


# Tarchon Interconnector Project

# Environmental Impact Assessment Scoping Report

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 01: Introductory Chapters

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## Annexes

No annexes associated with this Volume.

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Glossary of Terms

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|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00042 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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No table of figures entries found.

## Annexes

No annexes associated with this Chapter.

# 1. Glossary of Terms

## 1.1 Introduction

1.1.1.1 This document presents Table 1-1, which defines the key specialist terminology and acronyms used throughout the Tarchon Interconnector Project (Tarchon Project) UK Scheme Environmental Impact Assessment (EIA) Scoping Report.

1.1.1.2 The glossary provides standardised definitions to ensure consistent interpretation across technical disciplines, assessment teams, consultees, and stakeholders.

1.1.1.3 The glossary supports all volumes of the EIA Scoping Report, including:

- **Volume 01:** Introductory Chapters;
- **Volume 02:** Onshore Environment;
- **Volume 03:** Offshore Environment;
- **Volume 04:** UK Scheme Wide;
- **Volume 05:** Summary Chapters; and
- **Volume 06:** Annexes.

## Table 1-1: Glossary of Terms for the Tarchon Project (UK Scheme) Scoping Report

| Term | Acronym | Description |
|---|---|---|
| Abnormal Indivisible Load | AIL | A load that cannot be split into two or more smaller loads for transport and which is also too heavy, too long, or too wide to be carried on a standard road vehicle. Also termed Abnormal Load. |
| Agricultural Land Classification | ALC | The standard method for classifying agricultural land in England and Wales 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). |
| Alternating Current electricity transmission | AC | Electric power transmission in which the voltage varies in a sinusoidal fashion. This is the most common form of grid electricity transmission and distribution within the UK. |
| Archaeological Exclusion Zone | AEZ | The area around an archaeological and/or cultural heritage asset in which activities that impact the land or seabed are prohibited to avoid impacts on the asset. |
| Benthic Ecology and Habitats | | The biological community and habitats associated with the seabed, including infauna, epifauna, and associated sedimentary environments |
| Biodiversity Net Gain | BNG | Development approach that leaves biodiversity in a measurably better state than before the development took place |
| Bootstraps | | A high-voltage direct current (HVDC) link, often offshore, that connects two points on an existing onshore transmission system. These links, sometimes referred to as "onshore to onshore" links, are used to transfer excess power between regions and can be part of a larger network or a standalone connection. |
| Cable Corridor Working Width | | Width of the construction area for the proposed high-voltage alternating current (HVAC) and HVDC Cables which includes haul road, spoil storage, cable trench and temporary drainage during cable installation. For Scoping this is assumed to be a construction corridor typically 30 to 40 m wide |
| Cable Pulling | | The methodical process of installing cable sections into pre-prepared ducts or trenches during onshore or offshore cable installation. |

| Term | Acronym | Description |
|---|---|---|
| Clean Power 2030 | | The UK Government's plan to deliver a fully clean electricity system by 2030, in which clean energy sources generate at least as much power as Great Britain consumes annually, providing at least 95% of total electricity generation and reducing carbon intensity to well below 50g$CO_2$e/kWh. The plan outlines the infrastructure, grid reforms, and large-scale renewable energy deployment needed to achieve this transition. |
| Conceptual Site Model | | A representation of the characteristics of a site. It shows the possible relationships between contaminants, pathways and receptors. |
| Conservation Area | | An area of special architectural or historic interest, where it is desirable to preserve or enhance its character or appearance. |
| Construction | | Temporary and permanent works to install the approved Project design, including site preparation and access, earthworks/dredging, cables installation, converter station installation, landscaping, stakeholder engagement and quality checks. |
| Construction Environmental Management Plan | CEMP | A site-specific plan which outlines how a construction project will avoid, minimise, or mitigate negative effects on the environment and surrounding area during construction. |
| Consultation bodies | | Bodies that the relevant planning authority is legally required to consult under Article 18 of the EIA Regulations 2017, including: the Marine Management Organisation; the principal local council; Natural England; the Environment Agency; and any other statutory bodies with environmental responsibilities that the authority or Secretary of State considers likely to have an interest in the application. |
| Controlled Water | | This includes inland freshwaters (rivers, lakes, etc.), coastal waters, and relevant territorial waters (seawater out to three nautical miles). |
| Converter Station | | A facility containing specialist electrical equipment used to convert electricity between Alternating Current (AC) and Direct Current (DC), depending on the required direction of power flow. The Converter Station comprises both indoor and outdoor infrastructure, including buildings (potentially up to approximately 26 m in height), transformers, cooling equipment, and associated electrical systems. |
| Converter Station Site | | The permanent land area required to accommodate the Converter Station and all associated development, including access arrangements, landscaping, screening, supporting infrastructure, and any required operational space. |

| Term | Acronym | Description |
|---|---|---|
| Converter Station Study Area | | A defined geographic area used to identify potential locations for the Converter Station and associated High Voltage Alternating Current (HVAC) cable route. For the Tarchon Project, this is a 5 km radius around National Grid's East Anglia Connection Node (EACN) Substation, within which suitable site options are assessed |
| Critical National Priority | | A policy within the Overarching National Policy Statement for Energy (EN-1) that establishes a presumption in favour of Critical National Priority Infrastructure. Subject to legal requirements, including section 104 of the Planning Act 2008, the urgent need for such infrastructure (national security, economic, commercial, and net-zero benefits) will generally outweigh any residual impacts that cannot be mitigated through the mitigation hierarchy |
| Cumulative Effects | | Effects that result from the combination of the UK Scheme's impacts with those of other existing or reasonably foreseeable future developments. |
| Decommissioning | | Decommissioning is the planned, safe, and compliant process of taking a scheme of development out of operation, following the end of its useful life. |
| Decommissioning Environmental Management Plan | DEMP | A site-specific plan developed to ensure that appropriate environmental management practices are followed during the decommissioning phase of a project. |
| Development Consent Order | DCO | A Development Consent Order (DCO) is a consent granted by the Secretary of State under the Planning Act 2008 for the construction, operation (including maintenance), and decommissioning of nationally significant infrastructure projects. A DCO provides the primary planning permission for a project and may also include other required consents, as well as powers for compulsory acquisition and temporary use of land. A DCO is issued as a statutory instrument, forming a type of secondary legislation. |
| Direct Current electricity transmission | DC | Electric power transmission in which the voltage is continuous. This is most commonly used for long distance transmission to reduce electricity losses when compared to AC transmission. |
| Dutch Scheme | | The Tarchon Project's proposed Subsea High Voltage Direct Current Cabