duty to report to the Secretary of State on compliance with the provision of substantive responses.

The Town and Country Planning (General Development Procedure Amendment No. 2, England) Order 2006 introduces the concept of Critical Drainage Areas as *"an area within Flood Zone 1 which has critical drainage problems and which has been notified [to] the local planning authority by the Environment Agency".* However, no Critical Drainage Areas have yet been defined within Kent and will not require further consultation.

2.3 Sustainable Drainage in Planning

Sustainable drainage systems are designed to control surface water as close to its source as possible. Wherever possible they should also aim to closely mimic the natural, pre-development drainage across a site. A well-designed sustainable drainage approach also provides opportunities to:

- reduce the causes and impacts of flooding;
- remove pollutants from urban run-off at source;
- combine water management with green space with benefits for amenity, recreation and wildlife.

The purpose of the planning system is to contribute to the achievement of sustainable development and deliver the requirements of the National Planning Policy Framework (NPPF). The use of sustainable drainage systems helps to achieve the sustainability objectives of the NPPF.

2.4 Design Strategies

Development has the potential to change surface water and ground water flows, depending upon how the surface water is managed within the development proposed. Planning applications for major development should therefore be accompanied by a site-specific drainage strategy that demonstrates that the drainage scheme proposed is in compliance with KCC's sustainable drainage policies, as outlined within this document.

The drainage strategy must also demonstrate that the proposed surface water management proposal is consistent and integrated with any other appropriate planning policy and flood risk management measures that are required.

2.5 Strategic Consultation

As a LLFA, KCC has a consultation role in relation to the preparation of local plans, neighbourhood plans, strategic flood risk assessments and other planning instruments produced by Local Planning Authorities[2].

KCC will provide advice and guidance on local flood risks and appropriate policy for any area upon request.

KCC will also provide information to individuals and other organisations with respect to drainage and local flood risk for use in the preparation of other relevant planning documents upon request.

---

[2] National Planning Policy Guidance, Flood Risk and Coastal Change, paragraph 2.

3 Planning policy and guidance for drainage

This section sets out the sources of planning policy relevant to the management of surface water. These policies will form the basis of KCCs assessment of any submitted drainage strategy. The drainage strategy will need to demonstrate how the development meets these requirements.

3.1 NPPF

The National Planning Policy Framework (NPPF) was published on 27 March 2012 with further revisions in 2019; it sets out the Government's planning policies for England and outlines how these are expected to be applied. Planning law requires that applications for planning permission must be determined in accordance with the relevant Local Planning Authority's development plan, following public consultation and with due regard for other material considerations.

The NPPF is a material consideration in the determination of planning applications. At the heart of the NPPF is a presumption in favour of sustainable development, excepting where adverse impacts significantly outweigh the benefits (or where specific policies indicate that development should be restricted). Flooding and drainage may also be considered material considerations in the determination of planning applications as their management contributes to sustainable development.

Paragraphs 155, 157, 163, 165 and 170 of the NPPF (Appendix A) have particular relevance to flooding and drainage. These paragraphs include consideration for area of flood risk, incorporation of sustainable drainage systems, taking account of advice from LLFA, operational standards, maintenance requirements and multifunctionality.

The NPPF is supported by the **Planning Practice Guidance**[3] which provides further advice on how planning can take account of the risks associated with flooding in plan-making and the application process.

3.2 Water Environment Regulations 2003

The Water Environment Regulations 2003 make provision for the purpose of implementing in river basin districts the Water Framework Directive (Directive 2000/60/EC of the European Parliament) which established a framework for Community action in the field of water policy. These regulations will remain in place until such time that UK law is revised to reflect changes in EU membership. These Regulations require a new strategic planning process to be established for the purposes of managing, protecting and improving the quality of water resources[4].

Therefore, this provides an opportunity to plan and deliver a better water environment, focusing on ecology. The WFD aimed for the water environment to reach 'good' chemical and ecological status in inland and coastal waters by 2015. Planning and programmes are continuing in six year cycles until 2027.

The WFD drives water quality improvement planning along total river catchment areas, with the production of River Basin Management Plans. The directive puts a duty on public bodies to have regard to river basin management plans (and associated supplementary plans) when exercising their functions where it may affect a river basin district.

Controlling water is inherent in the WFD's objectives, as uncontrolled surface flow or flooding can cause unmanageable water quality problems. Sustainable drainage principles are key to meeting the objectives of the WFD in its continuing cycles.

3.3 Habitats Regulation 2017

The Conservation of Habitats and Species Regulations 2017 consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive[5]), into national law. They also transpose elements of the EU Wild Birds Directive in England and Wales.

The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.

Under the Regulations, competent authorities i.e. any Minister, government department, public body, or person holding public office, have a general duty, in the exercise of any of their functions, to have regard to the EC Habitats Directive and Wild Birds Directive.

The sites where habitats and species are legally protected due to their exceptional importance are known as Natura 2000 sites; this network protects rare, endangered or vulnerable habitats and species. The Natura 2000 network includes Special Areas of Conservation (SACs, identified under the Habitats Directive), Special Protection Areas (SPAs, identified under the Birds Directive) and Ramsar sites (wetlands of international importance designated under the Ramsar Convention). All Natura 2000, or 'European', sites are also classified as Sites of Special Scientific Interest (SSSIs) but not all SSSIs are Natura 2000 sites.

---

[3] The Planning Practice Guidance is a web-based resources which can be accessed from the Planning Portal at: http://planningguidance.planningportal.gov.uk/?s=Drainage&post_type=guidance

[4] This framework became UK law in December 2003

[5] More information on the Habitats Directive can be found at: http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

3.4 Defra's 25-Year Environment Plan

The 25 Year Environment Plan was published in January 2018; it sets out government action to tackle the growing problems we face in the environment and aims to deliver cleaner air and water in our cities and rural landscapes, protect threatened species, reduce risk of environmental hazards and promote sustainable development.

The plan is supported by the concept of natural capital, meaning it places value on natural assets, which includes geology, soils, water and all living organisms. Specific components of the Environment Plan are introduced in current updates of the NPPF.

The Environment Plan will need to be underpinned by law and enforced by a new legal framework for the environment to replace the system the EU currently provides. It is beneficial to be aware of the changes in legislation and policy indicated in this plan as it provides government direction to sustainable development.

3.5 Non-statutory technical standards for sustainable drainage

To support the LLFAs statutory consultee role, Defra published the 'Non-Statutory Technical Standards for Sustainable Drainage Systems' on 23 March 2015. These standards provide advice and guidance for the design, maintenance and operation of sustainable drainage systems[6].

Further guidance on the application of the Non-Statutory Technical Standards will be provided by Defra and associated stakeholders.

A summary of the requirements of these non-statutory standards in provided in Appendix B. The policies in this policy are consistent with the Non-Statutory Technical Standards.

3.6 Local Authority Guidance

Local Planning Authorities are ultimately responsible for determining planning applications and have numerous planning and policy documents to support the delivery of sustainable development within their districts.

3.6.1 Local Plans and Neighbourhood Plans

National planning policy places Local Plans at the heart of the planning system. Local Plans set out a vision and a framework for future development of the area. Local Plans should be based upon and reflect the presumption in favour of sustainable development. They should also address housing provision, the economy, community infrastructure and environmental issues such as adapting to climate change and ensuring high quality design.

The management of flood risk and surface water can be dealt with through policies for sustainable construction, flood risk, open space, landscape character and green infrastructure. These policies may be supported by further Supplementary Planning Documents or guidance notes.

Neighbourhood planning is a right for communities introduced through the Localism Act 2011. Parish Councils and Neighbourhood Forums (where there is no Parish Council) and their communities can shape development in their areas through the production of Neighbourhood Development Plans. These plans become part of the Local Plan and the policies contained within them are then used in the determination of planning applications.

Any drainage strategy should make reference to relevant Local Plan and Neighbourhood Plan policies. It may also have to provide evidence which supports delivery of biodiversity, amenity and other benefits.

3.6.2 Supplementary planning documents

Some local authorities in Kent have specific drainage guidance, policies and standards for development within their district areas, which may include specific surface water discharge rates. Other local authorities may introduce similar guidance. These documents provide substantive guidance on how drainage should be delivered.

3.6.3 Strategic Flood Risk Assessments (SFRA)

Strategic Flood Risk Assessments are required to inform the development of Local Plans, as stated within the NPPF. A SFRA assesses the risk to an area from flooding from all sources, taking into account the effects of predicted climate change. They should also assess the impact that land use changes and development will have on flood risk within the district in question. Each Local Planning Authority in Kent has prepared and referenced a SFRA within their planning documents. These documents provide key information on the potential sources and magnitude of flooding and may provide information for specific site allocations.

---

[6] The Non-statutory Technical Standards are published at: https://www.gov.uk/government/publications/sustainable-drainage-systems-non-statutory-technical-standards

3.7 Kent County Council Guidance

The Local Flood Risk Management Strategy (the Local Strategy) for Kent sets out a countywide strategy for managing the risks from local flooding. One of the five objectives set out in the Local Strategy specifically states the importance of 'ensuring that development in Kent takes account of flood risk issues and plans to effectively manage any impacts'.

To support delivery of this objective, KCC has developed guidance to define the approach to planning and design of drainage. When considering surface water drainage within new developments in Kent, it is therefore recommended that reference is made to specific guidance and wider information available:

3.7.1 Water. People. Places – a guide for masterplanning sustainable drainage into developments

This guidance outlines the process for integrating sustainable drainage systems into the masterplanning of large and small developments[7]. This guidance should be used as part of the initial planning and design process for all types of development, with specific reference made to the relevant development typologies.

3.7.2 Kent Design Guide Technical Appendices: Making It Happen

The Kent Design Guide was produced to ensure that all new development results in vibrant, safe, attractive, liveable places. 'Making It Happen' comprises technical appendices that provide advice and guidance on the design and construction of drainage systems which KCC may be adopting.

The sustainability chapter (drainage systems) has been revised in May 2019 and contains specific technical guidance for drainage design.

3.7.3 Land Drainage Policy

KCC has powers under Section 23 of the Land Drainage Act 1991 to consent works in an ordinary watercourse and to enforce the removal of unconsented works.

Land Drainage regulations are generally concerned with the physical condition of watercourses, including whether they are blocked or how they are modified, including the introduction of new structures to them. This policy sets out how Kent County Council exercises these land drainage functions.

3.7.4 Surface Water Management Plans

Surface Water Management Plans (SWMPs) have been prepared by KCC (in partnership with other relevant stakeholders) to identify specific local actions to manage local flood risk. They have been undertaken in areas which were identified as a potential risk from local flooding in the Preliminary Flood Risk Assessment. These studies may provide a greater understanding of the current flood risk. Any proposed development should include consideration of any findings and recommendations of the relevant SWMP for the area. The areas covered by SWMPs are regularly being updated and can be found on the KCC website[8].

3.7.5 Kent Environment Strategy

As part of a county wide partnership, KCC has produced a Kent Environment Strategy– A strategy for environment, health and economy (KES) setting out how Kent and their partners propose to address significant opportunities and challenges from environmental change and development pressures (such as a need for improved air and water quality, decline in biodiversity and the impacts of climate change)[9]. It is accompanied by an implementation plan and includes partnership actions that will deliver against the priorities set out in the strategy. KCC adopted the strategy in January 2016 and has invited the District Councils to also adopt it to provide a basis for co-ordinated action.

The KES recognises that the environment is a key part of the infrastructure supporting the Kent economy. The strategy aims to make the most of environmental opportunities whilst addressing challenges arising from development pressures, need for improved air and water quality, decline in biodiversity and the effects of climate change.

3.8 Other Guidance & Tools

In approaching or reviewing design, technical aspects may need clarification and specification in order to satisfy KCC that it meets the required standard. KCC will make reference to good practice presented within the following documents, and would recommend that any designer also refers to:

3.8.1 CIRIA SuDS Manual (C753), 2015

This guidance document provides comprehensive information on the all aspects of the life cycle of sustainable drainage from initial planning, design through to construction and management including landscaping, waste management and costs.

3.8.2 Building Regulations

Building Regulations exist to ensure the health, safety, welfare and convenience of people in an around buildings. Part H of the Building Regulations specifically covers drainage. The consultation with the LLFA addresses flood risk to and from developments and does not replace any requirement for Building Regulation approval.

3.8.3 BS 8582:2013 Code of practice for surface water management for development sites

The British Standard gives recommendation on the planning, design, construction and maintenance of surface water management systems for new development and redevelopment sites in minimizing and/or mitigating flooding and maximizing the social and environmental benefits.

---

[7] The document can be found at: www.kent.gov.uk/waste-planning-and-land/flooding-and-drainage/sustainable-drainage-systems

[8] SWMPs can be found at: www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/flooding-and-drainage-policies/surface-water-management-plans

[9] The Strategy can be found at: http://www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/environmental-policies/kent-environment-strategy

3.8.4 UK Sustainable Drainage Guidance

The UK SuDS Tools website which provides estimation tools for the design and evaluation of surface water management systems. The website has been developed and is supported by HR Wallingford. The web site can be accessed at: https://www.uksuds.com/ .The website provides estimations for greenfield runoff, storage analysis and other tools.

3.8.5 Long Term Flood Risk Information

In 2013 the Environment Agency, working with LLFAs, produced the Long Term Flood Risk map, which depicts the risk associated with surface water flooding. The Risk of Flooding from Surface Water maps show flooding scenarios as a result of rainfall with the following chance of occurring in any given year (annual probability of flooding is shown in brackets): 1 in 30 (3.3%), 1 in 100 (1%), and 1 in 1000 (0.1%).

The Risk of Flooding from Surface Water map is published on the Gov.UK website on the "Long Term Flood Risk Information". This mapping is key to assessing overland flow routes and to identifying any locations at high risk of surface water flooding.

4 Drainage Consultation

4.1 Introduction

A drainage strategy should be submitted to the relevant Local Planning Authority along with any planning application for major development. It may either form part of a wider Flood Risk Assessment, or it can be submitted as a separate and dedicated standalone document.

Whilst consultation is not undertaken with KCC for minor development, applicants should be aware that the NPPF priorities for sustainable drainage do apply to all development, irrespective of scale (NPPF, Paragraph 163). Developers of sites for minor development are encouraged to consider the policies outlined in this document, as well as any local specific policy with respect to site drainage design. Applicants for these smaller developments are directed to guidance and standing advice on best practice to help minimise flood risk.

It is important that any consultation request we receive reflects the level of risk to a site (or the risk that may result from its development). Consequently, consultation may also occur for development, other than major development in areas of higher local flood risk, as described in Section 4.3.

Consultation on flood risk will also occur with other risk management authorities. For example, the management of tidal and fluvial flood risk and the prevention of inappropriate development in the associated flood-plain remains the responsibility of the Environment Agency. The Environment Agency is also responsible for the management of permitting regulations which may affect discharge to water bodies or the ground. Similarly, if any drainage scheme requires connection to a public sewer, additional approval will be required from the appropriate sewerage undertaker.

Within Flood Zones 2 or 3 (areas of medium/high tidal or fluvial flood risk), a Drainage Strategy should be a component of a wider Flood Risk Assessment and should outline how the management of runoff will not exacerbate the existing flood risk to/from the development proposed.

A Flood Risk Assessment should also be submitted with any application for planning permission on sites in excess of 1 ha in Flood Zone 1 (low flood risk); in these instances the Flood Risk Assessment/Drainage Strategy should be primarily concerned with the management of surface water within the proposed development site.

Other third parties, including but not limited to the Environment Agency, IDB, The Highways Authority, the Sewerage Undertaker and adjacent landowners, could have an effect on the design of a drainage system. Consultation with relevant third parties is essential early in the design process. This information should be provided as part of the consultation process.

4.2 Consultation Process

4.2.1 Overview

Consultation with KCC will occur through the planning process. KCC will be notified of the submission of a major planning application by the Local Planning Authorities within Kent (as defined in Section 2.5).

A substantive response to the LPA is legally required from KCC within 21 days of consultation.

4.2.2 Pre-application Advice

Incorporating appropriate drainage is easier and more sustainable if it is planned and designed in from the start of a development. KCC encourages pre-planning consultation to ensure that the issues are appropriately addressed at an early stage.

Pre-planning advice from KCC can provide the following benefits:

- background information to identify constraints and matters in relation to flood risk and drainage pertinent to the application;
- an indication of whether a proposal would be acceptable in principle, saving time and cost within the planning process;
- reduced time to prepare the proposal;
- provides clarification of the guidance and policies that will be applied to the development proposal;
- identifies whether specialist input is required; and,
- identification and engagement of other key stakeholders.

KCC's pre-application planning advice in relation to new development is discretionary and is provided as a chargeable service. Details and forms for pre-application advice is found on kent.gov.uk. Standing advice for specific development scenarios and types is also available on Kent's website[10].

We provide free advice to:

- individual homeowners who have specific drainage or flood related issues which may impact their own house for development; and,
- Parish councils, Local community groups, or Flood Forums on works proposed to improve local communities.

4.2.3 Planning application submission

The Local Planning Authority will confirm that a Drainage Strategy has been submitted with the planning application and pass it to KCC for consultation. KCC will review the submitted material for adequacy and, depending upon the submission, may request further information. This will be communicated to the applicant via the Local Planning Authority.

The drainage strategy submitted to support a planning application must reflect the development proposal (including site area, type of development, general arrangement and layout).

All elements of the proposed drainage strategy should be within the defined planning and development application boundary as defined by the development's "red-line" boundary. This ensures that planning approval and any subsequent conditions will apply to the entirety of the drainage measures. It would not be acceptable to have any drainage measures, most notably attenuation basins or soakaways outside of the planning application site boundary unless secured by other planning conditions, approvals or agreements.

In reviewing a drainage application, KCC will, in the first instance, confirm compliance with this policy, national planning policy (as defined in the NPPF), and compliance with the Non-Statutory Technical Standards. Local planning requirements (as set out in Local Plans or other local planning documents) and other site-specific land-use factors that affect surface water management will also be referenced, where appropriate. Additionally, KCC will consider adherence to wider environmental principles of the NPPF that may have a bearing on drainage design (for example, water quality, biodiversity and amenity).

A consultation response will be prepared and returned to the Local Planning Authority within the required 21 days following receipt of a suitably detailed submission. The consultation response may result in a request for further information or for planning conditions for subsequent determination.

---

[10] www.kent.gov.uk/waste-planning-and-land/flooding-and-drainage/sustainable-drainage-systems#tab-3

4.3 Consultation Submission Requirements

4.3.1 Introduction

Detailed information will be required to demonstrate that a drainage design is appropriate and will operate effectively. This information may be required for all drainage measures, including (but not limited to) pipe networks, attenuation features, ponds, soakaways and control structures.

Key design information must be evidenced and assessed. Key information which may be needed to demonstrate the feasibility or applicability of a design philosophy includes:

- existing discharge rates and post development discharge rates;
- ground investigation information, groundwater levels and infiltration rates;
- condition and connectivity surveys of receiving watercourses and sewers;
- ground level and topographical survey;
- deliverability of discharge destination and right to connect.

Detail of this technical information is provided in Chapter 6 of Making it Happen C2: Sustainable Drainage Systems. The lack of detailed technical information may increase the level of uncertainty we may have about the effectiveness of a drainage strategy. If the degree of uncertainty is great, this is that the proposal cannot clearly demonstrate a functioning system in line with requirements, then KCC will have grounds to object to the drainage proposal or may delay return of a substantive comment to the planning authority.

We therefore encourage pre-application discussion to identity any areas which may need further investigation or clarification to reduce any uncertainty with respect to the functioning of the system.

The detail provided in the submission will reflect the type of planning application submitted, whether 'outline' (Surface Water Management Strategy) or 'full' (Detailed Drainage Strategy) or discharge of condition (detailed design). The submission requirements are provided in Table 1 and are read as minimum requirements. It is expected that later stages of planning submissions will provide greater detail (such as estimates of storage vs modelled network calculations).

KCC recommends the inclusion of a summary sheet which contains pertinent information to assist in ensuring sufficient detail is submitted and to simplify the review process. A Drainage Strategy Summary Form is included in Appendix C.

We recommend that applicants confirm the submission requirements through pre-application discussion with KCC, particularly to identify any needs for ground investigation.

Table 1- Submission Requirements for stages of planning

Information required	Outline	Full	Reserved Matters	Discharge of Condition	Verification condition [11]
Identification of discharge destination					
Development information including location plan, site layout, and drainage schematic					
Surface water drainage strategy report or statement					
Calculation assumptions and results including impermeable areas, infiltration rates, network calculations and models					
Existing and proposed drainage arrangements			12		
Existing and proposed discharge rates					
Ground investigation reports/survey and soakage testing results					
Maintenance programs and access arrangements					13
As built drawings or tender construction drawings				14	
Exceedance plan [15]					
Catchment plans					
Water quality index					
Watercourse condition and connectivity					
Proposed detailed drainage network plans and cross-sections including cover and invert levels, locations of flow controls (Critical Drainage Assets)					
Attenuation device details including cross-sections					
Landscape Plan					
Discharge agreements, consents and/or evidence of third-party agreement for discharge to their system					
Phasing plan					
Identification or designation of maintaining authority/ organisation					

[11] specific requirement for confirmation of drainage. Please see section 4.3.5

[12] as required, where not already demonstrated in the original application
require greater design detail than previous planning stage Greatest amount of detail required

[13] Specific for each critical drainage asset

[14] Drawings of proposed construction

[15] includes conveyance, volume and depths

4.3.2 Large scale development

Surface water management strategies for large developments (with multiple phases) will require the submission of an overall drainage strategy at outline planning stage that provides the overall site drainage strategy and a framework for the delivery of the drainage in each phase of the site.

The Surface Water Management Strategy should set out the following for the whole site, and each phase:

- discharge destination(s);
- discharge rate and volume;
- catchment areas;
- estimated impermeable areas per phase and per catchment; and,
- phasing plan with timing of construction.

This Surface Water Management Strategy should act as an overall **drainage masterplan** for all phases of the development.

A Surface Water Management Strategy will be tied to a planning condition at the outline stage. Pre-application discussions are encouraged in the case of phased development to agree the level and detail of any strategic Surface Water Management Strategy and subsequent Detailed Drainage Strategies that will be required for each phase.

Depending upon the level of detail submitted at outline planning, it may be necessary to submit additional drainage information to accompany reserve matters associated with the layout to demonstrate that the Surface Water Management Strategy can be accommodated within the proposed layout.

Further details regarding the surface water management proposals for each phase of development should then be provided within a Detailed Drainage Strategy. Each phase must remain consistent with the overall site strategy and drainage masterplan.

Supporting information must be submitted to demonstrate that any variations can be accommodated within the site without exacerbating flood risk. The overall site Surface Water Management Strategy may be reviewed as different phases are delivered.

Large sites in close proximity or in one catchment are encouraged to cooperate or consult concurrently as there may be opportunities for combined solutions with mutual and greater benefit.

Any strategic drainage features that are required for the wider site's drainage strategy to function properly must be identified and delivered prior to the connection of the drainage from any phase or sub-phase. If a single site within a wider development (e.g. school or commercial site) is reliant upon the strategic drainage system, this must be clearly indicated within the phasing plan.

4.3.3 Consultation for minor and low risk development

Minor development will not normally be reviewed by KCC, unless specifically requested by the LPA due to local drainage concerns, existing or mapped surface water flood risk, or other matters identified by the LPA in relation to delivery of sustainable drainage.

In some instances, due to the size of the development or proposal, construction for drainage provision is not needed or substantial and therefore considered low risk. Low risk development for the purposes of consultation may be regarded, but not limited to:

- change of use[16];
- limited external building envelope alterations;
- or which results in less than 100 m^2 of additional impermeable area and which is not located in an area of existing flood risk or drainage problems.

4.3.4 Easements and way leaves

If any surface water flows off site and is required to cross third party land, then information must be submitted which demonstrates that the applicant has the ability to deliver the outfall from the site. This may require confirmation of agreement from a third-party landowner or confirmation of an agreed easement way leave.

4.3.5 Maintenance and verification

The design of any drainage system must take into consideration the construction, operation and maintenance requirements of both surface and subsurface components, allowing for any personnel, vehicle or machinery access required to undertake this work.

The continued operation of any drainage system is dependent upon ongoing maintenance, which may be undertaken by an adopting authority or management agent. Any drainage strategy must include details of the intended adopting authority or agent and specific details of appropriate and sufficient maintenance, and then be confirmed in the verification report.

Developers will be required to demonstrate that the drainage was constructed according to the approved plans through post-construction verification reports. These reports will also include maintenance and requirements specific to the drainage system constructed. Detailed drainage layouts will be required which also identify "critical drainage assets[17]".

---

[16] change of use where vulnerability is not increased

[17] KCC's definition of critical drainage assets would be those items of interest in relation to Section 21 (1A) of the Flood and Water Management Act (2010), namely any assets that are "likely to have a significant effect on a flood risk in its area" and could include items such as inlets, outlets, controls, attenuation structures etc... Further clarification can be provided by contacting KCC's Flood and Water Management team.

4.4 Adoptable highways and drainage

Most major development would normally include some aspect of highway construction or improvement, which may be adopted or require approval by KCC as the Highway Authority. The provision of drainage to adopted highways is normally subject to Section 38 or 278 Agreement, with approval and inspection by KCC as the Highway Authority.

Highway matters may be reviewed within the consultation by KCC as LLFA. KCC will endeavour to seek internal consultation on such matters; however, the detail provided within a planning submission may not be sufficient. The response from KCC as LLFA does not commit KCC as Highways Authority to any particular highways arrangement. The nature and extent of adoption should be confirmed with the Highways team at an appropriate time within the planning and design process.

Any review provided by KCC as LLFA within the planning process does not constitute a technical approval; however the LLFA's approval may be required prior to any further adoption by KCC as the Highways Authority.

5 Policies for Sustainable Drainage

5.1 Introduction

A range of sustainable drainage techniques may be utilised across a site to manage the surface water runoff from the planned development; the use of more than one technique will often be appropriate to achieve the objectives of sustainable development on any given site (notwithstanding situations which may still arise where a conventional solution may be the most appropriate).

Given the range of design options to provide a drainage solution, KCC has defined:

- **Drainage Policies (SuDS Policy 1 through 6) that set out the requirements for a drainage strategy to be compliant with the NPPF and guidance within the Non-Statutory Technical Standards for Sustainable Drainage.**
- **Environment Policies (SuDS Policy 7 through 9) that set out expectations to be considered within a drainage strategy in response to environmental legislation and guidance that KCC and the Local Planning Authorities have a duty to comply with.**

These policies, summarised in Table 2, reflect the requirements of the Local Flood Risk Management Strategy, Surface Water Management Plans and Local Planning Authority Local Plans. Sufficient information must be submitted to demonstrate that the drainage proposals comply with these policies.

Table 2: Kent County Council SuDS Policies

Policy	Summary
SuDS Policy 1	Follow the drainage hierarchy
SuDS Policy 2	Deliver effective drainage design
SuDS Policy 3	Maintain Existing Drainage Flow Paths & Watercourses
SuDS Policy 4	Seek to Reduce and Avoid Existing Flood Risk
SuDS Policy 5	Drainage sustainability and resilience
SuDS Policy 6	Sustainable Maintenance
SuDS Policy 7	Safeguard Water Quality
SuDS Policy 8	Design for Amenity and Multi-Functionality
SuDS Policy 9	Enhance Biodiversity

5.2 Drainage policies

These policies are specified from the NPPF and the guidance within the Non-Statutory Technical Standards for Sustainable Drainage, as published by Defra.

5.2.1 SuDS Policy 1: Follow the drainage hierarchy

Surface runoff not collected for use must be discharged according to the following discharge hierarchy:

- **to ground,**
- **to a surface water body,**
- **a surface water sewer, highway drain, or another drainage system, or**
- **to a combined sewer where there are absolutely no other options, and only where agreed in advance with the relevant sewage undertaker.**

The selection of a discharge point should be clearly demonstrated and evidenced.

When development occurs, the urbanisation process within a catchment affects the natural hydrology; if the destination of the water is altered this may result in:

- a reduced supply of rainfall to groundwater;
- an accelerated passage of flow to the receiving watercourses; and
- water directed away from existing receiving catchments.

In order to maintain the natural balance of the water cycle, the above discharge hierarchy must be adhered to. Where development results in changes in runoff destinations, the design must account for how the surface flows are managed and demonstrate it does not exacerbate off-site flood risk.

Any development application must follow the hierarchy and be accompanied by evidence as to why infiltration is not utilised. Technical information on the uses of infiltration is provided in Kent Design Making It Happen, including testing methodology and design criteria. Infiltration testing must assess infiltration rates appropriate to underlying ground conditions and may require consideration of both shallow and deep infiltration.

If infiltration is not feasible further information is required from appropriate authorities indicating the acceptability of a discharge location, discharge rate and consent to connect. This agreement may be with the relevant owner or responsible body including IDBs, highway authorities, sewerage undertakers, riparian owners, port authority, Environment Agency, Canals and River Trust and others.

Any connection or discharge must be compliant with regulations or guidance governing the operation of the existing drainage system (e.g. IDB by-laws or standard specifications for public sewers). Correspondence with the relevant owner or responsible body should be submitted to demonstrate agreement in principle to the discharge and connection point as early in the development planning process as possible.

If we are aware of a capacity issue or a sewer flooding issue that a sewer connection is likely to exacerbate, we will inform the Local Planning Authority and the sewerage undertaker. We may oppose any such proposal until it can be adequately demonstrated that the receiving authority has confirmed the acceptability of the intended rate of discharge.

Discharge to Ground

The drainage strategy may be constrained if the drainage discharges to the ground via infiltration in a source protection zone (specifically SPZ 1), area of low permeability or area with high groundwater. Consultation with the Environment Agency early in the planning process is recommended to identify any constraints or specific requirements in these areas, specifically in relation to groundwater contamination. We recommend reference to the EA's latest policy guidance on groundwater protection[18].

Discharge to Sewer

An existing connection to a sewer does not automatically set a precedent and it must be demonstrated why infiltration and/or a connection to a watercourse cannot be utilised. There is a presumption against any discharge of surface water to a foul sewer.

Combined sewer systems, which carry both foul and surface water, have limited capacity and are more likely to lead to foul flooding. In our commitment to ensuring development is sustainable, we will therefore seek to reduce surface water discharges to combined sewer systems.

We will encourage developers to look for available surface water systems within a radius of the proposed development before discharges to a combined sewer is agreed acceptable. For small developments surface water sewer connections should be assessed within 90m of the development site boundary. For larger development (over 100 units), a suitable distance for connection to a surface water sewer will be assessed at the time of planning, dependent upon the size and location of the development.

Where a surface water connection to an existing combined sewer is unavoidable, it must be undertaken in such a manner and at such a location to facilitate future separation of the surface water from that combined system.

---

[18] The Environment Agency's approach to groundwater protection, February 2018 or latest version as published. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692989/Envirnment-Agency-approach-to-groundwater-protection.pdf

Discharge to Highway Drains

KCC may consider surface water discharges into highway drainage sewers in the following circumstances:

a) the developer/property owner is prepared to upgrade the system where required to accommodate any increased flows; and,
b) there is a proven existing connection to the highway drainage systems.

Highway drainage connections should be raised in pre-application discussion with KCC to ensure there will be appropriate arrangements in place for highways and drainage adoption, where appropriate. Highways advice for planning applications is provided on the County's website. Please refer to Kent Design Guide - *'Making it Happen'.*

Other Consents

Other consents by regulation may be required in relation to the discharge location (e.g. Flood Risk Activity Permit and Ordinary Watercourse consent). KCC may recommend consultation with other authorities in these instances.

5.2.2 SuDS 2: Deliver effective drainage design

Any proposed new drainage scheme must manage all sources of surface water and should be designed to match greenfield discharge rates, and volumes as far as possible.

Development in previously developed land should also seek to reduce discharge rates and volumes off-site and utilise existing connections where feasible.

Drainage schemes should provide for exceedance flows and surface flows from offsite, ensure emergency ingress and egress and protect any existing drainage connectivity, so that flood risk is not increased on-site or off site.

Design Criteria

The drainage system must be designed to be consistent with pre-development flow rates and designed to operate without any flooding occurring during any rainfall event up to (and including) the critical 1 in 30 year storm (3.33% AEP). The system must also be able to accommodate the rainfall generated by events of varying durations and intensities up to (and including) the critical, climate change adjusted 1 in 100 year storm (1% AEP) without any on-site property flooding and without exacerbating the off-site flood-risk. The choice of where these volumes are accommodated may be within the drainage system itself or within other areas designated within the site for conveyance and storage.

Flooding of the highway **may** be permitted in exceptional circumstances for rainfall events between 1 in 30 year and 1 in 100 year events provided that:

- depths do not exceed the kerb height;
- no excessive or prolonged ponding (beyond 10 minutes) so that the highway primarily operates as a conveyance route to another attenuation feature;
- flood extents are within the site boundary.

Rainfall Simulation

KCC will generally require the use of the more detailed and up-to date FEH13 dataset within detailed drainage design submissions. Where FSR data is used to determine the extreme rainfall intensity values for a site, we would expect the FSR/FEH ratios depicted in Appendix 1 of the 'Rainfall runoff management for developments' report[19] (Environment Agency, 2013) to be used to adjust the calculated attenuation requirements.

If FEH13 is unavailable (and unless otherwise calculated), we will accept a rainfall depth M5-60 of 26.25 mm to be utilised in appropriate modelling software to account for this variation.

---

[19] http://evidence.environmentagency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/Rainfall_Runoff_Management_for_Developments_-_Revision_E.sflb.ashx

Runoff Rates

Greenfield runoff rates must be supplied. Preferred methods are IoH124, FEH, ReFH2 or others as agreed with KCC. The rates must reflect soil conditions specific to the site and applied to an appropriate drainage area consistently through the drainage strategy.

- Local District or Parish Greenfield Runoff Rates

Local planning policy may identify preferred discharge rates to be utilised in place of greenfield rates based upon a strategic flood risk assessment. In these areas, the preferred discharge rates should be utilised in the design.

KCC may also set strategic discharge rates to contribute to flood risk management within a district or parish council area; or to provide a more efficient approach to surface water management within a local area. If a strategic assessment of greenfield runoff rates has been undertaken by KCC, these rates must be utilised in design.

- Minimum discharge rates

Small sites are associated with low greenfield runoff rates. Given advances in technology and design of flow controls, it is now possible to achieve controlled flow rates of 2 l/s. This should be considered the minimum rate to be set for small sites, unless agreed with KCC.

- Capacity constraints

If the proposed development contributes to an area or network with known local flood risk issues or capacity constraints, then discharge rates and volume control specific to the local conditions will be specified. Developers may be required to provide flood risk modelling/ assessment to identify potential constraints.

- Previously developed land

Redevelopment on previously developed land or "brownfield land" has the potential to rectify or reduce flood risk. For developments which were previously developed, the peak runoff rate from the development must be as close to the greenfield runoff rate from the development as reasonably practicable for the same rainfall event, but must not exceed the rate of discharge from the development prior to redevelopment for that event. As a minimum we would expect to see evidence that a 50% reduction in the peak runoff rate from the existing site has been sought.

An assessment of the peak flow rate of an existing drainage system must consider: (a) the connectivity and condition of the drainage system; (b) the existing total impermeable area contributing to the drainage system; and (c) the pipe full capacity of the final 5m of the outfall pipe. Within all accompanying calculations, the post-redevelopment discharge rate must take account of the predicted effects of climate change.

Runoff characteristics for a previously developed site can be estimated by other methods as described within the CIRIA SuDS Manual (Chapter 24.5). It should be noted that if a simulation model for any existing network is utilised, the operation of the network must be confirmed by a network survey to establish the network arrangements, contributing areas and network condition.

Runoff Volumes

Runoff volumes from the developed site will usually increase in comparison to the site in its natural condition; this may increase flood risk in natural receiving systems. Controlling the volume of runoff from the site is therefore vital to prevent flood risk in natural systems. Within Kent, the need and type of volume control will vary according to the soil type present, which can be broadly broken down into the following categories:

- Highly permeable soils – in areas underlain by chalk, we will expect that use of infiltration will be maximised. With no off-site discharge, additional volume control will not be required
- Intermediate permeability soils - in these areas infiltration should still be maximised; offsite discharge should be limited to QBAR, (the mean annual flood flow rate, equivalent to an approximate return interval of 2.3 years). Where sites are small and flows are calculated to be less than 2 l/s, the minimum flow rate will apply of 2 l/s.
- Low permeability soils - areas underlain by largely impermeable soils (e.g. Weald clay and London clay) will require "staged" discharge.

This requires that rates mimic existing greenfield runoff rates of the 1:1 year, 1:30 year and 1:100 year storm events as long as long term storage is utilised for flow volumes in excess of the greenfield volume for the 1:100 year 6 hour event.

The long term storage volume must discharge at a rate no greater than 2 l/s/ha and the total flow rate must not exceed the 1:100 year greenfield flow rate.

If long term storage is not designed for, QBAR should be applied to all events from the 1:30 year rainfall event.

Exceedance

Exceedance flows that cannot be contained within the drainage system shall be managed in flood conveyance routes. The primary consideration shall be risks to people and property on and off site.

Exceedance should be considered in two parts; very high intensity storms to ensure bypass flows from overloaded pipework (including potentially blocked gullies due to debris), and overfilling of storage systems. Consideration of exceedance routes will ensure that any residual risk arising from either or these are safely managed.

Emergency access arrangements

Access should be maintained into and through the site for emergency vehicles during all storms up to (and including) the critical, climate-change adjusted 1 in 100 year event. The drainage application must give consideration to flood risk vulnerability classifications (as defined through Planning Practice Guidance to the National Planning Policy Framework), as specific measures or protections may be assessed and need to be agreed with the appropriate authority.

Unrestricted discharge rates

If the proposed system discharges to a watercourse or main river, consideration must also be given to any requirements due to high water levels in the receiving watercourse due either to tide (i.e. tide-locking) or flood flows. Attenuation volumes required onsite to manage flows must take into account the effects of high receiving water levels. This also applies to connection made to sewers.

If the proposed site is immediately adjacent to a watercourse or main river, there may be instances where direct discharge to the waterway is promoted without attenuation. This is only likely to be a recommendation on or immediately upstream from tidal areas. Direct discharge without attenuation or limited attenuation based on high (non-standard) discharge rates to a main river must be agreed in consultation with KCC and the Environment Agency.

Phased Delivery

If a proposed development is to be delivered in phases, a commitment should be made for a surface water management strategy to be delivered with the first phase of development, designed to be capable of accommodating the runoff from each of the subsequent phases. If this is not possible, the runoff from each separate phase must be controlled independently.

Whichever approach is taken, the control of surface water runoff during construction should be considered. Temporary works may be required to accommodate phased construction. Any temporary drainage measure must be identified and clearly shown on a drainage layout drawing.

5.2.3 SuDS Policy 3: Maintain Existing Drainage Flow Paths & Watercourses

Drainage schemes should be designed to follow existing drainage flow paths and catchments and retain where possible existing watercourses and features.

By mimicking the natural drainage flow paths and working within the landscape, more effective and cost-efficient design can be developed. Working with existing natural gradients also avoids any reliance on pumped drainage, with its associated energy use and failure risk. The natural environment including woods, trees and hedgerows can play a part in water management.

KCC encourages maintenance of the existing flow paths and drainage connectivity. Where this is the case the following conditions apply:

a) If the proposed development is reliant on an existing discharge point, then it is recommended that the condition and conveyance capacity is confirmed through CCTV or other survey with the discharge capacity confirmed.

b) Outfalls to ordinary watercourses should not occur to "blind-ended" ditches and should be part of a wider and contiguous drainage network.

Some sites may lie in or near more than one hydrological catchment. Surface water flows should be continued through the pre-development catchments and not diverted to adjacent catchments, in order to preserve the hydrology of catchments and prevent an increase in flood risk.

Ordinary Watercourses

An 'ordinary watercourse' is defined as any channel capable of conveying water that is not part of a 'main river'; Small rivers, streams, ditches, drains, cuts, culverts, dikes, sluices, sewers (other than public sewers within the meaning of the Water Industry Act 1991) can all be classified as 'ordinary watercourses'.

When considering the development/redevelopment of any site, existing ordinary watercourses should be identified and accommodated within any drainage strategy and site masterplan. They should be preferably retained as an open feature within a designated corridor, and ideally retained within public open space. Any outfall to an ordinary watercourse should be designed to ensure there is adequate erosion protection for the receiving channel and its banks.

It is not sufficient to undertake earthworks to the top of the bank of a boundary ditch. Any site improvements should include the channel itself. The landowner has riparian responsibilities for these ditches and new development provides an opportunity to address any existing ditch issues such as excessive vegetation, channel clogging, culvert improvements or bank stability.

It is recommended that any discharge to an ordinary watercourse or any modification to an ordinary watercourse be identified and agreed in principle with KCC (or other consenting

authority if required) prior to the submission of any planning application. The ability of a watercourse to convey water (and to function as an effective exceedance flow route, where appropriate) will always need to be maintained.

Flood risk

For ordinary watercourses, developers may need to consider the potential flood risk arising from them, particularly where there are structures which might influence water levels. Where a risk from flooding has been identified, appropriate flood risk mitigation should be identified and agreed with the Local Planning Authority/ KCC; development should be avoided in any area likely to be affected by exceedance of the channel's capacity, reflecting requirements of SuDS Policy 4.

Culverts

Culverting of open watercourses will not normally be permitted (except where demonstrably essential to allow highways and/or other infrastructure to cross). In such cases culverts should be designed in accordance with CIRIA C689: Culvert Design and Operation Guide, (2010) and KCC's Land Drainage Policy. Culverts will not be approved below/ beneath any proposed structure.

If a culverted watercourse crosses a previously developed site, it should be reverted back to open channel, wherever practicable. In any such case, the natural conditions deemed to have existed prior to the culverting taking place should be re-instated.

Measures should be in place to ensure that any future owner of a property through which a watercourse passes is aware of their maintenance responsibilities as a riparian owner.

Under the terms of the Land Drainage Act 1991, any works within an ordinary watercourse will require consent under Section 23 of the Act. This will be either from KCC or from an IDB (in the areas where they operate). Consents are unable to be amended once granted so any changes to design will need to apply for Land Drainage consenting again. Consents cannot be granted retrospectively if works are undertaken prior to approval.

If land drainage consent is required in relation to the proposed development, we recommend that the submission of any application for consent is delayed until planning permission is granted, (excepting instances when consents are required to construct or upgrade site access) as the proposed site layout may be subject to further change. Please refer to KCC web pages for guidance on ordinary watercourse consents[20].

Overland flow paths

Account should be taken for any overland flow routes which cross the site from adjacent areas. Flow routes may be indicated by reference to the EA's surface water flow mapping however the magnitude of the contribution from upstream catchments should be assessed to determine flows and the extents of flooding. It is usually preferred that these flow routes would be accommodated within the development layout; however, flood assessment or more detailed modelling may be undertaken if these routes are to be modified or channelised. It is not acceptable to culvert overland flow routes.

5.2.4 SuDS Policy 4: Seek to Reduce and Avoid Existing Flood Risk

New development should be designed to take full account of any existing flood risk, irrespective of the source of flooding.

Where a site or its immediate surroundings have been identified to be at flood risk, all opportunities to reduce the identified risk should be investigated at the masterplanning stage of design and subsequently incorporated at the detailed design stage.

Remedial works and surface water infrastructure improvements may be identified in the immediate vicinity of the development to facilitate surface water discharge from the proposed development site.

Paragraph 165 of the National Planning Policy Framework outlines how flood risk management bodies should seek to manage flood risk through using opportunities offered by new development to reduce the causes and impacts of flooding, taking the predicted effects of climate change into account.

As LLFA, KCC will endeavour to ensure that this principle is applied across the County. Where a developer's Drainage Strategy has identified that there are existing flood risks affecting a site or its surroundings, there would be an expectation that the developer manages the identified risk appropriately to ensure that there are no on or off site impacts as a result of any development. Similarly, where there are opportunities to reduce the off-site flood risk through carefully considered on-site surface water management, we will encourage developers to explore these fully.

Avoiding areas of flood risk

All development should be preferentially located in the areas of lowest flood risk, irrespective of the source of flooding. At the earliest stages of masterplanning, an appropriate flood risk or drainage impact assessment should be undertaken to ensure that any vulnerable forms of development are located outside Flood Zones 2 or 3 and/or those areas identified as being at medium to high risk of surface water flooding. The Environment Agency's Flood Map for Planning and Long-Term Flood Risk pages should be referred to for this information.

Residential buildings should in the first instance not be located within any area indicated to be at high risk[21] from surface water flooding, according to the Long Term Flood Risk[22] maps or any local flood maps.

If development is unavoidable within a surface water flood risk or flow route, then the land use should be water compatible; designed and constructed to be flood resilient; having consideration of the estimated flow depths and be designed accordingly.

---

[20] www.kent.gov.uk/waste-planning-and-land/flooding-and-drainage/owning-and-maintaining-a-watercourse

[21] High risk means that each year an area has a chance of flooding of greater than 3.3% (i.e equates to 1 in 30-year risk of flooding), with flood depths over 900mm and velocities over 0.25 m/s.

[22] https://flood-warning-information.service.gov.uk/long-term-flood-risk

Remedial works and infrastructure improvements

Local flood risk "hot spots" may be known to KCC or the local council in the vicinity of the proposed development. If the receiving system is in a poor condition and unable to convey flow effectively, remedial works may be required prior to connection or discharge to the system.

A condition survey of the outfall location and of the receiving system may be required to confirm connectivity and capacity along with any potential works required to ensure discharge can occur without impedance.

Dependent upon ownership and responsibilities, these works may be recognised as part of the development description for the proposed development as would occur for any infrastructure improvement to accommodate strategic growth, new connections and new local development.

5.2.5 SuDS Policy 5: Drainage Sustainability and Resilience

The design of the drainage system must account for the likely impacts of climate change and changes in impermeable area over the design life of the development. Appropriate allowances should be applied in each case.

A sustainable drainage approach which considers control of surface runoff at the surface and at source is preferred and should be considered prior to other design solutions.

Drainage infrastructure normally has a defined design life. This varies depending upon the nature of the system's components. The drainage must be designed to function properly to protect the development and downstream from flooding over this timeframe. This includes accommodating predictable changes, including climate change and urbanisation.

Climate Change

In 2016, the Environment Agency published new guidance on how to use climate change allowances in flood risk assessments. The guidance can be found at: www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

KCC require that the drainage design accommodates the 1 in 100 year storm with a 20% allowance for climate change, with an additional analysis undertaken to understand the flooding implication for a greater climate change allowance of 40%.

This analysis must determine if the impacts of the 40% allowance are significant and lead to any unacceptable flood risks (it is not normally expected that the site would not flood in this scenario, only that if this storm were to occur the impacts would be minimal i.e no flooding of property or sensitive infrastructure and no flooding leaves the site). The design may need to be modified to avoid any unacceptable risks, but may also need additional mitigation allowances, for example a higher freeboard on attenuation features or provision of exceedance routes. This will tie into designing for exceedance principles.

Sustainability

Design of drainage systems utilising a sustainable drainage design approach and reducing reliance on below ground systems in pipes and tanks, provides greater visibility for maintenance as well as many other benefits. Sustainable measures which control flow rates near to the source and which maximise natural losses through infiltration and evaporation are preferred. Operation of surface systems is also more easily observed.

Urban Creep

To take account of possible future conversion of permeable surfaces to impermeable over time (e.g. surfacing of front gardens to provide additional parking spaces, extensions to existing buildings, creation of large patio areas). Consideration of urban creep should be assessed for residential developments.

An allowance for the increase of impermeable area from urban creep must be included in the design of the drainage system. The allowances set out in Table 3 must be applied to the impermeable area within the property curtilage according to the proposed dwelling density.

Table 3: impermeable area allowances for urban creep

Residential development density(Dwellings per hectare) (% of impermeable area)	Change allowance
≤ 25	10
30	8
35	6
45	4
≥ 50	2
Flats & Apartments	0

5.2.6 SuDS Policy 6: Sustainable Maintenance

Any proposed drainage schemes must be designed to be maintainable to ensure that that the drainage system continues to operate as designed and must be accompanied with a defined maintenance plan.

The drainage system must be designed to take account of the construction, operation and maintenance requirements of both surface and subsurface components, allowing for any personnel, vehicle or machinery access required to undertake this work. Without maintenance, the function of drainage systems may alter. Increased leaf litter, sediments and colonisation of vegetation may clog drainage measures or impact the characteristics of operational controls.

Design to be maintainable

The drainage strategy must demonstrate that adequate access is available and practicable for personnel and equipment either through an appropriate layout or legal agreement to provide agreed access arrangements in perpetuity. Consideration should also be given to the Construction Design and Management regulations for health and safety purposes.

Wherever possible, it is preferable that drainage schemes should be designed at the surface to allow easy inspection and maintenance. Drainage maintenance can usually be incorporated as part of a typical landscape maintenance specification.

KCC recommends that shared drainage measures or drainage measures serving the wider development are located within common land or public open space to facilitate easy access and maintenance. Drainage measures which serve more than one property should not be located within back gardens or other private areas.

If the proposed development incorporates existing field ditches or ordinary watercourses, we would normally require a minimum setback of 5 m to 8 m (depending upon the location, and whether the ditch/watercourse falls within an IDB regulated area). This will allow the safe access and operation of any tracked machinery that may be required to undertake any maintenance works to the banks or channels, and provides a reasonable buffer for any flora and fauna within the watercourse.

We would generally recommend that new development is designed to facilitate the maintenance of existing watercourses, with roads or walkways being provided alongside at least one bank for access. Closed fence-lines to the rear of properties bordering a watercourse should be avoided owing to the maintenance difficulties and the potential for the inappropriate depositing of material beyond property boundaries.

With surface water drainage systems, a careful balance must be struck over the creation of habitats. The encouragement of certain protected species or creation of protected habitats may conflict with the regular maintenance works essential to ensuring long term functionality of the drainage measures. An awareness of any biodiversity objectives or site wide strategic ecological management plan should be considered as part of a maintenance plan for the drainage measures, specifically timing of vegetation cuts and silt removal to ensure no conflict with nesting birds or specific life stages of biota.

Where, in particular circumstances, underground techniques are used, more extensive inspection processes will be necessary, for example where longer pipe runs are used, CCTV surveys may be required. All inlet, outlet and control structures must be indicated and known to the appropriate adopting authority to be protected from blockage and located near the surface, to allow for easy management during routine maintenance visits.

Maintenance Plan

An operation and/or maintenance plan should be provided which indicates a schedule and time of activities, as well as critical controls or components of the drainage scheme. This plan should include an indication of the roles and responsibilities for each authority or organisation which may have a responsibility for maintenance activities. Any inter-connectivity with or reliance upon other drainage systems should be indicated.

KCC may work with LPAs to ensure that the drainage schemes associated with large, strategic, potentially problematic or sensitive sites have been established and are able to function in accordance with the approved plans and specifications.

Information on maintenance requirements will be required in early stages of planning submissions to demonstrate that adequate access is provided.

Verification report

KCC may also require the submission of a Verification Report after development completion (Appendix D). This report will demonstrate that the constructed drainage system operates as approved; will include the identification of "critical drainage assets"; and, will outline specific maintenance requirements and obligations for each drainage measure.

As LLFA, KCC has a duty to maintain a register of structures or features which are likely to have a significant effect on flood risk. Drainage schemes within new developments may include structures or features that will be required to be included within the register. Critical drainage assets which are not adopted by others will be recorded.

5.2.7 SuDS Policy 7: Safeguard Water Quality

When designing a surface water management scheme, full consideration must be given to the system's capacity to remove pollutants and to the cleanliness of the water being discharged from the site, irrespective of the receiving system.

Interception of small rainfall events should be incorporated into the design of the drainage system.

Paragraph 170 (e) of the National Planning Policy Framework states that the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to (or being put at unacceptable risk from) unacceptable levels of water pollution or land instability. Development should whenever possible help improve local environmental conditions.

Additionally, the Water Framework Directive has been established to improve and integrate the way water bodies are managed throughout Europe. It provides a legal framework to protect and restore clean water throughout Europe to ensure its long-term sustainable use. In particular it will help deal with diffuse pollution which remains a big issue following improvements to most point source discharges.

The design of any drainage proposal should therefore ensure that surface water discharges do not adversely impact the water quality of receiving water bodies, both during construction and when operational. Sustainable drainage design principles have the potential to reduce the risk of pollution, particularly through managing the surface water runoff close to the source and on the surface. Below grade pipes and tanks which are efficient for drainage purposes may not provide appropriate water quality treatment.

The CIRIA SuDS Manual describes a methodology for determining the hazard posed by land use activities (refer to Chapter 26 of the CIRIA SuDs Manual). A simple index approach enables an assessment of the pollution hazard and value of mitigation provided by the sustainable drainage measure. This assessment will be required for all applications.

Runoff from small rainfall events can pose a particular problem for water quality. The 'first flush' of runoff contains the initial high concentration load of pollutants that has built-up on surfaces during the preceding dry period. It is possible to get a high initial pollution concentration for relatively small rainfall events.

Rainfall events that are less than or equal to 5mm in depth also comprise more than half of the rainfall events that took place. The volume of runoff from these small events therefore can cumulatively contribute significantly to total pollutant loadings from the site over a specified period of time. Interception of an initial rainfall depth of 5mm for all rainfall events would mimic greenfield response characteristics in that runoff from small rainfall events do not generally produce any run-off.

KCC would expect that developers demonstrate that the first 5mm of any rainfall event can be accommodated and disposed of on-site, rather than being discharged to any receiving watercourse or surface water sewer. This can easily be achieved through the inclusion of sustainable drainage measures such as infiltration systems, rain gardens, bioretention systems, swales, and permeable pavement.

Where it proves exceptionally difficult to achieve this principle, it must be demonstrated that any water leaving the site has been appropriately treated to remove any potential pollutants.

When discharging to the ground, ground conditions and protection of any source protection zones should be confirmed.

Discharge to ground shall only occur within clean, competent, natural and uncontaminated ground and information should be provided to demonstrate that a sufficient unsaturated zone has been provided above the highest occurring groundwater level. Advice may need to be sought from the EA Groundwater team in relation to these matters, particularly in SPZ 1 and may require specific mitigation. Infiltration into Made Ground will not be accepted.

Construction Management Plan

The management and control of erosion and sediment should be considered throughout design and construction, operation and maintenance to ensure that no impact to offsite watercourses occurs.

Sedimentation can cause the loss of aquatic habitat, decreased fishery resources and can lead to increased flooding due to reduction in hydraulic capacity of the watercourse.

A Construction Management Plan will be required to demonstrate that erosion and sediment controls are adequately planned to protect water quality in receiving water environments. Any sites within a sensitive receiving catchment may require additional information. Situations in which this is a consideration will be confirmed through coordination with KCC's Biodiversity team and the Environment Agency.

5.2.8 SuDS Policy 8: Design for Amenity and Multi-Functionality

Drainage design must consider opportunities for inclusion of amenity and multi-functionality objectives and thus provide multi-functional use of open space with appropriate design for drainage measures within the public realm.

Local environmental objectives may identify other benefits which can be agreed to be delivered through appropriate design of the drainage system.

Amenity and Open Space

Where land performs a range of functions it affords a far greater range of social, environmental and economic benefits than might otherwise be delivered (Landscape Institute Position Statement, Green Infrastructure). Open spaces are often multifunctional, fulfilling several different valuable roles; for example, in the main they may be for recreational use, but they may also provide valuable wildlife habitat, an attractive landscape, paths for walking and cycling and space for community events.

Well-designed, open, sustainable drainage measures may also provide this degree of opportunity, optimising all of these functions in a way which fits with the surrounding landscape. For example, park areas which can be used as temporary flood storage during heavy rainfall events, and wetlands being used to deliver amenity value and habitat as well as water treatment. The aim should be to create networks of high quality open space which adapt for attenuation of surface water, sports and play and enhancement of biodiversity.

The integration of sustainable drainage measures into open spaces can introduce open water and variable ground surfaces into the public realm with associated risks of: drowning; slips, trips and falls; waterborne disease; and bird strike if near airports. The majority of potential risks can be assessed and removed through good site design. Reference should be made to best practice for appropriate design is provided in CIRIA's 'SuDS Manual'.

Multi-functional Design Benefits

Multi-functional design may also deliver other benefits as summarised in Table 4 (BS 8582 Code of Practice for Surface Water Management for Development Sites). New evaluation tools (B£ST Benefits Estimation Tool, CIRIA) may enable a full accounting of benefits to demonstrate economies and efficiencies to including specific design elements within the drainage provision. Simple elements such as inclusion of trees, or rain gardens within kerb build-outs may deliver other priorities being sought by the local authority.

Table 4: Multi functional surface water management design (Source: BS 8582:2013)

Infrastructure objective	Multi-functional surface water management system design and associated environmental value
1. Recreational opportunities	• Subsurface attenuation storage systems can be sited below permeable surfaces used for recreation • Infrequently flooded detention zones can also serve as recreational/amenity areas • Vegetated conveyance and/or storage systems can be designed to promote education, play and amenity value • Intensive green roofs can provide amenity landscape in dense urban settings • Surface water management components can be integrated with sustainable transport corridors (e.g. cycle routes) to maximize benefits
2. Water resources conservation	• Surface water run-off from roofs and uncontaminated paved surfaces, can be captured and stored for use • Rainwater harvesting systems can be designed to deliver surface water management benefits in addition to water supply (see BS 8515)
3. Habitats/ biodiversity enhancement	• Vegetated surface water management components, which store or convey water either temporarily or permanently, can often deliver locally important habitat • Such areas can contribute to urban "corridors" and "networks" of green (vegetated) and blue (water) spaces that support the movement of species
4. Traffic management	• Appropriately designed roads can provide, during times of extreme rainfall, short-term effective management of flood waters, either for conveyance or storage • Local road surfaces and pavements can often be designed to be pervious and allow run-off to infiltrate into the sub-base • Bioretention/biofilter zones can be integrated within pavement design to provide both traffic calming and stormwater management units • Vegetated swales running alongside roads can be designed to treat and control road run-off • Tree pits can be included to intercept run-off (with additional subsurface storage included within or adjacent to the pit)

5. Car parking	• Where the car parking surface is designed to be pervious, surface water can be stored and treated within the sub-base, prior to either controlled discharge, infiltration to the ground, or use. • Car parks can store additional volumes of floodwater above the surface during extreme events. • Vegetated strips, swales, bioretention systems and basins can be designed adjacent to the car park to treat and control run-off
6. Public education/ awareness	• Local community engagement strategies can deliver: • an understanding of the functionality and environmental importance of the surface water management system in mitigating human impacts • a commitment towards contributing to the management of the drainage components • an understanding of the health and safety risk management strategy for the site in relation to surface water • ideas as to how the system could be used to promote children's education strategies and increased local amenity benefits
7. Air temperature / urban heat island mitigation	• Urban cooling can be promoted via the return of moisture to the air through evaporation and evapotranspiration from vegetated surface water management features • Direct cooling can be provided by trees integrated within the surface water management system providing shade • Green roofs and vegetative surfaces reflect more sunlight and absorb less heat
8. Reduced energy use	• Green roofs provide good building insulation
9. Air quality improvement	• Trees, larger shrubs and vegetated surfaces used as part of the surface water management strategy can filter out airborne pollutants
10. Landscape character	• Well designed and integrated SuDS features can enhance aesthetic appeal and local landscape and townscape character and distinctiveness
11. Health benefits	• Green and blue space within developments promotes health benefits linked to increased outdoor recreation and a feeling of well being

5.2.9 SuDS Policy 9: Enhance Biodiversity

Drainage design must consider opportunities for biodiversity enhancement, through provision of appropriately designed surface systems, consideration of connectivity to adjacent water bodies or natural habitats, and appropriate planting specification.

Biodiversity is defined as the variety of life on Earth; designing to protect and enhance biodiversity is therefore essential. As a direct result of human activity, the rate of species extinction over the last 200 years is far higher than in any period of the preceding 65 million years[23]. In the UK, freshwater ecosystems are at the most risk and populations of key species have declined significantly.

The NPPF requires that Local Planning Authorities set out a strategic approach to plan positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure (NPPF para 171). Maximising the ecological value of drainage systems is consistent with national and local policies which aim to conserve and enhance biodiversity. This is underpinned by a variety of legislation including the biodiversity 'duty' for public bodies which is enshrined in the Natural Environment and Rural Communities (NERC) Act 2006.

Working with the landscape to provide drainage may promote other opportunities with greater benefits for biodiversity but also provide greater attractiveness. The linear nature of many SuDS features can help create green corridors through developments; these are important for wildlife and ensure that the associated development is connected with its surrounding environment.

KCCs 'SuDS and Biodiversity' project (2014) has demonstrated that drainage schemes within residential areas contribute to the biodiversity of the local area and provide important habitats for animals and plants that would otherwise be absent. In some cases invertebrate species of significant nature conservation value have been found.

A number of key factors were identified to strongly influence the biodiversity value of the sustainable drainage features. These included:

- connectivity with other waterbodies and habitats,
- planting assemblage and cover,
- waterbody design,
- retained water,
- fish/wild fowl presence, and
- water quality.

When assessing drainage design, particularly surface systems, it is important to consider the drainage scheme in the context of the surrounding landscape character area. Effective integration will also require carefully researched and selected plants, which work to improve the local green infrastructure.

The design of any drainage scheme can provide an opportunity for increasing biodiversity value by including surface vegetated systems with some retained water and through ensuring appropriate edge treatments and gradients. Review of engineering design by an ecologist may identify simple improvements in pond design and planting specification that would maximise the biodiversity potential.

Glossary

Aquifer	A source of groundwater compromising water-bearing rock, sand or gravel capable of yielding significant quantities of water.
Adopting authority	General term utilized in this guidance and relates to the authority that will ultimately manage the proposed drainage system
Attenuation	Attenuation is the process of water retention on site and slowly releasing it in a controlled discharge to a surface water or combined drain or watercourse. The amount of discharge will vary depending whether it is a brown or greenfield site. For brownfield sites the developer must determine the likely run off and agree an acceptable discharge with the LLFA, environment agency or water authority.
Brownfield site	Any land or site that has been previously developed.
Catchment	The area contributing surface water flow to a point on a drainage or river system.
CIRIA	Construction Industry Research and Information Association. www.ciria.org
Climate change	Long-term variations in global temperature and weather patterns both natural and as a result of human activity (anthropogenic) such as greenhouse gas emissions
Culvert	A structure which fully contains a watercourse as it passes through an embankment or below ground.
Development	The undertaking of building, engineering, mining or other operations in, on, over or under land or the making of any material change in the use of any buildings or other land.
EA	Environment Agency. Government Agency responsible for flooding issues from main river, and strategic overview of flooding.
Flood event	A flooding incident usually in response to severe weather or a combination of flood generating characteristics.
Flood risk	The combination of the flood probability and the magnitude of the potential consequences of the flood event.
Flood Risk Assessment	An appraisal of the flood risks that may affect development or increase flood risk elsewhere
Flood Zones	Flood Zones provide a general indication of flood risk, mainly used for spatial planning.

[23] www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/

Floodplain	An area of land that would naturally flood from a watercourse, an estuary or the sea.
Freeboard	A vertical distance that allows for a margin of safety to account for uncertainties.
Flood and Water Management Act	The Flood and Water Management Act clarifies the legislative framework for managing surface water flood risk in England.
Flow control device	A device used to manage the movement of surface water into and out of an attenuation facility.
Geocellular storage systems	Modular plastic systems with a high void ratio, typically placed below ground which allow for storage of storm water to infiltrate or discharge to another system.
Gravity drainage	Drainage which runs through pipework installed to a fall, and not therefore under pressure.
Greenfield	Undeveloped land.
Greenfield runoff rate	The rate of runoff which would occur from a site that was undeveloped and undisturbed.
Groundwater	Water that exists beneath the ground in underground aquifers and streams.
Groundwater flooding	Flooding caused by groundwater rising and escaping due to sustained periods of higher than average rainfall (years) or a reduction in abstraction for water supply.
Highway Authority	Body responsible for the management and maintenance of public roads
Impermeable	Will not allow water to pass through it.
Impermeable surface	An artificial non-porous surface that generates a surface water runoff after rainfall.
Infiltration	Infiltration or soakaway is the temporary storage of water to allow it to naturally soak away into the ground. Because water soaks into the ground gradually, reduces the risk of flooding downstream. Infiltration may be used where there is no surface water sewer or where existing systems are at full capacity. Infiltration helps to recharge natural ground water levels.

Internal Drainage Board (IDB)	An internal drainage board (IDB) is a public body that manages water levels in an area, known as an internal drainage district, where there is a special need for drainage. IDBs undertake works to reduce flood risk to people and property, and manage water levels for agricultural and environmental needs within their district. There are six IDBs in Kent:
	The River Stour Upper Medway Lower Medway Romney Marshes Area North Kent Marshes
Lead Local Flood Authority	Under the terms of the Flood and Water Management Act 2010, LLFAs are responsible for developing, maintaining and applying a strategy for local flood risk management in their areas and for maintaining a register of flood risk assets. They also have lead responsibility for managing the risk of flooding from surface water, groundwater and ordinary watercourses. Kent County Council are the LLFA within Kent.
Local Flood Risk Management Strategy	Strategy outlining the Lead Local Flood Authority's approach to local flood risk management as well as recording how this approach has been developed and agreed.
Main River	A watercourse designated on a statutory map of Main rivers, maintained by Department for Environment, Food and Rural Affairs (Defra).
Mitigation measure	A generic term used in this guide to refer to an element of development design which may be used to manage flood risk to the development, or to avoid an increase in flood risk elsewhere.
National Planning Policy Framework	Framework setting out the Government's planning policies for England and how these are expected to be applied. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.
Overland Flow	Flooding caused by surface water runoff when rainfall intensity exceeds the infiltration capacity of the ground, or when the soil is so saturated that it cannot accept any more water.
Permeability	A measure of the ease with which a fluid can flow through a porous medium. It depends on the physical properties of the medium.

Pitt Review	An independent review of the 2007 summer floods by Sir Michael Pitt, which provided recommendations to improve flood risk management in England.
Rainwater harvesting	Collection and Re-use or recycling of rainwater for the purpose of garden irrigation, car washing, toilet flushing etc.
Runoff	Water flow over the ground surface to the drainage system. This occurs if the ground is impermeable, is saturated or if rainfall is particularly intense.
Source Protection Zone	Defined areas showing the risk of contamination to selected groundwater sources used for public drinking water supply.
Strategic Flood Risk Assessment	A study to examine flood risk issues on a sub-regional scale, typically for a river catchment or local authority area during the preparation of a development plan.
Surface water flooding	Flooding caused by the combination of pluvial flooding, sewer flooding, flooding from open channels and culverted urban watercourses and overland flows from groundwater springs
Surface Water Management Plan	A study undertaken in consultation with key local partners to understand the causes and effects of surface water flooding and agree the most cost effective way of managing surface water flood risk for the long term.
SUDS	Sustainable (urban) drainage systems. A sequence of management practices and control structures that are designed to drain surface water in a more sustainable manner.
Watercourse	A term including all rivers, streams, ditches, drains, cuts, culverts, dykes, sluices and passages through which water flows.

Appendix A. National Planning Policy Framework (Extract)

155	Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.
157	All plans should apply a sequential, risk-based approach to the location of development – taking into account the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by: a) applying the sequential test and then, if necessary, the exception test as set out below; b) safeguarding land from development that is required, or likely to be required, for current or future flood management; c) using opportunities provided by new development to reduce the causes and impacts of flooding (where appropriate through the use of natural flood management techniques); and d) where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.
163	When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment[50]. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that: a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location; b) the development is appropriately flood resistant and resilient; c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate; d) any residual risk can be safely managed; and e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.
165	Major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate. The systems used should: a) take account of advice from the lead local flood authority; b) have appropriate proposed minimum operational standards; c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and d) where possible, provide multifunctional benefits.

170 Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Appendix B. Non-Statutory Technical Standards for Sustainable Drainage

Flood risk outside the development
S1 Where the drainage system discharges to a surface water body that can accommodate uncontrolled surface water discharges without any impact on flood risk from that surface water body (e.g. the sea or a large estuary) the peak flow control standards (S2 and S3 below) and volume control technical standards (S4 and S6 below) need not apply.
Peak flow control
S2 For greenfield developments, the peak runoff rate from the development to any highway drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event should never exceed the peak greenfield runoff rate for the same event.
S3 For developments which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event must be as close as reasonably practicable to the greenfield runoff rate from the development for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event.
Volume control
S4 Where reasonably practicable, for greenfield development, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event should never exceed the greenfield runoff volume for the same event.
S5 Where reasonably practicable, for developments which have been previously developed, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event must be constrained to a value as close as is reasonably practicable to the greenfield runoff volume for the same event, but should never exceed the runoff volume from the development site prior to redevelopment for that event.
S6 Where it is not reasonably practicable to constrain the volume of runoff to any drain, sewer or surface water body in accordance with S4 or S5 above, the runoff volume must be discharged at a rate that does not adversely affect flood risk.
Flood risk within the development
S7 The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur on any part of the site for a 1 in 30 year rainfall event.
S8 The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur during a 1 in 100 year rainfall event in any part of: a building (including a basement); or in any utility plant susceptible to water (e.g. pumping station or electricity substation) within the development.

S9 The design of the site must ensure that, so far as is reasonably practicable, flows resulting from rainfall in excess of a 1 in 100 year rainfall event are managed in exceedance routes that minimise the risks to people and property.

Structural Integrity

S10 Components must be designed to ensure structural integrity of the drainage system and any adjacent structures or infrastructure under anticipated loading conditions over the design life of the development taking into account the requirement for reasonable levels of maintenance.

S11 The materials, including products, components, fittings or naturally occurring materials, which are specified by the designer must be of a suitable nature and quality for their intended use.

Designing for maintenance considerations

S12 Pumping should only be used to facilitate drainage for those parts of the site where it is not reasonably practicable to drain water by gravity.

Construction

S13 The mode of construction of any communication with an existing sewer or drainage system just be such that the making of the communication would not be prejudicial to the structural integrity and functionality of the sewerage or drainage system.

S14 Damage to the drainage system resulting from associated construction activities must be minimised and must be rectified before the drainage system is considered to be completed.

Appendix C. Drainage Strategy Summary

1. Site details	
Site/development name	
Address including post code	
Grid reference	E N
LPA reference	
Type of application	Outline ☐ Full ☐ Discharge of Conditions ☐ Other ☐
Site condition	Greenfield ☐ Brownfield ☐

2. Existing drainage			Document/Plan where information is stated:
Total site area (ha)			
Impermeable area (ha)			
Final discharge location	Infiltration ☐ Watercourse ☐ Sewer ☐ Tidal reach/sea ☐		
Greenfield discharge rate (l/s) for existing site area	QBAR (l/s)		
	1 in 1 year (l/s)		
	1 in 30 year (l/s)		
	1 in 100 year (l/s)		
3. Proposed drainage areas			**Document/Plan where information is stated:**
Impermeable area (ha)	Roof		
	Highway/road		
	Other paved areas		
	Total		
Permeable area (ha)	Open space		
	Other permeable areas		
	Total		
Final discharge location	Infiltration ☐ Infiltration rate _____m/s Watercourse ☐ Sewer ☐ Tidal reach/sea ☐		
Climate change allowance included in design	20% ☐ 30% ☐ 40% ☐		

4. Post-Development Discharge rates, without mitigation			**Document/Plan where information is stated:**
Developed discharge rates (l/s)	1 in 1 year		
	1 in 30 year		
	1 in 100 year		
	1 in 100 year + CC		
5. Post-Development Discharge rates, with mitigation			**Document/Plan where information is stated:**
Describe development drainage strategy in general terms:			
(a) No control required, all flows infiltrating ☐			
(b) Controlled developed discharge rates (l/s)	1 in 1 year		
	1 in 30 year		
	1 in 100 year		
	1 in 100 year + CC		
6. Discharge Volumes			**Document/Plan where information is stated:**
	Existing volume (m^3)	Proposed volume (m^3)	
1 in 1 year			
1 in 30 year			
1 in 100 year			
1 in 100 year + CC			

All information presented above should be contained within the attached Flood Risk Assessment, Drainage Strategy or Statement and be substantiated through plans and appropriate calculations.

Form completed by	
Qualifications	
Company	
Telephone	
Email	
On behalf of (client's details)	
Date	

Appendix D. Drainage Asset Record Sheet for Verification Report

IDENTIFICATION	Type of Structure or Feature	
	Location Name	
	Drawing Identifier	
MANAGEMENT/ OWNERSHIP	Owners Name / Company	
	Address of owner	
	Owners Contact Number	
	Maintained By	
	Adoption proposed	☐ YES ☐ NO
	Name of Adopting Authority	
	Estimated Date of Adoption	
ASSET DETAILS	National Grid Reference (NGR)	
	Cover Level	
	Invert Level	
	Max volume	
	Height	
	Diameter/Width	
	Length	
	Depth	
	Designed Flow Rate	
	Any Additional Uses	

Leiston-cum-Sizewell Town Council
[redacted], Town Clerk

Council Offices, Main Street, Leiston, Suffolk, IP16 4ER
Tel: [redacted] | **Email:** [redacted]

Your Ref: **EN020026-000024-221025**
Date: 22 Nov 2022

Dear Inspectorate,

Application by National Grid Electricity Transmission plc (the Applicant) for an Order granting Development Consent for the Sea Link (the Proposed Development)

Leiston-cum-Sizewell Town Council (LTC) welcomes the opportunity to comment on the information to be provided in an Environmental Statement and makes the following comments:

1. **Policy:** Has satisfactory consideration been given to change in Government Policy Change to look at offshore alternatives eg an Offshore Grid through the North Sea Corridor?

2. **Suitability of our rural area:** Has satisfactory consideration for the potential for brown field site development elsewhere?

3. **Overall impact:** This Council, unsurprisingly, has concerns on the impact on Leiston-cum-Sizewell itself, a parish of approximately 6,000 residents. The combined significant projects listed on Page 24 Vol 2 Appendice namely SEA LINK, EUROLINK, Nautilus Interconnector, Scottish Power Renewables and offshore windfarms (East Anglia One North and East Anglia Two) confirm a number of unprecedented and uncoordinated energy projects coming forward in the foreseeable future. We would urge the Inspectorate to take a holistic view. We request the Inspectorate considers these projects as a collective and does not see them in isolation, if it is to fully understand the impact on Leiston-cum-Sizewell and surrounding area. Leiston is in danger of being encircled by construction which will have a major impact on our community for more than a decade.

4. **Co-ordination of projects:** Has sufficient attention been given to exploring coordinated network design and coordinating projects? This Council has concerns about the capacity of existing electricity pylons and seeks reassurance that there will not be further disruption to the landscape of unsightly pylons.

5. **Traffic Concerns:** A combination of projects will collide with the peak construction of Sizewell C (predicted at year 5/6 estimated to be around 2027). This will mean considerable congestion and traffic movements on all routes in and out of Leiston. Whilst this Council accepts there will be designated routes, it is our opinion that there will be an increase in general traffic congestion on what are rural routes like the A1094 and the junction of the A1094 and the B1122 at Backheath Corner, which is already an accident blackspot. Such an increase in traffic and construction will result in years of disruption for Leiston's coastal-based community and a devastation of the surrounding rural landscapes. The likely impact will be that residents travelling North, South or East of Leiston, will encounter a landscape of continual construction. Equally, this will impact on commuter traffic from Leiston to workplaces in the wider area, Ipswich and beyond, once more acting as a deterrent to those considering a home in our parish.

6. **Social Impact:** As a result of all of the above, this Council believes that the result of an encirclement of Leiston by construction will lead to the social migration of residents to live elsewhere, and the moving in of construction workers. This suggests that when the construction projects are completed Leiston will have lost much of its inherent community and with it, its unique character. This was its experience during the construction of SZB and memories are long. With an outage at each nuclear reactor every 6 months and maintenance required to the offshore sector, this could lead to Leiston supporting nothing other than the nuclear industry and its supporting sectors, forcing others to live elsewhere.

7. **Access to Leisure and Tourism:** Whilst Council recognises Leiston-cum-Sizewell is not a tourist honeypot it does nevertheless have notable tourist attractions, including the popularity of the coastal walks within the parish. The Long Shop Museum celebrates Leiston's significant history and role in the Industrial Revolution. The Leiston Film Theatre, or Leiston Picture House as it was originally named, opened in October 1914 and has traded continuously for 105 years. The effect of encircling the town will impact on the

access to these notable sites and present both with significant challenges threatening their viability going forward. Leiston will find itself less able to compete with nearby honeypot towns. The Inspectorate are asked to consider this social impact alongside the environmental impact, which we believe go hand in hand. It was this Council's understanding that during the construction of SZC, Leiston would be protected in the South to access leisure amenities - Aldringham Walks, Thorpeness, Snape, all within the AONB. These projects threaten this access with the result that residents will have no choice but to travel further afield to enjoy any of the benefits of living by the sea and residing in a rural location. This will add to the impact of residents moving from the area. This Council would like to see greater depth as to the mitigation aspects for residents 'enjoying' where they live and the impact this will have on their quality of life and therefore their mental and physical health.

8. **Net Zero Leiston:** This Council is committed to achieving Net Zero Leiston ambitions. Visit https://www.netzeroleiston.info It has developed a route map to achieving Net Zero, the first rural town to do so. Whilst Council accepts that the result of these combined projects is to support carbon efficient resources for the East and South East of the UK, nevertheless, Council would like to see greater emphasis on the mitigation measures taken to keep carbon impact to a minimum. We refer the Inspectorate to the website. Council would want to see greater depth explored as to significant landscape scale mitigation opportunities to gain maximum impact in the shortest possible time.

9. **Protecting our local Environment:** Council will concur with the expertise of the AONB, RSPB, and others who are specialists in their field and will seek to endorse their views on the overall impact on habitats in the area. At the heart of this Council's concerns would be the industrialisation of an area of natural beauty.

10. **Pollution:** the cumulative impact of these projects on the air quality for our residents is of concern. We ask the Planning Inspectorate to consider the impact of these projects on the health of our residents – particularly the young, the elderly and those already suffering from chronic disease.

11. **Judicial Review:** Council understands that SASES (Substation Action, Save East Suffolk) has gone to a Judicial Review? The Inspectorate are asked to consider the outcome of this review in connection to the wider projects and impacts.

Yours sincerely

[redacted]

[redacted]
Town Clerk
Leiston-cum-Sizewell Town Council

Marine Management Organisation

Marine Licensing
Lancaster House
Hampshire Court
Newcastle
Upon Tyne
NE4 7YH

T +44 (0)300 123 103
[redacted]
www.gov.uk/mmo

Marie Shoesmith
Senior EIA Advisor
South East Anglisa Link Case Team
Planning Inspectorate

Your reference: EN020026-000024-221025
Our reference: DCO/2022/00008

Email: southeastanglialink@planninginspectorate.gov.uk

By email only

21 November 2022

Dear Marie Shoesmith,

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11
MMO scoping consultation response on the application by National Grid Electricity Transmission plc (the Applicant) for an Order granting Development Consent for the Sea Link (the Proposed Development)

Thank you for your scoping consultation dated 25 October 2022 and for providing the Marine Management Organisation (MMO) with the opportunity to share our comments with you on the Sea Link Project.

The MMO's role in Nationally Significant Infrastructure Projects

The MMO was established by the Marine and Coastal Access Act 2009 (the "2009 Act") to contribute to sustainable development in the marine area and to promote clean, healthy, safe, productive and biologically diverse oceans and seas. The responsibilities of the MMO include the licensing of construction works, deposits and removals in English inshore and offshore waters and for Welsh and Northern Ireland offshore waters by way of a marine licence1. Inshore waters include any area which is submerged at mean high water spring ("MHWS") tide. They also include the waters of every estuary, river or channel where the tide flows at MHWS tide. Waters in areas which are closed permanently or intermittently by a lock or other artificial means against the regular action of the tide are included, where seawater flows into or out from the area. In the case of Nationally Significant Infrastructure Projects ("NSIPs"), the 2008 Act enables Development Consent Order's ("DCO") for projects which affect the marine environment to include provisions which deem marine licences[2].

[1] Under Part 4 of the 2009 Act

[2] Section 149A of the 2008 Act

As a prescribed consultee under the 2008 Act, the MMO advises developers during preapplication on those aspects of a project that may have an impact on the marine area or those who use it. In addition to considering the impacts of any construction, deposit or removal within the marine area, this also includes assessing any risks to human health, other legitimate uses of the sea and any potential impacts on the marine environment from terrestrial works. Where a marine licence is deemed within a DCO, the MMO is the delivery body responsible for post-consent monitoring, variation, enforcement and revocation of provisions relating to the marine environment. As such, the MMO has a keen interest in ensuring that provisions drafted in a deemed marine licence ("dML") enable the MMO to fulfil these obligations. Further information on licensable activities can be found on the MMO's website. Further information on the interaction between the Planning Inspectorate and the MMO can be found in our joint advice note.

Please find attached the scoping opinion of the MMO. In providing these comments, the MMO has sought the views of our technical advisors at the Centre for Environment, Fisheries and Aquaculture Science (Cefas) and MMO colleagues based in both the East coastal office and South East coastal office.

The MMO reserves the right to make further comments on the project throughout the preapplication process and may modify its present advice or opinion in view of any additional information that may come to our attention. This representation is also submitted without prejudice to any decision the MMO may make on any associated application for consent, permission, approval or any other type of authorisation submitted to the MMO either for the works in the marine area or for any other authorisation relevant to the proposed development.

If you require any further information please do not hesitate to contact me using the details provided below.

Yours Sincerely,

[redacted]

Marine Licensing Case Officer

[redacted]

Marine Management Organisation

Scoping consultation response

Title: Sea Link

Applicant: National Grid Electricity Transmission Plc

MMO Reference: DCO/2022/00008

Contents

Contents 3
1 Proposal 4
1.1 Project Background 4
2 Location 5
3 Scoping consultation response 6
3.1 Nature Conservation 6
3.2 Benthic ecology 6
3.3 Coastal Processes 6
3.4 Seascape / Landscape 7
3.5 Fish Ecology and Fisheries 7
3.6 Shellfish 8
3.7 Marine Mammals 9
3.8 Underwater noise 9
3.9 Archaeology / Cultural Heritage 9
3.10 Navigation / Other Users of the Sea 9
3.11 Water Quality 9
3.12 Seabed / Land / Soil Quality 9
3.13 Population and Human Health 10
3.14 Cumulative Impacts & In-Combination Impacts 10
3.15 Other 10
4 Conclusion 11

ENVIRONMENT ISO 14001 CERTIFIED
QUALITY ISO 9001 CERTIFIED

1 Proposal

1.1 Project Background

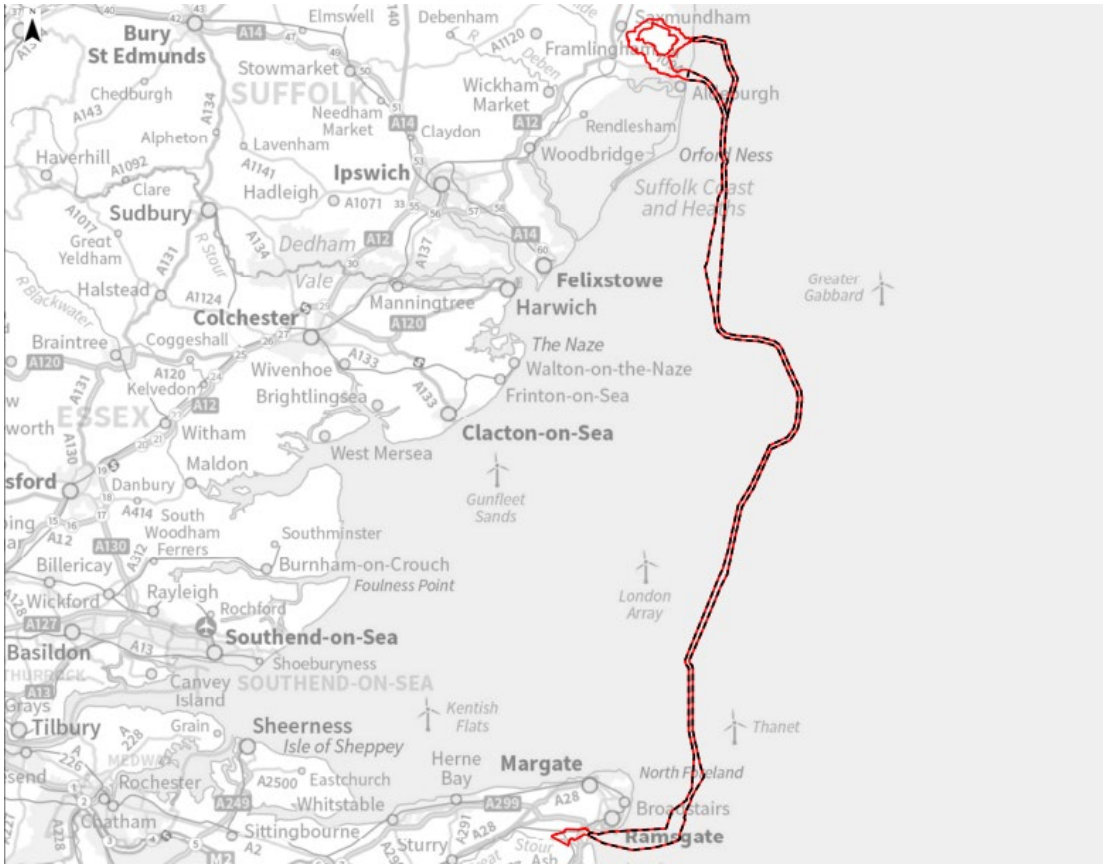
Sea Link (the Proposed Development) is a proposal by National Grid Electricity Transmission plc (the Applicant) to reinforce the transmission network in the south east of England and East Anglia. The Proposed Development is required to accommodate additional power flows generated from renewable and low carbon energy generation, as well as additional new interconnection with mainland Europe. The offshore element of the Proposed Development is located wholly within English Territorial Waters, and includes three distinct components:

- Suffolk Landfall: This is the area where the cable route transitions between the marine and terrestrial environment in Suffolk. This is located between Aldeburgh and Thorpeness with an alternative landfall currently also under consideration at Sizewell gap.
- Kent Landfall: this is the area where the cable route transitions between the marine and terrestrial environment in Kent, located in the Pegwell Bay area;
- Marine Cable Route: This is the cable route from landfalls in Suffolk up to Mean High Water Springs (MHWS) to the landfall in Kent up to MHWS, between approximately 120-128 km in length and located entirely within UK territorial waters.

2 Location

Sea Link is located between Kent and Suffolk which is displayed in Figure 1 below.

Figure 1: Proposed development (Project) and Offshore Scoping Boundary



The MMO's scoping opinion relates to the elements of the project that fall below MHWS.

3 Scoping consultation response

Pursuant of the Regulations, the Applicant has requested a Scoping Opinion from the MMO. In so doing a Scoping Report entitled “Sea Link, Environmental Impact Assessment Scoping Report” has been submitted to PINS for review for all stakeholders.

The MMO agrees with the topics outlined in the Scoping Report and in addition, we outline that the following aspects be considered further during the Environmental Impact Assessment (EIA) and must be included in any resulting Environmental Statement (ES).

3.1 Nature Conservation

3.1.1 The MMO defers to Natural England as the Statutory Nature Conservation Body (SNCB) on the suitability of the scope of the assessment with regards to Marine Protected Areas (MPAs).

3.2 Benthic ecology

3.2.1 The MMO consider the potential sources of impacts listed in Table 4.3.2 to be comprehensive; the MMO has not identified any omissions with respect to benthic ecological interests.

3.2.2 The MMO agrees with the scoping out of the three potential impacts as outlined in Table 4.3.2.

3.2.3 The MMO consider that the embedded measures outlined, particularly re-routing procedures to minimise the potential for the cable route corridor to interfere with habitats of particular importance, are defendable and each contribute to a reduction in the significance of residual impacts.

3.3 Coastal Processes

3.3.1 The scoping report is based on physical data from a variety of sources, including wind and wave data from the ABPmer SeaStates database, and bathymetry and seabed composition data from the EMODnet Bathymetry Portal and British Geological Survey. The MMO considers this to be a reasonable approach which will inform the identification of potential physical pathways for impacts.

3.3.2 The MMO agrees with that all potential physical impacts the Proposed Development could have, have been scoped in.

3.3.3 The MMO agrees that the potential impact of the project on the metocean conditions can be scoped out, however is pleased to see the Applicant plans to include the potential disturbance/change to seabed morphology and coastal processes at landfall locations due to the presence of cable protection measures.

3.4 Seascape / Landscape

3.4.1 The MMO defers to Historic England, Natural England (as the SNCB) and relevant local planning authorities on the suitability of the scope of the assessment with regards to Seascape and Landscape.

3.5 Fish Ecology and Fisheries

3.5.1 Appropriate data sources have been identified to inform a PEIR and/or ES. The MMO has noted that the scoping report has combined fisheries data from the Marine Management Organisation landings (MMO 2021) with other studies to identify local fish receptors.

3.5.2 Potential impacts to the Thames / Blackwater herring should be **scoped in**. This is a discrete population of spring-spawning herring which are known to have spawning grounds at Herne Bay in Kent, and at the Eagle Bank and Osea Island at the mouth of the Blackwater estuary. Thames / Blackwater herring are considered to be a separate population from the North Sea stocks. They also have distinct ecological differences from other UK populations that should be considered as such for the purpose of the EIA. Their spawning season is from late February to early May.

3.5.3 The MMO agrees that the Applicant has identified the main impacts and impact pathways to fish and fisheries receptors during the construction, operational and decommissioning phases. The MMO agrees with the approach to assess changes in marine water quality due to drilling fluids and accidental spills from vessels within the separate Code of Construction Practice.

3.5.4 The MMO has noted that the Guidelines for Ecological Impact Assessment in Britain and Ireland –Terrestrial, Freshwater, Coastal and Marine will be followed to inform the assessment of the Offshore scheme impacts on fish species. The MMO agrees with this is approach. However, the proposed approach to determining potential herring spawning habitat (using the MarineSpace *et al*. 2013b approach), the MMO recommends that the Applicant uses a minimum of 10 years of International Herring Larvae Survey (IHLS) data to inform to assessment. Please note that until recently the Southern North Sea and eastern English Channel (SNS) IHLS surveys for the Downs herring population were conducted as three separate sampling event surveys; one in the 3rd quarter of each year undertaken by the Netherlands between 16-31 December, and two in the 1st quarter of each year; between 1-15 January undertaken by Germany, and between 16-31 January undertaken by the Netherlands. However, the latter survey (16-31 January) was discontinued in 2017 (ICES 2021) so this should be born in mind when downloading and using the IHLS data to inform the assessment. Please also note that no IHLS surveys are conducted at the Thames/Blackwater herring spawning grounds.

3.5.5 The MMO considers the embedded and control and management/mitigation measures proposed by the Applicant to be appropriate.

3.5.6 It is noted however, that a target cable burial depth of 1 to 2m has been set as a mitigation measure for commercial fisheries receptors to prevent snagging/interaction with fishing gear. In accordance with the Department of Energy and Climate Change report (2011), the MMO recommend a minimum cable burial depth of 1.5m (subject to local geology and obstructions) to minimise the effects of EMF for fish receptors.

3.5.7 The Applicant has proposed that 24-hour construction will take place and reduce the overall duration of the works. Conversely 24-hour construction will mean that there are no quiet periods of 'downtime' during the project's construction. This is likely to result in localised 'avoidance' impacts by a variety of marine receptors including fishes, this should be acknowledged in the upcoming EIA.

3.5.8 Should unexploded ordnance (UXO) clearance activities be required as part of the seabed preparation work, then it is likely that underwater noise (UWN) modelling will be required to determine the range of impact from explosions and any potential overlap with the Thames/Blackwater herring spawning grounds at Herne Bay and the mouth of the Blackwater Estuary, and the Downs herring spawning ground in the southern North Sea. Fish should be assigned into one of the four categories according to their hearing capabilities as described in Popper *et al.* (2014) and should be treated as a stationary (not a fleeing) receptor) for the purpose of UWN modelling. Popper *et al.* (2014) also provides noise threshold guidelines for explosions.

3.5.9 The MMO note that the results in 'Figure 4.9.2: Total Landed Weight (tonnes) and Value (£) of Catch by ICES Rectangle (2016 – 2020),' in Volume 1 Main Text, Part 4 Offshore Scheme, don't seem to correspond to what is stated in the text. This should be reviewed.

3.5.10 The MMO has noted that the Applicant is proposing to scope the cumulative and interrelated impacts for all marine receptors. A zone of influence (ZOI) of 31km has been used to identify these developments based on the potential inter-related acoustic impacts from detonation of UXO and piling. Please note that due to the large area over which UWN can propagate, a wider ZOI may be required for the assessment of cumulative and inter-related impacts arising from UXO and piling.

3.6 Shellfish

3.6.1 The MMO agrees with that all potential impacts the Proposed Development could have on shellfish have been scoped in and that the methods described are sufficient to inform an impact assessment.

3.6.2 The MMO agrees that the impacts described in table 4.4.4 can be scoped out.

3.6.3 The MMO is content that a good range of data sources including project specific survey data and UK commercial fisheries landings by ICES rectangle. However, to improve the shellfish data the MMO would advise consultation with the respective Inshore Fisheries Conservation Authority (IFCA) who will be able to provide data for inshore shell fishers using boats under 10m which would otherwise be missed by the data sources planned for use.

3.7 Marine Mammals

3.7.1 The MMO has provided comments on impacts on marine mammals from underwater noise below. The MMO defers to Natural England as the SNCB in relation to all other potential impacts to marine mammals.

3.8 Underwater noise

3.8.1 The MMO welcomes the commitment that impacts of underwater sound on marine mammals during construction, maintenance and decommissioning phases will be scoped in for further assessment. The MMO welcomes further discussion on any mitigation measures deemed necessary during the EIA process.

3.8.2 It is noted that specific details of how the impacts of underwater noise on marine mammals will be assessed have not been provided at this stage. Desk based assessments should be supported by relevant, peer-reviewed literature where possible.

3.9 Archaeology / Cultural Heritage

3.9.1 The MMO defers to Historic England on the suitability of the scope of the assessment with regards to archaeology and cultural heritage impacts.

3.10 Navigation / Other Users of the Sea

3.10.1 The MMO recommends early engagement with any port authority where appropriate, to ensure that any mitigation measures regarding impacts on shipping and navigation are adopted appropriately.

3.10.2 The MMO defers to the Maritime and Coastguard Agency and Trinity House on the suitability of the scope of the assessment with regards to navigation of vessels and the safety of other users of the sea.

3.11 Water Quality

3.11.1 The MMO defers to The Environment Agency on the suitability of the scope of the assessment with regards to water quality.

3.12 Seabed / Land / Soil Quality

3.12.1 If any bespoke sediment sampling is required/undertaken for sediment quality, these should adhere to the MMO guidelines, especially with regard to the selection of a validated laboratory.

3.12.2 The MMO would recommend the applicant utilise the Cefas Sediment Management Framework app (https://rconnect.cefas.co.uk/action_levels_tool/) to check if there have been any previous sampling undertaken within the vicinity of the scoping area and check the results which may indicate any areas of concern.

3.12.3 It is recommended that the applicant provide a KML file or workbook of coordinates for the project area to allow a robust assessment to be undertaken at the time of submission.

3.12.4 The applicant should check the MMO's data portal and download the disposal site shapefile from https://data.cefas.co.uk/view/407 and provide justification within the subsequent environmental statement, regarding interference with other dredging and disposal operations.

3.12.5 The applicant should note that a disposal site, or sites, may be required to be designated for the cable laying operations (either pre-sweeping, cable laying and or post cable burial) and should consider this in their environmental impact assessment, and record any findings in the subsequent environmental statement.

3.13 Population and Human Health

3.13.1 The MMO defers to the Local Authority and UK Health Security Agency on the suitability of the scope of the assessment with regards to population and human health impacts.

3.14 Cumulative Impacts & In-Combination Impacts

3.14.1 The MMO is content with the proposal for cumulative impacts and in combination impacts.

3.15 Other

3.15.1 The MMO note the 'Need for an Environmental Impact Assessment' in Volume 1, Part 1 of the Scoping Report support the approach taken by the Applicant despite none of the components which make up the Proposed Development being explicitly identified under Schedule 1 or 2 of EIA Regulations.

3.15.2 The applicant has correctly identified that the proposed development is within the East Inshore and the South East Inshore Marine Plan areas. The MMO expects the Applicant to produce a standalone document to demonstrate all relevant marine plan policies have been considered, as well as provide a statement whether the Proposed Development is compliant with the two separate marine plans.

4 Conclusion

The MMO has reviewed the Scoping Report and has provided advice for the applicant, noted corrections to be made, and also included comments that the MMO would expect to be addressed in the ES.

This statement, however, should not necessarily be seen as a definitive list of all EIA requirements. Given the scale and programme of the Proposed Development, other work may prove necessary.



Marine Licensing Case Officer



Sam Chudley
Maritime and Coastguard Agency
Bay 2/24
Spring Place
105 Commercial Road
Southampton
SO15 1EG

www.gov.uk/mca

Your Ref: EN020026

22 November 2022

Via email: SouthEastAngliaLink@planninginspectorate.gov.uk

Dear Marie,

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11

Application by National Grid Electricity Transmission plc (the Applicant) for an Order granting Development Consent for the Sea Link (the Proposed Development)

Scoping consultation and notification of the Applicant's contact details and duty to make available information to the Applicant if requested

Thank you for your email dated 25 October 2022 inviting comments on the Scoping Report for the proposed Sea Link Project. The Scoping Report has been considered by representatives of UK Technical Services Navigation, and the MCA would like to respond as follows:

We note that the project would comprise of the following elements:

- Underground HVAC cable between the proposed Friston substation and a new converter station in Suffolk.
- New converter station in Suffolk.
- Underground HVDC cable between a new converter station in Suffolk and a landfall on the Suffolk coast, either between Aldeburgh and Thorpeness or at Sizewell Gap.
- Marine HVDC cable between a landfall on the Suffolk coast and a landfall in Pegwell Bay in Kent.
- Underground HVDC cable between a landfall in Pegwell Bay and new converter station in Kent.
- New converter station in Kent.
- A HVAC connection (either by overhead line or underground cables) between a

INVESTORS IN PEOPLE | Silver

new converter station in Kent and the existing Canterbury to Richborough overhead line.

The MCA has an interest in the works associated with the marine environment, and the potential impact on the safety of navigation, access to ports, harbours and marinas and any impact on our search and rescue obligations.

1) The MCA would expect any works in the marine environment to be subject to the appropriate marine licensing and planning consents before carrying out any marine licensable works. We note that the project will fall under Marine and Coastal Access Act 2009, and will cover all installation, commissioning, operational, maintenance and decommissioning activities of the project.

2) The development area carries a significant amount of through traffic to major ports, with a number of important international shipping routes in close proximity, and IMO routing measures. Attention needs to be paid to changes in vessel routing, particularly in heavy weather ensuring shipping can continue to make safe passage without large-scale deviations, and any reduction in navigable depth referenced to chart datum.

3) We note the commitment to undertake a Navigation Risk Assessment (NRA) with supporting marine traffic surveys. The NRA should establish how the phases of the project are managed to a point where risk is reduced and considered to be 'as low as reasonably practicable' (ALARP). A marine hazard identification workshop would also be welcomed as part of the NRA.

4) A range of potential project impacts on shipping and navigation have been identified which could occur during the construction, operation and maintenance, and decommissioning phases of the Proposed Development.

5) We note that the shipping and navigation chapter of the Environmental Statement will consider the potential impacts of the construction, operation and maintenance and decommissioning phases of the project within the shipping and navigation study area and will follow the IMO Formal Safety Assessment methodology. The information from the NRA will be fed into the shipping and navigation chapter. The MCA would expect the Environmental Statement to detail the possible impact on navigational issues for both commercial and recreational craft, specifically:
    - Collision Risk
    - Navigational Safety
    - Visual intrusion and noise
    - Risk Management and Emergency response
    - Marking and lighting of site and information to mariners
    - Effect on small craft navigational and communication equipment
    - The risk to drifting recreational craft in adverse weather or tidal conditions
    - The likely squeeze of small craft into the routes of larger commercial vessels.

6) We note the potential for a reduction of under keel clearance, which will be scoped into the assessment. Safe realistic under keel clearance (UKC) assessment should be undertaken for the maximum drafts of vessel both observed and anticipated. The MCA's Under Keel Clearance Policy paper can be found at the following link: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/373456/Under_Keel_Clearance_paper_May_14_-_FINAL.pdf

7) Attention should be paid to cabling routes and where appropriate burial depth for which a Burial Protection Index study should be completed and, subject to the traffic volumes, an anchor penetration study may be necessary. If cable protection measures are required e.g., rock bags or concrete mattresses, the MCA would be willing to accept a 5% reduction in surrounding depths referenced to Chart Datum. This will be particularly relevant where depths are decreasing towards shore and potential impacts on navigable water increase. Where this is not achievable, the licencee must discuss further with the MCA and Trinity House.

8) A study should be undertaken to establish the electromagnetic deviation, affecting ship compasses and other navigating systems, of the high voltage cable route to the satisfaction of the MCA. On receipt of the study, the MCA reserves the right to request a deviation survey of the cable route post installation.

9) We note in the report that as the design progresses, further assessments will be undertaken in order to assess the subsea cables protection against shipping and fishing activities (anchoring and trawling). Rock protection could potentially be utilised to cover the cable pending assessment from marine traffic and the NRA.

10) We note that the potential effects related to the construction, operation and maintenance, and decommissioning of the Proposed Development on shipping and navigation will assess the potential cumulative effects that could occur, related to alternate projects and/or activities that take place within the development area.

11) The MCA would expect no effects to be scoped out of the assessment with regards to shipping and navigation, pending the outcome of the NRA and further stakeholder consultation. We note that no impacts are proposed to be scoped out of the assessment related to infrastructure and other sea users.

Finally, we would expect emergency response arrangements to be considered as part of this project on the potential impacts to search and rescue (SAR) and emergency response in the area, to ensure there are no impacts on SAR operations.

I hope you find this information useful at Scoping Stage.

Yours sincerely,

[redacted]
Maritime Licence Advisor
UK Technical Services Navigation

Ministry of Defence

Defence Infrastructure Organisation

Marie Shoesmith Senior EIA Advisor
National Infrastructure Planning
Temple Quay House
2 The Square
Bristol
BS1 6PN

Safeguarding Department
Statutory & Offshore
Defence Infrastructure Organisation
St Georges House
DIO Head Office
DMS Whittington
Lichfield
Staffordshire
WS14 9PY
Tel: 07800 505824
E-mail: DIO-safeguarding-statutory@mod.gov.uk
www.mod.uk/DIO

22 November 2022

Your reference: EN020026
Our reference: DIO/10056900/2022

Dear Marie

MOD Safeguarding –the Ministry of Defence (RAF Manston) Technical Site Direction 2017 and Military Practice and Exercise Areas (PEXA)

Proposal: South East Anglia Link. The Sea Link project consists of; 1. Constructing a new converter station within 5km of the proposed Friston substation then HVAC underground cables between the substation and a converter station and then HVDC underground cables between the converter station and the coast; 2. Constructing a new offshore HVDC cable between Suffolk and Kent. 3. Constructing a new converter station within 5km of the existing Richborough substation with HVDC underground cables between the converter station and the coast at Pegwell Bay.

Location: Land from the Sizewell area in Suffolk to Richborough in Kent with a sub-sea cable between connection

Thank you for consulting the Ministry of Defence (MOD) on the above proposed development which was received by this office on the 25/10/2022.

The Defence Infrastructure Organisation (DIO) Safeguarding Team represents the Ministry of Defence (MOD) as a consultee in UK planning and energy consenting systems to ensure that development does not compromise or degrade the operation of defence sites such as aerodromes, explosives storage sites, air weapon ranges, and technical sites or training resources such as the Military Low Flying System.

The applicant is seeking a Scoping Opinion in order to obtain information to inform an Environmental Statement (ES) relating to the Proposed Development.

Two converter site option areas were identified within the routing and siting study area. Area A is located adjacent to and encompassed by Richborough Energy Park and Area B is located to the north and south of the A299 and adjacent to Manston Business Park. The Area B location occupies the statutory safeguarding zone surrounding the Ministry of Defence (RAF Manston) Technical Site Direction 2017. In particular, the technical safeguarding zone surrounding the Ministry of Defence (RAF Manston) Technical Site Direction 2017. and is approximately 0.8km from the centre of the asset.

The safeguarded technical installation is a High-Resolution Direction Finder (HRDF) air navigational aid. The HRDF is used to precisely locate transmissions from aircraft and supports the delivery of air traffic control functions. However, its key role is to precisely locate transmissions from emergency transponder beacons on aircraft (both military and civilian) or military aircrew that have bailed out of their aircraft. In this role the HRDF mast serves as an integral part of a UK wide network (the UK Diversion and Distress Facility) which is used to locate aircraft or personnel and direct rescue services. Maintaining the operational effectiveness of this technical installation is therefore critical to maintaining the UK emergency response capabilities for the management of air safety incidents.

Offshore Safeguarding

The applicant should be advised to take account of the current published MOD Practice And Exercise Areas (PEXA) in preparation of their development proposal. The MOD has highly surveyed areas which maybe relevant to the installation of the export cables & associated infrastructure. The MOD would like to be consulted at the next stage of this application. Once further information is submitted, the MOD requests that we are consulted again in order to complete a more detailed technical assessment.

In order to conduct further assessment, grid references both in latitude and longitude (degrees, minutes and seconds) and also Easting and Northing (BNG) for the proposed export cable will be required.

Having reviewed the documents provided with this consultation we acknowledge that this is at the scoping stage of the proposal and therefore full details of the proposed plans are not available. The MOD will need to complete a more detailed assessment on the potential impacts of this proposal on technical assets at the Ministry of Defence (RAF Manston) Technical Site Direction 2017, once more detailed information is submitted. Further assessment will also be necessary to determine the potential for this development to limit or otherwise restrict offshore defence activity and/or MOD navigational routes.

In summary, at this stage of the consultation process, the MOD advises we will need to complete a more detailed assessment once plans and further information become available. Once further information is submitted, the MOD requests that we are consulted again via the above email address in order to complete the necessary safeguarding assessments.

The MOD must emphasise that the advice provided within this letter is in response to the data and information detailed above and in the emailed documentation titled EN020026 - Sea Link - EIA Scoping Notification and Consultation dated 25/10/2022.

Any variation of the parameters (which include the location, dimensions, form, and finishing materials) detailed may significantly alter how the development relates to MOD safeguarding requirements and cause adverse impacts to safeguarded defence assets or capabilities. In the event that any amendment, whether considered material or not by the determining authority, is submitted for approval, the MOD should be consulted and provided with adequate time to carry out assessments and provide a formal response

I trust this is clear however should you have any questions please do not hesitate to contact me.

Yours sincerely

[redacted]

Assistant Safeguarding Manager

Date: 22 November 2022
Our ref: 410642
Your ref: EN020026-000024-221025

Environmental Services Central Operations
Temple Quay House 2
The Square
Bristol
BS1 6PN

BY EMAIL ONLY

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

T [redacted]

Dear Marie Shoesmith,

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11

Application by National Grid Electricity Transmission plc (the Applicant) for an Order granting Development Consent for the Sea Link (the Proposed Development)

Scoping consultation and notification of the Applicant's contact details and duty to make available information to the Applicant if requested

Thank you for your letter dated 25th October 2022 consulting Natural England on the Sea Link Environmental Impact Assessment (EIA) Scoping Report (October 2022). The following constitutes Natural England's formal statutory response; however, this is without prejudice to any comments we may wish to make in light of further submissions on the presentation of additional information.

The advice contained within this letter is provided by Natural England, which is the statutory nature conservation body within English territorial waters (0-12 nautical miles). Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

Case law[1] and guidance[2] has stressed the need for a full set of environmental information to be available for consideration prior to a decision being taken on whether or not to grant planning permission. Annex A to this letter provides Natural England's advice on the scope of the Environmental Impact Assessment (EIA) for this development.

Should the proposal be amended in a way which significantly affects its impact on the natural environment then, in accordance with Section 4 of the Natural Environment and Rural Communities Act 2006, Natural England should be consulted again.

[1] Harrison, J in *R. v. Cornwall County Council ex parte Hardy* (2001)
[2] *Note on Environmental Impact Assessment Directive for Local Planning* Authorities Office of the Deputy Prime Minister (April 2004) available from http://webarchive.nationalarchives.gov.uk/+/http://www.communities.gov.uk/planningandbuilding/planning/sustainabilityenvironmental/environmentalimpactassessment/noteenvironmental/

Summary of Main Points

1. Approach to EIA scoping

Natural England (NE) welcome the information provided in the Scoping Report. It must be noted that the Scoping Report is high level and based on a large area of search, in particular the location of landfall and converter sites in the Suffolk Onshore Scheme. Therefore, in the absence of sufficient information, it is difficult to provide targeted advice, including impacts on saltmarsh habitats at landfall locations. Furthermore, we also wish to fully understand the equal weighting of environmental factors used in the selection process for the preferred routes. The route selection approach and environmental factor weighting should be made more transparent and explained more clearly.

Our advice is, therefore, based on the information available at this time and at this stage of the EIA process. In order to assess potential impacts on designated sites, will require further information on, but not limited to; cable burial assessments; requirement for external cable protection; number of cables; proposed mitigation; feasibility of horizontal directional drilling (HDD) to avoid coastal impacts. We hope that some of this evidence will be available in the future and we look forward to having further opportunities to provide our comments.
As noted above, the information provided in the Sea Link EIA Scoping Report is very high-level. We note that there is very little information on the assessment of impacts to designated sites, how this will be undertaken, what information will be needed, and what impacts should be taken into account; namely Habitats Regulation Assessments (HRA) and Marine Conservation Zone (MCZ) Assessments. Therefore, we recommend that impacts on designated sites should be thoroughly assessed, and the best available evidence used to inform these assessments.

The current draft National Policy Statement (NPS) indicates coordination where possible and re-consultation is expected shortly. Natural England therefore recommend that the Environmental Statement should have consideration of anything in the revised NPS. We advise that early consideration should be given to policies in draft NPS updates in case these are adopted and this will protect the project from unexpected changes that could be required of them later in the application process.

There is a risk with premature EIA scoping, and submission of the Preliminary Environmental Information Report (PEIR) prior to the completion of the data collection and analysis, that consenting issues are identified late in the day and are not resolved in advance through pre-application discussions or data collection, and that Examinations are then unable to resolve these issues. This runs counter to the increased emphasis on 'front-loading' issues in the NSIP process, and the ambition of the British Energy Security Strategy as regards speeding up the consenting process.

In addition, Natural England highlight the risk that any additional data analysis later in the application process has the potential to change the conclusions of the ES from those set out in the PEIR. This could lead to delays to the project programme, both during consenting and/or in the pre-construction phase. More generally, Natural England advises that 24 months of survey effort is the minimum expected for bird and marine mammal data collection, in order to provide an adequate baseline upon which to draw conclusions and inform impact assessments and any requirements for mitigation..

2. Cumulative Impacts

The cumulative effect of developments within the Zone of Influence (ZoI) of the proposed scheme should be adequately assessed in the Scoping Report, particularly with regards to Suffolk Coasts and Heath AONB (SCHAONB), Pegwell Bay and the offshore cable route. There are multiple ongoing and proposed projects which have the potential to interact with Sea Link and create cumulative adverse impacts on the environment such as:

- in combination with Sizewell C Nuclear Power Station developments in Suffolk Coasts and Heaths AONB and the Suffolk Heritage Coast,
- the offshore wind and interconnector cables which Sea Link could potentially cross and thus lead to impacts on benthic habitats,
- the combined impacts of cables landing in saltmarsh habitat at Pegwell Bay.

- the interaction between Sea Link and Euro Link, as these two projects appear to have very similar scopes, bringing electricity cables onshore in Suffolk and linking them into the National Grid onshore network. Both projects have considered a range of landfall options and it seems sensible to consider linking these landfall options and infrastructure to minimise the impacts on the coast within Sites of Special Scientific Interest (SSSIs), the overlapping international conservation designations (Special Areas of Conservation (SAC)/ Special Protection Areas (SPAs)), the SCHAONB, the Suffolk Heritage Coast and other identified areas of importance such as ancient woodlands.

We also strongly encourage a thorough cumulative review of National Grid's projects be carried out to assess their impacts on protected sites, species and habitats of importance, and ensure that they do not provide pathways whereby nature can deteriorate.

3. Landscape Impacts (Suffolk Coasts & Heaths AONB and Suffolk Heritage Coast)

Natural England is concerned about the potential for adverse effects on the statutory purpose of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (SCHAONB), which is a nationally designated landscape, given the location of the Applicant's preferred landfall site, onshore cable route and preferred converter site are within SCHAONB. Therefore, an assessment should be completed on the potential impacts of the project on the statutory purpose of SCHAONB. We wish to emphasise that the statutory purpose of SCHAONB is to both conserve and enhance natural beauty. The enhance part of the statutory purpose should also inform an assessment of cumulative effects. The expectation should be that opportunities to reverse a decline in natural beauty should be sought, rather than the area being able to accommodate more development which:

- further limits or closes down future enhancement opportunities
- further erodes, in combination with existing development, the capacity of the affected area to contribute to the delivery of the statutory purpose, or even to detract from SCHAONB as a whole.

Natural England are concerned with the location of landfall and the location of the preferred converter site option 1, with option area E, to be within SCHAONB. Natural England have a preference for the converter site option 3 which is located outside of SCHAONB. The risk of using converter site option 1 should be fully assessed with equal weighting of the environmental factors. We advise that there should be clear confirmation that the value of SCHAONB's landscape and the sensitivity of its landscape and visual receptors should be given the highest rating within the Landscape and Visual Impact Assessment (LVIA).

Additionally, the effects of the coastal elements of the project will directly impact on the Suffolk Heritage Coast. An assessment of the project's impacts on the Suffolk Heritage Coast should therefore be provided. The purpose of a Heritage Coast is to define a stretch of undeveloped coastline, however this section of the Suffolk Heritage Coast is under pressure from the development of energy infrastructure.

4. Suffolk Onshore Preferred Route(s)

The Scoping Report for the Suffolk Onshore Scheme encompasses a large area and is high level due to the route options, landfall and converter site locations still being considered. We encourage refinement of the site and route options, with avoidance of protected habitats and species, including Ancient Woodland, being considered as a priority. Where protected sites cannot be avoided, after equal weighting against other constraints, the sensitivity of habitats must be fully assessed, for example habitat and species recoverability, to reduce the impacts on protected features. We cannot, at this stage, provide targeted advice on protected species and habitats, due to broad scope of the Suffolk Onshore Scheme, and without detailed survey methodology within a confined route. We recommend that species and habitats are appropriately surveyed within the cable route, converter site and substation locations, along with functionally linked land, supporting habitats and buffer zones. We encourage engagement with local conservation groups, such as Suffolk Wildlife Trust and RSPB, for updated species records.

Without refinement of the scoping area and routes, and without detail on construction techniques and Horizontal Directional Drilling (HDD) feasibility, it is difficult to advise on which option would cause the least impact. Natural England's preferred approach for cable landing would be a

trenchless technique, however we are concerned that the preferred landfall options go through designated sites without HDD feasibility being confirmed. We recommend that the applicant considers worst-case scenarios when assessing the impact of the project on protected and important habitats and species, including protected sites and their designated features. We would welcome the inclusion of a map which details protected habitats and designated sites alongside the different cable routes, substation, and converter site options, as the figures provided only show this detail for the S2 and S3 landfall options.

5. Kent Onshore Preferred Route

Natural England is concerned that there is the potential for adverse impacts associated with a preferred landfall in Pegwell Bay, considering the various protected sites within and adjacent to it. The assumption that any impacts on these sites and their designated features is temporary relies solely on the use of trenchless drilling methods, such as HDD, being feasible. However, the feasibility of HDD has not yet been confirmed. Therefore, we would welcome a commitment register with the commitment of trenchless techniques at Pegwell Bay and a feasibility study for trenchless drilling through Pegwell Bay. We would expect the Applicant to consider lessons learnt from previous projects, such as Nemo Link interconnector cable and Thanet Offshore Windfarm, if the preferred landfall at Pegwell Bay progresses. If HDD is shown not to be feasible for Pegwell Bay, we would advise that alternative landfall options be carefully considered, so that impacts to designated sites are avoided.

Natural England welcome National Grid's Biodiversity Net Gain (BNG) commitment and have included BNG guidance for Nationally Significant Infrastructure Projects (NSIPs) in Appendix C.

6. Marine Processes

Natural England's overarching advice when selecting a cable route, is to use the avoid, reduce, mitigate hierarchy, in order to reduce environmental impacts. The proposed cable route currently passes through a number of protected areas and our preference would be, in the first option, to avoid these protected areas entirely. We also advise that this hierarchy should be used when considering construction activities, cable installation techniques and seabed preparation methods. Construction works, in shallow nearshore waters or within/near protected sites, that minimise seabed disturbance and the need for cable protection measures should be used, where possible. Total area of impact (direct and indirect) footprint should be provided for cable installation activities, and volumes of cable protection measures estimated. We would also advise that seabed mobility, temperature and salinity, sedimentology and sedimentary environments, bedform dynamics and stability, and sediment transport pathways and rates should also be investigated as part of the baseline characterisation. Furthermore, consideration should be given to a number of other receptors in this assessment, including significant morphological features such as mobile sandbanks, channels, the coastline(s), for example cliffs, dunes, saltmarsh, mudflats), and designated sites. There are also a number of potential significant effects which we would advise giving consideration to, including smothering of adjacent seabed, change of sediment type and persistence, modifications to sediment transport patterns and resulting morphological change.

7. Benthic Ecology

In the absence of detailed construction techniques, we advise that underwater sound disturbance remains scoped in at this stage. Furthermore, we also advise that electromagnetic field (EMF) impacts remain scoped in for benthic ecology. Other information which will be expected, includes but is not limited to, the footprint of area affected by excavation for and laying the subsea cable, area affected by any potential external cable protection, estimation of EMF at the exterior of cables as well as at the surface above buried cables, cable laying and maintenance associated vessels. We advise that until more information is provided, such as the data from the intertidal benthic surveys at landfall locations (planned for 2023), we are unable to provide detailed advice on such matters. Furthermore, we recommend that best practice is followed when undertaking surveys and that you liaise with us regarding the planning on these surveys.

Natural England are also concerned about the proposed route through Goodwin Sands Marine Conservation Zone (MCZ), which is designated for benthic habitats and species, including *Sabellaria spinulosa* reefs, which are particularly sensitive to construction on the seabed and present low resilience to habitat changes. We encourage sufficient surveys to be carried out in

protected sites within the cable route to assess the presence of sensitive habitats and species. If, after careful weighting of environmental considerations, Goodwin Sands MCZ cannot be avoided, Natural England advise that the sensitive features of the site are avoided. Given recent decisions on NSIPs with similar impacts to designated sites we advise that there may be a need to discuss the production of an in principle Measures of Equivalent Environmental Benefit (MEEB) plan. Natural England is willing to work with the applicant during the pre-application phase to further discuss this issue.

8. **Fish and Shellfish Ecology**

Natural England is pleased that a number of pathways for impact have been scoped in for fish and shellfish ecology. However, we recommend that changes in water quality are scoped in, as well as potential disturbance to habitats and species through the creation of new habitats. We are concerned about the potential for the works to impact fish and shellfish which spawn on the seabed in the study area and recommend sensitive periods are identified. We would like to highlight that, although MCZs within the study area are not designated for migratory fish, the impacts of the proposed works on migratory routes should be considered. There should also be consideration of potential impacts on poor cod, Mediterranean scaldfish and cephalopods. We cannot comment in detail on the impacts on fish and shellfish ecology due to the high-level information provided in the scoping report, however we look forward to engaging with the Applicant for future reports and assessments. The Applicant should be mindful of closed shellfish areas and areas closed to bottom-towed fishing gear, which are specified in our detailed comments in Appendix B. The relevant IFCA authorities can be contacted for more information and the following webpage provides detail on Marine Management Organisation (MMO) and Inshore Fisheries and Conservation Authorities (IFCA byelaw) areas View all Restrictions (kingfisherrestrictions.org).

9. Marine Mammals

The most significant potential for impact on marine mammals from this project comes from underwater noise associated with UXO (unexploded ordnance) clearance (and to a lesser extent from geophysical surveys), especially as the cable route is partially in the Southern North Sea (SNS) Special Area of Conservation (SAC) for harbour porpoises. When assessing the project for potential impacts on marine mammals, we recommend that the applicant review the most up to date literature and evidence, such as Carter et al 2022 for seals, to ensure that the appropriate screening distance has been used. We will continue to engage with the applicant through the pre-application phase to provide further advice for future reports and assessments.

10. Red Throated Diver (RTD)

Natural England's primary point of concern is regarding the potential for displacement of red throated diver, a designated feature of the Outer Thames Estuary Special Protection Area (SPA). Works should be timed to avoid the overwintering period, especially the months of January March should be avoided. The impacts from these works will require assessment as part of any Environmental Impact Assessment (EIA) and Habitats Regulation Assessment (HRA) processes. If it is not possible to avoid the overwintering period, then the extent of the potential displacement on red throated diver, using a methodology agreed with Natural England, needs to be carried out as soon as possible to enable a full assessment of the impact on all the OTE's conservation objectives. This should be presented in the Environmental Statement/information to inform the Habitats Regulations Assessment. If construction was to take place in the Outer Thames SPA during the overwintering period, Natural England anticipate the need for significant mitigation. Should displacement effects on the SPA still not be reduced to a level where there is no contribution to in-combination effects, the Applicant will need to present a derogations case and bring forward compensatory measures. Further concerns are on the clarity of which designated species are considered scoped in and if operational and maintenance impacts have been scoped in. We will continue to engage with the applicant through the pre-application process to provide further advice on all issues.

Please see Annex A for guidance on EIA requirements. In Annex B we provide detailed comments on the project-specific aspects of the scoping report. Please see Annex C for Biodiversity Net Gain (BNG) guidance for Nationally Significant Infrastructure Projects (NSIPs).

Natural England Discretionary Advice Service (DAS)
We would like to draw the Applicant's attention to the opportunity to obtain further advice from Natural England under our Discretionary Advice Service (DAS). The DAS provides additional non-statutory advice related to development proposals, in order to support sustainable development and achieve better environmental outcomes through the planning system. Further information including charges and how to proceed with an application can be found at: https://www.gov.uk/guidance/developers-get-environmental-advice-on-your-planning-proposals

We would be happy to comment further should the need arise but if, in the meantime, you have any queries please do not hesitate to contact us. For any queries relating to the specific advice in this letter only please contact me using the details below. For any new consultations, or to provide further information on this consultation please send your correspondences to consultations@naturalengland.org.uk.

Yours sincerely

[redacted]
Marine Lead Advisor, Kent and Sussex
[redacted]

Annex A – Advice related to EIA Scoping Requirements

1. General Principles

Schedule 4 of the Town & Country Planning (Environmental Impact Assessment) Regulations 2017, Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (Regulation 10) sets out the necessary information to assess impacts on the natural environment to be included in an Environmental Statement (ES), specifically:

- A description of the development – including physical characteristics and the full land/marine use requirements of the site during construction and operational phases.
- Expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed development.
- An assessment of alternatives and clear reasoning as to why the preferred option has been chosen.
- A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape/seascape and the interrelationship between the above factors.
- A description of the likely significant effects of the development on the environment – this should cover direct effects but also any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects. Effects should relate to the existence of the development, the use of natural resources and the emissions from pollutants. This should also include a description of the forecasting methods to predict the likely effects on the environment.
- A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.
- A non-technical summary of the information.
- An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.

It will be important for any assessment to consider the potential cumulative effects of this proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the 'in combination' effects of the proposed development with any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the ES. All supporting infrastructure should be included within the assessment.

2. Biodiversity and Geology

2.1 Ecological Aspects of an Environmental Statement

Natural England advises that the potential impact of the proposal upon features of nature conservation interest and opportunities for habitat creation/enhancement should be included within this assessment in accordance with appropriate guidance on such matters. Guidelines for Ecological Impact Assessment (EcIA) have been developed by the Chartered Institute of Ecology and Environmental Management (CIEEM) and are available on their website.

EcIA is the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components. EcIA may be carried out as part of the EIA process or to support other forms of environmental assessment or appraisal.

The National Planning Policy Framework sets out guidance in S.174-177 on how to take account of biodiversity interests in planning decisions and the framework that the responsible authority should provide to assist developers.

2.2 Internationally Designated Sites

The ES should thoroughly assess the potential for the proposal to affect designated sites. Internationally designated sites (e.g. designated Special Areas of Conservation (SAC) and Special Protection Areas (SPA)) fall within the scope of the Conservation of Habitats and Species Regulations 2017 (as amended). In addition, Paragraph 176 of the National Planning Policy Framework requires that potential Special Protection Areas, possible Special Areas of Conservation, listed or proposed Ramsar sites, and any site identified as being necessary to

compensate for adverse impacts on classified, potential or possible SPAs, SACs and Ramsar sites be treated in the same way as classified sites.

Under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) an appropriate assessment needs to be undertaken in respect of any plan or project which is (a) likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and (b) not directly connected with or necessary to the management of the site.

Further information on the special interest features, their conservation objectives, and any relevant conservation advice packages for designated sites is available on our website https://designatedsites.naturalengland.org.uk/

The ES should include a full assessment of the direct and indirect effects of the development on the features of special interest within these sites and should identify such mitigation measures as may be required in order to avoid, minimise or reduce any adverse significant effects.

The emerging preference for the offshore cable corridor falls within the following internationally designated nature conservation:

- Southern North Sea SAC
- Outer Thames Estuary SPA

The emerging preference for the Kent Onshore converter stations, landfall, and cable corridors fall within the following internationally designated nature conservation sites:

- Sandwich Bay SAC
- Thanet Coast & Sandwich Bay SPA
- Thanet Coast & Sandwich Bay RAMSAR
- Thanet Coast SAC

The emerging preference for the Suffolk Onshore converter stations, landfall, and cable corridors fall within the following internationally designated nature conservation sites:

- Sandlings SPA

The development site's study area overlaps with, and may have the potential to impact, the following internationally designated nature conservation sites:

Within the Offshore section
- Margate and Long Sands SAC

Within the Kent Onshore section
- Stodmarsh SAC
- Stodmarsh SPA
- Stodmarsh RAMSAR

Within the Suffolk Onshore section
- Alde-Ore Estuary SPA
- Alde-Ore Estuary Ramsar
- Alde-Ore & Butley Estuaries SAC
- Minsmere to Walberswick SPA
- Minsmere to Walberswick Ramsar
- Minsmere to Walberswick Heaths & Marshes SAC
- Orfordness Shingle Street SAC
- Staverton Park & The Thicks, Wantisden SAC
- Dew's Pond SAC

The following internationally designated nature conservation sites are in the screening distance for marine mammals and may need to be assessed for connectivity to the study area:

- Moray Firth SAC
- Humber Estuary SAC
- Bancs des Flandres SAC
- Ridens et Dunes Hydrauliques du Détroit du Pas-de Calais SAC
- Vlaamse Banken SAC
- Baie de Canche et Couloir des Trois Estuaires SAC
- Vlakte van de Raan SAC
- Estuaires et Littoral Picards (Baies de Somme et d'Authie) SAC
- Voordelta SAC
- Wash and North Norfolk Coast SAC
- Grevelingen SAC

Please note: As the cable corridor is currently a study area, at this stage we are unable to provide a more definitive list of sites relevant to the project's assets.

The ES should include a full assessment of the direct and indirect effects of the development on the features of special interest within these sites and should identify such mitigation measures as may be required in order to avoid, minimise, or reduce any adverse significant effects.

Internationally designated site conservation objectives are available on our internet site http://publications.naturalengland.org.uk/category/6490068894089216

2.3 Habitats Regulations Assessment

If the proposal outlined within the scoping document has the potential to significantly affect features of the internationally designated sites and the activity is not directly connected to the management of any designated site, it should be assessed under regulation 63 the Conservation of Species and Habitats Regulations (2017). Should a Likely Significant Effect on an Internationally designated site be identified or be uncertain, the competent authority (eg. the Marine Management Organisation or Local Planning Authority or Government Department) may need to prepare an Appropriate Assessment, in addition to consideration of impacts through the EIA process.

If during the EIA process the potential for a Likely Significant Effect on the conservation objectives of the sites cannot be ruled out the competent authority for the marine licence (MMO / Government Department) should undertake an Appropriate Assessment of the implications for the site in view of its conservation objectives. Noting recent case law (People Over Wind[3]) measures intended to avoid and/or reduce the likely harmful effects on a European Site cannot be taken into account when determining whether or not a plan or project is likely to have a significant effect on a site, therefore consideration is required at Appropriate Assessment. Natural England wishes to be consulted on the scope of the Habitats Regulations Assessment and the information that will be produced to support it and should be formally consulted on any Appropriate Assessment provided for the proposal (Regulation 63).

2.4 Nationally Designated Sites, inc. Sites of Special Scientific Interest (SSSI) and Marine Conservation Zones (MCZ's)

Sites of Special Scientific Interest (SSSIs)- Further information on the location of SSSIs and their special interest features can be found at www.magic.gov.uk. The ES should include a full assessment of the direct and indirect effects of the development on the features of special interest within these sites and should identify such mitigation measures as may be required in order to avoid, minimise or reduce any adverse significant effects.

[3] People Over Wind and Sweetman vs Coillte Teoranta (ref: C 323/17).

The emerging preference for the Kent Onshore converter stations, landfall, and cable corridors fall within the following nationally designated nature conservation sites:

- Sandwich Bay to Hacklinge Marshes SSSI
- Thanet Coast SSSI

The emerging preference for the Suffolk Onshore converter stations, landfall, and cable corridors fall within the following nationally designated nature conservation sites:

- Leiston - Aldeburgh SSSI
- Sizewell Marshes SSSI

The development site's study area overlaps with, and may have the potential to impact, the following nationally designated nature conservation sites within the Suffolk onshore scheme:

- Alde-Ore Estuary SSSI
- Minsmere to Walberswick Heaths & Marshes SSSI
- Sandlings Forest SSSI
- Iken Wood SSSI
- Blaxhall Heath SSSI
- Gromford Meadow SSSI
- Snape Warren SSSI

Marine Conservation Zones - Marine Conservation Zones are areas that protect a range of nationally important, rare or threatened habitats and species. You can see where MCZs are located and their special interest features on www.magic.gov.uk. Factsheets that establish the purpose of designation and conservation objectives for each of the MCZ's are available at https://www.gov.uk/government/collections/marine-conservation-zone-designations-in-england

The emerging preference for the offshore cable corridor falls within the following nationally designated nature conservation:

- Goodwin Sands MCZ
- Thanet Coast MCZ

The development site's study area overlaps with, and may have the potential to impact, the following nationally designated nature conservation sites within the offshore scheme:

- Kentish Knock East MCZ
- Orford Inshore MCZ
- Dover to Deal MCZ

The ES should consider including information on the impacts of this development on MCZ interest features, to inform the assessment of impacts on habitats and species of principle importance for this location. Further information on MCZs is available via the following link: http://publications.naturalengland.org.uk/category/1723382

Further information on the special interest features, the conservation objectives, and relevant conservation advice packages for designated sites is available on our website https://designatedsites.naturalengland.org.uk/

2.5 Regionally and Locally Important Sites

The EIA will need to consider any impacts upon local wildlife and geological sites. Local Sites are identified by the local wildlife trust, geoconservation group or a local forum established for the purposes of identifying and selecting local sites. They are of county importance for wildlife or geodiversity. The ES should therefore include an assessment of the likely impacts on the wildlife and geodiversity interests of such sites. The assessment should include proposals for mitigation of

any impacts and if appropriate, compensation measures. Contact the local wildlife trust, geoconservation group or local sites body in this area for further information.

Locally Important Sites within the Suffolk Study Area:

- Westleton Heath NNR
- Orfordness Havergate NNR
- Registered Common Land – Aldringham Common
- Registered Common Land – Knodishall Common
- North Warren RSPB Reserve
- Minsmere RSPB Reserve
- The Haven, Aldeburgh LNR
- Grove Wood Ancient Woodland
- Great Wood Ancient Woodland

Locally Important Sites within the Kent Study Area:

- Sandwich and Pegwell Bay NNR
- Princes Beachland LNR
- Ash Level and South Richborough Pasture Local Wildlife Site

2.6 Protected Species - Species protected by the Wildlife and Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species Regulations 2017 (as amended)
The ES should assess the impact of all phases of the proposal on protected species (including, for example, pinnipeds (seals), cetaceans (including dolphins, porpoises whales), fish (including seahorses, sharks and skates), marine turtles, birds, marine invertebrates, bats, etc.). Information on the relevant legislation protecting these species can be reviewed on the following link https://www.gov.uk/government/publications/protected-marine-species. Natural England does not hold comprehensive information regarding the locations of species protected by law, but advises on the procedures and legislation relevant to such species. Records of protected species should be sought from appropriate local biological record centres, nature conservation organisations, NBN Atlas, groups and individuals; and consideration should be given to the wider context of the site for example in terms of habitat linkages and protected species populations in the wider area, to assist in the impact assessment.

The conservation of species protected by law is explained in Part IV and Annex A of Government Circular 06/2005 *Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System*. The area likely to be affected by the proposal should be thoroughly surveyed by competent ecologists at appropriate times of year for relevant species and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of the ES.

In order to provide this information, there may be a requirement for a survey at a particular time of year. Surveys should always be carried out in optimal survey time periods and to current guidance by suitably qualified and where necessary, licensed, consultants. **For Land Based Impacts** Natural England has adopted standing advice for protected species which includes links to guidance on survey and mitigation.

2.7 Habitats and Species of Principal Importance
The ES should thoroughly assess the impact of the proposals on habitats and/or species listed as 'Habitats and Species of Principal Importance' within the England Biodiversity List, published under the requirements of S41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act 2006 places a general duty on all public authorities, including local planning authorities, to conserve and enhance biodiversity. Further information on this duty is available here https://www.gov.uk/guidance/biodiversity-duty-public-authority-duty-to-have-regard-to-conserving-biodiversity.

Government Circular 06/2005 states that Biodiversity Action Plan (BAP) species and habitats, 'are capable of being a material consideration…in the making of planning decisions'. Natural England

therefore advises that survey, impact assessment and mitigation proposals for Habitats and Species of Principal Importance should be included in the ES. Consideration should also be given to those species and habitats included in the relevant Local BAP.

For Developments with a Land based element
Natural England advises that a habitat survey (equivalent to Phase 2) is carried out on the site, in order to identify any important habitats present. In addition, ornithological, botanical and invertebrate surveys should be carried out at appropriate times in the year, to establish whether any scarce or priority species are present. The Environmental Statement should include details of:

- Any historical data for the site affected by the proposal (e.g. from previous surveys);
- Additional surveys carried out as part of this proposal;
- The habitats and species present;
- The status of these habitats and species (e.g. whether priority species or habitat);
- The direct and indirect effects of the development upon those habitats and species;
- Full details of any mitigation or compensation that might be required.

The development should seek if possible to avoid adverse impact on sensitive areas for wildlife within the site, and if possible provide opportunities for overall wildlife gain.

The record centre for the relevant Local Authorities should be able to provide the relevant information on the location and type of priority habitat for the area under consideration.

2.8 Contacts for Local Records
Natural England does not hold local information on local sites, local landscape character and local or national biodiversity priority habitats and species. We recommend that you seek further information from the appropriate bodies (which may include the local records centre, the local wildlife trust, local geoconservation group or other recording society and a local landscape characterisation document).

3. Designated Landscapes and Landscape/Seascape Character

3.1 Nationally Designated Landscapes
As the development site is within Suffolk Coasts and Heath AONB and the Suffolk Heritage Coast, consideration should be given to the direct and indirect effects upon these designated landscapes and in particular the effect upon its purpose for designation within the environmental impact assessment, as well as the content of the relevant management plan for Suffolk Coasts and Heath AONB and Suffolk Heritage Coast.

Natural England's priority in providing landscape advice is to uphold the statutory purpose of Nationally Designated Landscapes, which is to conserve and enhance the area's natural beauty. We provide this advice as the national landscape agency for England and the designating authority for the SCHAONB. We believe that the advice presented within this response is commensurate with the national designation status, importance, and sensitivity of the AONB, and the need to uphold its statutory purpose.

3.2 Landscape/Seascape and visual impacts
Natural England would wish to see details of local landscape character areas mapped at a scale appropriate to the development site as well as any relevant management plans or strategies pertaining to the area. The EIA should include assessments of visual effects on the surrounding area and landscape together with any physical effects of the development, such as changes in topography.

The EIA should include a full assessment of the potential impacts of the development on local landscape character using landscape/seascape assessment methodologies. We encourage the use of Landscape and Seascape Character Assessment (LCA/SCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA/SCA provides a sound basis for guiding, informing and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character, as detailed proposals are developed.

Natural England supports the publication *Guidelines for Landscape and Visual Impact Assessment*, produced by the Landscape Institute and the Institute of Environmental Assessment and Management in 2013 (3rd edition). The methodology set out is almost universally used for landscape and visual impact assessment.

In order to foster high quality development that respects, maintains, or enhances, local landscape / seascape character and distinctiveness, Natural England encourages all new development to consider the character and distinctiveness of the area, with the siting and design of the proposed development reflecting local design characteristics and, wherever possible, using local materials. The Environmental Impact Assessment process should detail the measures to be taken to ensure the building design will be of a high standard, as well as detail of layout alternatives together with justification of the selected option in terms of landscape impact and benefit.

The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. In this context Natural England advises that the cumulative impact assessment should include other proposals currently at Scoping stage. Due to the overlapping timescale of their progress through the planning system, cumulative impact of the proposed development with those proposals currently at Scoping stage would be likely to be a material consideration at the time of determination of the planning application.

The assessment should refer to the relevant National Character Areas which can be found on our website. Links for Landscape / Seascape Character Assessment at a local level are also available on the same page.
https://www.gov.uk/government/publications/seascape-assessments-for-north-east-north-west-south-east-south-west-marine-plan-areas-mmo1134

https://data.gov.uk/dataset/3fed3362-2279-4645-8aaf-c6b431c94485/mmo1037-marine-character-areas

4. Access and Recreation

Natural England encourages any proposal to incorporate measures to help encourage people to access the countryside for quiet enjoyment. Measures such as reinstating existing footpaths together with the creation of new footpaths and bridleways are to be encouraged. Links to other green networks and, where appropriate, urban fringe areas should also be explored to help promote the creation of wider green/blue infrastructure. Relevant aspects of local authority green/blue infrastructure strategies should be incorporated where appropriate.

England Coast Path

The England Coast Path (ECP) is a new National Trail that will extend around all of England's coast with an associated margin of land predominantly seawards of this, for the public to access and enjoy. Natural England takes great care in considering the interests of both landowners/occupiers and users of the England Coast Path, aiming to strike a fair balance when working to open a new stretch. We follow an approach set out in the approved Coastal Access Scheme and all proposals have to be approved by the Secretary of State. We would encourage any proposed development to include appropriate provision for the England Coast Path to maximise the benefits this can bring to the area. We suggest that the development includes provision for a walking or multi-user route, where practicable and safe. This should not be to the detriment of nature conservation, historic environment, landscape character or affect natural coastal change. Consideration for how best this could be achieved should be made within the Environmental Statement.

As part of the development of the ECP a 'coastal margin' is being identified. The margin includes all land between the trail and the sea. It may also extend inland from the trail if:

- it's a type of coastal land identified in the Countryside and Rights of Way Act 2000 (CROW Act), such as beach, dune or cliff
- there are existing access rights under section 15 of the CROW Act
- Natural England and the landowner agree to follow a clear physical feature landward of the trail

Maps for sections of the ECP and further proposals for adoption are available here: https://www.gov.uk/government/collections/england-coast-path-improving-public-access-to-the-coast

Rights of Way, Access land, Coastal access and National Trails
The EIA should consider potential impacts on access land, public open land, rights of way and coastal access routes in the vicinity of the development. Consideration should also be given to the potential impacts on the adjacent/nearby Click here to enter text. National Trail. The National Trails website www.nationaltrail.co.uk provides information including contact details for the National Trail Officer. Appropriate mitigation measures should be incorporated for any adverse impacts. We also recommend reference to the relevant Right of Way Improvement Plans (ROWIP) to identify public rights of way within or adjacent to the proposed site that should be maintained or enhanced.

5. Water Quality
Increases in suspended sediment concentrations (SSC) during construction and operation (e.g. future dredging works) have the potential to smother sensitive habitats. The ES should include information on the sediment quality and potential for any effects on water quality through suspension of contaminated sediments. The EIA should also consider whether increased suspended sediment concentrations resulting are likely to impact upon the interest features and supporting habitats of the designated sites as listed above.

The ES should consider whether there will be an increase in the pollution risk as a result of the construction or operation of the development.

For activities in the marine environment up to 1 nautical mile out at sea, a Water Framework Directive (WFD) assessment is required as part of any application. The ES should draw upon and report on the WFD assessment considering the impact the proposed activity may have on the immediate water body and any linked water bodies. Further guidance on WFD assessments is available here: https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

6. Air Quality
Air quality in the UK has improved over recent decades but air pollution remains a significant issue; for example over 97% of sensitive habitat area in England is predicted to exceed the critical loads for ecosystem protection from atmospheric nitrogen deposition (England Biodiversity Strategy, Defra 2011). A priority action in the England Biodiversity Strategy is to reduce air pollution impacts on biodiversity. The planning system plays a key role in determining the location of developments which may give rise to pollution, either directly or from traffic generation, and hence planning decisions can have a significant impact on the quality of air, water and land. The assessment should take account of the risks of air pollution and how these can be managed or reduced. Further information on air pollution impacts and the sensitivity of different habitats/designated sites can be found on the Air Pollution Information System (www.apis.ac.uk). Further information on air pollution modelling and assessment can be found on the Environment Agency website.

7. Climate Change Adaptation
The England Biodiversity Strategy published by Defra establishes principles for the consideration of biodiversity and the effects of climate change. The ES should reflect these principles and identify how the development's effects on the natural environment will be influenced by climate change, and how ecological networks will be maintained. The NPPF requires that the planning system should contribute to the enhancement of the natural environment 'by establishing coherent ecological networks that are more resilient to current and future pressures' (NPPF Para 174), which should be demonstrated through the ES.

8. Contribution to local environmental initiatives and priorities
Due to the lack of detail available at this stage, Natural England is unable to provide any information on how this development first with local initiatives and priorities such as the delivery of green/blue infrastructure, biodiversity opportunity areas or biodiversity enhancements.

9. Cumulative and in-combination effects

A full consideration of the implications of the whole scheme should be included in the ES. All supporting infrastructure should be included within the assessment.

The ES should include an impact assessment to identify, describe and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment, (subject to available information):

a. existing completed projects;
b. approved but uncompleted projects;
c. ongoing activities;
d. plans or projects for which an application has been made and which are under consideration by the consenting authorities; and
e. plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects.

Natural England's advice on the scope and content of the Environmental Statement is given in accordance with the National Infrastructure Planning Advice Notes: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/

Please refer to best practice advice for Cumulative Impact Assessments: *Parker et al. (2022c). Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards. Phase III: Expectations for data analysis and presentation at examination for offshore wind applications. Natural England. Version 1.2, 140pp*

Annex B - Detailed Comments

Document: **Volume 1 - Part 1 Introduction**				
Section	Paragraph/ Table	Comment	RAG	Recommendations
Chapter 1.3 Main Alternatives Considered				
1.3	1.3.4.28	Shortest route possible to minimise cable length		How has this been assessed, has equal weighting been applied to assess cost vs environment?
1.3	1.3.4.28	Avoidance of environmentally sensitive areas, where possible		Has mitigation hierarchy been applied here? Natural England's advice is to use the avoid, reduce, mitigate hierarchy to reduce environmental impacts.
1.3	1.3.4.28	Limiting need to cross		What will be the impact of cable crossings? Has this been quantified so proposed external protection for crossings been included as part of the assessment?
1.3	1.3.4.67	Potential for converters for the proposed Nautilus and Euro Link schemes to be co-located with the Sea Link facility		A robust assessment of the LVIA impacts of these projects to the AONB should be clearly presented in the PEIR both alone and in combination.
Chapter 1.4 Description of the Project				
1.4	1.4.2.8	Installation of cable ducts (12 ducts considered within EIA)		Support the coordinated options for cable installations to minimise environmental impacts as long as the overall environmental outcome is better.
1.4	1.4.2.28	Up to four cables, with maximum of two trenches		Has the worst-case scenario been considered throughout the document? Until a definitive decision has been made with regards to the number of cables and crossings, the maximum area of impact needs to be assessed in the ES. Natural England would like to see the worst-case scenario for each activity, and associated impacts, provided and assessed for the construction, operation and decommissioning stages. Furthermore, we advise that the number/length of cables per project should be minimised through project design in order to minimise the overall area of impact. In this project, the footprint of impact is significantly greater if two trenches are required for this project.

1.4	1.4.3.45	Transition Joint Bays (TJBs) will be located as close to the coast as possible. There are a number of protected areas, sensitive habitats and features near the landfall locations (e.g. saltmarsh at Pegwell Bay) which could be affected by the TJB siting.		Natural England's advice when selecting a cable route, is to use the avoid, reduce, mitigate hierarchy to reduce environmental impacts. Therefore, it is important that TJB siting avoids protected areas, sensitive habitats or features, if possible.
1.4	1.4.3.48	Access to the landfall installation site could be gained terrestrially. This could lead to direct impacts to the beach due to construction vehicle traffic or to the hydrodynamic and sediment transport regimes due to the presence of access ramps.		We would advise that beach access impacts should be scoped in and assessed.
1.4	1.4.3.49	Up to 4 open cut trenches could be excavated through the intertidal zone. This could lead to direct impacts on sensitive coastal and intertidal habitats and features.		We advise that cable installation techniques that minimise sediment disturbance and the need for cable protection measures inshore are preferable, in order to avoid direct impacts on sensitive coastal and intertidal habitats and features. These impacts should be scoped in and assessed.
1.4	1.4.3.50	If temporary work structures are required within shallow nearshore waters, such as cofferdams, sheet piling or floatation pits, their presence could cause morphological change through modification of the nearshore hydrodynamic regime or diversion of sediment transport pathways.		Potential impacts due to the presence of temporary work structures within shallow nearshore waters should be scoped in and adequately assessed.
1.4	1.4.3.51	Horizontal Directional Drilling (HDD)		Horizontal Directional Drilling (HDD) is a strongly preferred method for installation of the cable through the intertidal zone, as it eliminates physical disturbance of the intertidal area. Natural England welcomes this approach and we support the undertaking of feasibility studies and ground investigations in a timely way to inform the methodology and environmental assessments. However, Natural England is aware that the use of HDD relies heavily on local site and environmental conditions and so cannot be guaranteed. We recommended that an alternative methodology is identified in advance and is suitably assessed for environmental impacts, to minimise disruption and environmental risks should HDD become unfeasible at short notice. Additionally, the risk of potential contamination of notified habitats, from the use of chemicals for lubrication of the HDD

				drill, will need to be considered in the ES and HRA.
1.4	1.4.3.51-1.4.3.53	Whilst we recognise that a decision has not yet been confirmed regarding the chosen cable installation technique at landfall, consideration should be given to the extent of sensitive areas of seabed/substratum that could potentially be disturbed during cable installation at landfall.		We advise that in order to reduce environmental impacts, careful consideration should be given to the cable burial technique so as to reduce sediment plumes or to avoid sensitive areas. A realistic worst case scenario should be detailed and the impacts assessed.
1.4	1.4.3.51	If Horizontal Directional Drilling (HDD) is used at either landfall, associated activities may have direct or indirect impacts on the nearshore hydrodynamics and morphology.		We advise that consideration needs to be given to the whole HDD compound and extension of activities. This includes access routes from the intertidal up to the exit pits, and also impacts arising from the placement of infrastructure and machinery movements. The works and their potential impacts should be considered scoped in.
1.4	1.4.3.56	No information has been provided regarding the anticipated locations or total area of impact (both direct and indirect) for pre-lay grapnel run, boulder clearance, or other route clearance activities.		We advise that the total area of impact (both direct and indirect) should be provided for cable route clearance activities. For boulder clearance in protected sites, this should also include where the boulders are placed and where they have been removed from. Specific locations should also be provided for these activities and any sensitive habitats identified. We also advise that the avoid, reduce, mitigate hierarchy should be used to reduce environmental impacts. These potential impacts should be considered scoped in and assessed.
1.4	1.4.3.57	No information has been provided regarding the anticipated locations or total area of impact for pre-sweeping.		We advise that the total area of impact (both direct and indirect) should be provided for pre-sweeping. Specific locations should also be provided for these activities and any sensitive habitats identified and scoped into the assessment. If pre-sweeping is required, it will be necessary to consider the nature of the material and any disposal requirements. We also advise that the avoid, reduce, mitigate hierarchy should be used to reduce environmental impacts.
1.4	1.4.3.61 & 1.4.3.62	Up to 4 cables could be installed within a maximum of 2 trenches. If laid separately, the separation distance between cables is		We would advise that to reduce environmental impacts, the area of seabed disturbance should

		anticipated to be 30-60m, whereas if there are 2 bundled pairs, then the separation distance could be up to 200m. These two different cable laying scenarios would have considerably different seabed disturbance widths, the latter scenario potentially having a far greater environmental impact.		be minimised if possible. The total area of impact (both direct and indirect) should also be provided and assessed. (Again, we advise that the avoid, reduce, mitigate hierarchy should be used to reduce environmental impacts.)
1.4	1.4.3.78	Cable crossing locations have not been identified at this stage. However, in order to assess the environmental impact of any cable crossings, it will be necessary to provide specific locations (including a map), the total area of impact, and any habitats impacted.		We advise that specific locations of any cable crossings should be provided, when known, along with the total area of impact, any sensitive habitats affected, and the total volume of external cable protection. Again, we advise that the avoid, reduce, mitigate hierarchy should be used to reduce environmental impacts, however, should this not be possible we advise methods which allow decommissioning at the end of the project life preferred and any reduction to volume/area of impact can be applied. We advise detailed commentary is provided in the ES on the introduction of hard substrate as part of the proposed developments to allow further understanding of the potential nature conservation impact. This would include: • location of deposit sites; • type / size / grade of rock / mattresses / bags to be used; • tonnage / volume to be used; • contingency tonnage / volume to be used; • method of delivery to the seabed; • footprint of hard substrate introduced; • assessment of the impact • Decommissioning potential of any introduced substrate Where protective material cannot be avoided we recommend using a targeted placement method, for example use of a fall pipe vessel rather than using vessel-side discharge methods.

1.4	1.4.5.16	It is stated that 'periodic surveys would be undertaken to assess the protection levels afforded the cable, particularly in areas of mobile seabed." Assessing seabed mobility would help inform the likelihood of successful cable burial over the lifetime of the project.		We would advise that seabed mobility should be scoped in and assessed as part of the Physical Environment impact assessment.
1.4	1.4.5.17 & 1.4.5.18	It is stated that when a cable fault occurs, the location of the fault will be identified, and the faulty section replaced. Remedial cable burial is also mentioned. However, there is no mention of other remedial and maintenance activities that could cause additional environmental impacts during the lifetime of the cable, such as maintenance of external cable protection or new external cable protection.		The full range of cable repair/replacement/remedial burial works and external cable protection addition and maintenance should be scoped in, considered and their impacts assessed.
1.4	1.4.6	Whilst decommissioning is discussed, there is no mention of the fate of any cable protection already laid, nor of the need to lay additional cable protection during decommissioning. Any disturbance to habitats and features should also be recognised and assessed upfront.		We advise that a full assessment of potential impacts to the marine environment of the decommissioning of the proposed project should be provided. Our primary concern is that impacts are minimised. Furthermore, decommissioning should also consider permanent habitat loss from any infrastructure that remains at the time of decommissioning (an extension of habitat loss from the operational phase).
1.4	1.4.6.5	If the project is required to be decommissioned, the proposed underground cables would be decommissioned. Dependent on specific requirements the redundant cables could either be left in-situ, or all or parts of the cable could be removed for recycling. Where this is not possible, removed cables would be disposed of in accordance with the relevant waste disposal regulations at the time of decommissioning.		We would advise from a landscape perspective (subject to any other environmental requirements) that if the materials which form the cables are entirely inert or pose minimal risk to any environmental asset they should be left in situ. This would be preferable to major works to excavate the route in whole or in part to extract them.
Chapter 1.5 EIA Approach and Method				
1.5	1.5.4.8 & Table 1.5.1	The project's development phases i.e. construction/operation/decommissioning have not been considered.		Phase of the development should be considered.
1.5	1.5.5.1	Natural England and JNCC have written useful guidance on tiers for scoping projects into cumulative/in-combination assessments.		Please see *Parker et al. (2022c). Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards. Phase III: Expectations for data analysis and presentation at examination for offshore wind*

				applications. Natural England. Version 1.2, 140pp, while this document is intended to be guidance for the development of offshore wind farms, the sections related to cable installation in the marine environment are of relevance to this application.
1.5	Table 1.5.2	Sensitivity Criteria allocates 'Very High' to 'Very high importance and rarity, valued at an international level and limited potential for recovery or substitution' and 'High' to 'High importance and rarity, valued at a national level and limited potential for recovery or substitution'		Natural England question the assertion that only designated sites of international importance can attain a sensitivity rating of Very High. We therefore seek assurance that SCHAONB, as a nationally designated area, is accorded the highest rating by the LVIA.
General		There is no reference to other environmental assessments, HRA and MCZ Assessments.		Natural England would expect to see some consideration as to the information required for HRAs and MCZ Assessments. Please refer to Advice on Operations in our Conservation Advice packages Designated Sites View (naturalengland.org.uk). Sufficient survey programmes must be planned to support the application process and understanding what the requirements are for later processes, such as in the HRA, will provide greater understanding of these survey requirements. Developers are required to provide sufficient evidence and supporting information for the regulator to assess impact to Marine Protected Areas. Developers can provide this in a 'shadow' assessment or as a section within their Environmental Assessment.

Document: Volume 1 - Part 2 Suffolk Onshore Scheme				
Section	Paragraph/Table	Comment	RAG	Recommendations
Chapter 2.1 Evolution of the Suffolk Onshore Scheme				
2.1	2.1.5.15	Landfall at Sizewell and using the existing substation at Sizewell appears to be the only option which could avoid the footprint of any protected site and therefore is likely to be least damaging to protected sites on the Suffolk Coast. However, this is subject to confirmation, with substantial further information on project design required to fully understand the implications. Furthermore, one option would require re-routeing through Sizewell Marshes SSSI		Refinement of route, sub-station and converter station options. Natural England advises that the Applicant will need to avoid protected sites in the first instance. Only once all options for avoidance have been exhausted, should the applicant follow the

2.3	Table 2.3.1	which should be avoided. Using the corridor allocated to the existing 132kV connection which would therefore be of preference. This option would potentially still be less damaging than other route options due to the avoidance of a larger number of protected sites. However, both site option areas A and B for the converter station are located within Suffolk Coast and Heaths AONB and are within land that is part of ecological mitigation area for Sizewell C Nuclear Power Station. If connection options in the Sizewell area are chosen in-combination impacts with Sizewell C Nuclear Power Station would need to be considered if this option is taken forward. All cable corridors are within The Suffolk Coasts and Heaths AONB (SCHAONB). Our comments related SCHAONB refer to Chapter 2.1 and 2.2 of the Suffolk Onshore Scheme and are detailed above in the table. The Hundred River flows through the Suffolk Scoping Boundary. The landfall at Leiston-Aldeburgh SSSI lies with all Emerging Preference and Alternative boundaries and are highly likely to result in loss or damage to the SSSI interest features. With all options there is the potential for significant effects on designated sites and the features for which sites are designated for.		subsequent steps of the mitigation hierarchy. For Natural England to provide accurate and comprehensive advice on the potential for significant effects on protected sites, we require detailed information on project design, including construction techniques and timing of construction. We request further detailed engagement on corridor route and siting of infrastructure access to the above information, prior to a decision being made on the route to be taken forward. Habitat recoverability would be a concern where sensitive protected and important habitats such as wet grasslands, salt marsh, heathland are present. Disturbance and potential for recoverability of habitats must be fully assessed. Impacts upon the habitats and the species which depend on those habitats must be fully considered.
2.1	2.1.5.21	With regards to the Applicant's preference for High Voltage Alternating Current (HVAC), this option would potentially be less damaging based on the reduced length of the working corridor which would be 40m width instead of the 80m as for HVAC.		
2.1	General	The Sea Link and Euro Link projects appear to be working on similar briefs, in terms of onshore cable development in Suffolk for the National Grid network, and both have considered a number of landfall options along the Suffolk coast, including Sizewell and land between Aldeburgh and Thorpeness. They also include other options beyond that at Southwold, Walberswick, Minsmere, north of Sizewell, South of Aldeburgh.		It seems sensible to consider linking these landfall options and infrastructure to minimise the impacts on the coast within Sites of Special Scientific Interest (SSSIs), the overlapping international conservation designations, and the Area of Outstanding Natural Beauty (AONB) and Heritage Coast, and other identified areas of importance such as ancient woodlands.
2.1	General	The two favoured Sea Link landfall locations are at the Sizewell Gap and between Aldeburgh and Thorpeness. Both have SSSI and SPA sites in close proximity, as did the other three landfall option areas of search. The proposals are for a new underground		At both Sizewell and Thorpeness there may be potential for saline intrusion through the cable routes, structures and processes that could impact on the freshwater, and/or brackish habitats behind

		HVDC cable between the landfall and the new converter station. There would then be an underground HVAC between the new converter station and the new Friston substation.		the barrier beach or coast which should be investigated further.
2.1	General	Issues relating to the burying of cables relate to the working widths, which appear to be at least 40 m running up to 100m.		There may also be issues relating to the easements, which may be 25m, if these are required across the grazing marshes and other habitats depending on what management is required for the electricity infrastructure.
2.1	General	The proposals shown include an option with a new substation at the Sizewell Nuclear Power Stations site and a new National Grid overhead line 400kV.		This line would cross and potentially require new towers within Sizewell Marshes SSSI and Leiston-Aldeburgh SSSI.
2.1	General	Suffolk landfall fall is within Suffolk Coasts and Heaths AONB		NE has concerns regarding the landfall of SeaLink within the SCHAONB. We appreciate that the AONB extends along the entirety of the coast within the area of search, however we recommend that advice is sought on creating a route that is the least impactful either alone or in combination with other plans and projects and/or if possible avoids the AONB. If not able to avoid the AONB then full justification for why alternatives have been rejected should be included in any assessment. We welcome the opportunity to be part of such discussions.
2.1	General	Preferred substation location is the Friston substation		We welcome the decision to use the proposed Friston substation rather than extend the existing Sizewell B or planned Sizewell C substations, given that the latter two are within the AONB.
2.1	2.1.8.6-2.1.8.13	Potential converter site option 1, within option area E, is in the immediate setting of the AONB. A converter station is a substantial building with the structures for this scheme anticipated to have a footprint of up to 10ha and valve halls up to 30 meters high.		Based on the information provided (and subject to environmental constraints), it is Natural England's preference that the converter site option 3, outside of the AONB be selected. We recommend that a robust Landscape and Visual Impact Assessment is required to fully assess the potential effects of converter sites withing the AONB.
2.1	Figure 2.1.3	Converter site option areas and potential coordinated converter site areas		We would welcome clarity about the difference between converter site option areas (A-H) and the potential coordinated converter site areas (1-7).
Chapter 2.2 Landscape and Visual				
2.2	2.2.2	All the relevant national policies appear to have been identified along with the relevant sources of information required to provide a baseline for the LVIA.		We would like to emphasise the role of the statutory duty (section 85 of the Countryside and Rights of Way Act 2000) to 'have regard' to the statutory purpose of the AONB in both

				complementing national planning policy and regarding the 'setting' of the designated area. NPS EN-1 makes clear reference to the duty in relation to settings.
2.2	2.2.2	The National Planning Policy Framework states: *Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 176), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.*		The impact of this scheme on the Suffolk Heritage Coast will need to be assessed.
2.2	General	The general approach (the methodology) proposed for the LVIA. The scope of the assessment is focused very much on assessing the landscape and visual effects of the converter sites, whereas the scheme also involves major construction works (underground cabling) within a nationally designated landscape.		The effect of a 40m wide construction corridor, potentially a temporary effect, should not be underestimated. This construction may well coincide with commencement works for Sizewell C and potentially the onshore cabling works for East Anglia 2 and 1 North Offshore Wind Farms. The combined scale of these works would present large construction areas within this part of SCHAONB. Natural England would welcome a full assessment of how the scheme would affect the delivery of SCHAONB's statutory purpose.
2.2	General	Landscape and Visual impacts are proposed to be limited to an assessment of the cable route to just the construction phase. This assumes that reinstatement of the route would result in no significant effects for the operational phase.		Natural England advise that the success of reinstatement cannot be guaranteed. We recommend that all installation options are thoroughly assessed and presented, along with supporting survey results and predicted recovery/reinstatement times in the Preliminary Environmental Impact Report.
Chapter 2.3 Ecology and Biodiversity				
2.3	2.3.2.5	We welcome Biodiversity Net Gain.		
2.3	2.3.3.3	It is not clear why the Applicant has chosen an area of 10km for the desk-based study area for designated sites.		The search area for designated sites should be based on the potential for impact pathways to protected sites e.g. impacts on potential functionally linked land, hydrology, air quality etc. The Impact Risk Zone (IRZ) for designated sites, as available on Magic, provides a useful starting point, however, professional judgement using the best available evidence will be required to determine potential impact pathways and therefore the protected sites which should be

				further considered.
2.3	2.3.4.30	It is unclear what area of search the Applicant is using to carry out bird surveys.		Survey area should be based on the potential for species to be present within the area and should consider functionally linked land. Natural England advises that it is the Applicant's responsibility to determine whether there is sufficient information/evidence to exclude areas from surveys. If it cannot be determined that areas are not functionally linked to protected sites designated for breeding, passage, or overwintering birds then surveys will likely be required.
2.3	2.3.4.31	We welcome two full seasons of non-breeding and breeding bird surveys but see comment above regarding survey area.		
2.3	2.3.4.17	It is noted that the Extended Phase 1 Habitat Survey Invertebrate surveys will determine the need for specific invertebrate surveys. This is welcomed, though we would like to note that the following sites may require further invertebrate surveys: • Alde-Ore Estuary Ramsar and SSSI • Leiston-Aldeburgh SSSI • Sizewell Marshes SSSI □ Dependant invertebrate communities are also present within Sandlings SPA.		Sandlings SPA supports dependent invertebrate communities which should also be considered, as well as specialist invertebrate surveys where required.
2.3	Table 2.3.4 2.1.5.6 2.1.5.7	There are options presented which could result in damage or loss of ancient woodland sites (identified by the ancient woodland inventory): • Within the southern corridor (Site 1 Emerging Preference) • Option Area D for the converter station - There is a small parcel of Ancient Woodland (Buckles Wood) located within the north of this option • Option E for the converter station - There is a small area of Ancient Woodland at Great Wood located on the eastern edge of the option area and Grove Wood Ancient Woodland is located adjacent to the northwest corner of the option area. Whilst the above sites have been identified by the ancient woodland inventory, please note that some ancient woodlands may not be recorded by the inventory but may still be ancient in		Ancient woodlands are irreplaceable habitats and impacts should be avoided. The Zones of Influence (ZoI) for Ancient Woodland should be clearly stated within the ES and consideration should be given to any edge effects and air quality impacts. We refer the Applicant to Natural England's standing advice for ancient woodland and the management of buffers. Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK (www.gov.uk) Natural England advises that ancient woodlands be considered in relation to mobile species and supporting habitats. Fragmentation and disruption to habitats should be considered

		origin. It should also be noted that some ancient woodland sites are also Country Wildlife Sites.		and assessed.
2.3	Table 2.3.4	There appears to be reliance on using Horizontal Directional Drilling (HDD) methods to reduce impacts to protected sites, species and habitats. However, details provided are limited. No information has been provided on the construction methods or how far drilling will extend. HDD should be considered beneath important hedgerows and other important habitats such as rivers. A decision to use trenchless or trenched methods at landfall has not been confirmed. Whilst protected sites should be avoided, trenchless crossings beneath protected sites would be preferable, though there would also be concerns with this with regards to impacts. It is stated in Table 2.3.4 that cable installation within the intertidal zone of the Outer Thames Estuary, and coastal grazing marsh of Leiston-Aldeburgh SSSI is unlikely to be achievable through HDD alone and it is unlikely that a significant effect can be entirely avoided. It should be noted that the risk of a potential bentonite break-out where HDD is used beneath water courses, and for where geotechnical investigations are carried out, must be considered and fully assessed and mitigated for. Drilling beneath protected sites, including SSSI sites may impact upon the features for which sites are designated for. Potential hydrological impacts should be fully assessed.		We would welcome the use of methods to reduce impacts to designated sites, which may include the use of HDD below protected sites and important ecological; features. A detailed specification of the HDD process should be included in the EIA. This should include, but not limited to, timing of works, length of HDD, location of entrance and exit points, where vehicle access would be required, what the risk factors for failure would be, whether HDD is achievable through protected sites and confirmation of where HDD or open cut methods will be employed. The EIA should assess potential impacts upon protected sites and species. A detailed specification of protocols to be put in place to prevent break outs or frack-outs from occurring, or minimise impacts if this does occur, should also be included. Detailed assessment of potential hydrological impacts on protected sites is required.
2.3	Table 2.3.1	The Haven, Aldeburgh is a Local Nature Reserve which could be affected by the scheme. It is owned by East Suffolk Council and managed by the Suffolk Coast and Heaths Area of Outstanding Natural Beauty.		If not already done so, we advise that East Suffolk Council should be consulted in relation to potential impacts on this site.
2.3	Table 2.3.1	Natural England considers on the basis of the information provided the proposals could damage or destroy the interest features for which the following Sites of Special Scientific Interest (SSSIs) have been notified:		Please note that often the assessment of effects under the Habitats Regulations will also cover the assessment of the impacts on SSSIs where the two types of site overlap. However, in this case

		• Leiston - Aldeburgh SSSI • Sizewell Marshes SSSI • Alde-Ore Estuary SSSI • Minsmere to Walberswick Heaths & Marshes SSSI • Sandlings Forest SSSI • Iken Wood SSSI • Blaxhall Heath SSSI • Gromford Meadow SSSI • Snape Warren SSSI Natural England considers, on the basis of the information provided, the proposals could have significant effects on the following National Nature Reserves (NNRs): • Westleton Heath NNR • Orfordness Havergate NNR		there are some SSSI interest features which are not European site features and as such the SSSI notified interest features should also be considered through a SSSI Impact Assessment. The ES should include a full assessment of the direct and indirect effects of the development on the interest features of these sites and should identify such mitigation measures as may be required in order to avoid, minimise, or reduce any adverse significant effects. Internationally designated site conservation objectives are available on our internet site http://publications.naturalengland.org.uk/category/6490068894089216 or Site Search (naturalengland.org.uk)
2.3	General	The proposed work at Leiston-Aldeburgh SSSI has the potential to impact the following designated features: • Aggregations of breeding birds - Gadwall, *Mareca strepera* • Aggregations of non-breeding birds - Gadwall, *Mareca strepera* • Aggregations of non-breeding birds - Shoveler, *Anas clypeata* • Aggregations of non-breeding birds - White-fronted Goose, *Anser albifrons albifrons* • Assemblages of breeding birds - Lowland damp grasslands • Assemblages of breeding birds - Lowland open waters and their margins • H1 - *Calluna vulgaris - Festuca ovina* heath • Lowland ditch systems • Outstanding dragonfly assemblage • S4 - *Phragmites australis* swamp and reed-beds • SD1 - *Rumex crispus - Glaucium flavum* shingle community • U1 b, c, d, f - *Festuca ovina - Agrostis capillaris - Rumex acetosella* grassland • Variety of breeding bird species (70) • Vascular plant assemblage		The proposals at Aldeburgh potentially affect units 14, 15, 16, 19, 20, 21. Unit 1 might be affected if new cables are required from the Sizewell option. Reference is made to Horizontal Directional Drilling from the landfall to the landward side of the SSSI, approximately 800m. However, the area to be drilled beneath is shown by Designated Sites View to have the following SSSI features that could be impacted by construction and management activities and if there were significant changes to ground water levels and chemistry

		This site also overlaps with Sandlings SPA for nightjar (*Caprimulgus europaeus)* and woodlark (*Lullula arborea)*		
2.3	General	Direct cabling has the potential to impact Crag Pit Aldeburgh SSSI		Crag Pit Aldeburgh SSSI is designated for neogene sediments and has the potential to impacted if trenching is close to this site.
2.3	General	The proposed work adjacent to Sizewell Marshes SSSI has the potential to impact the following designated features: • Assemblages of breeding birds - Lowland damp grasslands • Invertebrate assemblage • Lowland ditch systems • M22 - Juncus subnodulosus - Cirsium palustre fen meadow • M23 - Juncus effusus/acutiflorus - Galium palustre rush pasture • Vascular plant assemblage The marshes at Sizewell are also considered as functionally supporting the marsh harrier (*Circus aeruginosus)* which is an interest feature of the Minsmere-Walberswick SPA		The functionality of the protected sites should also be considered when assessing potential impacts, such as functionally supporting land for foraging.
2.3	2.3.4.28	Construction works have the potential to impact upon a variety of breeding and non-breeding bird interest features of protected sites and therefore, the timings of works will need to be carefully considered to minimise or reduce potential significant effects.		This must be fully assessed, and timing constraints considered for both breeding and non-breeding bird interest features.
2.3	2.3.4.31	We welcome that bird surveys will include specific surveys for hobby, nightjar, woodlark and barn owl. We note in particular that woodlark and nightjar are interest features of Sandlings SPA.		Species specific bird surveys to be carried out at protected sites where required. We advise that all bird interest features of designated sites should be considered. The applicant should also consider any effects on bird interest features which may utilising land functionally linked to European sites. Surveys on functionally linked land (outside of the site boundary) may be required.
2.3	2.3.4.37	Emerging Preferences for landfall Site 1 and Site 3 are very likely to be of high value for reptile habitat, suitable habitats for water vole and otter, ancient woodland is present within both sites.		Habitats should be fully surveyed, and impacts assessed if these options are chosen.
2.3	2.3.4.37	It is stated that the desk study returned no records for water vole within the search area. There are known populations of water vole		Consider contacting Suffolk Wildlife Trust and the RSPB for recent records for water vole and otter

		and otter recorded at Sizewell Marshes SSSI and Leiston-Aldeburgh SSSI. Suffolk Wildlife Trust and the RSPB who manage land within the scoping area may hold records for water vole and otter.		and where necessary further surveys for these species should be carried out. The wetland areas in both the SSSIs support populations of water voles and otters so there may be disturbance and consequent licencing issues. EDF are aware of both species being present on Sizewell Marshes as they were part of the Sizewell C discussions, and EDF are currently working to install artificial otter holts and mink rafts. Additionally, EDF have constructed compensatory open water and reedbed habitats at Aldhurst Farm, which lies in the search area landward of Sizewell Marshes.
2.3	2.3.5.3	We welcome that refinement of the Suffolk Onshore Scheme will be informed by the results of ecology and biodiversity surveys to avoid or minimise impacts on ecological receptors.		We note the large onshore scoping area and multiple location options and reserve the right to make future detailed comments once the onshore infrastructure has been confirmed.
2.3	2.3.5.4	We welcome the control and management measures.		
2.3	2.3.5.5	We welcome that where temporary habitat removal is required, this will be re-instated as soon as practically possible.		
2.3	Table 2.3.11	Consideration of light pollution effects on sensitive ecological receptors have not been included.		Natural England recommends consideration of light pollution effects on sensitive ecological receptors.
2.3	General	Protected species licences.		Please contact the Natural England Case Officer and the Licensing team as early in the process as possible regarding information required for a protected species Licence and the possibility of a Letter of No Impediment.
Chapter 2.7 Agriculture and Soils				
2.7	2.7.4.8	Corridors extend through areas of Environmental Stewardship Agreements and Woodland Grant Schemes.		The Applicant should consult the Rural Payments Agency at the earliest opportunity to discuss the impacts to schemes. We advise that the draft order limits contain land parcels which form part of a live Agri-environment scheme which is currently delivering benefits for nature, including the management of priority habitats. Consideration must therefore be given to any permanent and/or temporary impacts from the proposals on the scheme and implications for the agreement holder in terms of any necessary

				relocation of options, derogations, pay back of grant funding, scheme penalties etc. Land within the study area is currently under Countryside Stewardship (CS) (Higher Tier) Agreements, plus areas south and east of Leiston are under Entry Level plus Higher Level Environmental Stewardship agreements and small areas within the study area are under Higher Level Environmental Stewardship, as well as Organic Entry Level, plus Higher Level Stewardship areas to the north Loss of this habitat may result in direct land take or damage to land under agreement. Any land removed from Agri-Environment schemes may result in repayment of subsidies dating back to year 1 of the scheme, and with additional penalties. Construction and operational activities that pose an impact to agreement land in terms of water resources and quality of habitat and species, loss and fragmentation and disturbance (noise, light and visual) should be considered. Timing and dates of work should be considered to ensure that habitats retained can be sufficiently maintained. Required mitigation should be included with the Code of Construction practise and secured in the DCO. It should also be noted that any compulsory land purchases which are subject to agri-environment schemes would also need to be repaid.
Chapter 2.9 Air Quality				
2.9.4	2.9.4.1	Data sources do not include the Air Pollution Information Service (APIS).		The APIS website (CEH, 2022) should be consulted to identify any habitats or features of these designated sites that are sensitive to nutrient nitrogen and acid deposition
Chapter 2.11 Socio-economics, Recreation and Tourism				
2.11	2.11.6.4	It is noted there is the potential for permanent closure or diversions to Public Rights of Way (PRoW) and recreational use. Any diversions of recreational routes must not impact upon protected sites, species or habitats.		The applicant should provide details on how significant impacts on PRoW will be avoided in the ES. The use of trenchless crossings for PRoW to be considered.

Chapter 2.13 Cumulative Effects				
2.13	2.13.3	The National Grid Euro Link project has been included in the cumulative impact table. We advise that discussion should be considered in terms of potential for projects to be carried out at similar times to reduce potential impacts.		We advise the Applicant to consider communication with the EuroLink project where there is potential for infrastructure to be shared/works to be carried out at the same time. both projects, particularly with regard to in-combination impacts.
2.13	General	The Shoreline Management Plan 7 (SMP) covers the shoreline across the majority of Suffolk and all areas currently being considered for landfall.		We advise that the applicant should consider the implications of SMP policy across the scope of the project. The Applicant should consider the appropriateness of the development in locations where managed realignment may be undertaken in the future.
2.13	Table 2.13.2	The list of existing and approved projects include Sizewell C Nuclear Power Station, the East Anglia 2 and 1 North offshore wind farms, as well as projects at an early stage, but very likely to come forward (Nautilus and Euro Link interconnector cables).		Natural England advise that a robust in-combination effect assessment of the Sea Link project and other projects within the AONB will need to be clearly presented.
2.13	General	Suffolk Coasts and Heaths AONB's statutory purpose.		Natural England request that a full impact assessment of how the proposed scheme would affect the delivery of SCHAONB's statutory purpose including how its 'special qualities' are impacted.

Document: Volume 1 - Part 3 Kent Onshore Scheme				
Section	Paragraph/ Table	Comment	RAG	Recommendations
Chapter 3.1 - Evolution of the Kent Onshore Scheme				
3.1	3.1.4.17	It is stated that it is considered likely that potential effects on designated sites for nature conservation will be limited to short term temporary impacts.		We would welcome justification and evidence for how the impacts on designated sites for nature conservation will be short term and temporary. As stated previously, Natural England would expect the applicant to use the 'avoid, reduce, mitigate' approach where there are designated sites and protected species
3.1	3.1.7.5	The landfall option within the blue corridor of option K1, located southeast of Sandwich, would appear to be the landfall option with the least interaction with designated sites. Though this option would rely on Horizontal Directional Drilling (HDD) to cross designated sites at a number of locations (which includes the		Natural England advises that the Applicant will need to avoid protected sites in the first instance. Only once all options for avoidance have been exhausted, should the Applicant follow the subsequent steps of the mitigation hierarchy.

		crossing of the River Stour). If the feasibility at Pegwell Bay (the identified preferred option) determines that HDD is not a viable option. Then great weight should be given to the landfall option identified within the blue corridor (southeast of Sandwich).		For Natural England to provide accurate and comprehensive advice on the potential for significant effects on protected sites, we require detailed information on project design, including construction techniques and timing of construction. We would welcome further detailed engagement on the potential corridor route and siting of infrastructure access to the above information, prior to a decision being made on the route to be taken forward. Natural England advise that the landfall option located within the blue corridor of option K1, should be considered as a preferable option if open trenching at Pegwell bay is proposed. This is also subject to the conclusion of HDD feasibility studies along the blue corridor.
3.1	3.1.7.4	Natural England note that the landfall at location K1a (green corridor) has a smaller interaction with designated sites than the proposed landfall within Pegwell Bay.		As mentioned above, great consideration should be given to alternate cable landfalls sites if HDD is evidenced to not be feasible at Pegwell Bay. Natural England are concerned of the ecological impact that open trenching could conflict on the designated sites located within Pegwell Bay. Avoidance of these impacts alongside feasibility of HDD locations should be considered by the Applicant when deciding on the preferred route to be taken. We recommend a detailed study of lessons learnt from other cable installations in Pegwell Bay is presented.
Chapter 3.3 – Ecology and Biodiversity				
3.3	3.4.11	Natural England welcome National Grid's commitment to a minimum 10% Biodiversity Net Gain (BNG) across all its construction projects.		Natural England would like to draw attention to Kent County Council's Viability Assessment of Biodiversity Net Gain in Kent (June 2022), which assessed the potential effect of a 15% or 20% BNG target on the viability of residential-led development in Kent. Though the assessment focuses on a residential-led development, the assessment showed that the biggest cost in most

				cases is to get to the minimum 10% BNG. The increase to 15% or 20% BNG in many cases costs much less. As the Kent Nature Partnership (KNP) is working with local planning authorities to progress the adoption of a 20% BNG target within Kent, we therefore recommend that you contact the KNP to discuss higher BNG targets for the Kent onshore section of the Sea Link project. Please refer to Appendix C for further information on BNG for NSIPs
3.3	3.4.11	Natural England welcomes the use of the latest BNG Biodiversity Metric 3.1		Natural England recommend that the latest Biodiversity Metric should be chosen, prior to the start of the Phase 1 habitat surveys.
3.3	3.3.4.3	From 1st October 2022, Eurasian beavers in England became a European protected species.		Beavers are now listed in Schedule 2 of the Conservation of Habitats and Species Regulations 2017, making it an offence to deliberately capture, injure, kill or disturb beavers, or damage and destroy their breeding sites or resting places without a wildlife management licence from Natural England.
3.3	Table 3.3.4	Natural England note that notable habitats have been scoped out for all phases, on the basis that impacts can be mitigated. As it is not known that HDD will be feasible at Pegwell Bay, it appears premature to scope out notable habitats that could likely be impacted during the construction phase.		Natural England advise that notable habitats should be scoped in as temporary habitat loss during the construction phase, until an HDD feasibility study can demonstrate that HDD at Pegwell Bay is viable option.
3.3	Table 3.3.4	Natural England note that habitats with potential to support protected and notable species have been scoped in as temporary habitat loss for all three phases. Natural England view the construction of the 10ha converter station as permanent habitat loss. Therefore, without the completion of Phase 1 habitat surveys within the Kent scoping boundary, it is not yet possible to determine whether these habitats (to support protected and notable species) will be impacted.		Natural England advise that permanent habitat loss to habitats with potential to support protected and notable species, should be scoped in at this stage, until Phase 1 habitat surveys have been completed and can demonstrate presence/absence of the habitats.
3.3	Table 3.3.4	Natural England recognise that the cable installation route has the potential for temporary habitat loss within designated sites,		Natural England agree with the sites that have been scoped in, however we would welcome a

		particularly within the intertidal area of Pegwell Bay which has the following designations; - Sandwich Bay Special Areas of Conservation (SAC) - Thanet Coast SAC - Thanet Coast & Sandwich Bay Special Protection Area (SPA) AND Ramsar site - Sandwich & Pegwell Bay National Nature Reserve (NNR) - Sandwich Bay to Hacklinge Marshes Site of Special Scientific Interest (SSSI) We note that the preferred approach for the cable landing at Pegwell Bay is to adopt trenchless techniques such as Horizontal Directional Drilling (HDD), which is proposed to avoid significant impacts to the aforementioned designated sites. Natural England acknowledges the potential benefits of trenchless techniques over the open trenched approach, in that potential significant impacts to the designated sites can be avoided. However, Natural England note that trenchless techniques carry risks (such as frac out and sink holes) which cannot be fully ruled out. To understand these risks at an early stage, a feasibility study with geotechnical data should be prioritised.		commitment register which includes the commitment of utilising trenchless techniques to make landfall at Pegwell Bay. Natural England request that a feasibility study be published for horizontal directional drilling (HDD) through Pegwell Bay. This would provide reassurance that techniques such as HDD would be feasible, and that open trenching would not be a requirement. We look forward to further discussions with the Applicant on this important area of work
3.3	Table 3.3.4	Natural England note that the possibility of overhead powerlines could affect breeding and non-breeding birds (including notified bird features of neighbouring designated sites) through collision risk. We therefore agree that these impacts should be scoped in at this stage.		Natural England would like to signpost the guidance document Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds, which was published by NatureScot in 2016. This guidance document provides advice on how to assess the potential impacts on birds from proposed overhead power lines.
3.3	Table 3.3.7	Natural England note that the incidental mortality of non-breeding intertidal and terrestrial birds has been scoped out for all three phases of the development. As overhead collisions from proposed powerlines could affect non-breeding birds, incidental mortality should be scoped in at this stage.		Due to the potential of overhead collisions from proposed overhead powerlines, Natural England advise that incidental mortality of non-breeding intertidal and terrestrial birds should be scoped in for all three phases of the development.
3.3	Table 3.3.7	The proposed location of the 10ha converter station is likely to be located in an area with a number of waterways, which also		Due to the scale of the proposed converter station, there is a high chance that waterways

		includes the Minster Stream. These waterways could potentially be permanently impacted by the development of the proposed converter station. It is therefore also conceivable that incidental mortality of riparian mammals could occur, though the risk would be minimised by appropriate mitigation.		could be permanently impacted by the development. For this reason, we advise that incidental mortality for riparian mammals should at this stage be scoped in for the construction phase.
Chapter 3.7 – Agriculture and Soils				
3.7	Table 3.7.5	Natural England agree with the proposed Study area for the soils and agriculture assessment (including the Agricultural Land Classification (ALC) and soil survey, which will include all temporary land-take areas).		The ALC and soil survey must be undertaken by suitably qualified and experienced individuals
3.7	Table 3.7.5	Natural England note that the temporary loss of soil quality and associated ecosystem services has only been scoped in for the construction phase.		It should be noted that during the operational lifetime of the proposed cable route, there is a potential for additional disturbance (excavation) of soil resources to occur during any maintenance or remedial works which may be required. Although the scale and extent of these works would be significantly less than required for initial construction, being confined to the specific areas of cable where maintenance is required
3.7	3.7.2.9 Guidance	Natural England welcomes reference to the Good Practice Guide for Handling Soils, which includes soil mitigation measures in line with the Defra Construction Code of Practice for the Sustainable Use of Soil on Development Sites.		Natural England welcomes reference to measures on how soil disturbance can be minimised. We would like to signpost the Institute of Quarrying Good Practice Guide for Handling Soils in Mineral Workings (which provides detailed advice on the choice of machinery and method of their use for handling soils at various phases).
Chapter 3.9 – Air Quality				
	General	Natural England understand that the commitment to IAQM mitigation has been considered sufficient to conclude no damage will occur. Whilst this is typically an acceptable approach, a degree of quantitative modelling would be preferable with regard to Sandwich Bay to Hacklinge Marshes SSSI, to provide certainty that any identified impacts are fully mitigated.		We advise that a reasoned argument may be acceptable without quantitative modelling in the case of dust emissions, but we would hope for a robust argument stating/explaining why the dust suppression is adequate. Some commentary relating to duration of the activity or chemical nature of the dust (i.e. inert or not) would help in providing us with confidence that a reasonable justification has been provided.

Document: Volume 1 – Part 5 Offshore Scheme				
Section	Paragraph/table	Comments	RAG	Recommendations
Chapter 4.2 Physical Environment				
4.2	4.2.4	Baseline conditions should also include temperature and salinity. The sedimentary baseline appears to only consider marine sediment quality, but it should also include sedimentology and the sedimentary environment.		Temperature and salinity variations should be considered. Sedimentology and the sedimentary environment should be considered (e.g. properties such as sub-seabed conditions, sediment grain properties, susceptibility to scour, seabed mobility). In addition, bedform dynamics and stability also need to be scoped in and assessed.
4.2	4.2.4.4	Surge effects are not mentioned, but it is important to consider them.		Surge water levels should be scoped in and assessed.
4.2	4.2.4.4	Only four metocean data sites selected have been used, and these are rather sparsely distributed along the cable route. The metocean data locations should be sufficient to characterise the hydrodynamic conditions along the cable route and also any areas of seabed complexity (e.g. sandbanks, channels, bays).		In order to understand the range of hydrodynamic conditions along the proposed cable route, the number of metocean sites should be kept under review as the EIA progresses to ensure there is sufficient resolution and confidence in the hydrodynamic assessment.
4.2	4.2.4.5	Spring peak flow is 0.58m/s at P4 (Kent landfall) whereas Neap peak flow is given as 0.74m/s. Is this correct?		Please can this be clarified through future engagement with the Applicant?
4.2	4.2.4.5 & 4.2.4.8 & Tables 4.2.1.& 4.2.3	There is no description of the conditions at P1-P4 such as the water depth and distance offshore. There is also no information regarding the range of conditions covered by the hydrodynamic data.		The environmental conditions at the metocean data site locations should be provided, along with the range of wave and tidal conditions from which the extracted data have been sourced.
4.2	4.2.4.9	It states that the 'wave and wind roses for these points …indicate that at the Kent landfall the dominant winds are from the north-east and south. Along the Offshore Scoping Boundary and up to the Suffolk landfalls, the dominant winds are from the south-west. The largest waves at the Kent landfall are from the north-east and south-west, and towards the Suffolk landfalls they are from the north-east and south'. However, the dominant waves are from the north-east and south at the Kent landfall and along the Offshore Scoping Boundary and up to the Suffolk landfalls.		This should be clarified. In addition to wave height and direction, wave period should also be provided in future assessments and reports.
4.2	4.2.4.14/Figure 4.2.4	We welcome the large-scale bathymetry across the proposed cable corridor. However, it does not state the age of the bathymetric data shown in Figure 4.2.4. This would be useful in order to understand whether these data are recent. Furthermore, the broad scale bathymetry shown in Figure 4.2.4		The age of the bathymetry in Figure 4.2.4 should be stated and, if these data are not recent (i.e. less than 5 years old), then more recent bathymetry data should be sought for the cable corridor. Finer resolution bathymetry should also

		does not provide sufficient information about the dynamic nature of the seabed along the cable route such as bedform size, orientation and asymmetry, as well as sandbank and channel configuration.		be considered for areas of mobile bedforms or within /near protected areas. The need for intertidal topographic survey should also be considered for the landfall locations.
4.2	4.3.15	No sensitive geological features have been identified in the vicinity of the proposed cable route. However, geological interest features listed in the Sandwich Bay to Hacklinge Marshes SSSI citation are of high value and should be considered.		We advise that all sensitive geological features should be identified, scoped in and considered adequately.
4.2	4.2.4.16	Geomorphological features are not discussed in this section. Yet, a key element of the baseline characterisation process is to identify any nearshore and offshore morphological features, to establish trends in their morphological change and to assess their potential sensitivity to impacts over the lifetime of the project.		Nearshore and offshore geomorphology should be adequately characterised in terms of the seabed features present along or near the cable route, and trends in their morphological change.
4.2	4.2.4.16	Sediment transport pathways are not discussed here, nor are sediment transport rates. It is important to characterise the sediment transport processes across the study area, in order to understand and assess potential impacts due to interaction with cable protection measures and crossings. There are also complex sediment transport pathways in certain regions along the proposed cable route which need to be given careful consideration.		Sufficient information is required to characterise the range of sediment transport pathways (including a map) and rates across the study area, for a range of wave and tidal conditions. This is important to help inform understanding and any modelling of the magnitude and variability of the driving forces behind sediment transport and to provide context to any predictions made regarding impact of the proposed scheme.
4.2	4.2.4.29	How may the coast evolve naturally over the lifetime of the project?		Historic and more recent trends in morphological change at the coast should be scoped in and assessed (including beaches, dunes, cliffs, saltmarshes, mudflats etc). This includes determining natural variability, both spatial and temporal. Recent data should be analysed alongside longer term records. Inter-annual beach variability should be considered. Survey data should also provide coverage of the full intertidal area.
4.2	4.2.6.6 & Table 4.2.4	Table 4.2.4 presents potential impacts due to construction, maintenance and decommissioning phases combined which makes it difficult to distinguish impacts associated with each project phase. Rows 2 and 3 present the Impact as 'Disturbance of coastal morphology' due to cable installation, maintenance, removal activities and presence of cable protection. However, this does not distinguish sensitive areas of seabed/substratum (and		We would advise that it would be easier to understand potential impacts due to each project phase, if they could be separated out in this table. We also advise that careful consideration be given to the wording of the potential impacts in Table 4.2.4. Until a route is selected, depth of water is not

		species), smothering, change of sediment type, or the presence of ancillary infrastructure. Row 5 similarly considers the impact of changes to seabed morphology due to cable installation/removal including route clearance and cable lay activities. However, once again, this does not distinguish sensitive areas of seabed/substratum (and species), smothering, change of sediment type. Row 6 The impact of changes in metocean conditions has been scoped out. However, in shallow nearshore areas, there is the potential for ancillary infrastructure (e.g. cofferdams) or seabed excavation (e.g. for HDD exit pits) which could cause modification of the nearshore hydrodynamics and give rise to morphological change.		confirmed, and cable crossings could impact water already shallow, the impact of changes to metocean conditions should be scoped in for shallow nearshore areas. Furthermore, surface laid/external cable protection could impact hydrological conditions including waves/currents and this should be scoped in. Additionally, if there is any ancillary infrastructure present during construction (e.g. cofferdams or temporary floatation pits) which might give rise to changes to waves and/or current flows.
4.2	4.2.6.8 & Table 4.2.5	Row 3: Changes to coastal morphology/nearshore and offshore seabed morphology are not receptors, it is only the coastal morphology/nearshore and offshore seabed morphology that are the receptors. Row 5: Coastal Erosion is not a receptor, rather it is the coastline that is a receptor. Seabed morphology describes a range of seabed features but it may be necessary to consider specific features individually, such as the coastline at landfall, sandbanks, channels etc. For example, the sandbanks located off the north Kent coast are believed to influence coastal processes and sediment transport patterns, and sand from these banks feed onshore, naturally replenishing the sand beaches along the Thanet coast.		The receptors in Table 4.2.5 should be carefully identified. It would also be helpful if the receptors could be established earlier in the section and include significant morphological features such as the coastline(s), sandbanks, and channels, sandwave fields, and also include designated sites. All designated sites within the project's Zone of Influence (ZoI) should be identified in this section, even if they are being assessed elsewhere.
4.2	4.2.7.5 & Table 4.2.6	The different project phases are combined for each potential effect in Table 4.2.6 which makes is difficult to consider each project phase fully. 1st Potential Effect 'Increase in SSCs as a result of construction, maintenance, operation and decommissioning along the cable route and at the landfall sites', it will also be necessary to consider background levels of SSC and also the anticipated persistence of sediment plumes (particularly near sensitive habitats or features). Where existing modelling and analysis results are used, it will be necessary to demonstrate that they are adequate and directly relevant and applicable to the proposed project.		We would advise that potential effects should be separated out for each project phase in future reports and assessments. For the first potential effect 'Increase in SSCs as a result of construction, maintenance, operation and decommissioning along the cable route and at the landfall sites', we would advise that background SSC levels will need to be assessed (as this will guide how sensitive the receptors are to temporary increase in SSC), and also the persistence of sediment plumes. It should also be shown how any existing numerical modelling and analysis results are relevant, applicable and

				sufficient to assess the potential effect for the proposed project.
4.2	4.2.7.5 & Table 4.2.6	2nd Potential Effect: Disturbance to Coastal Morphology. It is not stated what this potential effect is attributed to, what is the source?		Disturbance to coastal morphology could be due to seabed excavation in shallow nearshore waters (e.g. for HDD exit pits), and/or the presence of cable protection measures in shallow nearshore waters, and/or the presence of temporary work structures etc. Therefore, the causes of disturbance to coast morphology should be stated and considered separately.
4.2	4.2.7.5 & Table 4.2.6	Potential Effect: Changes to Coastal Erosion at the Landfall Sites. In addition to coastal retreat, there is also vertical change to the beach profile which needs to be considered.		The applicant needs to consider, in any assessment, how the coast at landfall may alter throughout the lifetime of the project both in terms of coastal retreat and vertical change to beach profiles.
4.2	4.2.7.5 & Table 4.2.6	There are a number of other potential effects which do not appear in Table 4.2.6 including: • The extent to which sensitive areas of seabed/substratum may be disturbed during cable installation • The extent to which seabed areas adjacent to the cable will be smothered by the settling of disturbed sediment • The anticipated spatial extent of change to sediment type and persistence • Alteration of sediment transport patterns and morphological change due to sandwave clearance and disposal of removed material • Scour (and secondary scour), and removal of seabed sediments, due to cable exposure and/or protection measures		The full range of potential effects need to be scoped in, considered and assessed. Where the Applicant considers this unnecessary justification and evidence to support this conclusion should be provided to allow these effects to be scoped out at a later stage during the pre-application process.
4.2	4.2.7.8 & Table 4.2.8	Table 4.2.8 does not consider project phase i.e. construction/operation and/or decommissioning		Magnitude criteria definition should also consider project phase.
4.2	4.2.8.2 & Table 4.2.10	Further to our earlier comments on Table 4.2.6, there are a number of significant effects which should be scoped in for assessment, including: • Smothering of seabed areas adjacent to the cable by the settling of disturbed material released into the water column during cable installation • Change of sediment type and persistence of this change due to cable installation • Modifications to sediment transport patterns and		There are a number of other significant effects which should be scoped into the assessment. Marine cable route is to MHWS and therefore activities within this cable route also has potential to impact the receptor and should be scoped in at this stage.

		resulting morphological change due to sandwave clearance • Modification of the nearshore hydrodynamics or diversion of sediment transport pathways resulting in morphological change (including to dunes, cliffs, saltmarsh and mudflats) due to the presence of cable protection measures in shallow nearshore waters.		
Chapter 4.3 Benthic Ecology				
4.3	4.3.3.1 - 4.3.3.2	The Applicant has not provided any reference to support their assertion that a screening distance of 2km for intertidal benthic ecology and 10km for subtidal is appropriate.		Support all statements with appropriate references in future reports and assessments.
4.3	4.3.4.6 – 4.3.4.8	Subtidal benthic habitats which were found during 'Project specific benthic surveys' are stated.		There is no mention of benthic habitats surveyed within and adjacent to MCZs in the Offshore Scheme, namely Goodwin Sands and Kentish Knock East MCZ which are designated for benthic features. The presence of protected features within the study area of the project, particularly where there is overlap with designated sites, must be clearly stated. For us to fully consider any potential impact we will need to see the survey data which has been used to assess the impacts of the project.
4.3	4.3.4.10	Table 4.3.1		Natural England advise that the table also includes other information namely the feature conditions and General Management approach (GMA) for the sites.
4.3	4.3.5.2	Text states; '…the possibility of avoidance of the Goodwin Sands MCZ by the Offshore Scheme.'		We recommend that care is taken to avoid the sensitive features of Goodwin Sands MCZ. Kent & Essex IFCA have conducted *Sabellaria* mapping surveys in 2021 and 2022 which will need to be considered once these are externally available. Natural England would expect the applicant to use the 'avoid, reduce, mitigate' approach where there are designated sites and protected species. If designated sites cannot be avoided, the route which reduces the impacts should be chosen. Such as, an area of the site which would be least detrimental to the qualifying features/habitats. We encourage the applicant to engage with us early within the design stage to determine any mitigation. If the project cannot avoid works within the Goodwin Sands MCZ then, given recent

				decisions on NSIPs with similar impacts to designated sites with similar features, we advise that there may be a need to discuss the production of an in principle Measures of Equivalent Environmental Benefit (MEEB) plan. Natural England is willing to work with the applicant during the pre-application phase to further discuss this issue.
4.3	4.3.5.3	Text states; '…aim to minimise impacts by micro siting around sensitive features where possible.'		Natural England welcome the use of micro siting to avoid sensitive habitats/features.
4.3	4.3.5.4	Text states; '…use of a trenchless cable installation method to minimise habitat loss and disturbance within the intertidal zone.'		Natural England welcome the use of methods which result in reduced environmental impact. However, we advise timely geotechnical surveys to confirm the likelihood of success of Horizontal Directional Drilling (HDD).
4.3	4.3.5.5	Construction Environmental Management Plan (CEMP)		Natural England advise that if any mitigation or measures to reduce environmental impact are relied upon in the CEMP then we should be consulted on this document and this consultation should be secured within the Development Consent Order (DCO).
4.3	4.3.6.5 Table 4.3.2	The implementation of LVSO5 as stated will not eliminate all risk as it states; '…the use of biodegradable drilling fluids (PLONOR substances) where practicable.'		This does not imply it will never be used. If there is a possibility of using a non-inert fluid it should be scoped into the assessment.
4.3	4.3.6.5 Table 4.3.2	Changes to marine water quality from HDD and drilling fluids, accidental leaks and spills from vessels, and the introduction and spread of Invasive Non-Native Species (INNS) via vessel hull or ballast water are all scoped out due to implementation and control of stated management measures.		If there is potential for an impact without management measures in place, these should be scoped in.
4.3	4.3.6.5 Table 4.3.2	Underwater sound impacts on marine invertebrates during construction, maintenance and decommissioning is scoped out.		Until the construction details are known, Natural England advise that the receptors for the impact pathway are scoped in.
4.3	4.3.6.5 Table 4.3.2	EMFs are scoped out.		In absence of an estimation of EMFs potentially arising from cables both at exterior of cables and at surface of seabed above buried cables, EMF should remain scoped in.
Chapter 4.4 Fish and Shellfish Ecology				
4.4	Table 4.4.1 and 4.4.2	The data used within these tables is from 1998 and 2012 (Ellis et al., 2012), (Coull et al., 1998).		We recommend up to date evidence is gathered on the importance of the study area for spawning and nursery grounds of fish species. Natural England can provide up-front advice on

				the scope, methodology and suitability of site-specific surveys for designated fish species through the Discretionary Advice Service (DAS).
4.4	Table 4.4.3	As stated, native oyster (*Ostrea edulis*) is a feature of the Dover to Deal MCZ and blue mussel (*Mytilus edulis*) beds are a feature of Goodwin Sands and Thanet Coast MCZ. The applicant should consider these features within the EIA, and if necessary micro-route the cable installation to avoid disturbance and smothering from higher than background levels of settlement of suspended sediments.		Identify extent of shellfish features and avoid through micro-routing
4.4	General	The cable route passes through the jurisdiction of two IFCA authorities (Kent & Essex IFCA (KEIFCA) and Eastern IFCA for Suffolk). Within the study area of this project there are several closed areas for bottom towed fishing gear, such as the prohibited use dredges and trawls, due to the presence of sensitive features. This consists of: • Margate and Longs Sands Area A • East Margate Sands • Thanet Coast SAC In addition, there are larger areas with partial restrictions as follows: • Fishing restriction, unless carried out from a beach or a vessel <17m in length, along the whole KEIFCA boundary • Inshore trawling restriction for vessels >15.24m in length for 3nm offshore along the whole Eastern IFCA boundary • Towed gear restriction for vessels >14m in length fishing for mussels along the whole Eastern IFCA boundary In addition, there are larger areas with partial restrictions as follows: Fishing restriction, unless carried out from a beach or a vessel <17m in length, along the whole KEIFCA boundary Inshore trawling restriction for vessels >15.24m in length for 3nm offshore along the whole Eastern IFCA boundary Towed gear restriction for vessels >14m in length fishing for mussels along the whole Eastern IFCA boundary		Further information on these restrictions can be found by contacting the relevant IFCAs and on this weblink View all Restrictions (kingfisherrestrictions.org)
4.4	General	The Applicant should be mindful of any closed shellfish beds and the effects of smothering from sandwave clipping/cable installation and burial on these resources.		Contact Kent and Essex IFCA for Kent and Eastern IFCA for Suffolk, for the most recent closed area information. Additionally, check

				Bottom Towed Fishing Gear Byelaw: We note that Margate and Long Sands Area A is avoided by the cable corridor see View all Restrictions (kingfisherrestrictions.org)
4.4	General	Consideration of essential fish habitat (*Sabellaria* reef in Goodwin Sands MCZ, sand banks, gravels), particularly for species such as herring (spawning) and Sandeel (burrows) should be considered. Fish species provide an important food source to designated Annex II bird populations and cetacean features within the cable corridor and where possible the route should be micro-routed to avoid these habitats.		Fish distribution changes temporally as well as spatially so existing data may not be representative of the current fish community.
4.4	4.4.4.4	Cephalopods (i.e. squid, cuttlefish and octopus) have not been discussed in the Baseline section.		Consider and assess cephalopods in the baseline characterisation.
4.4	4.4.4.5	Poor cod (*Trisopterus minutus)* is common in UK waters, though less so in the Southern North Sea, it is an important food source for commercial species such as cod. They should be considered within the baseline for fish and shellfish ecology.		Consider and assess poor cod as part of the baseline characterisation.
4.4	4.4.4.5	Mediterranean scaldfish (*Arnoglossus laterna*) can be found all around the British Isles, along with greater and lesser weaver fish. These should be included in the baseline characterisation.		Mediterranean scaldfish, greater and lesser weaver fish should be considered and assessed within the baseline charaterisation.
4.4	4.4.4.14	Migratory fish – Smelt (*Osmerus eperlanus*) are a feature of conservation importance for the Medway MCZ and are also present within the wider Thames and Swale Estuary MCZ. Smelt migrate to spawning streams during spring (March – April). MCZ features are not afforded protection outside the boundary of the site however, consideration of the migratory period and any potential effects to these fish demonstrates the potential for supporting nature recovery.		Consider timing of installation to avoid migratory fish
4.4	4.4.4.14	Migratory fish – European Eel (*Anguilla Anguilla*) – IUCN red list species considered critically endangered. Glass eels migrate into rivers to continue their life cycle and mature to silver eel which migrate out of rivers back to the Sargasso Sea. Consideration of impacts of the proposed works on fish migratory routes could be included in the scoping to consider biodiversity net gain / nature recovery in the wider environment.		Consider timing of installation to avoid migratory fish
4.4	Table 4.4.4 and 4.4.5	Most of the sources and impact pathways for fish and shellfish ecology have been scoped in, except for marine water quality changes/		We broadly agree with the breadth of construction, maintenance and decommissioning impacts which have been scoped in. However, there is the potential disturbance to habitats and

				species through the creation of new habitats for colonisation and this should be considered within the impact assessment (I.e. artificial reef effect in areas dominated by soft sediment). We would also like to highlight that marine water quality changes from vessels and cable installation have been scoped out based on management measures which will be implemented. If there is a pathway for impact before mitigation, this should still be scoped in.
4.4.7	4.4.7.3	4th Bullet Point: identify appropriate mitigation to reduce any likely ecological impacts. In line with our comments to 4.4.4.14, we are concerned with fish and shellfish species that spawn on the seabed with the study area.		Knowledge of the most sensitive spawning period should be identified, and cable installation activities planned to avoid these periods, where possible. Additional actions which could be considered to reduce the severity of effects on fish and shellfish receptors include careful consideration of the cable installation equipment, optimum cable burial depth, and minimising the cable trench footprint.
4.4	Table 4.4.3			We agree with the designated sites which have been scoped in for fish and shellfish ecology
Chapter 4.5 Marine Mammals				
4.5	4.5.3.4-6	The Applicant has listed several different methods for screening in designated sites for cetaceans. However, it is not clear what approach will actually be taken. There are other designated sites, Nature Conservation Marine Protected Areas (NCMPAs), for non-Annex II species in Scotland, however, given the distance between the project and Scottish waters, any connectivity is likely to be negligible.		It is difficult to provide detailed advice when the information provided in the scoping report is quite broad. Natural England advises that all sites within the relevant Management Units (MUs), for species with likely presence in the impact areas, are considered scoped in. Then, for each of these sites, the applicant should assess the potential for connectivity between the project and the designated site. For example, for harbour porpoise, it is considered that all individuals in the North Sea MU are connected to the SNS SAC. For bottlenose dolphin, connectivity to the Moray Firth SAC should be assessed. For seals, this should be based on telemetry data and known foraging ranges.

4.5	4.5.3.6	The Applicant has not provided any reference to support their assertion that a screening distance of 50km for cetaceans is appropriate.		All statements should be supported with appropriate references in future reports and assessments. The screening distance of 50km is far smaller than the foraging ranges for cetaceans and relevant literature and evidence should be reviewed when assessing the screening distance for cetaceans. We will continue to engage with the applicant through the pre-application phase to provide further advice.
4.5	4.5.3.7	The Applicant has listed several different methods for screening in designated sites for seals, however it is not clear what approach will actually be taken. There is also no reference to support the 135km screening distance which was chosen for seals.		Natural England are supportive of using the Southeast England Assessment/Management Unit (MU) for screening in UK harbour seal designated sites. However, the Applicant should review the latest evidence, such as Carter *et al.* (2022), and telemetry data for future reports and assessments. This literature provides updated foraging ranges for the two seal species. To illustrate, it has been documented that maximum foraging range of grey seal to be 448 km. Harbour seals have smaller foraging ranges and so limited movements between MUs. Harbour seals in The Wash have a larger foraging range than those at other colonies (Sharples *et al.,* 2012) and this should be considered by the Applicant. Due to the larger foraging ranges of grey seal, and the known movements of grey seals between colonies along the east coast of England, we consider it appropriate to also screen in the Northeast England MU. The Applicant should assess the potential for connectivity between designated sites in the Northeast England MU and the project area, as well as connectivity to the Humber Estuary Special Area of Conservation (SAC).

				We consider the approach of using telemetry data to determine connectivity is favourable compared to using a single foraging range, which is over-simplistic and does not reflect the variation in movements intra- and inter-sites. Telemetry data can also be used to determine connectivity to transboundary sites.
4.5	4.5.4.2 (and 4.5.7.1)	The data sources to be used to characterise the marine mammal baseline are considered appropriate. In addition, we welcome the use of local reports, for example from the Thames seal group.		No action needed.
4.5	4.5.4.2 4.5.4.4	Despite appropriate sources being listed, the Applicant has only used two sources to characterise cetaceans here. We expect that the characterisation of cetacean presence in the EIA will be more comprehensive and use all the listed sources.		Use all the listed sources to characterise the marine mammal baseline in future reports and assessments.
4.5	4.5.4.4 (also 4.5.8.1)	It is not clear which cetacean species the Applicant is screening into their EIA, as the applicant has stated that 4 species of cetacean commonly occur within the Greater North Sea Ecoregion and another 5 species occur in the region but are less common. It is then stated that harbour porpoise are the most common species observed in the Small Cetaceans in European Atlantic waters and the North Sea (SCANS-III) survey area.		The Applicant should clearly state which cetacean species they are screening in in future reports and assessments. We agree that harbour porpoise should be scoped in and advise that the Applicant refer to the relevant literature when assessing the occurrence of and potential impacts on cetacean species. We will continue to engage with the Applicant through the pre-application phase to provide further advice.
4.5	Table 4.5.2	The list of sites presented in Table 4.5.2 is not consistent with the screening approach outlined in the text.		The Wash is also a designated Ramsar site and SSSI with a harbour seal feature. The Humber Estuary also has overlapping designations with grey seal as a feature. These sites should be scoped in for potential effects on marine mammals. Therefore, designated sites should be reviewed for future reports and assessments, based on the advice provided in our detailed comments.
4.5	4.5.5.3	The Applicant has stated that they will adhere to the JNCC mitigation guidelines for piling, geophysical surveys and UXO detonation where appropriate.		Whilst we are supportive of this in principle, piling is not within the project description.
4.5	4.5.5.3	The need for additional mitigation documents should be		Consider the need for the additional mitigation

		considered in future reports and assessments: • A Site Integrity Plan – this will be needed if the Applicant cannot exclude the potential for an adverse effect on integrity (AEoI) of the Southern North Sea SAC due to in-combination underwater noise disturbance. • A Vessel Management Plan – it is best practice for vessels to implement measures that reduce potential impacts on marine mammals. If these measures are relied upon as mitigation in the EIA or HRA, then they must be secured.		documents listed in future reports and assessments. We will continue to engage with the Applicant through the pre-application phase to provide further advice.
4.5	4.5.6.4	The Applicant has listed that UXO clearance is a source of noise during construction.		It should be clarified whether UXO clearance will be undertaken as part of this licence or a separate Marine Licence. Refer to joint interim position statement on UXO clearance (available here) when determining appropriate clearance methods and mitigation.
4.5	4.5.6.4	The Applicant should clarify whether geophysical surveys will be undertaken as part of the marine licence for the project or through the separate licencing process.		Clarify licencing for geophysical surveys, for both construction and maintenance phases.
4.5	Table 4.5.3	Geophysical surveys are also a source of underwater sound impacts on marine mammals.		Include geophysical surveys in the assessment of underwater noise impacts.
4.5	Table 4.5.4	Natural England is in broad agreement with the impact pathways proposed to be scoped in and out for marine mammal receptors.		No action needed.
4.5	Table 4.5.5	The Applicant has listed that species which are legally protected are of Very High importance; we consider this definition applicable to all cetaceans as they are all European Protected Species.		Consider that all cetaceans have Very High importance within future reports and assessments.
Chapter 4.6 Marine Ornithology				
4.6		The cable will pass through the Outer Thames Estuary SPA, of which red throated diver (*Gavia* stellata) is a designated feature		There is potential here for displacement of red throated diver this impact will need to be assessed and considered both from an EIA and HRA perspective. Therefore, we encourage early engagement with Natural England before the application stage, to allow a full assessment of the project's impacts and for the appropriate mitigation measures to be applied. Natural England would note that the applicant has engaged with us already and that we anticipate this engagement will continue throughout the pre-

				application period and beyond. We would like to refer the Applicant to Natural England's advice on seasonality Designated Sites View (naturalengland.org.uk) and the joint Statutory Nature Conservation Bodies' advice for displacement: Joint SNCB Interim Advice On The Treatment Of Displacement For Red-Throated Diver (2022) (jncc.gov.uk) Joint SNCB Interim Displacement Advice Note (jncc.gov.uk). We recommend careful timing of works to ensure they fall outside of the sensitive winter period for the Red Throated Diver and where possible to avoid and minimise traffic during the most sensitive time in January, February and March. We recommend that existing shipping lanes and vessel transit routes should be used to avoid additional disturbance, and that vessel operators are made aware of the importance of the species, to avoid rafting birds and areas with high densities of birds.
4.6	4.6.3.2	It is not clear what site-specific studies the author is referring to in the last bullet point. These appear to be species specific only.		Suggest further information is provided for clarity.
4.6	4.6.3.3	Natural England agree that the use of a 10 km study area is a proportionate study area for understanding the impact of this project. This is congruous with SNCBguidance for the species for which the sites are designated.		None.
4.6	4.6.4.1	The text here suggests Ramsar sites are European sites. This is not the case, however, we note that it is policy to treat Ramsar sites as European sites. The last sentence is also unclear. We note that no named species are mentioned in the remainder of this chapter yet this paragraph states that "only qualifying bird species which have the potential to be present in the ZOI of the Offshore Scheme are considered further within this chapter". This text should be changed, or text should be amended in the following paragraphs to consider named species. If any designated species are scoped out, a clear rationale for this should be given.		Suggest amendment to make this clearer and further engagement to ensure all designated species are assessed and that any species scoped out is done so with agreement. Without further clarity we would recommend all designated species are considered scoped in.
4.6	4.6.4.2	When evaluating the information on Natural England's Designated Sites Viewer, the Supplementary Advice on		Suggest amendment in future reports and assessments.

		Conservation Objectives (SACOs) should also be considered. Targets for each attribute should also be reviewed for assessment.		
4.6	4.6.4.2	References for the JNCC's SACOS (296) and NE's Designated Sites Viewer (297) are non-site specific and are generic websites. We would welcome direct links to the advice used alongside the dates the advice was accessed.		Suggest amendment in future reports and assessments.
4.6	4.6.4	The author provides some detail as to how some onshore populations may be monitored. Section 4.6.7.2 states that no offshore bird surveys are to be undertaken. It is unclear what data will be obtained, what data will be used, and how impacts will be understood.		Further information should be provided, through the pre-application engagement process, to detail; • Survey work to be undertaken, including the methodology used, • Baseline data sets being used to inform assessment, • Methods to be used to quantify the actual level of disturbance, • Guidance to be followed to draw conclusions, for example, where SNCB guidance may be followed would provide a very clear route to understand levels of disturbance.
4.6	4.6.4.10	Counts taken greater than two hours either side of the tide to not appear to be congruous with WeBS methodology. We would welcome discussion as to the repeats required for data to be considered representative of the site. 3.3.4.3. within Part 3 Onshore Scheme tates that a modified WeBS methodology is to be used. We would welcome clarity as to what these methods entail including statements to detail how much of the buffer has been surveyed.		Suggest clarifications and agreements on survey methodology through the pre-application engagement process.
4.6	4.6.4.14	It is stated that '*Further intertidal and breeding bird surveys have been proposed for the Suffolk and Kent Onshore Schemes. Any data collected during these surveys will be used to inform the marine ornithology chapter of the EIA, where appropriate'* it is not clear exactly what this sentence means.'		Suggest clarification is provided through the pre-application engagement process regarding how this survey information is used within the assessments.
4.6	4.6.6	Sources and impacts do not scope in the potential for significant effect during the operational phase, such as ongoing effect of habitat loss during operation, or impacts of cable repair and maintenance. This is however screened in during Step 2. The two should agree with each other. Natural England welcomes the screening in of operation and maintenance impacts.		Suggest amendment for consistency to clearly scope in operation and maintenance impacts.

4.6	Figure 4.6.1	It is unclear why some sites are labelled, and some are not. For example, Thanet Coast and Sandwich Bay Ramsar is not. Natural England would welcome the inclusion of labels for all sites or a mechanism to explain the visualisation.		Suggest all sites are labelled or rationale for labelling is provided in future reports and assessments.
4.6	Figure 4.6.1	Natural England and JNCC have written useful guidance on tiers for scoping projects into cumulative/in-combination assessments.		Please see *Parker et al. (2022c). Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards. Phase III: Expectations for data analysis and presentation at examination for offshore wind applications. Natural England. Version 1.2, 140pp,* while this document is intended to be guidance for the development of offshore wind farms, the sections related to cable installation in the marine environment are of relevance to this application.
General		We note that the cable route passes through and near a number of protected areas.		In line with the mitigation hierarchy, we would advise that the first option should be for the proposed cable route to avoid protected areas.
General		Whilst we note that sediment contaminants may be an issue for consideration within physical processes EIA studies, we consider that water quality parameters are outside of the scope of this topic.		We advise that water quality would be better placed in its own section rather than included with physical processes/environment.
General		With the current consultation on Marine Net Gain in mind, are there any environmental opportunities, such as nature recovery or biodiversity net gain (BNG), as part of the project?		We advise that Marine Net Gain and environmental opportunities such as nature recovery or BNG could be considered as part of the project in order to provide a positive environmental outcome.
Chapter 4.11 Cumulative Impacts				
4.11.2	4.11.2.2	The key environmental impacts due to the Sea Link cable installation, operation, and decommissioning have not been listed here.		The key environmental impacts due to the Sea Link cable installation, operation and decommissioning should be included in the assessment of cumulative effects, along with overlapping plans/projects and the receptors impacted.
4.11	4.11.3.7	Natural England do not agree with the proposed approach to cumulative impact assessments (CIA) for marine mammals. As stated in IAMMWG (2021), “The MUs therefore provide an indication of the spatial scales at which impacts of plans and projects alone, cumulatively and in-combination need to be		Further discussion is needed between Natural England and the Applicant on the appropriate approach to CIA for future reports and assessments. In these discussions the Applicant should outline

		assessed for the key cetacean species in UK waters."		the impact pathways they propose to screen into the CIA.
4.11	General	The Applicant should consider whether they will need an European Protected Species (EPS) licence to injure and/or disturb EPS species (cetaceans) from the project activities. Guidance on how to determine the need for an EPS licence can be found here		Consider the need for an EPS licence

Document: Volume 1 – Part 5 Project Wide Impacts				
Section	Paragraph/ Table	Comment	RAG	Recommendations
5.3	Table 5.3.1	It is stated that for Landscape elements and Seascape character 'there is no potential impact for the onshore and offshore schemes to result in a combined effect beyond those already proposed to be assessed in the individual chapters as no theoretical pathway exists.'		We disagree with this statement as there is likely to be an impact on Landscape elements of Suffolk Coasts and Heath AONB, and Seascape character from both the onshore and offshore schemes combined effects with other development projects. The Suffolk onshore scheme interacts with other large-scale developments within the AONB, such as Sizewell C, which cumulatively threaten the statutory role of the AONB.

Document: Volume 2 – Appendices				
Section	Paragraph/ Table	Comment	RAG	Recommendations
Chapter 1.4A Code of Construction Practice				
Ecology and Biodiversity	Page 13	There is no mention of lighting within the Code of Construction Practice in regard to protected species and habitats.		Mitigation measures to be taken to manage light disturbance from artificial light during construction and operation and should be in accordance with Bats and Lighting in the UK guidance (Bat Conservation Trust and Institute of Lighting Engineers, 2018), to include the use directional beams, facing downwards, non-reflective surfaces and barriers and screens, to avoid lighting impacts.
Agriculture and Soils	Page 16	Further guidance for mitigation with regards to soils is contained in the Defra Construction Code of Practice for the Sustainable Use of Soil on Development Sites.		Defra's guidance on the sustainable use off soils to be followed *(Department for Environment, Food and Rural Affairs (Defra) (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites).* We will continue to engage

				with the applicant through the pre-application phase to provide further advice.
1.4A	Table 1.4.A.3	A table of management measures to reduce impacts on the environment from the project		Natural England welcome the consideration of measures which could reduce pathways of impact, such as the control of Invasive Non-Native Species (INNS). We would like to refer the Applicant to www.nonnativespecies.org/what-can-i-do/check-clean-dry/ for guidance for best practice INNS control. We encourage the Applicant to engage with us early within the design stage to ensure the appropriate control and management measures for the project are implemented.

Structure/Framework of/for Natural England advice in relation to attributing risk and potential to resolve PRE APPLICATION

RED

NE considers these issues to be show stoppers and unless there are

- significant design changes;

Then we advise that an adverse effect on integrity; significant impacts (MCZ) significant adverse effect on landscape/seascape; and/or significant EIA issue can't be ruled out.

(Discussions on Compensation/MEEB etc. will be required where relevant).

AMBER

Natural England considers this issue to be significant and unless it is resolved, we advise that AEOI, significant impacts on landscape/seascape of significant EIA impacts cannot be ruled out.

Resolving this issue is likely to require (but is not limited to):

- Additional baseline data; and/or
- Design changes; and/or
- Mitigation; and/or
- Significant changes to assessment.

If these issues are not resolved prior to application, they are **likely to become show stoppers**.

YELLOW Natural England does not agree with the Applicants assessment/position/approach. In this instance the discrepancy is not high risk for this particular project, but should be addressed prior to application.
GREEN NE support for something the Applicant has done and we would possibly encourage others to do similar.
GREY Flagging issues that are outside of NE remit and/or NE has no further comment on unless further evidence is presented e.g. NGOs approach to MM assessment against a population. May include in PEIR as a reference point. Only provided in written submissions to close down point.

Annex C – Net Gain

Natural England advise that it is imperative that the project as a whole avoids, mitigates and/or compensates for impacts on habitats and species of high biodiversity value including designated sites, protected species and ancient woodland. As a first principle, the project should therefore represent no 'biodiversity net loss' in these regards.

However, it should be noted that a significant amount of other valuable and sensitive habitats and species are likely to be affected by the project, including priority habitats and species, County Wildlife Sites and Local Nature Reserves. Priority habitats and species listed under section 41 of the Nature Environment and Rural Communities (NERC) Act are, in the Secretary of State's opinion, of principal national importance for the purpose of conserving biodiversity. The avoidance-mitigation-compensation hierarchy should also be clearly followed with respect to these habitats and species where they may be affected by this application.

In this regard, Natural England advises that a project of this scale has the potential to provide a positive environmental legacy for the area within which it is proposed, with considerable long-term benefits to people and wildlife. We welcome your commitment to providing Biodiversity Net Gain (BNG) in advance of it being a statutory requirement in the relevant National Policy Statements (NPS EN-1 and NPS EN-5) for Nationally Significant Infrastructure Projects (NSIPs) and we would be keen to work with the applicant in order to help realise any such ambition.

As you are aware, the BNG approach has been developed to not only help halt declines in wildlife by conserving what habitats and species are left but begin the task of restoring some of what has been lost. In simple terms, BNG calculations should (ideally using the recently released Defra biodiversity net gain metric 3.0) compare the current biodiversity value of the habitats within the project red line boundary to be lost (excluding designated sites and ancient woodland) with the biodiversity value of the habitats forecast to be created following development, with the intention being to demonstrate an overall increase in biodiversity (minimum 10 %). We consider that such an approach could, following completion of the project, provide significant benefits through:

- Enabling wildlife to adapt to the challenges of the future including habitat fragmentation, climate change etc.;

- Providing a wealth of natural capital benefits such as flood prevention, improved air quality, improved soils, clean water etc.;

- Providing inspiration and enjoyment for people through regular access to a high-quality natural environment, improving community health and wellbeing (both mental and physical). This should include enhancement of public access where practical (i.e. where it would not compromise the biodiversity interest, for example) and could also involve local stewardship of any new habitat creation;

We advise that this such an approach would be in line with:

- The **Environment Act 2021**, NSIPS granted development consent in England will have to deliver at least 10% BNG from an as yet unconfirmed date, expected to be in November 2023. BNG will be measured using Defra's biodiversity metric and habitats will need to be secured for at least 30 years. This sits alongside a strengthened legal duty for public bodies to conserve and enhance biodiversity. The construction industry research and information association (CIRIA), the Chartered Institute of Ecology and Environmental Management (CIEEM) and the Institute of Environmental Management and Assessment (IEMA) have launched **Biodiversity Net Gain Best Practice guidance** to which Natural England provided input to and further best practice guidance is also now available. Many major infrastructure projects in the UK have now committed to delivering a biodiversity net gain and some examples of these are included in this guidance.

- **The NPS for Energy (NPS EN – 1):** this provides the primary basis for decisions on applications for development consent for energy projects and acknowledges that development proposals "provide many opportunities for building-in beneficial biodiversity or geological features as part of good design" (EN-1, para 5.3.15, pg. 72) and that "the applicant should demonstrate that…opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals" (EN-1, para 5.3.18, pg. 72, also see para 5.3.4 on pg. 69).

- **The upcoming revisions to the NPSs**: The **government response to the revised NPS consultation in relation to net gain** states that "the 2011 Natural Environment white paper[1] set out an ambition to achieve net gain for biodiversity as opposed to net loss. The recently published 25 Year Environment Plan identified actions to both strengthen the commitment to biodiversity net gain and expand the approach over time to natural capital net gain and ultimately wider environmental net gains as appropriate metrics become available. The NPS will establish the need to consider the potential to achieve biodiversity net gain and will set the context for achieving this at a strategic level without analysis of impacts on individual sites. More detailed assessment, for example based on the Defra biodiversity metric, will be undertaken as part of the DCO application". We hope that the above is therefore useful in giving you some foresight on what the NPS revisions might include in terms of net gain requirements.

- The Government's **25 Year Environment Plan** sets out the aspiration to mainstream BNG in the planning system and move towards approaches that integrate natural capital benefits.

- The revised **National Planning Policy Framework (NPPF)**: The NPPF identifies that one of the three overarching objectives to achieving sustainable development through the planning system is an environmental objective "to protect and enhance our natural…environment; including making effective use of land, improving biodiversity…". The revised NPPF was published on 20 July 2021 and updated Planning Practice Guidance (PPG) has also been issued by the Ministry of Housing, Communities and Local Government (MHCLG) to support various aspects of the revisions. Which includes policies to protect and enhance the natural environment, importantly including policies on biodiversity and wider environmental net gain; specifically, planning policies and decisions should contribute to and enhance the natural and local environment by providing net gains for biodiversity and are to identify and pursue opportunities for biodiversity net gain (paras 174,179 and 180) and wider environmental gain (paras 100, 120, 180). Delivering net gain is also referred to in the **National Infrastructure Commission's Design Principles** and the **National design guide**.

[1] https://www.gov.uk/government/publications/the-natural-choice-securing-the-value-of-nature

Environmental Services
Central Operations
Temple Quay House
2 The Square
Bristol, BS1 6PN

Dalia Alghoul
Town planning Technician
1 Stratford Place,
London
E15 1AZ

Date: 22 November 2022

Submission by email: southeastanglialink@planninginspectorate.gov.uk

Reference: EN020026

Network Rail Consultation Response: Application by National Grid Electricity Transmission plc for an Order granting Development Consent for the Sea Link (the Proposed Development).

Dear Sir/Madam,

Thank you for consulting Network Rail on the Scoping Opinion as to the information to be provided in an Environmental Statement (ES) relating to the Proposed Development in the Kent and Suffolk regions.

This Network Rail response, within the following sub-sections, will provide;

- **Context**
- **Part A: Level Crossing – Network Rail Requirements**
- **Part B: Asset Protection (ASPRO).**

Context

Network Rail is the statutory undertaker with responsibility for railway infrastructure in England, Scotland and Wales. Therefore, this letter is an operational-led response as statutory undertaker, which focuses on Network Rail's core duties for operation of the rail network, renewal and replacement of the rail network, and the improvement, enhancement and development of the rail network, in all cases in accordance with best practice and in a timely, efficient and economical manner. Network Rail's licence from the Secretary of State can be found here:
- https://www.orr.gov.uk/sites/default/files/om/netwrk_licence.pdf

Therefore, Network Rail aims to protect and improve the safety and the maintaining of the railway, including railway and railway related uses (such as freight, depot and infrastructure uses) at present and for future uses.

Part A: Level Crossing – Network Rail Requirements

Level Crossing Usage

Within The Suffolk and Kent areas, there's potential for construction traffic from the proposed development to impact several Level Crossings, both public and private. To mitigate impacts the developer must consider the following;

i. ***A safe working method should be agreed upon through Network Rail's Asset Protection Team (ASPRO) before the use of the private crossings.***

ii. ***The Public road crossings must be used in accordance with the signs displayed.***

Upon Request, Network Rail can provide a list of the relevant crossings.

Easements and Wayleaves

Agreements for cables to pass over or under the railway need to be obtained from the Easements and Wayleaves team, with works supervised by the Asset Protection Team.

Part B: Asset Protection

Asset Protection Supporting Information;

Asset Protection (ASPRO) maintain the railway infrastructure and strongly recommend that for any development, near the railway, the developer(s) contacts Network Rail's ASPRO team via AssetProtectionAnglia@networkrail.co.uk at an early stage and prior to any works commencing on site, and also to agree an Asset Protection Agreement with us to enable approval of detailed works.

ASPRO manage and mitigate numerous risks to and from the railway to ensure that proposed development(s) do not have an adverse impact on Network Rail's operational railway infrastructure.

For further information on Asset Protection, please see the Network Rail's ASPRO website below;

- https://www.networkrail.co.uk/running-the-railway/looking-after-the-railway/asset-protection-and-optimisation/

Conclusion

Network Rail have provided key considerations within the earlier sub-sections;

- **Part A: Level Crossing – Network Rail Requirements**
- **Part B: Asset Protection (ASPRO).**

Network Rail will continue to work with National Grid Electricity Transmission plc and would welcome any further discussion on this consultation response, as well as future correspondence and meetings.

I trust that the above clearly sets out Network Rail's position on the proposal, should you require any further information please do not hesitate to contact me

Yours Faithfully,

[redacted]
Town Planning Technician | Property | Eastern Route | Anglia
1 Stratford Place | London | E15 1AZ
[redacted]

From:	Before You Dig
To:	South East Anglia Link
Subject:	RE: EXT:EN020026 - Sea Link - EIA Scoping Notification and Consultation
Date:	25 October 2022 13:04:22
Attachments:	image007.png image008.png image009.png image010.png image011.png image012.png image013.png

---

Northern Gas Networks do not cover this area.

Please use this online tool to find out which gas distribution network you need to contact:

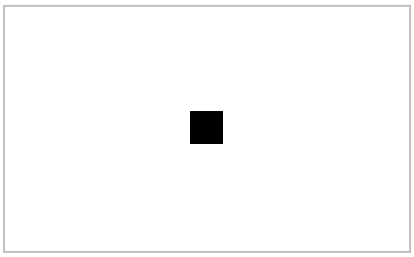
https://www.energynetworks.org/operating-the-networks/whos-my-network-operator

Kind regards,

[redacted]

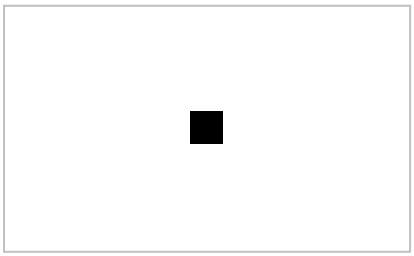
Administration Assistant
Before You Dig
Northern Gas Networks
1st Floor, 1 Emperor Way
Doxford Park
Sunderland
SR3 3XR

[redacted]



Get involved! Have your say in the future of your gas network and win great prizes, by taking part in our BIG customer survey at together.northerngasnetworks.co.uk Keep posted to take part in a range of activities from workshops to roadshows. Together, we are the network.

Northern Gas Networks Limited (05167070) | Northern Gas Networks Operations Limited (03528783) | Northern Gas Networks Holdings Limited (05213525) | Northern Gas Networks Pensions Trustee Limited (05424249) | Northern Gas Networks Finance Plc (05575923). **Registered address:** 1100 Century Way, Thorpe Park Business Park, Colton, Leeds LS15 8TU. Northern Gas Networks Pension Funding Limited Partnership (SL032251). **Registered address:** 1st Floor Citypoint, 65 Haymarket Terrace, Edinburgh, Scotland, EH12 5HD.
For information on how we use your details please



Get involved! Have your say in the future of your gas network and win great prizes, by taking part in our BIG customer survey at together.northerngasnetworks.co.uk Keep posted to take part in a range of activities from workshops to roadshows. Together, we are the network.

Northern Gas Networks Limited (05167070) | Northern Gas Networks Operations Limited (03528783) | Northern Gas Networks Holdings Limited (05213525) | Northern Gas Networks Pensions Trustee Limited (05424249) | Northern Gas Networks Finance Plc (05575923). **Registered address:** 1100 Century Way, Thorpe Park Business Park, Colton, Leeds LS15 8TU. Northern Gas Networks Pension Funding Limited Partnership (SL032251). **Registered address:** 1st Floor Citypoint, 65 Haymarket Terrace, Edinburgh, Scotland, EH12 5HD.
For information on how we use your details please

From: South East Anglia Link <SouthEastAngliaLink@planninginspectorate.gov.uk>
Sent: 25 October 2022 12:16
Subject: EXT:EN020026 - Sea Link - EIA Scoping Notification and Consultation

You don't often get email from southeastanglialink@planninginspectorate.gov.uk. Learn why this is important

External email! - Think before you click

Dear Sir/Madam

Please see attached correspondence on the proposed Sea Link.

Please note the deadline for consultation responses is **22 November 2022** and is a statutory requirement that cannot be extended.

Kind regards,

[redacted]

[redacted]

Todd Brumwell | Associate EIA Advisor
The Planning Inspectorate
T [redacted]

[redacted]@PINSgov [redacted] The Planning Inspectorate [redacted] planninginspectorate.gov.uk

Ensuring fairness, openness and impartiality across all our services

This communication does not constitute legal advice.
Please view our Information Charter before sending information to the Planning Inspectorate. Our Customer Privacy Notice sets out how we handle personal data in accordance with the law.

Please take a moment to review the **Planning Inspectorate's Privacy Notice** which can be accessed by clicking this link.

Please note that the contents of this email and any attachments are privileged and/or confidential and intended solely for the use of the intended recipient. If you are not the intended recipient of this email and its attachments, you must take no action based upon them, nor must you copy or show them to anyone. Please contact the sender if you believe you have received this email in error and then delete this email from your system.

Recipients should note that e-mail traffic on Planning Inspectorate systems is subject to monitoring, recording and auditing to secure the effective operation of the system and for other lawful purposes. The Planning Inspectorate has taken steps to keep this e-mail and any attachments free from viruses. It accepts no liability for any loss or damage caused as a result of any virus being passed on. It is the responsibility of the recipient to perform all necessary checks.

The statements expressed in this e-mail are personal and do not necessarily reflect the opinions or policies of the Inspectorate.

DPC:76616c646f72

[redacted]

From:	ONR Land Use Planning
To:	South East Anglia Link
Subject:	ONR Land Use Planning - Application EN020026
Date:	22 November 2022 14:16:30
Attachments:	image003.png image004.png image001.png image005.png image006.png image006.png image005.png image003.png image001.png image004.png image002.png EN020026-Letter-to-stat-cons-Scoping-&-Reg-11-Notification.pdf

---

Dear Sir/Madam,

You requested that ONR inform you of the information we consider should be provided in the environmental statement for application EN020026-000024-221025. Our response is as follows:

- Parts of the Suffolk Onshore Scheme are located in the Detailed Emergency Planning Zone (an ONR consultation zone) of the Sizewell B nuclear licensed site;
- Parts of the Suffolk Onshore Scheme are located in ONR's Outer Consultation Zone (an ONR consultation zone) of the Sizewell A and Sizewell B nuclear licensed sites;
- The applicant should take due cognizance of the Sizewell A and Sizewell B nuclear licensed sites, operated by Magnox Ltd and EDF Energy Nuclear Generation Ltd respectively;
- The applicant should liaise with Magnox Ltd and EDF Energy Nuclear Generation Ltd in relation to the potential external hazards the proposed development poses to Sizewell A and Sizewell B respectively (and vice versa); and
- The applicant should liaise with Suffolk County Council in relation to the whether the proposed development can be accommodated in the Off-Site Emergency Plan for Sizewell B.

Regards,

Land Use Planning
Office for Nuclear Regulation
ONR-Land.Use-planning@onr.gov.uk

----Original Message----
From: South East Anglia Link <SouthEastAngliaLink@planninginspectorate.gov.uk >
To:
Cc:
Sent: 25/10/2022 12:17
Subject: EN020026 - Sea Link - EIA Scoping Notification and Consultation

Dear Sir/Madam

Please see attached correspondence on the proposed Sea Link.

Please note the deadline for consultation responses is **22 November 2022** and is a statutory requirement that cannot be extended.

Kind regards,

[redacted]

[redacted] | Associate EIA Advisor

The Planning Inspectorate

T [redacted]

[redacted]@PINSgov [redacted] The Planning Inspectorate [redacted] planninginspectorate.gov.uk

Ensuring fairness, openness and impartiality across all our services

This communication does not constitute legal advice.

Please view our Information Charter before sending information to the Planning Inspectorate. Our Customer Privacy Notice sets out how we handle personal data in accordance with the law.

Please take a moment to review the **Planning Inspectorate's Privacy Notice** which can be accessed by clicking this link.

Please note that the contents of this email and any attachments are privileged and/or confidential and intended solely for the use of the intended recipient. If you are not the intended recipient of this email and its attachments, you must take no action based upon them, nor must you copy or show them to anyone. Please contact the sender if you believe you have received this email in error and then delete this email from your system.

Recipients should note that e-mail traffic on Planning Inspectorate systems is subject to monitoring, recording and auditing to secure the effective operation of the system and for other lawful purposes. The Planning Inspectorate has taken steps to keep this e-mail and any attachments free from viruses. It accepts no liability for any loss or damage caused as a result of any virus being passed on. It is the responsibility of the recipient to perform all necessary checks.

The statements expressed in this e-mail are personal and do not necessarily reflect the opinions or policies of the Inspectorate.

DPC:76616c646f72



This email has come from an external sender outside of ONR. Do you know this sender? Were you expecting this email? Take care when opening email from unknown senders. This email has been scanned for viruses and malicious content, but no filtering system is 100% effective however and there is no guarantee of safety or validity. Always exercise caution when opening email, clicking on links, and opening attachments.

This email has been scanned for viruses and malicious content, but no filtering system is 100% effective and this is no guarantee of safety or validity.

Proposed DCO Application by National Grid Electricity Transmission for Sea Link (electric lines)

Royal Mail Group Limited's response to ES Scoping Consultation

Introduction

Royal Mail and its consultants BNP Paribas Real Estate have reviewed the consultation material for the above project and wish to submit this holding response as part of this consultation.

Royal Mail – relevant information

Under section 35 of the Postal Services Act 2011, Royal Mail has been designated by Ofcom as a provider of the Universal Postal Service. Royal Mail is the only such provider in the United Kingdom. The Act provides that Ofcom's primary regulatory duty is to secure the provision of the Universal Postal Service. Ofcom discharges this duty by imposing regulatory conditions on Royal Mail, requiring it to provide the Universal Postal Service.

Royal Mail is under some of the highest specification performance obligations for quality of service in Europe. Its performance of the Universal Service Provider obligations is in the public interest and this should not be affected detrimentally by any statutorily authorised project.

The Government imposes financial penalties on Royal Mail if its Universal Service Obligation service delivery targets are not met. These penalties relate to time targets for:

- collections,
- clearance through plant, and
- delivery.

Royal Mail's postal sorting and delivery operations rely heavily on road communications. Royal Mail's ability to provide efficient mail collection, sorting and delivery to the public is sensitive to changes in the capacity of the highway network.

Royal Mail is a major road user nationally. Disruption to the highway network and traffic delays can have direct consequences on Royal Mail's operations, its ability to meet the Universal Service Obligation and comply with the regulatory regime for postal services thereby presenting a significant risk to Royal Mail's business.

Royal Mail position

Royal Mail and its advisor BNP Paribas Real Estate have reviewed the Environmental Impact Assessment Scoping Report ("Scoping Report"), published October 2022.

Royal Mail has 5 operational properties within 5 miles of the proposed works:

Suffolk Onshore

- BE 1632 Saxmundham DO/RET/PAR, 48 High Street, Saxmundham, IP17 1AA (c. 0.5 miles)
- BE 1627 Leiston Delivery Office, 14 Sizewell Road, Leiston, IP16 4AA (c. 0.5 miles)

Kent Onshore

- BE 1430 Sandwich DO, 34 King Street, Sandwich, CT13 9AA (c. 0.5 miles)
- BE 1426 Ramsgate DO, 42 Wilfred Road, Ramsgate, CT11 7RA (c. 1.5 miles)
- BE 1407 Broadstairs DO, 20 The Broadway, Broadstairs, CT10 2AA (c. 3.5 miles)

An outline Construction Traffic Management Plan ("CTMP") will be prepared and submitted as part of the DCO application. Due to this early stage, there are currently no details of proposed mitigations.

The published ES Report states the following elements have been outlined as potential sources of traffic impact during the construction phase, particular regarding Suffolk Onshore and Kent Onshore:

- Construction works e.g. where these require temporary traffic management, or result in temporary diversions or closures to the highway network or pedestrian/cycle routes including PRoW;
- Construction routes e.g. where these interact with the existing transport networks (road/rail/pedestrian/cycle) such as at vehicle crossing points; and
- Construction vehicles:
    - HGVs;
    - LGVs;
    - Construction staff vehicles; and
    - Abnormal loads.

Every day, in exercising its statutory duties Royal Mail vehicles use all of the main roads that may potentially be affected by the proposed Sea Link.

Any periods of road disruption / closure, night or day, on or to the roads immediately connected to the Sea Link or the surrounding highway network will have the potential to impact operations and may consequently disrupt Royal Mail's ability to meet its Universal Obligation service delivery targets.

Royal Mail's performance of the Universal Service Provider obligations is in the public interest and should not be affected detrimentally by any statutorily authorised project. Accordingly, Royal Mail seeks to take all reasonable steps to protect its assets and operational interests from any potentially adverse impacts of proposed development.

Royal Mail does not wish to stop or delay Sea Link and its works from occurring. However, Royal Mail does wish to ensure the protection of its future ability to provide an efficient mail sorting and delivering service to the public from and to the above identified operational facilities in accordance with its statutory obligations. Whilst the nature of the scheme itself (electric lines) is considered to have low potential of impacting Royal Mail assets or operations during its construction and operational phase, parts of the construction phase may impact Royal Mail. Therefore, Royal Mail wishes to reserve its position to submit a consultation response/s later in the DCO consenting process when sufficient information is available. Royal Mail also wishes to reserve its position to submit representations to the future Public Examination, if required.

In the meantime, any further consultation information on this infrastructure project and any questions of Royal Mail should be sent to:

[redacted] **Senior Planning Lawyer, Royal Mail Group Limited**

[redacted] **Director, BNP Paribas Real Estate**

[redacted] [redacted] **, Graduate Planner, BNP Paribas Real Estate**

Please can you confirm receipt of this consultation response by Royal Mail.

From: [redacted]
To: South East Anglia Link
Subject: EN020026-000024-221025 South East Anglia Link Suffolk to Kent
Date: 22 November 2022 15:44:28
Attachments: image001.png
image002.jpg
image003.jpg
image004.jpg
image005.jpg
image007.jpg

Dear Sir/Madam

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11
Application by National Grid Electricity Transmission plc (the Applicant) for an Order granting Development Consent for the Sea Link (the Proposed Development)
Scoping consultation

Thank you for your consultation in respect of the above.

I can confirm that South Norfolk Council has no comments to make and we would wish to defer to the Host Local Authorities for their views and comments to be taken into consideration.

Yours faithfully,

Cla[redacted]
Area Team Manager
[redacted]

NHS
Suffolk and
North East Essex
Integrated Care Board

By Email only
southeastanglialink@planninginspectorate.gov.uk
contact@sealink.nationalgrid.com

21st November 2022

Ref: SEALINK EIA Scoping Opinion

Dear Sir / Madam

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11 Application by National Grid Electricity Transmission plc (the Applicant) for an Order granting Development Consent for the Sea Link (the Proposed Development)
Scoping consultation

1 Introduction

This letter is a response by the Suffolk and North East Essex Integrated Care Board (the ICB) to the scoping opinion consultation on the proposed development detailed above. The ICB is responding as the strategic health authority in the location where the development is located.

Please note that the following comments are a combined response on behalf of Suffolk and North East Essex Integrated Care Board (SNEE) in particular on behalf of the following organisations;
East Suffolk & North East Essex Foundation Trust (ESNEFT)
Norfolk and Suffolk Foundation Trust (NSFT)
East of England Ambulance Service NHS Trust (EEAST) please note EEAST are inputting their own response regarding impact on blue light services.

The ICB is the commissioner of primary care, secondary care, mental health and emergency and non emergency services in the area of the development and will respond on behalf of all these services as part of our statutory duties. I can confirm that our health economy partners, may from time to time request additional engagement including but not limited to the impact on access to health facilities and emergency service vehicle response times.

It is important to note the ICB works in collaboration with our public health colleagues in Suffolk County Council and endorse the response you will receive from Suffolk County Council in all elements of human health environmental impacts.

2 Development impacts on Health

General statement

Most large-scale development proposals impact on the ICB's roles and responsibilities in the following areas:

- Meeting the healthcare needs of the workforce
- Disruption to access/transport for patients (emergency and non-emergency) and staff travelling to and between healthcare sites

- Responding to major incidents/disasters

These matters should be assessed, and mitigation proposed for the construction and operational phases of the development.

Cumulative impacts – consideration must be made to other major development proposals in the area and the in-combination impacts. This includes the known developments (but not limited to) of Sizewell C, Bramford to Twinstead national grid upgrade and East Anglia Green national grid upgrade.

It is noted that Leiston Surgery is named as a healthcare facility that may be impacted during the onshore construction works. It will be necessary to understand the potential impact and establish appropriate mitigation to ensure any disruption is minimised.

Meeting the healthcare needs of the workforce

It is necessary to consider whether the workforce, construction and when operational the development will add to the burden on local healthcare services and whether these services have the capacity to provide the necessary services.

It will therefore be important to ensure the following Information is provided;

- size of non- permanent workforce
- timing and duration of their stay
- location during stay in area
- healthcare and wellbeing facilities to be provided by developer on-site

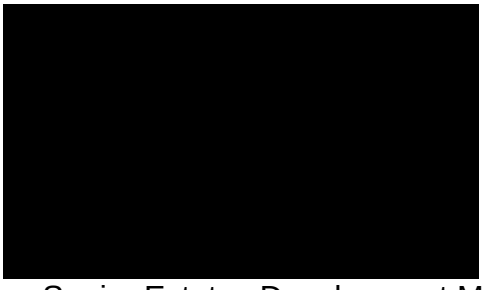
3. Conclusion

In response to the scoping option notification for the development of an Environmental Statement (ES) it is acknowledged that there is reference to the following areas of concern and that further detail should be explored in the development of the ES;

- Under the proposed approach to the Environmental Impact Assessment on travel impact, there is a high level understanding of how the review of the potential impact of the number of HGV's will be undertaken and acknowledges that the impact will be felt on the A12 and minor A roads as part of the onshore construction phase.
- The report also acknowledges the cumulative effect of multiple schemes . This is an important area which we would like to be part of the exploration of reducing the impact by working in partnership
- We are particularly interested in understanding more around the opportunities to work with the developer on turning the potential impacts on Socio Economics, Tourism and Recreation into opportunities to improve the offer of local skills, education, training and jobs for local people.
- We are keen to ensure that the EIA provides further detail to the acknowledgement in the scoping options report to the potential demand on healthcare services during the construction period including Primary Care with influx of additional temporary residents.

To this end this is to confirm that with the Suffolk and North East Essex ICB being the lead contact, we will want to be acknowledged as an Interested Party and act as a consultee moving forward. Contact details are as per the signature below.

Yours faithfully



Senior Estates Development Manager

Suffolk County Council



Planning Act 2008

Consultation to Inform the Adoption of an EIA Scoping Opinion from The Planning Inspectorate

Sea Link Proposals by National Grid Electricity Transmission (NGET)

Comments by Suffolk County Council

November 2022

Contents

Executive Summary 3
1 Summary of Response 3
2 Contents of this Response 3
3 General Comments 3
4 Archaeology 5
5 Ecology 6
6 Economic Development/Socioeconomic 8
7 Joint Emergency Planning Unit Comments 9
8 Lead Local Flood Authority Comments 9
9 Local Highways Authority Comments 10
10 Landscape and Visual 12
11 Public Rights of Way (PRoW) 14
12 Other Potential Impacts 14
Appendix A – Detailed Technical Comments 15
13 SCC Archaeology 15
14 SCC Ecology 17
15 SCC Economic Development 22
16 SCC Emergency Planning Unit 31
17 SCC Lead Local Flood Authority (LLFA) 33
18 SCC Highways 35
19 SCC Landscape and Visual 44
20 SCC Public Rights of Way 48
21 Other Potential Impacts 56

Executive Summary

1 Summary of Response

1.1 This document is Suffolk County Council's (SCC) response to The Planning Inspectorate's request in the letter dated 25 October 2022 for comments to inform the adoption of an Environmental Impact Assessment (EIA) Scoping Opinion by the Planning Inspectorate regarding the National Grid Electricity Transmission's (NGET) proposals for a 140km subsea grid reinforcement link between Suffolk and Kent, known as Sea Link, including on shore infrastructure.

1.2 This response contains the technical comments of staff directly employed by SCC specifically on the question of the adoption of an EIA Scoping Opinion and is not intended to make comments on the merits of the Sea Link proposal itself, which will be dealt with separately under the Non-Statutory Consultation by NGET which has run concurrently with the request for an EIA Scoping Opinion.

2 Contents of this Response

2.1 The Response comprises this section as a summary and the accompanying Appendix A. The summary begins with some general comments on NGET's approach to scoping for its Sea Link project. The remainder of this summary sets out the main elements of the technical views of staff employed directly by SCC.

2.2 Appendix A provides the technical comments in full all of which should be considered as an integral part of SCC's substantive comments.

3 General Comments

3.1 SCC has concerns about the approach taken in NGET's Scoping Report to the issue of scoping out environmental matters, to the proposed assessment of the significance of effects, and to the proposed assessment of cumulative impacts. These concerns apply generally across the environmental topics and so are set out here. The comments on the individual environmental topics should be read in the light of these general concerns.

3.2 The Main Text of the Scoping Report (in Volume 1) explains the approach and method adopted in section 1.5. Paragraph 1.5.3.4 discusses the technical scope of assessment for each environmental aspect but leaves the detail of all matters which have been scoped out to be found only in the specific technical chapters. There is no general explanation of the approach to what has been scoped out and no simple presentation of all matters which have been scoped out.

3.3 Nor do the technical chapters present the information on what has been scoped out in a clear, consistent, or coherent manner. For example, it is unclear whether decisions to scope out impacts have been determined with or without the provision of mitigation in all cases (for example, in Table 2.3.3 in Volume 2 no account is taken of mitigation in the decision to scope in pollution impacts from construction of the converter station but in Table 2.6.2 reliance is placed on mitigation by design to scope out contaminants to the environment from construction activities).

3.4 In addition, where mitigation has been assumed to be in place, the justification for scoping out all such impacts is not provided, especially where mitigation would be bespoke to the project.

3.5 The matters scoped out also appear to include reliance on a judgment that there is *"less potential"* for a significant effect (for example in Tables 2.2.6 and 2.2.7 in Volume 2) but the meaning of this term is unclear as is the basis for the judgment. SCC would expect there to be a clear, consistent, and coherent explanation of all decisions to scope out impacts.

3.6 Section 1.5 also explains the approach to the assessment of significance. This includes the magnitude of the impact and Table 1.5.1 sets out the magnitude criteria. The largest magnitude impact is described as "Large" and the smallest as "Negligible." However, individual technical chapters use different magnitude criteria. For example, Chapter 2.2 (Landscape and Visual) has magnitude criteria of "Very Large" and "None" as well as "Large" and "Negligible." Chapter 2.5 (Water Environment) has magnitude criteria of "Large Adverse," "Negligible," "Small beneficial," and "No change." SCC would expect there to be a clear, consistent, and coherent explanation of the magnitude criteria used and a justification for any differences between technical chapters.

3.7 Section 1.5.5 explains the approach to cumulative effects and distinguishes between intra-project effects (interaction of different aspects of the project on each other) and inter-project effects (interaction of the project with other projects). However, it does not appear that inter-project effects are to be considered in Part 5 on Project Wide Effects, so that there would be any assessment of inter-projects effects on climate change and major accidents/disasters. SCC would expect there to be a clear justification for a decision to exclude such effects from the assessment of cumulative effects.

3.8 In addition, there are discrepancies in the information presented as to which other projects will be progressed to Stage 2 of the Cumulative Effects assessment. For example, Table 1.5.A.1 in Appendix 1.5.A suggests that projects 2 (NeuConnect), 3 (GridLink), 4 (North Falls), and 5 (East Anglia One North) will be taken forward to Stage 2 but Table 2.13.3 in Volume 1, Part 2, does not include any of these projects in the projects proposed to be taken forward to Stage 2. There is no explanation for this discrepancy or for the omission of these projects from the intended Cumulative Effects assessment. SCC would expect all projects identified in Table 1.5.A.1 as projects to be assessed in Stage 2 to be so assessed or a clear explanation provided for any omissions.

3.9 SCC also has concerns that the threshold used for the proposed assessment of cumulative effects is not sufficient or adequately justified. It is suggested at paragraph 2.13.3.5 of Volume 1, Part 2, of the Scoping Report that a Zone of Influence (ZOI) of 20km from the Suffolk Onshore Scheme Scoping Boundary has been used to identify a long list of other projects. It appears from Table 2.13.2 that this is based on the largest study area of 10km (for Ecology and Biodiversity) and an assumption that *"due to the proximity of the strategic road network"* the construction traffic routes for assessment would not extend beyond 10km. However, it appears from various references in the Scoping Report (as detailed further below in the technical comments in section 16 of Appendix A), that it has been wrongly assumed that the A12 between the A14 Seven Hills interchange and the A47 Bascule Bridge at Lowestoft is a trunk road and so part of the strategic road network. This is not the case. The strategic road network is remote from the proposed construction sites for the project and therefore the effects of construction traffic on the local road network (which is the responsibility of SCC) will extend much further than the 10km assumed in the Scoping Report.

3.10 In addition, it is suggested at paragraph 2.11.3.3 of Volume 1, Part 2, of the Scoping Report that employment effects are only to be considered within the local authority area of East Suffolk. However, SCC considers that, due to the large number of energy and other infrastructure projects that are being and/or are planned to be constructed in Suffolk in the remainder of the current decade (and beyond in some cases, such as Sizewell C), there is a need to consider employment effects over a more extensive area. SCC expects to see an evidence-based approach to the selection of a study area for employment effects.

3.11 In conjunction, these concerns on the proposed study areas for both construction traffic and employment lead SCC to conclude that the study area for the assessment of cumulative effects is inadequately justified and that it is likely that a greater number of other projects within Suffolk will need to be included (potentially including the Sunnica Energy Farm between Newmarket and Mildenhall).

4 Archaeology

4.1 In reviewing the Scoping Report, SCC Archaeology have identified the following issues: -

- Further refinement of siting/routing methodology should include a search of the Historic Environment Record (HER)/desk-based assessment and should consider the impact of the proposed development on designated and non-designated heritage sites and sites of archaeological potential.
- Assessments need to consider results from other schemes which have been proposed in the area which may overlap the Sea Link project, for example, potentially Sizewell C, Galloper and Greater Gabbard and East Anglia One North and Two.
- Further assessment is required to fully characterise the heritage resource and fully understand the impacts of development upon above and below ground heritage assets.

- All onshore elements (e.g. landfall sites, converter station sites, cable corridors, haul roads etc) should be scoped for archaeological assessment as all have potential to damage or destroy surviving archaeological remains.
- Table 2.41 – Decommissioning work needs to be recognised within the scoping as having potential to damage or destroy surviving archaeological remains.
- The potential for remains which have been preserved in situ and needs to be protected from disturbance by all phases of works appears to have overlooked.
- Thorough desk top assessment and field evaluation is required to consider archaeological potential of sites and likely impacts of development.
- A settings impact assessment for above ground heritage should be undertaken and impacts on historic hedgerows, boundaries and other historic elements should also be considered through use of historic mapping and Historic landscape Characterisation.
- A full suite of archaeological assessment (desk-based, geophysical, fieldwalking/metal detection) for all sies impacted by any element of the onshore works should be undertaken prior to/at EIA stage.
- All phases of archaeological investigation must be led by a brief produced by the Suffolk Archaeological Service (SCCAS).
- Archaeological and heritage assessments should be programmed into the project at the earliest opportunity to allow evaluations to be undertaken early to prevent possible delays to the development schedule.

5 Ecology

5.1 General Comments

- The Applicant states: "…only statutory designated sites up to 2km from the Suffolk Onshore Scheme Scoping Boundary have been shown but this will be updated and expanded for the Preliminary Environmental Information Report (PEIR)."
    - To this point, SCC would add that, depending on routes for HGVs, workers, materials and so on, other sites enroute may also be affected. This should be taken into account when researching and writing the PEIR. Impacts may include visual disturbance, dust, noise, air quality and so on.
    - Although it is mentioned elsewhere, non-statutory wildlife sites (in Suffolk these are County Wildlife Sites) are very important elements of nature conservation and full details can be obtained from SBIS (https://www.suffolkbis.org.uk/).
    - In addition, SBIS can provide the up-to-date lists of Suffolk Priority Species and Habitats. It is important that these are given appropriate consideration and weighting.
- Alongside the consultation of inter alia, SBIS and other bodies detailed in paragraph 2.3.4.1 to carry out the desk-top study, SCC considers it important to include ground truthing.

- SCC considers the expected survey requirements detailed in paragraph 2.3.4.3 appropriate.
- the Applicant acknowledges parcels of Ancient Woodland but should be made aware that SCC is currently carrying out an Ancient Woodland Inventory which may update the records currently available. The Applicant can obtain updates on the Inventory through SBIS (as and when it is available) or contact the SCC Ecology Team who can provide a point of contact.
- SCC welcomes the applicant's pledge of delivering a minimum of 10% Biodiversity Net Gain.
- The applicant acknowledges Invasive Non-Native Species (INNS) but confines comments to plants. Fauna can also be INNS and in East Suffolk this may include Muntjac Deer, Chinese Water Deer, American Mink, and non-native species of Crayfish. These species should also be taken into account.
- SCC welcomes the Applicants acknowledgement that: "Due to developmental pressure year on year within the wider landscape, protected and notable species and habitats are likely to remain priorities for conservation within future baseline scenarios." This is explicit acknowledgement that this proposal, in association with the others in a relatively modest geographical area could well prove to have the most serious consequences on Suffolk's wildlife and habitats.
- SCC welcomes the Applicant's proposal to use trenchless techniques where possible although the applicant must consider the extensive ditch and marsh network which covers some of the proposed area.
- SCC considers the applicant's scoping in of potential impacts acceptable, but this must also be informed by survey work.

6 Economic Development/Socioeconomic

6.1 General Comments

- SCC expects the applicant to consider the cumulative impacts of the proposed development alongside other schemes proposed in the area (e.g. Sizewell C) which will place significant pressure on workforce availability, supply chain demand and tourism. SCC is concerned that the assessment of other schemes seems to be limited to those in East Suffolk (and one scheme in Mid Suffolk) in Table 2.13.3 in Volume 1, Part 2 but SCC has seen no justification for an assumption that the workforce catchment area will be so limited. SCC considers there are other construction projects, particularly in the energy sector, which are planned to take place in Suffolk (potentially including the Sunnica Energy Farm) which could have interactions with the proposed development in relation to workforce availability.
- It is noted that there is limited information on socioeconomics, particularly the scale of impact and opportunity associated with the workforce. SCC considers that the application should provide more detailed information as part of future submissions.
- SCC disagrees with the method used in paragraph 2.8.16 which sets out the use of a 'simple gravity model' for workforce origins. There is significant risk in this approach given the large number of infrastructure projects in the area and the availability of the workforce, the origin of the workforce and the related traffic impact. Estimated workforce living in the locality detailed in paragraph 2.11.7.11 will need to be evidenced.
- Accommodation and community impacts have not been covered in the scoping document and will need to be considered by the applicant to ensure appropriate understanding of potential impacts.

6.2 Employment, Workforce and Supply Chain

- At this point workforce numbers and phasing are unconfirmed and therefore, any areas that workforce will interact or impact upon cannot be scoped out of the ES as there is not enough information to make an informed decision.
- The applicant will need to consider the impact and opportunities the development may place on the local labour market within the ES. It should set out clearly the expected number and nature of employment opportunities during each phase of the development. It should relate this to the availability of labour in the area and address how any mismatch in supply and demand will be managed.

6.3 Tourism

- A large proportion of tourist trips are associated with the natural and historic beauty of the area as a whole. Therefore, it is more relevant to consider the extent to which the impact of construction in the landscape detracts from the environmental quality for recreational activity more broadly and the perception and propensity of people to visit the area.

6.4 Detailed Scoping Comments

- SCC notes while the applicant has identified potential impacts (paragraphs 2.11.6.3-2.11.6.7 and table 2.11.3), there is a need to consider these in more granular detail than presented within the Scoping Report. Too many sources of impact have been grouped together and therefore will not correctly assess the impact.
- SCC disagrees with the applicant on the study areas used in the scoping opinion, the spatial scope for extent of effects for all phases of the project is far greater than the applicant is currently using.
- SCC recognises that when considering the project as a single entity there are minor positive opportunities for economic development, employment, skills, and education. However, SCC expects the applicant to consider all the National Grid projects located within Suffolk and develop an approach that encompasses this project as part of their meta project in the region.

7 Joint Emergency Planning Unit Comments

7.1 SCC has a statutory duty under Radiation - Emergency Preparedness and Public Information Regulations 2019 (REPPIR) to consider the development with respect to the existing Sizewell Off Site Emergency Plan due to the proposed sites being within 1km of Sizewell B power station.

7.2 An emergency plan for the construction would be required which covers protecting construction staff during any Sizewell radiation emergency and ensures the development does not adversely affect the existing Radiation Emergency Plan which coordinates the response of the emergency services and other agencies in response to an incident at Sizewell B.

8 Lead Local Flood Authority Comments

8.1 SCC will act as Lead Local Flood Authority (LLFA) for the Sea Link proposals.

8.2 General Comments

- Receptors are included within the assessment, however, there is no explanation how the receptors were selected and why others were discounted, such as people and property.
- Noted ‘Hydrogeology’ sits in a separate chapter to ‘Water Environment.’ Any assessment of groundwater flood risk should be considered alongside other sources of flood risk.
- Any relevant information from local guidance such as ‘Suffolk Risk Management Strategy Appendix A’ should also be considered, especially when developing mitigation.

- Assessment of impacts of construction activities for cable corridor included but no reference of impacts from converter stations sites or Friston.
- Interception/diversion of surface water overland flow paths not included but should be scoped in.

8.3 Construction

- Need to consider impact of increased flood risk from temporary or permanent impermeable areas.
- Cumulative impacts of silt and risk of resulting blockage and increase of flood risk also needs consideration.

8.4 Construction and Decommissioning

- Need to consider impacts on surface water overland flow paths (not just floodplain) and potential to increase offsite flood risk.

8.5 Operation

- Flood risk should be scoped in for Friston due to the historic and existing flood risk.

9 Local Highways Authority Comments

9.1 SCC will act as Local Highway Authority (LHA) for the area impacted by those locations being considered for the Sea Link NSIP. There are numerous challenges relating to the access to the sites and as a result the potential for significant impacts on local communities by construction traffic.

9.2 Traffic impacts at ports

- Evidence needs to be provided to scope out potential degree of traffic generated at ports for construction and operation of marine cable routes.

9.3 Cumulative local traffic impacts in the area of development

- The applicant will need to be aware of the scale and number of projects in the area of Sea Link and consideration needs to be given the range of potential impacts including impacts as a result of HGV movements felt by communities situated along the A12, which needs to be considered as part of the assessment.

9.4 Scope of area, specifically routes and junctions included in assessments

- SCC welcomes discussion regarding the proposed study area and would be keen to reach an agreement on this issue as early as possible.
- However, SCC could only confirm agreement on the scope once further details on vehicle numbers and routing were provided.
- SCC notes the list of key junctions provided in Paragraph 2.8.3.5 but require clarification on why these have been specifically included and others have not. It is noted that the final list of junctions is dependent on the landfalls, cable corridors and converter stations.

9.5 Existing and baseline locations and future annual traffic assessments

- No details have been provided on the location of traffic surveys, these should be agreed with SCC prior to any surveys taking place.

- It is recommended that future year assessments are agreed with the local authorities at an early stage, due to the complexity relating to the number of schemes in the area.

9.6 Data sources for traffic surveys

- The applicant will need to include additional traffic survey locations to reflect those additional locations recommended within the SCC Highways section of Appendix A.
- The applicant will need to include daily traffic surveys, to inform greatest change, as well as the peak hour and SCC welcomes seeking agreement on this scope.

9.7 Methodology

- SCC notes that the Applicant plans to use the Guidelines for the Environmental Assessment of Road Traffic (GEART) Methodology. Applying either GEART, sometimes supplemented by DMRB document LA112, methodology in the assessment of transport in recent DCOs has, in the authority's opinion, required greater flexibility in the approach particularly in terms of sensitivity of receptors and application of thresholds to reflect local circumstances.
- Clarity is sought relating to paragraph 2.8.7.8 which states proposals to assess links where traffic flows are increased by 30%. This should include proportional change in HGV movements as well as general traffic.

9.8 Impact pathways and receptors

- It is noted that under construction and decommissioning: results in PRoW diversions and closures that these impacts are scoped out for road links and junction. There may be a misunderstanding by what this means but for clarity SCC would expect that if PRoW diversions used roads as a diversion route that there will be impacts for PRoW, national and regional walking and cycle routes and Road users.

9.9 Transport Assessment Scope

- The scope of the Transport Assessment should include details on the access arrangements including drawings showing vehicle swept paths and visibility splays that would be appropriate for a planning submission.
- Depending on the assessed impacts, junction modelling may be required however, it is recognised that this would be determined by future work.
- If any abnormal loads use SCC maintained roads the authority would require structural assessments in addition to swept path analysis.

9.10 Pedestrian delay

- Further information is sought on how the relative change in delay will be assessed.

9.11 Pedestrian and cycle amenity

- It is recognised that the thresholds suggested are 'tentative' and so should be treated as such.

9.12 Fear and intimidation

- SCC welcomes consideration on a case-by-case basis but would caution overreliance on professional judgement without supporting evidence. In the rural areas of Suffolk, a key factor is considered to be the general absence, or limited width, of footways along many roads.

9.13 Driver delay

- It is noted that there may be limited changes, but given the numerous projects in the area, the Applicant should be mindful of the potential for cumulative impacts. Delay may also occur due to traffic management measures implemented by this or other NSIP projects.

9.14 Highway safety

Consideration should be given to whether the most recent five years is the most appropriate dataset given changes in travel patterns during and post the Pandemic.

9.15 SCC would expect to see of these matters coherently assessed as part of the EIA.

10 Landscape and Visual

10.1 SCC Landscape and Visual has raised concerns around the following areas: -

10.2 Relationship with other parts of the EIA

- The approach to scoping set out in 2.2.1 does not explicitly recognise the relationships the relationships between landscape and visual matters and other parts of the EIA, specifically ecology, historic environment, socio-economic and tourism.

10.3 Data Sources and baseline

- The relevant data sources proposed appear acceptable, but SCC would also recommend reference to the Designation History Series which relates to the Suffolk Coast and Heaths AONB.
- The applicant should also be aware of the cultural importance of the Suffolk coast including the Aldeburgh/Snape area.

10.4 Viewpoint locations

- Figures 2.2.9 (Site 1) and 2.2.10 (site 3) - SCC notes the same set of viewpoints have been used for Site 1 and Site 3. This results in some viewpoints being outside Zones of Theoretical Viewability (ZTVs) for one or both sites.
- For the purposes of clarity each site should have its own figure showing only the viewpoints relevant to this option.
- The SCC reserves the right to request additional viewpoints, or revised viewpoints to support the final EIA.
- SCC also considers it necessary to include both specific and illustrative viewpoints (a combination of wireframe or photomontage visualisation may be appropriate).

10.5 Impacts on the fabric of the landscape.

- A comprehensive approach to important hedgerows under the Hedgerow Regulations 1997 will also be required. This should identify all hedgerows along the routes that are important under the various historic and designation related criteria, in addition to the ecological matters under the regulations as set out in Section 3 and Schedule 1 of the Regulations.
- All hedgerows to be removed to facilitate construction along the route should be surveyed in detail in advance to inform specific and appropriate planting schemes for their restoration, as well as mitigation for the adverse ecological impacts caused by their temporary loss as mature features in the landscape.

10.6 Sources of construction impacts

- These should include loss of vegetation.

10.7 Operational lighting – Converter Station

- There appears to be an inconsistency in the approach to this matter. Operational Lighting is scoped in for all emerging preferences and alternative options (vol.1 part 2 p124) in relation to ecology, whereas it is scoped out for landscape and visual amenity (p43). SCC considers this is neither appropriate nor consistent and converter station lighting should be scoped in for landscape and visual amenity.

10.8 Cumulative operational impacts at Converter Station Site 1

- It is welcome that permanent alteration to landscape character of the AONB is scoped in (p50) for operation, although the applicant's initial position is that harm will be less than significant. However, SCC considers it is essential, based on current information, that the cumulative impact (both landscape and visual) of three converter stations located at site 1 should be assessed. It is noted that potential effects on the AONB have been scoped out entirely for the operation of site 3 (p53) as it has been identified that there is no potential for effects on the setting of the designation.

11 Public Rights of Way (PRoW)

11.1 SCC PRoW noted the following issues: -

- Methodology - EIA does not holistically consider how potentially significant impacts that may arise from construction and operation on PRoW, permissive access, open access land and promoted routes.
- Cumulative impacts of the proposal with other existing energy projects consented or proposed in the area.
- Impact of temporary closures of PRoW.
- Impact of pre-commencement works (including archaeological, ecological, site investigations, site clearance) have not been included in post-commencement plans, specifically level and control of traffic using PRoW for site access.

12 Other Potential Impacts

12.1 It is acknowledged that this scheme could potentially cause impacts for the emergency services with reference to potential highways diversions, AIL movements and related traffic delays.

12.2 SCC requests that the applicant considers the cumulative impacts of construction activities on local communities of a number of projects potentially occurring with overlapping timescales in the area of the Sea Link proposals.

12.3 These cumulative impacts would include traffic delays caused by diversions or an increase of HGV movements, increase in demand of rental accommodation,

Appendix A – Detailed Technical Comments

13 SCC Archaeology

13.1 The longer the cable routes, the greater the potential archaeological impacts and the scale and scope of investigation and mitigation. Where cables pass through watercourses there is potential for well-preserved stratified sites in and on the valley sides as well as paleoenvironmental remains.

13.2 It is essential that further refinement of the siting/routing methodology should include a search of the HER/Desk-Based Assessment and should consider the impact of the proposed development on designated and non-designated heritage assets and sites of archaeological potential, drawing on landscape and topography. Attention should also be given to assessing the relative importance of any World War 2 remains in relation to the defensive coast.

13.3 Given the interaction with the EA1N/2 scheme and also potentially Sizewell, Galloper and Greater Gabbard depending upon the design options which are selected, there is a need to include the results from these projects within assessments, especially for those areas where the schemes overlap or are in close proximity, given the results directly relate to the archaeological potential of this scheme. The EA1N/2 geophysical survey data and some of the Sizewell geophysics and trial trenching results are publicly available as part of the relevant examinations and the County HER hold report for the Galloper and Greater Gabbard projects – SCCAS are also happy to advise on the findings where reports are not yet available. These surveys illustrate how much information is added to HER data through systematic survey, realising archaeological potential, as a significant number of archaeological sites have been defined which were not previously recorded on the County HER, or associated with finds scatter or cropmark evidence.

13.4 There should not be an assumption that data within the Historic Environment Record (HER) is of local significance. The Historic Environment Record includes non-designated assets of national importance and regionally significant assets. Sites of archaeological potential which have not yet been subject to systematic assessment (and are therefore currently of unknown significance) should also be considered.

13.5 The current onshore study areas have in most parts not been subject to systematic archaeological investigation and, therefore, the character, extent, and significance of surviving above and below ground heritage assets across this area has yet to be defined. There is high potential for additional, and to date unknown, significant heritage assets to survive across much of this area. Some of these may be of national significance and worthy of *preservation in situ*. As such without further assessment to fully characterise the heritage resource, the impacts of the development upon above and below ground heritage assets cannot be fully understood.

13.6 All onshore elements of the scheme (for example, landfall sites, converter station sites, grid connection substation site, underground cable corridors, jointing bays, link boxes, Horizontal Directional Drilling (HDD) pits and any other impacts associated with the scheme for example, haul roads, compounds, planting and ecological mitigation, offsite transport improvements etc.) have the potential to damage or destroy any surviving archaeological remains so all elements of the scheme should be scoped in for archaeological assessment. Decommissioning work also has the potential to have an impact, but this is not currently recognised within the scoping documentation (table 2.41). The document states that works would have no impact as all archaeological remains will have been mitigated and removed, however, this overlooks the potential for remains which are being preserved in situ and therefore need to be protected from disturbance throughout all phases (including during any maintenance works). Also, the compounds associated with this work also have the potential to impact upon below ground remains if located in areas which have not already been subject to archaeological mitigation.

Further Assessment Required

13.7 To inform the siting and routing of the proposed scheme a thorough desk top assessment and field evaluation is needed to allow the archaeological potential of the different parts of the study area and therefore the likely impacts of the proposed development, to be fully assessed. Evaluation will provide sufficient baseline information to enable design decisions to be made and to inform planning decisions.

13.8 A desk-based assessment would be appropriate in the first instance. This should include a historic map regression, a study of aerial photography (including historical imagery), an assessment of LIDAR data, and predictive modelling of potential based upon topographic and geological evidence. Datasets held by the County Records office and other archive sources may also need to be consulted where features merit more detailed research.

13.9 A settings impact assessment for above ground heritage assets should be undertaken and the impact of the proposals upon historic hedgerows, boundaries and other historic landscape elements should also be considered through the use of historic mapping and Historic Landscape Characterisation data.

13.10 Landscape should be considered for assessment as an aspect of the historic environment. There will be interrelationships in assessment between archaeological and the built environment. The lack of a holistic approach to assessing the impact on landscape has given rise to omissions in other recent DCO applications.

13.11 Earthwork survey and building assessment should be undertaken of upstanding remains, particularly Second World War remains, to properly assess their significance in the context of the defensive coast.

13.12 All areas which will be impacted upon by the different elements of the scheme should be subject to archaeological field assessment at this stage in considering the location, layout and design of the landfall, converter station site, grid connection substation site, cable route, jointing bays, link boxes and HDD pits to allow for *preservation in situ* where appropriate of any sites of importance that might be defined (and which are currently unknown).

13.13 Geophysical survey (a combination of magnetometry and resistivity as appropriate), also accompanied by fieldwalking and a metal detecting survey, should form a first phase of field evaluation.

13.14 The results of these assessments should be used to then inform a programme of trial trenched evaluation, combined with paleoenvironmental assessment in river valley areas.

14 SCC Ecology

14.1 Below are the comments of SCC Ecology.

14.2 At 2.3.3.4, the Applicant states: "…only statutory designated sites up to 2km from the Suffolk Onshore Scheme Scoping Boundary have been shown but this will be updated and expanded for the Preliminary Environmental Information Report (PEIR)."

- To this point, SCC would add that, depending on routes for HGVs, workers, materials and so on, other sites enroute may also be affected. This should be taken into account when researching and writing the PEIR. Impacts may include visual disturbance, dust, noise, air quality and so on.
- Although it is mentioned elsewhere, non-statutory wildlife sites (in Suffolk these are County Wildlife Sites (CWS) are very important elements of nature conservation and full details can be obtained from Suffolk Biodiversity Service (SBIS) (https://www.suffolkbis.org.uk/).
- ·In addition, SBIS can provide the up-to-date lists of Suffolk Priority Species and Habitats. It is important that these are given appropriate consideration and weighting.

14.3 At 2.3.4.1, the Applicant does confirm that they will consult, inter alia, SBIS and the other bodies in order to carry out the desk-top part of data gathering, and SCC emphasises the importance of ground-truthing…

14.4 At 2.3.4.2, the Applicant confirms that they will consult the previous survey reports submitted for, e.g., East Anglia One North, East Anglia Two and Sizewell C (SZC). There is a great deal of information and data within those previous applications and, if all that data is to be considered, this will be a task of considerable magnitude.

14.5 At 2.3.4.3, the Applicant sets out the expected survey requirements and these seem reasonable.

14.6 At 2.3.4.4, the Applicant acknowledges the necessity of carrying out Habitats Regulations Assessment(s). This will be essential.

14.7 At 2.3.4.11, the Applicant pledges to deliver a minimum of 10% Biodiversity Net Gain, which is welcomed.

14.8 At 2.3.4.12, the Applicant confirms that Phase One Habitat Surveys commenced in May 2022. The Applicant confirms that they will have regard to the Habitats of Principal Importance (HoPI) but, as mentioned above, similar regard must be given to Suffolk's Priority Habitats.

14.9 At 2.3.4.13, the Applicant acknowledges parcels of Ancient Woodland but should be made aware that SCC is currently carrying out an Ancient Woodland Inventory which may update the records currently available. The Applicant can obtain updates on the Inventory through SBIS (as and when it is available) or contact the SCC Ecology Team who can provide a point of contact.

14.10 At 2.3.4.18, the Applicant acknowledges Invasive Non-Native Species (INNS) but confines comments to plants. Fauna can also be INNS, and, in East Suffolk, this may include Muntjac Deer, Chinese Water Deer, American Mink and, amongst others, non-native species of Crayfish. These deleterious species should also be taken into account. SCC adds that, although there are no confirmed reports of Dormouse in the area, an eye should be kept open as this species is expanding its habitat. The Applicant acknowledges the necessity of monitoring Badger activity, and we feel sure that their Ecology Team will not need reminding that Badgers are a very successful species across this County, highly mobile (and with a tendency to pop up in all sorts of places). It is anticipated that a continuous watching brief will be needed and recognising Badger signs made part of regular Tool-Box Talks.

14.11 At 2.3.4.41, we welcome the Applicants acknowledgement that: "Due to developmental pressure year on year within the wider landscape, protected and notable species and habitats are likely to remain priorities for conservation within future baseline scenarios." This is explicit acknowledgement that this proposal, in association with the others in a relatively modest geographical area could well prove to have the most serious consequences on Suffolk's wildlife and habitats. This is why we require the Applicant to consider any and all avoidance and mitigation when finalising their proposals.

14.12 At 2.3.5, we welcome the Applicant's proposal to use trenchless techniques where possible and they give, as an example, crossing rivers. Are they confident that this can work with an extensive marsh and ditch network? Confirmation would be gratefully received.

14.13 At 2.3.5.4, the Applicant suggests certain potential mitigation strategies that may be included in the Outline Code of Construction Practice (CoCP) (such as bat boxes) but, in my view, the mitigation must be informed by the results and analysis of the Phase One Habitat Survey together with the various species and habitat specific surveys. Although they are just given as examples, the mitigation strategies (in the light of the acknowledged substantial disturbance in this area), may have to be considerably more than at a "normal" stand-alone development. The Applicant has mentioned "dead hedging" and SCC would be grateful for sight of evidence showing how this has been achieved and how successful it has been (as, for example, a navigation corridor for Bats).

General Comments

14.14 The "scoping in" of potential impacts appears sound but this must also be informed by the results of the various surveys.

14.15 The proposed assessment methodologies also look sound, taken as they are from CIEEM. Please ensure that Suffolk Priority Habitats and Species and County Wildlife Sites form part of this.

14.16 SCC would be grateful if all surveys results can be sent to SBIS to update their records. We suggest that SBIS are contacted (https://www.suffolkbis.org.uk/) to find out the best formats to deliver that data.

14.17 At 2.3.7.9, the Applicant states “Cumulative effects will be assessed and are those occurring from several sources (also known as inter-relationships) and/or the combined effects of other developments in the area.” The cumulative effects of this proposal alongside all of the other proposals in this area are, perhaps, the largest concern of all. There is, I believe, a real danger that this part of the Suffolk Coast (an AONB and benefitting from a number of nature conservation designated, protected sites) will become a huge building site, with different projects all striving to deliver their goals, causing massive destruction and disturbance that could well sterilise this area for wildlife for many years to come.

14.18 How will the in-combination effects of all of the proposed developments in the area be assessed, mitigated, and compensated for? I have yet to see any attempt to address this.

14.19 The Applicant talks of constraints arising from other developments informing the choice of sites for the delivery of Sea Link but (unless I have missed it) there is no explanation of what these constraints are or how they might be mitigated rather than disturb or destroy a neighbouring parcel of land.

14.20 This may be exceedingly naïve, but why cannot this proposal be co-ordinated with the others envisaged? Are the haul roads, link roads, depots, bypasses and so-on available for other developments not be co-ordinated and re-purposed? I think that there is genuine (and well-founded) concern that this part of the coast will become criss-crossed with the developments themselves, their accesses, service routes and the power cables themselves.

Site Specific

14.21 In the absence of the essential biodiversity data (which was only commenced in May 2022), it is not possible to make anything other than general statements about those sites being given preference by the Applicant.

Converter Station Sites

14.22 Certainly, Site 3 (East of Saxmundham) appears to be a large arable field and it is easy not to anticipate too much in the way of wildlife interest, but it is essential to wait for the results of the surveys. Should this site be selected, good quality Biodiversity Net Gain would be entirely possible to deliver by the boundary treatments for a start… (further ideas could include green walls and green rooves for the converter station buildings, treating the areas around the cables and poles within compounds with, e.g., mosses and lichens and so on).

14.23 Site 1, West of Aldeburgh was much more difficult to assess from the ground without gaining access. There are Coverts, dead ground, and more dynamic topography here so it would be far too premature to assess this area without the benefit of ecological surveys.

Cable Corridor

14.24 The working corridor S1 is proposed to cut through an area of exceptional importance to wildlife (an RSPB Reserve and SSSI) and, without a much fuller understanding of the techniques and mitigation(s) being used, I can only raise considerable concerns about disturbance, loss of and sterilisation of habitat and so on. As with the Converter Station Sites, in the absence of ecological data and the fullest mitigation and compensation strategies, the impact on wildlife can only be guessed.

14.25 The working corridor S3 is so vague in detail that, as with S1 above, the harm can only be guessed.

14.26 Landfall for either will be through Coastal Vegetated Shingle, a Suffolk Priority Habitat (hence the designation of so much of this part of the coast as County Wildlife Site). How will impacts be minimised and mitigated?

14.27 For both the Converter Station Site(s) and the Working Corridors, asking us to hazard a guess in the absence of properly gathered data together with meaningful site walkovers (we have tried to gather information by driving and walking as close as we could in very limited time) is rather unfair.

14.28 I am concerned that these routes have been chosen by aerial photography and some maps rather than fully informed by walkovers by properly trained personnel. Despite the number of developments in the area, we do not know every square foot of land and, I think, there is justifiable concern that choices are being made by Google Earth rather than thorough site investigations. If I have this wrong, I unreservedly apologise and will happily look at the biodiversity data that the Applicant has gathered and re-appraise the situation.

14.29 In the meantime, I can only repeat those points made previously:

- There are a notable number of NSIP scale projects in the vicinity. How will the in-combination effects of this project impact upon their proposed mitigation, compensation, and enhancement measures? How will this project impact upon the Conservation Objectives of nearby European Designated Sites? How will this project impact on other designated sites such as SSSIs and CWSs?
- · The proposal anticipates cutting through the RSPB's North Warren Reserve. This has the potential to impact upon thousands of Wildfowl (Ducks, Geese and Swans) that over-Winter here as well as breeding Bittern, Marsh Harrier, Woodlark and Nightingales. Is this really the path of least disturbance?
- · Is a "new" route for this tranche of cables more or less damaging and disturbing to wildlife than re-using existing proposals?
- · How much will this proposal impact upon wildlife displaced to the Applicant's preferred areas by activities at the several other projects in the area?
- · Will the disturbance caused by this proposal displace wildlife to areas impacted upon by the other NSIPs in the area?

- · How much liaison will there be between those wildlife and habitat professionals working on this proposal with others in the vicinity?
- · What sort of monitoring and mitigation will be in place? How will this interact with other schemes in the area?
- · How long will this proposal take to deliver on the ground? Will there be mitigation by timings to avoid the most sensitive seasons for the species most likely to use the area?
- · What will the site look like during construction (in terms of attractiveness to wildlife)?
- · How will ecological connectivity be maintained whilst waiting for mitigation measures to take effect?
- · What will this site look like (for wildlife) in five years, ten years, and fifteen years after the works?
- · How will enhancement/Biodiversity Net Gain be delivered?

15 SCC Economic Development

15.1 The following response is to the scoping consultation and notification for the Sea Link Project proposed by National Grid Electricity Transmission plc in relation to its socioeconomics and tourism impact. It identifies the further work required to ensure that there is an appropriate understanding of the impacts of the scheme prior to the development being submitted as an application.

15.2 The upsurge of energy development in the East of England, making it the epicentre of low-carbon energy developments in the UK, has, and will, create many potential opportunities for growth within the county. These opportunities have been identified in the Government's, Levelling Up the United Kingdom White Paper, specifically with regards to nuclear power, offshore wind power and integrated electricity networks in our region.

15.3 For Suffolk, the energy opportunities are due in large part to the geographical benefits the county offers. For example, the shallow seas and the existence of ports, makes it an ideal location for the development of offshore wind. The flat open landscapes and relatively higher rate of sunny weather in the county, also makes it attractive for solar farm installations. Whilst existing nuclear generation, and available grid connections, support new nuclear build.

15.4 This attractiveness and suitability of Suffolk for energy development, makes it a critical region for the UK and the Government as it delivers on its Net Zero commitment to cut emissions, decarbonise energy generation, bolster energy security and seize green economic opportunities. Given these conditions, the challenge for Suffolk is to effectively shape these extensive energy developments, extracting the best and most sustainable value from them, for the communities and businesses of the county. Simultaneously, the sensitivity and importance of the environment of Suffolk in terms of; place, tourism, and ecosystems, needs to be protected and enhanced, and not undermined by the delivery of Net Zero projects.

15.5 The challenge for any developer is delivering benefit and enhancing sense of place in a very congested market. National Grid are proposing a construction period between 2026 and 2030, a time where Suffolk alone is expecting to see the construction of offshore wind projects:

- East Anglia Three
- East Anglia One North
- East Anglia Two
- Five Estuaries
- North Falls

Further construction work from National Grid:

- National Grid Ventures Eurolink
- National Grid Electricity Transmission Bramford to Twinstead
- National Grid Electricity Transmission East Anglia Green

15.6 Construction of the new nuclear plant Sizewell C, alongside significant rail and road infrastructure projects and house building. The cumulative impact of these Suffolk projects alone, coupled with similar projects in the neighbouring authorities of Norfolk and Essex will place significant pressures on workforce availability, supply chain demand and cumulative impact on tourism which SCC expect the applicant to reference when conducting their assessment.

- The Sizewell C Project: https://infrastructure.planninginspectorate.gov.uk/projects/eastern/the-sizewell-c-project/
- East Anglia One North Offshore Windfarm https://infrastructure.planninginspectorate.gov.uk/projects/eastern/east-anglia-one-north-offshore-windfarm/
- East Anglia Two Offshore Windfarm https://infrastructure.planninginspectorate.gov.uk/projects/eastern/east-anglia-two-offshore-windfarm/

15.7 A large amount of information and data is available from these projects, and this should be considered as part of the development of the Sea link proposals. SCC would recommend that there is close collaboration between NGET, SPR, Sizewell C Co., East Suffolk Council and Suffolk County Council.

15.8 The proposed development will have varied impacts dependent upon the chosen landfall site, corridor route and converter station site therefore, SCC is seeking to establish a set of principles that will be used to guide impact assessment regardless of route and siting selection ensuring all impacts are fully analysed and mitigated appropriately.

15.9 Whilst the scoping report provides information on the high-level emerging proposals for the scheme, limited information is provided on socioeconomics, particularly the scale of impact and opportunity associated with the workforce. On this basis SCC are providing comments on the information provided and the details that SCC would encourage the Applicant to provide as part of future submissions, and comments on the proposed assessment methods. Once specific details are available, SCC must reserve the right to alter, amend and add to any comments made herein. The additional details that are requested would help in our ability to comment and to address our concerns. The comments below should be considered together with those from the following topic areas due to the interaction of impacts:

- Traffic and Transport
- Landscape and Visual
- Noise and Vibration
- Air Quality
- Cultural Heritage

15.10 In particular, when considering traffic and transport impacts, paragraph 2.8.16 sets out that a 'simple gravity model' will be developed for the workforce origins. SCC currently disagrees with this approach. SCC is of the opinion that there is significant risk in this approach given the number of large infrastructure projects in the area and therefore the availability of a local workforce depending on which projects come forward and when. It is considered that substantial consideration needs to be given to the availability of a workforce, the origin of the workforce and therefore its traffic impact. It is also noted that paragraph 2.11.7.11 sets out that an estimated workforce and that a 'proportion of workers are likely to live locally to the site,' which will need to be evidenced. Any assumptions around workforce origins within the socio-economic assessment should be reflected in the assessment of transport impacts.

15.11 The following topic areas have not been covered in the current scoping document and will need to be considered by the applicant to ensure an appropriate understanding of impacts:

- Accommodation
- Community

Chapter 2.11 of Volume 1 Main Text – Part 2 Suffolk Onshore Scheme of the EIA Scoping Report considers the potential significant socio-economic, recreation and tourism effects of the project during construction, operation, maintenance, and decommissioning.

Employment, Workforce and Supply chain

15.12 At this point in the process workforce numbers and phasing are unconfirmed and therefore, any areas that workforce will interact or impact upon cannot be scoped out of the Environmental Statement as there is not enough information to make an informed decision. This will include:

- Effects on Tourist Accommodation During Construction
- Effects on the Local Economy During Construction
- Effects on Local Businesses, Jobs and Employment During Construction
- Effects to Planning and Development During Construction
- Effects to Community Services During Construction and Operation
- Effects on Tourism and Recreation During Construction

As part of future submissions, a workforce profile should be provided outlining:

- Peak workforce numbers
- Average daily workforce numbers
- Broad competencies of the workforce (i.e., civils, mechanical, electrical etc.)
- Anticipated split of home based and non-home-based workforce

15.13 These profiles will need to be set against the construction timeline.

15.14 The Environmental Statement will also need to consider the impact and opportunities the development may place on the local labour market. It should set out clearly the expected number and nature of employment opportunities during each phase of the development. It should relate this to the availability of labour in the area and identify how any mismatch between supply and demand will be addressed.

15.15 Furthermore, the applicant has not defined a study area from which it will consider effects on employment, as part of future submissions a study area will need to be defined using relevant travel to work data for the appropriate locations to arrive at a sensible zone of influence. This is alongside a supply chain assessment, that would identify local supply for construction and decommissioning, being conducted over a far greater geography ensuring areas such as Ipswich and Lowestoft, where a significant supply chain supporting other infrastructure builds, is located. Maximising the use of local and regional supply chains should be a priority for the applicant, this is consistent with SCC corporate objectives as set out in Suffolk County Councils Energy Infrastructure Policy and the applicants own corporate objectives.

15.16 Consideration needs to be given to the potential impact of any reliance on a mobile workforce for the availability of tourist accommodation. The spending patterns of a transitory labour force are fundamentally different to those of a static workforce and benefits do not accrue in a normal manner. Spending patterns are also vastly different to visitors that may be displaced, thus this might jeopardise trade for other related tourist businesses, such as restaurants and visitor attractions.

15.17 In all cases, the impact of this project must be considered alongside others in the region – particularly other Nationally Significant Infrastructure Projects. For example, East Anglia Hubs onshore construction and Sizewell C.

15.18 It is acknowledged that the likely demands on the workforce and the supply chain are likely to be less than those of other infrastructure projects in the region. However, it is vital that the workforce assessment considers the different skill and competency demands on the different phases of the project and assess these cumulatively with other potential major construction projects.

15.19 The project is also likely to be in construction at the same time as the Sizewell C and ScottishPower Renewable Hub are reaching the peak of their construction employment. There is a very high likelihood that achieving any home-based labour will be extremely difficult as these projects will be well established. SCC expects the applicant to take this into consideration when developing a workforce profile and its origins and will need to strongly evidence all their assumptions. SCC also expect the applicant to reflect these findings within all topic areas where workforce origin will have an impact, such as:

- Traffic and Transport
- Communities
- Accommodation

Tourism

15.20 A large proportion of tourist trips are associated with the natural and historic beauty of the area as a whole. Therefore, it is more relevant to consider the extent to which the impact of construction in the landscape detracts from the environmental quality for recreational activity more broadly and the perception and propensity of people to visit the area.

15.21 The Environmental Statement needs to consider the perception and propensity of negative impact upon tourism from the negative cumulative impact set out in chapters:

- Landscape and Visual
- Historic Environment
- Traffic and Transport
- Air Quality
- Noise and Vibration
- Socioeconomics, Recreation and Tourism

Perception and propensity for people to not visit due to construction

15.22 First time visitors to Suffolk may be unaware (or be able to distinguish) between different areas of the county. If they are aware of large-scale capital developments in Suffolk, there is the possibility that they will simply assume that Suffolk is "one big building site" and this could result in them going elsewhere. Sizewell is the most high-profile example of a large construction project, but a variety of other construction schemes taking place simultaneously will undoubtedly have a negative effect on Suffolk.

Noise impacts on tranquil tourism offer

15.23 A large amount of Suffolk's appeal to urban visitors is its 'peace and tranquillity. Visit Suffolk's website describes the county as follows:

"A county filled with natural beauty situated on the east coast of England, bordered by 50 miles of glorious coastline, and topped with breathtakingly beautiful open skies, it is the perfect holiday and short break destination. Whether you are looking for a quiet 'get away from it all holiday' or one that is full of adrenaline and adventure, Suffolk will not disappoint. Here you will discover quaint villages and medieval towns that for centuries have drawn in artists and writers."

15.24 Any large-scale infrastructure works are clearly going to have an impact, or will be presumed to have an impact, on many of these elements. In addition to deterring people from visiting, they may result in a negative experience for people who do come to Suffolk and leave them with a lasting impression that deters them from returning or recommending the county to others.

Visual impact during construction

15.25 Similar to many of the points raised above, Suffolk's large open skies are a key selling point, along with Constable Country, beaches, countryside etc. People visiting the county for these may be deterred by the thought of construction hoardings, road closures, cables etc. We live in a world where images count and where everything is instantly shared online via social media. The long-term damage that a single negative image of a building site (for example) can do would be significant.

Long term visual impact

15.26 Suffolk is renowned for its scenery and wide-open skies etc. If this is to be impacted by permanent or semi-permanent construction, then mitigation measures will need to be put in place to ensure that adverse effects are kept to a minimum, that any environmental damage to the natural environment is prepared for (e.g. removals of trees, hedgerows etc).

Traffic delays

15.27 A combination of construction traffic and the natural increase in visitor numbers is inevitably going to lead to a greater use of Suffolk's highways and result in delays and diversions. Short-term events such as the Latitude festival at Henham are signposted in advance and local residents have learnt to work around the dates or make alternative arrangements where possible. Similarly longer-term projects such as the Gull Wing Bridge at Lowestoft require significant road closures and diversions. Again, people adapt over time. The problem from a visitor economy point of view is that people will either arrive unaware of this or will be deterred by word of mouth and the perception that Suffolk is "just one big building site." It could require sufficient mitigation/ traffic management measures, plus an effective social media/ media campaign to reassure potential visitors that their trip will not be adversely affected by traffic jams and diversions

AIL effects

15.28 Abnormal Indivisible Loads have the potential to be slow and disruptive and often require effective media/social media campaigns to warn of delays along the routes used. In cases where vehicles will be using single carriageways or B-roads, there is the possibility of serious disruption and potential damage to natural environment. It could also lead to street furniture/lighting having to be temporarily removed to avoid damage. There is also the possibility of noise, air pollution and long-term damage to road surfaces, all of which will need to be mitigated.

Use of accommodation

15.29 Large scale infrastructure projects such as this will require accommodation for the workforce. It is unlikely that all labour will be sourced locally. Given that some of this work could be occurring at the same time as the construction of Sizewell C and other large infrastructure projects, this will place an enormous strain on the both the local labour market and the accommodation sector. The latter will be even more pronounced if works are taking place during the peak summer months and could result in visitors being unable to find accommodation.

15.30 If works were to take place outside of the main season however, it could extend the opportunities for accommodation providers and increase revenue. Whilst Suffolk benefits from a healthy year-round weekend breaks market, it could be enormously advantageous if accommodation could be occupied during the week by visiting labour etc.

15.31 This would need to be balanced against the negative perception that "all the accommodation is full" because of the capital works (necessitating a "Suffolk is open for business"-type campaign) as well as energy costs. Some self-catering properties are simply not opening over the winter because of prohibitively high heating/ electricity costs. Whilst all year-round demand would be beneficial, providers need to ensure that it is financially viable too. Some providers have concluded that passing the costs onto customers would make the accommodation costs prohibitively high.

Impacts on businesses

Traffic delays changing spending

15.32 Some businesses will be affected by road closures or diversions. It will require adequate signage and publicity to ensure that businesses are still able to trade effectively and to advertise the fact that businesses are still open.

Impact on deliveries (JIT)

15.33 This requires careful planning and co-operation with contractors to ensure that delivery routes remain open. If delivery times need to change to work around capital works, then this needs to be adequately prepared and communicated. This has the potential to affect the hospitality sector, particularly where food deliveries are concerned and particularly where fresh food is concerned

15.34 Worker spend – The catering and hospitality sector could benefit enormously, as could other sectors such as fuel, takeaway/fast food etc. Although this has to be balanced against the change in spending behaviour when compared to visitor spend, if non-home-based labour displaces visitors then SCC expect the applicant to consider this change in spending and mitigate accordingly.

15.35 SCC considers that this approach to Socioeconomics, Recreation and Tourism is entirely consistent with their experience of infrastructure projects in similar sensitive landscapes where the visitor economy is economically significant.

Detailed Comments on Scoping

15.36 When identifying potential impacts as set out in paragraphs 2.11.6.3 – 2.11.6.7 and then in table 2.11.3 SCC expects the applicant to consider these impacts in more granular detail than presented in the scoping opinion. The applicant has grouped together too many sources of impact and therefore will not correctly assess the impact. As a minimum SCC will expect the applicant to consider, separately, the impacts upon the following sources:

- Employment – local opportunity
- Economic Development – Local investment
- Economic Development – Non home based spend
- Economic Development – Investor perception
- Economic Development – Workforce and churn
- Economic Development – Journey time delays (including those that would affect a tourism asset carrying out its day-to-day activities)
- Tourism – Visual Impact
- Tourism – Visitor perception (East Suffolk as a destination and Aldeburgh, Leiston, Saxmundham & Sizewell area as a destination)
- Tourism – Journey time delays (of a visitor to the region the actual and perceived impact)
- Tourism – Accommodation displacement

15.37 SCC disagrees with the applicant on the study areas used in the scoping opinion, the spatial scope for extent of effects for all phases of the project is far greater than the applicant is currently using. SCC expects at any future submission that the applicant uses the following:

- Effects on employment and supply chain – bespoke travel to work zones based on the different construction sites using travel to work data to arrive at an informed zone for effects on labour. Worker's willingness to commute is dependent on a number of factors, time, distance, and travel allowances for example, SCC expects the applicant to consider these and set a realistic daily commute zone to assess the potential for home-based workers. This is also applicable to assessing the opportunity for a local supply chain to respond to the opportunities available.
- Effects on local businesses, visitor attraction for tourism & tourism businesses – informed by visual and acoustic impact zones of all construction sites and the traffic and transport access plan (also inclusion of severance impacts below)
- Effects on development land – informed by visual and acoustic impact zones of all construction sites and the traffic and transport access plan (also inclusion of severance impacts below)
- Effects (indirect and direct) on severance – informed by the traffic and transport access plan
- Effects of cumulative impact on all of the above especially where construction phases of combined competencies overlap. i.e., where civils phases of construction coincide and have the potential to exhaust the local labour market and temporary accommodation

15.38 All baseline assumptions (employment and labour market, business premises, visitor attractions, open spaces, and development land) will then have to be revisited to include this new spatial scope.

15.39 SCC recognises that when considering this project as a single entity there are minor positive opportunities for economic development and employment, skills, and education. However, SCC expects the applicant to consider all the National Grid plc projects located within Suffolk and develop an approach that encompasses this project as part of their meta project in the region. This will have a transformational approach when considering the positive impacts of the project.

15.40 SCC expects the applicant to:

- Deliver and fund, in collaboration with SCC's and local partners, activities that develop both local talent pools and local people so that they are enabled to take up opportunities of recruitment into skilled roles across the project.
- Work collaboratively with SCCs to ensure that where possible skills training, aimed at creating wider and deeper local talent pools from which to draw from, also has a long-term demand within the region thus ensuring a greater opportunity for sustainable employment.
- Set an ambition for 5% of the roles required by the project to be filled through 'earn and learn' positions (the majority of which will be apprenticeships but may also include graduates on formalised training schemes and sponsored students as per the definition of the '5% club') including a commitment to a minimum number of apprenticeship opportunities to be provided to local people.
- Create tangible mechanisms for ensuring that the skills base developed for the construction of the project is as transferable as possible to other key construction projects being delivered regionally
- Deliver activities with the aim to increase the size and diversity of the labour market pool
- Put into place clear plans (e.g., commitments within contracts) to drive the behaviours of their associated supply chain(s) to achieve skills and employment outcomes
- Incorporate social value measures within all activity and use as a tool to quantify the success of any and all interventions and to drive commitment and delivery of the associated supply chain to recruit locally and provide apprenticeship opportunities where feasible.
- Clearly set out via a Skills Plan, incorporating, supply chain skills plans a strategic approach to developing and supporting the project's workforce requirements. The strategic approach should take into account each distinct phase of the project, feedback from employment monitoring measures and be reflective of Suffolk's economics, in particular local opportunity that meets skills legacy for the region
- Adopt and fund a dynamic approach to monitoring skills, employment and education outcomes and impacts that, through clearly identified governance, processes the use of all available evidence, local expertise and LMI to ensure home based worker targets are being met and programmes are in place to support/ensure local talent pools are available to combat any negative churn effects.

16 SCC Emergency Planning Unit

16.1 The location of the construction site(s), some 1km from the Sizewell B power station site, and within the Detailed and Outline Emergency Planning Zones (Pg 21) for Sizewell means that SCC has the statutory duty under REPPIR to consider the development with respect of the existing Sizewell Off Site Emergency Plan.

16.2 This would require an emergency plan for the construction to be produced that covers the arrangements for protecting construction site staff during any Sizewell radiation emergency and ensures that the development does not adversely affect the existing Radiation Emergency Plan which coordinates the response of the Emergency Services and other agencies being able to response to an incident at Sizewell B.

16.3 The situation is likely further complicated with the likely imminent commencement of the Sizewell C construction project.


Sizewell Emergency Planning Zones
30km Outline Emergency Planning Zone
15km Extended Emergency Planning Zone
3-4km Detailed Emergency Planning Zone
1:210000

17 SCC Lead Local Flood Authority (LLFA)

Scoping – Sea Link Environment Impact Assessment Scoping Report,

Volume 1 Main Test Part 2 Suffolk Onshore Scheme, October 2022

17.1 Impacts could be upon multiple receptors; these receptors should not just be limited to the environment but should also include people and property. Whilst receptors are included in the assessment, there is no explanation as to how these receptors were selected and why others, such as people and property, were excluded.

17.2 It is assumed that 'Water Environment' will cover both Flood Risk and Drainage.

17.3 'Hydrogeology' sits in a separate chapter to 'Water Environment,' any assessment of groundwater flood risk should be undertaken alongside other sources of flood risk

17.4 2.5.4.1 – These sources of information are not appropriate for assessment in the Friston catchment due to the significant consented works that will change the current baseline

17.5 2.5.2.9 – Any relevant information from local guidance such as Suffolk Flood Risk Management Strategy Appendix A should also be considered, especially when developing mitigation

17.6 2.5.6 – Assess construction impacts for cable corridor but no specific reference to impacts from converter station sites and Friston

17.7 2.5.6.11 – Creation of temporary impermeable areas for construction activities, which will require additional mitigation above and beyond that required for operational infrastructure.

Table 2.5.1

Construction

17.8 Need to consider impact of increased flood risk from temporary and permanent impermeable areas

17.9 Need to consider cumulative impact of pollution (silt) and the risk of this to cause blockage, combined with increase in flood risk (as point above)

17.10 Construction and decommissioning

17.11 Need to consider impacts on surface water overland flow paths (not just floodplain) and subsequent potential to increase offsite flood risk

Operation

17.12 Flood risk should be scoped in for Friston due to the historic and existing flood risk. Cannot comment on other sites as no assessment of surface water flood risk has been undertaken but if there is the potential to interact with existing surface water flow paths then this should be scoped in

Table 2.5.2, .3, .4, .5, .6

17.13 Receptors are only environment. Potential for silt to enter watercourses and reduce capacity/cause blockages, and subsequent impact on people and property should also be assessed

17.14 Interception/diversion of surface water overland flow paths no included as an impact pathway, but should be, and should be scoped in

Item 2.5.7.2

17.15 Data sources not appropriate in Friston catchment due to consented works

Table 2.5.9

17.16 Justify choice of receptors and lack of people/property

17.17 Temporary increase in runoff included in this table but I did not see this specifically in previous tables

17.18 It needs to be identified and agreed by SCC what return periods will be considered for mitigation of both construction and operational impacts as this will influence the likelihood, severity and ultimately risk rating of residual risks.

17.19 Stating what mitigation could be used for identified impacts is acceptable at a high level, but there will need to be a demonstration that this mitigation is deliverable within the Order Limits as part of/prior to Examination.

18 SCC Highways

18.1 Suffolk County Council will be the local Highway authority for the area impacted for those locations being considered for the northern onshore landing and its associated infrastructure for the Sea Link project. There are numerous challenges relating to access to the sites and as a result the potential for significant impacts on local communities of construction traffic.

Strategic Road Network

18.2 At Paragraph 2.1.7.10 of the EIA Scoping Report it is stated the option area F and E have good access to the strategic highway network. SCC does not consider this is an accurate statement as the nearest strategic road is the A14 near Ipswich. This is also true of statements made with regard to convertor site 1 (2.1.8.7) site 2 (2.1.8.8)

18.3 The A12 between the A14 Seven Hills interchange and A47 Bascule Bridge at Lowestoft is part of SCC's major road network and is not part of the strategic roads network nor a trunk road as assumed in 2.8.4.2.

Transport Impacts at Ports

18.4 The degree of traffic generated at ports for construction and operation of the marine cable route is unclear. If evidence is not provided to scoping out of these impacts and recognising that the selection of a port is unlikely to be possible at this stage, it may be necessary to include a Port Traffic Management Plan similar to that secured for EA1(N) and EA2.

General Comments on Overarching Method

18.5 Paragraph 1.5.26 refers to the assessment as a realistic worst-case scenario, and SCC believe this should be reflected in the management, controls and monitoring processes that are put in place for the project.

18.6 Paragraph 1.5.4.6 includes reference to impact duration. SCC are concerned that whilst some impacts are short term, they need to be seen in the context of other short term contiguous impacts in the local area. For example, repeated road closures and traffic management affecting journey times and repeated increases in HGV movements on rural roads.

18.7 Reference is made to intra project effects at section 1.5.5. Consideration needs to be given to the relationship between impacts on Public Rights of Way (PRoW) and impacts on vulnerable road users on the highway network i.e. total impacts on severance, amenity, and delay. This means the proximity of receptors on PRoW need to be consider with regards to impacts on the highway network.

18.8 For inter project effects, the Applicant will be aware of the scale and number of projects in the area, and consideration needs to be given to the range of potential impacts as project programmes crossover, including the presence and absence of relevant mitigations. For highways, the area of significant impact can be wide and impacts as a result of HGV movements will be felt on communities along the A12, which needs to be considered as part of the assessment. SCC would recommend discussions on how these projects are treated, especially given the level of complexity in the number of potential scenarios.

Policy

18.9 Chapter 2.8 sets out the details on the assessment of traffic and transport. Section 2.8.2.3 includes reference to the National Policy Statement EN-1, a number of paragraphs are quoted. The Applicant should also fully consider the following paragraphs of:

- Paragraph 5.13.9: *"The IPC should have regard to the cost-effectiveness of demand management measures compared to new transport infrastructure, as well as the aim to secure more sustainable patterns of transport development when considering mitigation measures."*
- Paragraph 5.13.10: "*water-borne or rail transport is preferred over road transport at all stages of the project, where cost-effective."*
- Paragraph 5.13.11: "*The IPC may attach requirements to a consent where there is likely to be substantial HGV traffic that:*
  - *control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements.*
  - *make sufficient provision for HGV parking, either on the site or at dedicated facilities elsewhere, to avoid 'overspill' parking on public roads, prolonged queuing on approach roads and uncontrolled on-street HGV parking in normal operating conditions; and*
  - *ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the responsible police force."*

18.10 The Draft National Policy Statement for Electricity Networks Infrastructure (EN-5) also includes the following statement at paragraph 2.8.1:

"When planning and evaluating the proposed development's contribution to environmental and biodiversity net gain, it will be important – for both the Applicant and the Secretary of State – to supplement the generic guidance set out in EN-1 (Section 4.5) with recognition that the linear nature of electricity networks infrastructure allows excellent opportunities to: i) reconnect important habitats via green corridors, biodiversity stepping zones, and reestablishment of appropriate hedgerows; and/or ii) connect people to the environment, for instance via footpaths and cycleways constructed in tandem with biodiversity enhancements."

18.11 The Applicant should consider the opportunities that the development offers regarding green corridors and sustainable transport.

Scope of Area

18.12 SCC welcomes the commitment at Paragraph 2.8.3.3 that the proposed study area will be subject to discussions with us and would be keen to reach agreement on this issue as early as possible. However, SCC could only confirm agreement on the scope of the assessment once further details on vehicle numbers and routeing were provided by the Applicant. When looking at those roads included at Paragraph 2.8.3, SCC consider that the following should be included:

18.13 A1094 between the A12 at Friday Street, Benhall and Church Common

- B1069 Church Road through Snape, Tunstall and the A1152 through Eyke to the A12 at Woods Lane Roundabout
- B1121 and B1119 through Saxmundham including the junctions with the A12
- B1119 between Saxmundham and Leiston
- B1122 between the A12 and Leiston
- B1125 between A12 and B1122

18.14 The assessment should also identify the impacts on the A12 between the A14 Seven Hills east of Ipswich and the A47 Bascule Bridge in Lowestoft; this is of particular concern given cumulative impacts with other projects along the corridor as evidenced at other recent DCOs.

18.15 A list of key junctions has been provided at Paragraph 2.8.3.5. SCC is unsure why these junctions have specifically been identified, and SCC consider that the following should be included:

- A12 / A1094 Friday Street junction, Benhall
- A12 / B1122 junction, Yoxford
- A12 / B1121 junction (Benhall)
- A12/ B1121 junction (Kelsale)
- A12 / B1119 junction, Rendham
- B1121/ B1121 junction, Benhall
- B1122 / B1125 junction, Theberton
- B1119 / B1122 junction at Leiston
- B1121 / B1119 junction at Saxmundham

- Both junctions of the A1094 with the B1069 (Snape / Friston)
- B1119 / Bucklewood Lane junction, Leiston

18.16 However, the final list may change dependent on location of the landfalls, cable corridors and convertor stations and as the quantity of traffic becomes clearer. The same is true for the scope of the PRoW that will need to be considered.

18.17 The geographical scope of the Traffic and Transport Study Area should remain flexible so that as more detailed information is made available, for example the sources of aggregates, the assessments limits can then be expanded or contracted as appropriate.

Existing baseline

18.18 No details are provided on the extent or location of traffic surveys. This should be agreed with SCC prior to undertaking any surveys to avoid extraneous work.

Future baseline

18.19 The number of schemes in the area makes undertaking future year assessments particularly complex, and so it is recommended this is agreed with the local authorities at an early stage and may require numerous scenarios to be tested.

Controls and Management Measures

18.20 As set out at points TT01 and TT02 of paragraph 2.8.5.6, SCC strongly supports the inclusion of controls, monitoring, enforcement, and reporting for construction vehicle movements. This is considered of critical importance for determining the acceptability of the environmental assessment, and so the measures and methods should be agreed at as early a stage as possible. The management measures proposed cover HGV movements and routing, but also need to consider HGV peak hour movements, workforce movements and mode share, and AILs.

18.21 Further information is sought on the details around construction working hours and therefore hours of traffic movement, as well as shift patterns, to be reflected in relevant controls.

18.22 Where impacts are mitigated through measures included within management documents limiting values, the measurement and enforcement methodology should be clearly explained as should the relationship between such plans and requirements included within the dDCO. The enforcing authority should also be clear. SCC would usually expect to be the authority discharging transport related requirements or management plans.

Pre-commencement, Operation and Decommissioning

18.23 Paragraph 2.8.6.5 states that the construction phase will be the focus of the assessment of transport effects. Whilst SCC agrees with the principle that the greatest effects are likely to be seen during this period, details of the operational and decommissioning phases, as indicated at paragraph 2.8.6.6, should be provided, including likely vehicle numbers and potential AIL movements. There is particular concern around access and maintenance (paragraph 2.8.6.14) during these periods, and the requirement for construction vehicles as a result. Therefore, until further details are provided, SCC requests that maintenance activities remain in the scope of assessment. Specific concerns are access routes for HGVs and AILs during the operational phase given the remote location of many of the sites. Given the uncertainties around conditions for future assessment, a commitment to a decommissioning plan to be agreed with the relevant authorities will be needed within the DCO.

18.24 Typically, a number of operations such as ground investigation, archaeology and site clearance are considered as pre commencement works in advance of commencement that typically triggers the measures within management plans. SCC would expect either sufficient evidence to show that impacts of pre-commencement activities are minimal or that a separate management plan is provided, as was secured for EA1(N) and EA2.

18.25 Accepting that it is difficult to quantify impacts of decommissioning so far in the future consideration could be given to including a requirement to assess these impacts at the relevant time.

Vehicle Types

18.26 SCC welcome the breakdown of vehicle types as indicated at paragraph 2.8.6.11 and would expect this breakdown to be understood for the phasing of the project, including at each access. The breakdown should include AIL movements.

18.27 The definition of vehicle types, particularly HGVs, should be clearly explained in any assessment.

Data Sources

18.28 The Applicant will need to include additional traffic survey locations to reflect those additional locations to the scope of assessment, as per the above. The Applicant will need to include daily traffic surveys, which will inform the hour of greatest change, as well as peak hour, and SCC welcomes seeking agreement on this scope as per Paragraph 2.8.7.2 and would recommend that traffic surveys are not undertaken until these details are agreed.

18.29 The geographical scope of traffic surveys should also be agreed with SCC as it currently omits the A12 corridor. Dependent on progress of consented NSIP sites data may be available from monitoring associated with these schemes.

18.30 It is likely that speed data may be needed for the proposed access locations to determine visibility requirements and so surveys should be included, as necessary. Care will need to be applied to selecting peak hours for assessment noting that these consented schemes include transport plans that offset construction traffic peaks from baseline peaks.

18.31 As per Paragraph 2.8.7.5, SCC would welcome discussions around the scope of the transport assessment.

Methodology

18.32 SCC notes that the Applicant plans to use the Guidelines for the Environmental Assessment of Road Traffic (GEART) Methodology. Applying either GEART, sometimes supplemented by DMRB document LA112, methodology in the assessment of transport in recent DCOs has, in the authority's opinion, required greater flexibility in the approach particularly in terms of sensitivity of receptors and application of thresholds to reflect local circumstances. The thresholds within the document are not designed to be applied rigidly, and consideration needs to be undertaken of the local population. Through the DCO for Sizewell C, and EA1N, the sensitivity of links for the surrounding area was largely agreed, and this offers a comprehensive starting point.

18.33 Clarity is sought on paragraph 2.8.7.8, which states that it is proposed to assess links where traffic flows are expected to increase by 30%. This should clarify that this includes the proportional change in HGV movements as well as general traffic noting that the cumulative impact of consented and developing NSIPs complicates such assessment. It should also clarify the timescales for which the changes are being assessed, which should include the following as per the Guidelines:

- Hour of greatest change
- Peak hour.
- Daily.

18.34 As per the above, the consideration of affected parties at paragraph 2.8.7.13 and 14 could be supplemented, but not superseded, by LA 112, which provides some potential additional considerations.

18.35 As data collection and forecast assumptions have a degree of uncertainty some flexibility should be applied to the use of the GEART thresholds, and they should not be taken as absolute values.

18.36 Paragraph 2.8.16 sets out that a 'simple gravity model' will be developed for the workforce origins. SCC currently disagrees with this approach. SCC is of the opinion that there is significant risk in this approach given the number of large infrastructure projects in the area and therefore the availability of a local workforce depending on which project comes forward and when. It is considered that substantial consideration needs to be given to the availability of a workforce, the origin of the workforce and therefore its traffic impact. It is also noted that paragraph 2.11.7.11 sets out an estimated workforce and that a 'proportion of workers are likely to live locally to the site,' which will need to be robustly evidenced. Any assumptions around workforce origins within the socio-economic assessment should be agreed and reflected in the assessment of transport impacts.

18.37 Within 2.8.7.13 the IEMA list of affected parties is listed. A significant feature of East Suffolk is the importance of tourism and recreational use of highways and PRoW in the area, not necessarily focused on a specific site.

18.38 SCC would expect to be provided with any data that is informing the forecast traffic profile as per Paragraph 2.8.7.18, and that these forecasts would be reflected in the management measures set out within the CTMP.

Impact pathways and receptors

18.39 It is noted that under construction and decommissioning: results in PRoW diversions and closures that these impacts are scoped out for road links and junction. There may be a misunderstanding by what this means but for clarity SCC would expect that if PRoW diversions used roads as a diversion route that there will be impacts for PRoW, national and regional walking and cycle routes and Road users.

Transport Assessment Scope

18.40 The scope of the Transport Assessment should include details on the access arrangements including drawings showing vehicle swept paths and visibility splays that would be appropriate for a planning submission.

18.41 Depending on the assessed impacts, junction modelling may be required, as was undertaken for EA1N and EA2; however, it is recognised that this would be determined by future work.

18.42 If any abnormal loads use SCC maintained roads the authority would require structural assessments in addition to swept path analysis. As noted above SCC considers that sufficient infrastructure should be provided to allow access to substation and converter sites in the area both during construction and the operational phases considering that the proposed locations are not well served by transport connections.

Sensitivity of Links

18.43 Table 2.8.7 provides an indication of the proposed method for determining sensitivity of receptors. SCC does not disagree with the approach in principle, albeit further consideration would be needed when looking at specific locations, especially when defining sensitive users and the need for crossing roads to access facilities. Consideration is also needed over the quality of the existing vulnerable road user infrastructure e.g. width of footways and presence of crossing facilities. Wherever possible sensitivity should be based on evidence rather than just professional judgement.

18.44 Paragraph 2.8.7.22 sets out that it is proposed to scope out impacts on the railway network given the use of trenchless methods. Whilst it is noted that the line provides services access to Sizewell. It will be of critical importance to the Sizewell C materials strategy, and any potential disruption to this strategy is considered unacceptable by SCC.

Magnitude

18.45 SCC makes the following comments for each of the proposed assessments of magnitude:

- Severance: DMRB Volume 11, Section 3 Part 8 has been superseded by LA 112. LA 112 is not considered by SCC an appropriate document for basing an assessment for changes in severance as a result of construction traffic.
- Pedestrian Delay: Further information is sought on how the relative change in delay will be assessed.
- Pedestrian and Cycle Amenity: It is recognised that the thresholds suggested are ‘tentative’ and so should be treated as such.
- Fear and Intimidation: SCC welcomes consideration on a case-by-case basis but would caution overreliance on professional judgement without supporting evidence. In the rural areas of Suffolk, a key factor is considered to be the general absence, or limited width, of footways along many roads.
- Driver Delay: It is noted that there may be limited changes, but given the numerous projects in the area, the Applicant should be mindful of the potential for cumulative impacts. Delay may also occur due to traffic management measures implemented by this or other NSIP projects.
- Highway Safety: Consideration should be given to whether the most recent five years is the most appropriate dataset given changes in travel patterns during and post the Pandemic.

18.46 The thresholds provided at Table 2.8.8, whilst indicative and providing a helpful starting point should not be treated as absolutes given the varying characteristics of locations and that proportional differences can be very different if the baselines are different.

18.47 Paragraph 2.8.7.38 includes reference that 'residual effects will be reported taking into account professional judgment on the duration over which effects are likely to be experienced.' Whilst it is recognised that professional judgment is required for the assessment, SCC would recommend that where impacts are dismissed due to being short term, this is based on evidence. SCC is also particularly concerned about the potential for repeated 'short-term' effects on local communities associated with the number of projects in the area, and the Applicant should consider this as part of their cumulative assessment.

18.48 SSC's position is that the impacts on PRoW are a topic in their own right and should not be considered in others such as landscape and social economics and tourism. To do so makes assessment fragmentary and will not reflect the true impact on users of the PRoW network

19 SCC Landscape and Visual

Relationships with other parts of the EIA

19.1 The approach to scoping set out in 2.2.1, does not explicitly recognise the relationships between landscape and visual matters and other parts of the EIA, specifically ecology, historic environment, socioeconomics and tourism and traffic and transport. SCC considers that to ensure a comprehensive assessment of landscape and visual effects the relationships between this chapter and other matters in the EIA should be clearly recognised. It is notable that such relationships are explicitly recognised in the scoping for the East Anglian GREEN project, also promoted by National Grid Electricity Transmissions (NGET).

Data Sources and Baseline

19.2 The relevant data sources proposed appear to be appropriate and largely comprehensive. However, in addition SCC would also recommend reference to the Designation History Series, as it relates to the Suffolk Coast and Heaths AONB[1]. This has informed consideration of other large scale energy infrastructure projects on the Suffolk coast.

19.3 In addition, the applicant should be aware of the cultural importance and sensitivity of the Suffolk coast, including the Aldeburgh/Snape area. A detailed overview of these issues is provided in the introductory material of the Suffolk, Norfolk, and North Essex Seascape Character Assessment[2] and reference should be made to this.

Viewpoint Locations

19.4 Initial proposals for representative viewpoints are set out on pages 26 and 37 of the scoping report and shown in Figures 2.2.9 (Site 1) and 2.2.10 (Site 3).

19.5 SCC notes that the same set of viewpoints has been used for both Site 1 and Site 3 and the various options. The results in some viewpoints being located outside the ZTVs for one or both sites and/or in slightly odd locations (e.g. VP8), although for each site and its options, several viewpoints are then omitted from the tables. While the intention may have been to streamline the viewpoints, Figures 2.2.9 and 2.2.10 become more difficult to read and interpret.

19.6 For the purposes of clarity, each proposal option should have its own figure, showing only the viewpoints relevant to this option. By doing this it is likely to become more evident that, while there may be some overlap, the different options will require individual sets of representative viewpoints.

19.7 SCC reserves the right to request additional viewpoints, or revised viewpoints, to support the final EIA that will be submitted with the DCO application.

[1] EN010078-004113-SCC The Designation History of the Suffolk Coast and Heaths AONB 220221.pdf (planninginspectorate.gov.uk)
[2] https://suffolklandscape.org.uk/wp-content/uploads/2020/08/Part1_5997_Assessment_V1_10_Issue_web.pdf

19.8 The scoping document only appears to consider representative viewpoints. Given the scale and sensitivity of the project on its own, and in combination with other projects, and given the very high level of public interest, SCC considers it is also necessary to include both specific viewpoints and illustrative viewpoints, as discussed in paragraph 6.19 of GLIVIA 3. Finally, Specific viewpoints may be required to understand impacts on specific heritage assets, which is a matter outside the scope of the LVIA.

Visual Representations - Methodology

19.9 SCC would expect that the applicant would provide, as soon as is reasonably practicable, a detailed methodology and rationale for the preparation of visualisations, be that photomontages, wire frame, or annotated viewpoint photography. The latter may be helpful and important in promoting wider public understanding of the project, and its anticipated effects. Agreement on methodology, with the relevant local authorities, supported with sample pages for each visualisation type, would be expected prior to the preparation of the visualisations.

19.10 A further important aspect of the visualisations will be the realistic representation of any proposed mitigation planting, and its effectiveness. Therefore, both the representation of future mitigation planting, and the anticipated growth rates of that planting, should be agreed with the relevant local authorities and other relevant consultees, prior to preparation of any visualisations.

Impacts on the Fabric of the Landscape

19.11 2.2.5.4 (LV02) is noted, an Arboriculture Strategy will be required, for review by the relevant officers at East Suffolk Council.

19.12 However, based on the experience of similar projects elsewhere in Suffolk, a comprehensive approach to important hedgerows under the Hedgerow Regulations 1997 will also be required. This should identify all hedgerows along the routes that are important under the various historic and designation related criteria, in addition to the ecological matters under the regulations as set out in Section 3 and Schedule 1 of the regulations.

19.13 Furthermore, all hedgerows along the route to be removed to facilitate construction should be surveyed in detail in advance to inform specific and appropriate planting schemes for their restoration, as well as mitigation for the adverse ecological impacts caused by their temporary loss as mature features in the landscape.

19.14 Additional impacts are also anticipated due to the creation of construction access and laydown areas, so these areas will also need to be considered.

Sources of Construction Impacts

19.15 These should include loss of vegetation.

Operational Lighting

19.16 There appears to be an inconsistency in the approach to this matter. Operational Lighting is scoped in for all emerging preferences and alternative options (vol. 1 part 2 p124) in relation to ecology, whereas it is scoped out for landscape and visual amenity (p43). SCC considers this is neither appropriate nor consistent and converter station lighting should be scoped in for landscape and visual amenity.

Cumulative Impacts at the Friston Substation Site

19.17 Whilst acknowledging the current attempts by National Grid Ventures to seek a connection point for the Nautilus project at the Isle of Grain[3], SCC considers that it is still a reasonably likely worst-case scenario that three DC interconnectors will link to the transmission network at Friston. Therefore, it will be essential for all parties involved to collaborate in the effective redesign of the Friston masterplan[4], that supported the application proposals for East Anglia 1 North and East Anglia 2.

19.18 It is anticipated this collaboration will have an impact on the discharge of detailed design requirements for those two wind farm projects, in that location, including engagement with communities on detailed design matters, as specified in those consents. SCC recognises that East Suffolk Council generally takes the lead on these matters as the discharging authority.

Cumulative Impacts at Converter Station Site 1

Suffolk Coasts and Heaths AONB

19.19 It is welcome that permanent alteration to landscape character of the AONB is scoped in (p50) for operation, although the applicant's initial position is that harm will be less than significant. However, SCC considers it essential, based on current information, that the cumulative impact (both landscape and visual) of three converter stations located at Site 1 should be assessed.

19.20 It is noted that potential effects on the AONB have been scoped out entirely for the operation of Site 3 (p53) as it has been identified that there is no potential for effects on the setting of the designation.

[3] [redacted]

[4] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-005116-ExA.AS-6.D11.V3 EA2 Substations Design Principles Statement.pdf

LVIA Methodology

19.21 The LVIA methodology provided in 2.2.7 is broadly acceptable. However, the following points should be considered:

i. 2.2.7.1 data sources should include published seascape assessments.

ii. It is noted that Table 2.2.12 refers to the condition of a landscape as a criterion to assess its value, which is welcome. SCC agrees that the assessment should specifically consider the value of all landscape affected by the proposals in relation to landscape characteristic features, in addition to any national or local designation.

iii. 2.2.7.16 / 2.2.7.18 Magnitude of effect refers to Part 1, Chapter 5, EIA Approach and Methodology for the definition of short, medium, and long-term effects; however, this does not appear to have been provided. The main differentiation found was between temporary and permanent effects (Part 1, 1.5.3.7). SCC considers that a clear definition of short, medium, and long term is essential for the assessment of effects and proposed mitigation and should be provided for the purposes of LVIA. The relationship of these definitions to the terms temporary and permanent should also be defined.

iv. It is welcome that level of effects of moderate or above will be generally considered significant. However, SCC considers that even a partial loss of characteristic landscape features may result in moderate adverse effects (or above), if the landscape in question is in good or very good condition and presents many or all, of the relevant characteristic landscape features and would ask that Table 2.2.16 be revised accordingly.

20 SCC Public Rights of Way

Planning Policy

20.1 The NPPF refers to the Public Rights of Way network specifically:

20.2 100. Planning policies and decisions should protect and enhance public rights of way and access, including taking opportunities to provide better facilities for users, for example by adding links to existing rights of way networks including National Trails.

Local Planning Policy

20.3 Suffolk County Council Green Access Strategy 2020-2030 (Rights of Way Improvement Plan) should be included as relevant local planning guidance. The plan sets out SCC's commitment to ensuring and promoting sustainable travel options for all. The strategy focuses on walking and cycling for commuting, accessing services and facilities, and for leisure reasons. Specifically, 2.1 "Seeks opportunities to enhance public rights of way, including new linkages and upgrading routes where there is a need, to improve access for all and support healthy and sustainable access between communities and services. Funding to be sought through development and transport funding, external grants, other councils, and partnership working."

20.4 SCC will expect enhancements to the network in addition to mitigation, compensation, and management strategies that will ensure that the public; residents and tourists alike, retain the quantity and quality of access provision.

Methodology

20.5 The EIA does not holistically consider how the potentially significant effects that may arise from construction and operation on the public rights of way & access network and its amenity value, will be assessed. The access network includes public rights of way, permissive access, open access land and promoted routes.

20.6 The assessment considers aspects of this access network within the assessments for landscape & visual, traffic and transport, socioeconomics, recreation and tourism, noise, air quality and health & wellbeing.

20.7 This potentially gives rise to a weakness in the EIA process, as recognised in PINS advice note 9, that when considered individually, an impact might be assessed as not significant, but if the impacts had been considered collectively for that receptor, they could be significant. A walker, cyclist or horse rider using a public right of way or on open access land experiences the countryside, and hence any impacts, holistically; namely the quality and diversity of the views, wildlife and natural features, the sense of wildness, peace and quiet, the presence (and absence) of traffic, noise, lighting and air quality, and the connectivity of the network.

20.8 Therefore, the County Council's position is that the impact on both the physical resource and the amenity value of the public rights of way and access network should be addressed as a separate theme within an Environmental Assessment. This should include the effect on the physical resource from temporary or permanent closures and diversions, and on the quality of user experience. Consideration should be given to the assessment methodology used for access and amenity in the Sizewell C Project which included the assessment of: -

- Physical changes to resources (for example, changes to PRoW through diversions or creation of new road crossings)
- Changes to the experience people have when using recreational resources due to perceptual or actual changes to views, noise, air quality or traffic movements
- Changes to the experience people have when using recreational resources due to increases in the numbers of people using them

20.9 For example, a possible permanent diversion of Sloe Lane public bridleway (E-260/12A) within converter station site 1 may achieve the same number of metres of bridleway, but the quality of the experience for the users would be significantly changed (diminished) by the proximity to a construction site and a permanent urbanisation of a previously rural environment. How will this impact be assessed?

Cumulative Impact

20.10 The cumulative impact of this proposal with the other existing energy projects consented and proposed in this area is concerning. It is highly likely that there will be inter-project effects that will impact on the access network and its users. The lack of a single assessment approach for public rights of way, access and amenity could weaken the recognition of, and assessment of the cumulative effects, in particular the repeated closure or diversion of public rights of way, and the increased duration of these impacts as a result of the stream of NSIPs in a relatively small geographical area

20.11 The impact of temporary closures of PRoW should not be underestimated, as their value for local amenity could be severely reduced or removed during works. It will be unacceptable for the public to lose their amenity by the effective sterilisation of an area due to closures and disruptions from parallel or concurrent projects.

20.12 There will need to be mitigation, compensation, and management strategies to ensure that the public; residents and tourists alike, retain the quantity and quality of access provision.

Pre-commencement works

20.13 These can typically include archaeological, ecological, site investigations and site clearance and in other NSIPS have not been included in the post commencement plans or within the DCO controls for temporary closures of PRoW. This raises concern as to the potential impact of these works on the access network specifically the level and control of traffic using PRoW for site access, and how PRoW will be managed during survey and site clearance works. It is suggested that the applicant consider a pre-construction management plan as was provided for EA1N and EA2.

PRoW Agreements & Decision Making

20.14 Discussions/decisions and agreements relating to public rights of way and open access land should be with the Highway Authority and Access Authority respectively, namely, Suffolk County Council.

20.15 SCC as Local Highway Authority should be the discharging authority for any highway works.

Specific PRoW Comments to the Contents of Sea Link EIA Scoping Report Vol. 1 Main Text Part 2 Suffolk Onshore Scheme

2.11 Socioeconomics, Recreation & Tourism

2.11.15 The assessment refers to recreational routes and PRoW throughout and it is not clear what this includes. It should include PRoW, open access land, permissive access, promoted routes, cycle routes, and their users. This full range should be used in subsequent sources and impact tables for the various sites (2.11.3- 2.11.8).

2.11.4.2 The baseline information should also include open access land and all nationally, regionally, and locally promoted routes such as the Sailors Path Walk and Suffolk Sandlings Cycle routes.

Baseline data for PRoW must be obtained from the Definitive Map, the legal record of PRoW, held by SCC and available as digital files.

2.11.5.3 Suitable diversions where there could be temporary or permanent disruption to PRoW & recreational routes should be agreed with the Highway Authority in consultation with the LPA, and not the other way round.

2.11.7.5 SCC welcomes the assessment taking account of the qualitative sensitivity of each receptor and hopes that this will ensure that the impact on the amenity value of the access network is adequately assessed in the ES.

2.2 Landscape & Visual

Baseline

2.2.4.20 The assessment refers to recreational routes and PRoW throughout and this should include PRoW, open access land, permissive access, promoted routes, cycle routes, and their users. This should include the England Coast Path National Trail which has been approved by the SoS for this area, the Suffolk Coast Path and Sandlings Walk.

Representative Viewpoint locations

2.2.4.21 If a PRoW is proposed to be permanently diverted to accommodate a converter station, then this new route should be included in the representative viewpoint locations.

Table 2.2.1- 2.2.5 Viewpoint locations for all sites

Viewpoint 2 is not a representative viewpoint for the users of the PRoW network in Friston. It is suggested that there should be a viewpoint on the public footpath immediately to the west of the proposed extended National Grid substation, as this extension will bring the construction works and new build closer to this footpath (E-260/17/0)

Viewpoint 9 – this is public bridleway and so the viewpoint should be from the perspective of both pedestrians, and someone seated on horseback.

Viewpoint 19 – suggest a viewpoint on adjacent footpaths to be more representative for users as FP22 (E-354/22/0) is a low use path compared to BR 2 (E-354/002/0) or FP5 (E-354/005/0).

Viewpoint 3 – is on the west side of the town centre. There should be a viewpoint immediately east of Saxmundham on the B1119 at the start

of the public footpath, FP23 (E-460/23/0) as this path will directly cross the proposed converter site 3.
Viewpoint 5 – is the England Coast Path and Suffolk Coast Path, not the Sailors Path

Viewpoint 7 – is the England Coast Path, Suffolk Coast Path, and the Sailors Path.

Viewpoint 17 -is the England Coast Path, Suffolk Coast Path, and the Sailors Path

2.2.4.32 **Visualisations** – There should be visualisations of the proposed extension to the Friston substation as these works will result in that site being closer to the public footpath immediately to the west and northwest E-260/17/0. Further extensions for Eurolink and Nautilus will cumulatively not be minor.

2.2.6.9 **Impact Pathways with receptors**
Receptors are described as recreational routes and access land. See point 2.2.4.20; the baseline should make it clear what is included in this description.

2.8 Traffic & Transport

2.8.2.12 Suffolk County Council Green Access Strategy (Rights of Way Improvement Plan) should be included as relevant local planning guidance.

2.8.3.6 The England Coast Path National Trail is within the study area. This part of the National Trail was approved by the Secretary of State on the 29th January 2020 and is currently awaiting implementation works which would bring the legal rights into effect. SCC anticipates that these works will take place in 2023-24 and hence should be scoped into this application.

2.8.4.1 It is stated that AECOM WebGIS has been used as the source for defining and labelling the routes of public right of way. However, the legal record for PRoW, the Definitive Map & Statement is held by Suffolk County Council and so the applicant is advised to acquire the digital data directly from the county council.

Labelling on maps and in the document should follow the normal SCC convention of Area – Parish number/path number, i.e., E-260/007, and not the PROW ID code as that is meaningless to the public and not used by SCC.

2.8.4.10 The active travel network lists ‘bridleways and shared walking and cycling routes’. This should also include public footpaths. Same comment for all sites (2.8.4.20, 2.8.4.30, 2.8.4.40, 2.8.4.50)

2.8.4.11 Should also include the England Coast Path National Trail. Same comment for all sites (2.8.4.11, 2.8.4.21, 2.8.4.31,2.8.4.41 and 2.8.4.51).

2.8.5.5 Control & Management measures should consider the production of a pre-construction management plan to capture activities that could impact prior to commencement

2.8.5.6 TT03 SCC seeks a firm commitment to minimising disruption to the access network and its users. Please refer to Appendix 1 for the County Council guidance.

Impact Pathways with receptors – comments below relevant to Table 2.8.2-2.8.6

The impact pathway that recognises decline in pedestrian and cyclist amenity must also include horse riders as users of the road network and the public bridleways within the converter station and landfall sites and cable corridors.

Construction & decommissioning – Results in PRoW diversions and/or closures
National/regional walking and cycling routes should be scoped in, many of these routes are using the PRoW.

2.8.7 Proposed assessment methodology

As explained in the summary, it is SCC's view that the impacts on the access network should be considered as a topic in its own right in order to reflect the true impact on the physical network and most crucially on the users (receptors) of that network.

2.8.7.6 Includes PRoW diversions and/or closures as a criteria to be considered in the assessment. It is not clear if this solely refers to the impact of traffic on PRoW, or to the fact that PRoW are public highways in their own right, and in which case, the assessment should be considering the impact on all the non-motorised users, walkers, cyclists, and horse riders.

2.8.7.19 Transport Assessment

The description of the existing baseline for PRoW should start with the depiction and labelling of PRoW as shown on the Definitive Map -see 2.8.4.1

The requirement to carry out surveys should be agreed with the relevant highway authority, rather than the local planning authority

Table 2.8.7 Sensitivity of receptors

This should also include horse riders as both users of the road network and public bridleways of which there are several within the sites and preference areas.

It is not clear how the assessment will define the sensitivity of users of the PRoW network. The receptor examples appear to relate PRoW to highway links and junctions, or as' walk/cycle links; lightly to heavily trafficked highways.' How will the assessment approach assessing a popular local walking route on a PRoW across open countryside? Will each PRoW be assessed individually and as part of the connected network?

2.8.7.31 & Table 2.8.9 Magnitude of impact

The states thresholds are a useful starting point but should be based on evidence and data, as well as the use of professional judgement. For example, the temporary closure of a single PRoW with a longer diversion is categorised as a small magnitude, but in reality, if this is the only PRoW that serves the community, or is the only bridleway allowing horse riding, then the magnitude of that impact, and the sensitivity of the receptor would not be small.

2.8.8.3 Scope of the assessment

The methodology also needs to consider permanent diversions of PRoW. Both converter sites 1 and 3 are crossed by public rights of way which may need to be permanently diverted.

Table 2.8.11 – 2.8.15 PRoW diversions and /or closures, and National/regional walking & cycle routes should be scoped in for the operation and maintenance phases if a permanent diversion has taken place, such as at a converter site; the quality of the user experience will have been irrevocably changed by the presence of the converter station and that should be captured in the assessment.

Principles for working with Public Rights of Way

SCC expects the following principles to be adhered to for this development at all sites; landfall, converter sites, extension to the National Grid substation and the terrestrial corridor: -

- Early engagement with SCC PRoW & Access Team to discuss the impact on and management of the PRoW & access network. SCC is the Highway Authority for public rights of way and the Access Authority for Open Access land and the National Trail.

- The Applicant must obtain the Definitive Map and Statement from the PRoW & Access Team at SCC. This is the only source of the up-to-date record of the PRoW (supplied digitally).

- Public rights of way should be marked on plans using the SCC digital data and labelled as per the Definitive Map and SCC convention (Area -parish

number - path number)

- Where PRoW are directly impacted, a pre and post condition survey must be carried out including identification and assessment of surface condition and with a scope of coverage and methodology to be agreed with SCC as Highway Authority. This should include pre-construction work where PRoW might be used to gain access to the corridor and reinforcement works might be required prior to use by vehicles.

- Where impacted by the works, any PROW will be restored to original condition or to a condition agreed with SCC - where there are existing defects, the applicant should agree restoration measures with SCC.

- Where PRoW cross the cable corridor, haul road, access tracks and other sites, the surface must be always kept in a safe and fit condition for all users to the satisfaction of SCC.

- Pre-construction works must not obstruct or disturb any public rights of way (e.g., newt fencing, archaeology surveys etc) unless otherwise agreed with the County Council. Management measures or temporary closures not covered in the DCO must be by application to SCC.

- Public rights of way that are used for any stage of construction access should remain open, safe, and fit for the public to always use with management measures put in place with the agreement of SCC.

- Any temporary closure of a PRoW must be agreed with SCC and the duration kept to the minimum necessary

- An alternative route must be provided for any public right of way that is to be temporarily closed prior to closure to a standard agreed with the SCC.

- The location of alternative routes to be agreed with SCC.

- Any alternative route must be safe and fit for the public to always use – suitable surface, gradient and distance with no additional road walking between the natural destination points.

- Any temporary closure and alternative route will be advertised in advance on site and in the local media, and to the local parish councils including a map showing the extent of the closure and alternative route – process and cost to be agreed between applicant and SCC.

- There will be no new gates or stiles erected on any public rights of way that are impacted by the cable corridor and any other associated site.

21 Other Potential Impacts

21.1 It is acknowledged that this scheme could potentially cause impacts for the emergency services with reference to potential highways diversions, AIL movements and related traffic delays.

21.2 SCC requests that the applicant considers the cumulative impacts of construction activities on local communities of a number of projects potentially occurring with overlapping timescales in the area of the Sea Link proposals.

21.3 These cumulative impacts would include noise, traffic delays caused by diversions or an increase of HGV movements and related issues for pedestrians crossing roads, and an increase in the demand of rental accommodation.

From: [redacted]
To: South East Anglia Link
Subject: Sea Link, Application by National Grid Electricity Transmission plc
Date: 21 November 2022 11:55:47
Attachments: image001.png

Dear Sir/Madam,

Thank you for consulting Surrey County Council as the Minerals and Waste Planning Authority on the application for an order granting Development Consent for the Sea Link (Ref: EN020026-000024-221025).

The Minerals and Waste Planning Authority have no comments to make.

Kind regards,

[redacted]
Planning Officer
Planning Group, Surrey County Council, Quadrant Court, Woking, GU22 7QQ
M [redacted]

This email and any attachments with it are intended for the addressee only. It may be confidential and may be the subject of legal and/or professional privilege.
If you have received this email in error please notify the sender or postmaster@surreycc.gov.uk
The content may be personal or contain personal opinions and cannot be taken as an expression of the County Council's position.
Surrey County Council reserves the right to monitor all incoming and outgoing mail. Whilst every care has been taken to check this e-mail for viruses, it is your responsibility to carry out any checks upon receipt.
Visit the Surrey County Council website

Date: 22nd November 2022
Direct Dial: [redacted]
E.mail: [redacted]

Dear Ms Shoesmith,

PLANNING ACT 2008 (AS AMENDED) AND THE INFRASTRUCTURE PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2017 (THE EIA REGULATIONS) - REGULATIONS 10 AND 11

PROPOSAL: INSTALLATION OF A HIGH VOLTAGE DIRECT CURRENT (HVDC) LINK BETWEEN THE PROPOSED FRISTON SUBSTATION IN THE SIZEWELL AREA OF SUFFOLK AND THE EXISTING RICHBOROUGH TO CANTERBURY 400KV OVERHEAD LINE CLOSE TO RICHBOROUGH IN KENT

LOCATION: RICHBOROUGH, KENT

Thank you for the consultation and notification of the Applicant's request to the Planning Inspectorate on behalf of the Secretary of State for its opinion (a Scoping Opinion) as to the information to be provided in an Environmental Statement (ES) relating to the proposed development.

Our response will focus on the Kent Onshore Scheme and specifically the Landscape and Visual Impacts, Agriculture and Soils, Air Quality, Noise and Vibration and Socio-economics, Recreation & Tourism Sections. We will defer to Kent County Council, Natural England and the Environment Agency for matters relating to Ecology and Biodiversity, Cultural Heritage, Water Environment, Geology and Hydrogeology, Traffic and Transport, Health and Wellbeing.

Landscape and Visual Impacts Assessment

The Landscape Character Assessment SPD has been referred to, it has full weight of Planning Policy and must form part of the assessment of Landscape and Visual Impact Assessment and Scope of the EIA.

In terms of the representative viewpoint locations identified for inclusion in the Landscape and Visual Impact Assessment, we consider the locations identified to be appropriate and we request inclusion of the following additional viewpoint locations:

Location description	**Reason for inclusion**
Junction of Ebbsfleet Lane North/Grinsell Hill	Part of the Viking Coastal route, sensitivity for residential, pedestrian and vehicle receptors
Junction of Canterbury Road West and A299 (western extent of northern part of	Residential and vehicle receptors, features of Landscape Character Area (views of

Cliffsend)	Sandwich and Pegwell Bay)
Lord of the Manor Roundabout (Sandwich Road junction)	Pedestrian and vehicle receptors, large number of movements with long distance view towards the site, close proximity to Public Rights of Way Network.
Intersection of Te40 and Te37	Pedestrian route on public network, features of Landscape Character Area (views of Sandwich and Pegwell Bay)

Given that the parameters will be broad in terms of scale, with no detail submitted in this respect up front of the Development Consent Order (DCO) it is considered that specific material and colour details should be provided alongside wireframe visual representation at each viewpoint, as a minimum, presenting the worst case scenario in terms of the scale and extent of development within those viewpoint locations identified.

Agriculture and Soils

The Council considers that the approach towards assessment of soil characteristics and Agricultural Land Classification surveys; and the subsequent methodology for scoping in/out this aspect within the ES to be acceptable.

Air Quality

The Council's Senior Environmental Health Officer has reviewed the Air Quality Section of the document and considers that appropriate screening methodologies and baseline information has been used to scope out operational sources, maintenance and construction NNRM plant but scoped in for some construction impacts identified on Page 214. The screening assessment has been done using relevant guidance, that is; IAQM for construction impact, IAQM for AQ & Planning and TG16 LAQM taking into account embedded CEMP mitigation is set out in 1.4 A3. Scoping conclusions are accepted for human health receptors. Natural England will comment for environmentally sensitive receptors.

Noise and Vibration

The Council's Senior Environmental Health Officer has reviewed the Noise and Vibration Section of the document and considers that very few impacts have been scoped out and those that have are based on appropriate assessment methodologies distances. No further comments other than as above, Natural England will respond in relation to environmentally sensitive receptors.

Socio-economics, Recreation & Tourism

The Council has no particular comments in relation to this area of assessment other than to say it is considered that the impacts that have been scoped in are appropriate. Kent County Council will respond in relation to any impacts on Public Rights of Way.

Cumulative Effects

The list of projects proposed to be taken forward to Stage 2 in table 3.13.3 is considered acceptable at this point. We would welcome further engagement with the applicant prior to finalising the assessment in this section of the EIA to ensure that any relevant projects

generated in the next 6 months are included where appropriate.

Should you have any further queries please do not hesitate to contact me either by email at [redacted] or telephone [redacted]

Yours sincerely

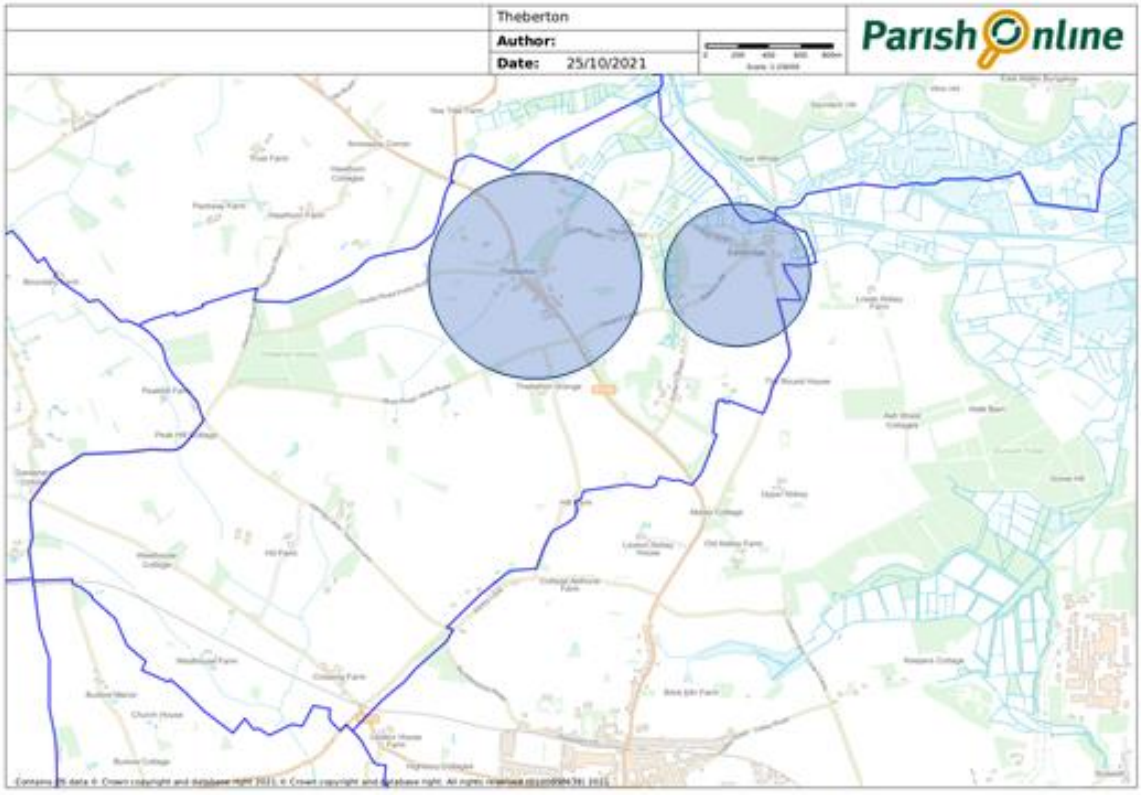
[redacted]

Planning Applications Manager

NATIONAL GRID VENTURES – SEA LINK INTERCONNECTOR SCOPING REPORT OPINION CONSULTATION

RESPONSE FROM THEBERTON AND EASTBRIDGE PARISH COUNCIL (T&EPC)

Introduction



Theberton

Theberton is a small village of approximately 170 people and 90 houses mostly straddling the B1122. It is about 4 miles north of the proposed Sizewell C (SZC) large twin reactor site. The proposed entrance to the main site will be approximately 1 mile from the village entrance sign. Within the village of Theberton there is St Peters Church, a Grade I listed thatched roof church with an unusual round tower, a Grade II listed public house, a village hall, two working farms, a cattery, a small business selling wild bird and other animal feeds, a small caravan park and other places to stay for visitors to enjoy the peace and quiet of the countryside. The successful village hall offers many activities and classes to the community and surrounding areas.

Eastbridge

Eastbridge is a tranquil hamlet of around 70 people and 40 houses nestled in a rural landscape with no street signs or speed limits. It borders the Minsmere River which cuts through an area of important wetland known as the Minsmere Levels forming part of the Minsmere - Walberswick Heaths and Marshes Site of Special Scientific Interest (SSSI), which is also the location of RSPB Minsmere Reserve. Within Eastbridge there is a public house, the Eels Foot Inn, a working farm, a certified and a basic campsite, for visitors to enjoy the peace and quiet of the countryside. Many local people and visitors enjoy the circular walk from Eastbridge to the Minsmere sluice to reach the Suffolk Heritage Coast and the sea returning through RSPB Minsmere or via National Trust's Dunwich Coastguards Cottages.

Both villages are chiefly agricultural, and people live there historically or by choice for the tranquility, dark skies, and the proximity to the Suffolk Heritage Coast. The two villages are linked by single track lanes with walks in the countryside characterised by open skies, arable and livestock farms, pheasants, partridge, owls, marsh harriers, buzzards, bittern, deer, bats and other wildlife. Residents and visitors enjoy the proximity to RSPB's flagship nature reserve at Minsmere with the Leiston Long Shop Museum, National Trust Dunwich Heath, Aldeburgh, Walberswick and Southwold within easy reach.

1. Response

1.1 Our major concern is that all the National Strategic Infrastructure energy projects should collectively minimize their onshore impacts on both the Area of Outstanding Natural Beauty, Heritage Coast and the National and International designated sites that overlap along the coastal strip and the inland rural/agricultural land to the west of the AONB and around Leiston, Saxmundham, Aldeburgh and the various outlying villages such as Theberton and Eastbridge.

1.2 We are also concerned that some of the optioneering in Suffolk for the landfall and converter stations is fanciful and would appear only to be there to justify the eventual preference.

1.3 We also note that proposals being discussed by Sea Link, Eurolink and Nautilus about having a common landfall in Suffolk as well as a potential single converter station site are not referenced in the overview section of the Scoping Report.

2. Siting and Cable Routes

2.1 Should Scottish Power's (SPR) EA1N and EA2 and the associated NGS not be approved, then T&EPC would have to withdraw these comments and reconsider any amended proposals in the light of such a decision.

2.2 On the assumption that EA1N, EA2 windfarm and National Grid substation (NGS) north of Friston are approved and constructed, we feel that any Sea Link converter station and links from the shore and to the National Grid substation from the converter station should minimize the spread of infrastructure and length of cable routes as far as possible.

2.3 On the basis that EA1N/EA2 and the NGS are approved, whilst only one of the converter substation sites, option C, lies within the T&E Parish boundary, option A (very close to T&E Parish boundary) is now impractical considering this is on land destined to be part of the construction site for Sizewell C, having now had approval by the Secretary of State (subject to challenge and financial agreements). Option B is within the AONB and is in contravention of National Grid's Horlock rules for substation siting, although both Greater Gabbard and Galloper wind farms already have substations in this area.

2.4 Options G, H and I require unnecessarily long cable corridors as both pass the westward extent of the Friston substation site, are also west of the East Suffolk train line and, in the case of G, west of the A12 which would add complications to any cable trench development.

2.5 Our concern with many of these potential sites is the industrialization of the countryside around Leiston, Friston, Knodishall, Theberton and Saxmundham alongside the knowledge that there are two further landfall and converter substation proposals yet to be subject to scoping opinion requests and we have no guarantees that these projects will be progressed in a way that will be minimally damaging during development and with as sympathetic as possible impact on the landscape and local amenity once complete and operational.

2.6 Landfall S5 is simply unacceptable as it crosses into the Minsmere and Walberswick Coast and Heaths SSSI and potentially the Minsmere Ramsar designation. There are also potential conflicts with the Sizewell C development.

2.7 Landfall S4 seems to go directly through the Sizewell A site, which seems fanciful unless it could also enable a converter station on site and Grid connection at Sizewell B/C substations but, given the existing land constraints at the Sizewell A/B/C site, such an aspiration seems to

be completely fanciful. However, use of converter site B would potentially work, were it not within the AONB and thus contrary to the Horlock rules.

2.8 Landfall S1 at Aldeburgh Marshes through a coastal frontage just south of Aldeburgh, that is under considerable stress from erosion, and so close to Aldeburgh itself, was always going to be inappropriate, even before you consider the cable route to any converter station crossing the Alde twice and going through a number of designated landscapes including both SSSI and Ramsar sites.

2.9 If the site for the Sea Link Interconnector converter station is settled before the other two projects come forward, it should have sufficient potential capacity to accommodate both the Nautilus and Eurolink converter stations also.

2.10 Cable routes for these three projects should be developed simultaneously to avoid multiple disruptions through sequential cable corridor excavation and construction.

2.11 Table 2.1.1 states that potential converter station sites would connect at Sizewell. Ignoring the fact that A is SZC construction site and B is in the AONB and, thus breaching the Horlock rules, site D is much closer to Friston substation than Sizewell and would have significant issues negotiating SZC developments such as the green rail route into the construction site. Site C is roughly equidistant from Sizewell and Friston but once again conflicts with any SZC development are likely to make this siting and return connection to Sizewell problematic.

2.12 It is good to see a significant consideration of the landfall, cable routes and converter station option at 2.1.8.16 through 2.1.8.23 which also revealed an additional potential converter station outside Saxmundham at site 3 (Figure 2.1.3).

2.13 Whilst many of the converter station sites have some level of existing natural screening, most are in relatively flat countryside with little hope of developing screening in a reasonable timeframe given the 24-30m high converter buildings.

3. Traffic and Transport

3.1 The discussion of site 3 at 2.1.8.9 and the possibility of a temporary connection to the B1121 across the Fromus, reignites a discussion once again of the missed opportunity of a SZC Route D2 relief road, originally proposed during the Sizewell B construction and raised during the Sizewell C consultations and Development Consent Order consideration by the Planning Inspectorate. This would have connected to the B1122 at the proposed SZC site entrance, between Leiston and Theberton, from the A12, slightly north of the B1121 junction to Saxmundham.

3.2 It is unfortunate that more significant coordination between Scottish Power, and the three National Grid projects and the Sizewell C project were not properly entertained at an earlier date. The lack of forward planning for all this land-based infrastructure and power generation will result in unnecessary disturbance for the local population, damage to the tourist economy, the countryside and general amenity of this area over many years as a result.

3.3 Had D2 been properly assessed by considering all of these projects collectively, a Sizewell Link Road (SLR) that sends all HGV and AIL along the direct D2 route rather than around two sides of a 5–6-mile sided triangle halving the resultant carbon emissions.

3.4 The D2 route would also have significantly improved access to the two wind farm substation sites and these three National Grid interconnector sites rather than being significantly constrained by the inadequacies of the A1094, B1121 and B1119. All of these issues were raised at both the Scottish Power and Sizewell Development Consent Order applications, but once again the folly of this piece-meal approach shows its shortsightedness.

3.5 Whilst the Site 4 (C) converter station site may benefit from the proposed SLR, assuming the construction is completed in time, even that will be constrained by the B1122 and country lanes should the SLR not be ready in time. If the SLR is ready in time only one crossing roads in the Theberton area will be available for access at Pretty Road as Moat Road access from the B1122 will be closed.

3.6 It has been accepted into the SLR plan that a bridge across the SLR will be constructed on Pretty Road. However, it is not clear if this bridge will be of sufficient standard to accommodate large AILs and with no right turn off the SLR on to Moat Road access to Site 4 may not be possible.

3.7 Access to Pretty Road and the bridge will have to be by exiting the SLR at the B1125 junction, turning right on to the B1122 and then right again into Pretty Road at a challenging blind bend on the B1122.

3.8 Section 2.8 Traffic and Transport (2.8.1.4) refers to Figure 2.8.1 Proposed Study Area in Suffolk (Traffic & Transport). The boundary to the north near Theberton stops at the crossroads on the B1122 junction with Moat Road and Onners Lane. Restricting the boundary to this point is not appropriate as Moat Road will be closed due to the construction of the SLR and the only access to the SLR at Moat Road will be from the west, close to the junction with George Road, that goes south past Theberton Grange. This will be one way to Yoxford only.

3.9 As previously stated in 3.5, access to site 4 would only be possible via Pretty Road and across a new bridge, which almost certainly will not be robust enough for any large transformer transports required during the build or during operational maintenance.

3.10 The study area boundary and key local junctions list (2.8.3.5) needs to be extended north to include the proposed junction of the B1125 with the proposed SLR, B1125 junction with the B1122 (both before and after the SLR is operational) and ensure that the SLR impacts are fully understood for both the construction period and operational period.

3.11 Whilst converter station site 4 seems unlikely to become a preferred or alternative site for the project, the impact of the SLR needs to be fully appreciated both during construction and once operational.

3.12 Paragraphs 2.8.3.1 and 2.8.3.4 describe Leiston as a village! This is disappointing as Leiston has a Town Council and a population of around 4,600 which is still expanding as new housing estates are completed and should not be considered as a village anywhere in this Scoping Report. Such inappropriate descriptions will tend to lessen the perceived impact of any construction or operational impacts on Leiston.

3.13 It is surprising that the whole of the B1122 between Leiston and Yoxford as well as the SLR proposals are not being included in the boundary as the B1122 is the only approved HGV route for AILs in the area. This was recognised by the recent Scottish Power wind farm and Sizewell C proposals. In the case of the Scottish Power wind farm, it was also recognised that the A1094 is unsuitable for AIL deliveries because of the rail bridge just east of the junction with the A12. For this reason, the boundary should be extended to the full length of the A1094 and its junction with the A12.

3.14 Similarly, the western extent of the boundary doesn't include the junction of B1122 and B1119 in the centre of Saxmundham, which may be critical for Site 3 access should no temporary access be developed across the Fromus south of Saxmundham. This traffic light-controlled junction is significantly constrained and there is also a bridge across the Fromus on the B1119 close to the church which should be assessed.

3.15 Paragraph 2.8.7.19 should include a reference to the SZC development of the SLR and potential Sea Link impacts during its construction, as well as the impacts of an SLR once complete and operational both on the Sea Link project construction/development and its operation.

4. Air Quality, Cumulative Impacts and Biodiversity

4.1 Given the above comments regarding the Traffic and Transport section boundaries and the comments above, it is surprising that the Air Quality only refers to Figure 1.1.2 Suffolk Onshore Scheme Scoping Boundary as this only covers the areas for the landfall, cable swathes and converter station sites. Air quality impacts should be assessed for the entire Transport and Traffic boundaries once finalized and given the A12 is the only major access route to this area of East Suffolk should probably have some level of assessment for traffic

coming from both the North, to the Yoxford junction with the B1122, and from the South, to the junction with the A1094.

4.2 Cumulative impacts with the three approved projects (two Scottish Power wind farms and Sizewell C) as well as potential cumulative impacts with Eurolink and Nautilus also need to be included in both the Traffic and Transport and Air Quality sections.

4.3 It is pleasing, and appropriate, to see a commitment to 10% Biodiversity Net Gain (BNG) (2.3.2.6) regardless of the provisions in the Environment Act 2021 and the expected legislation for mandatory 10% BNG in 2023 and for the project being supportive of the DEFRA Biodiversity 2020 strategy (2.3.2.9)

4.4 Birds section (2.3.2.26) is missing a reference to Stone Curlew that nests within Minsmere Reserve.

5. Conclusion

This response, to the Scoping Report request for the Sea Link Interconnector, has identified that the Scoping Report does not properly identify the full scope of potential impacts, as a result of inappropriate restriction of some assessment boundaries and by incomplete appreciation of the extent and cumulative impacts of the two Scottish Power wind farm projects and the Sizewell C project.

Whilst there are welcome words about cooperative development for the three interconnector projects, cumulative impact statements and assessment boundaries are inconsistent and often too restrictive which will result in an incomplete appreciation of the cumulative and development organisational impacts of the three, already approved, National Strategic Infrastructure projects.

Whilst we understand the National need for expanding both offshore wind and improving the interconnectedness both within the UK and between the UK and neighbouring countries across the North Sea, such developments need to be undertaken in a sympathetic and coordinated manner, especially when their timeframes are so closely defined, and all three projects are within the overarching responsibility of National Grid.

If this is not addressed adequately by National Grid during the development of the Sea Link assessment plan and similarly by the associated Eurolink and Nautilus assessment plans, the result will be significant repeated disruption and damage to the coastal environment of East Suffolk along with the coastal hinterland, which is host to significant designated sites, AONB and Heritage Coast and is unacceptable.

UK Health Security Agency

Environmental Hazards and Emergencies Department
Seaton House, City Link
London Road
Nottingham, NG2 4LA

nsipconsultations@ukhsa.gov.uk
www.gov.uk/ukhsa

Your Ref:
Our Ref: CIRIS 60483

Ms Marie Shoesmith
Senior EIA Advisor
The Planning Inspectorate
Temple Quay House
2 The Square
Bristol, BS1 6PN

22nd November 2022

Dear Ms Shoesmith

Nationally Significant Infrastructure Project
Sea Link, sub-sea cable from the Sizewell area in Suffolk to Richborough in Kent
Scoping Consultation Stage

Thank you for including the UK Health Security Agency (UKHSA) in the scoping consultation phase of the above application. ***Please note that we request views from the Office for Health Improvement and Disparities (OHID) and the response provided below is sent on behalf of both UKHSA and OHID.*** The response is impartial and independent.

The health of an individual or a population is the result of a complex interaction of a wide range of different determinants of health, from an individual's genetic make-up to lifestyles and behaviours, and the communities, local economy, built and natural environments to global ecosystem trends. All developments will have some effect on the determinants of health, which in turn will influence the health and wellbeing of the general population, vulnerable groups and individual people. Although assessing impacts on health beyond direct effects from for example emissions to air or road traffic incidents is complex, there is a need to ensure a proportionate assessment focused on an application's significant effects.

Having considered the submitted scoping report we wish to make the following specific comments and recommendations:

Environmental Public Health
We believe the summation of relevant issues into a specific section of the report provides a focus which ensures that public health is given adequate consideration. The section should

summarise key information, risk assessments, proposed mitigation measures, conclusions and residual impacts, relating to human health. Compliance with the requirements of National Policy Statements and relevant guidance and standards should also be highlighted.

In terms of the level of detail to be included in an Environmental Statement (ES), we recognise that the differing nature of projects is such that their impacts will vary. UKHSA and OHID's predecessor organisation Public Health England produced an advice document *Advice on the content of Environmental Statements accompanying an application under the NSIP Regime*', setting out aspects to be addressed within the Environmental Statement[1]. This advice document and its recommendations are still valid and should be considered when preparing an ES. Please note that where impacts relating to health and/or further assessments are scoped out, promoters should fully explain and justify this within the submitted documentation.

Recommendation

Our position is that pollutants associated with road traffic or combustion, particularly particulate matter and oxides of nitrogen are non-threshold; i.e, an exposed population is likely to be subject to potential harm at any level and that reducing public exposure to non-threshold pollutants (such as particulate matter and nitrogen dioxide) below air quality standards will have potential public health benefits. We support approaches which minimise or mitigate public exposure to non-threshold air pollutants, address inequalities (in exposure) and maximise co-benefits (such as physical exercise). We encourage their consideration during development design, environmental and health impact assessment, and development consent.

Human Health and Wellbeing - OHID

This section of OHIDs response, identifies the wider determinants of health and wellbeing we expect the ES to address, to demonstrate whether they are likely to give rise to significant effects. OHID has focused its approach on scoping determinants of health and wellbeing under four themes, which have been derived from an analysis of the wider determinants of health mentioned in the National Policy Statements. The four themes are:

Access
Traffic and Transport
Socioeconomic
Land Use

Having considered the submitted scoping report OHID wish to make the following specific comments and recommendations:

[1] https://khub.net/documents/135939561/390856715/Advice+on+the+content+of+environmental+statements+accompanying+an+application+under+the+Nationally+Significant+Infrastructure+Planning+Regime.pdf/a86b5521-46cc-98e4-4cad-f81a6c58f2e2?t=1615998516658

Methodology - Determination of significant effects
It is noted that the Health and Wellbeing Chapters for the Suffolk and Kent on shore reports are drafted with reference to the London HUDU assessment approach and as such no assessment of significance is provided for human health.

This approach does not conform to the requirements of the EIA Regulations and as such an assessment of significance will be required to form part of the Environmental Statement. This is consistent with recent PINS approach to this issue within the SoS Scoping opinion for the National Highways M60/M62/M66 Simister Island scheme.

Regulation 18 4(b) requires an Environmental Statement to 'include the information reasonably required for reaching a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment'.

In addition, Schedule 4 (5) requires a description of the likely significant effects of the development on the environment resulting from, inter alia:

(d)the risks to human health, cultural heritage or the environment (for example due to accidents or disasters).

Recommendation
The ES must provide an assessment of significance for those health determinants scoped into the population and human health chapters. The population and human health assessment should draw upon the findings from other relevant chapters, including air quality and noise.

As there is not yet a define approach in England to the assessment of significance for population and human health, it is strongly advised that any proposed approach is agreed with OHID/UKHSA and the local Directors of Public Health. The guidance issued by the International Association of Impact Assessment (IAIA)[2] could be used as a basis for the assessment of significance.

Health Baseline Data
The scoping report indicates health baseline data will be drawn from OHID Fingertips data. Local data sets and publications may assist in providing data to understand baseline and

[2] Cave, B., Claßen, T., Fischer-Bonde, B., Humboldt-Dachroeden, S., Martín-Olmedo, P., Mekel, O., Pyper, R., Silva, F., Viliani, F., Xiao, Y. 2020. Human health: Ensuring a high level of protection. A reference paper on addressing Human Health in Environmental Impact Assessment. As per EU Directive 2011/92/EU amended by 2014/52/EU. International Association for Impact Assessment and European Public Health Association.

inform sensitivity, for example the Joint Strategic Needs Assessment (JSNA), Health and Wellbeing Strategy and any Integrated Care System (ICS) strategies.

An approach to the identification of vulnerable populations has not been provided. The impacts on health and wellbeing and health inequalities of the scheme may have particular effect on vulnerable or disadvantaged populations, including those that fall within the list of protected characteristics.

The identification of vulnerable populations and sensitive populations should be considered.

Recommendation

Baseline data should include consideration of local health priorities published through the Joint Strategic Needs Assessment (JSNA), Health and Wellbeing Strategy and any Integrated Care System (ICS) strategies.

Baseline health data should be provided, which is adequate to identify any local sensitivity or specific vulnerable populations. The identification of vulnerable populations should be based on the list provided by the Welsh Health Impact Assessment Support Unit[3] and the International Association of Impact Assessment (IAIA)[4]

Yours sincerely

On behalf of UK Health Security Agency
nsipconsultations@ukhsa.gov.uk

Please mark any correspondence for the attention of National Infrastructure Planning Administration.

[3] WHIASU (2020). Health Impact Assessment – A Practical Guide

[4] Cave, B., Claßen, T., Fischer-Bonde, B., Humboldt-Dachroeden, S., Martín-Olmedo, P., Mekel, O., Pyper, R., Silva, F., Viliani, F., Xiao, Y. 2020. Human health: Ensuring a high level of protection. A reference paper on addressing Human Health in Environmental Impact Assessment. As per EU Directive 2011/92/EU amended by 2014/52/EU. International Association for Impact Assessment and European Public Health Association.

National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom

Registered in England and Wales
No. 4031152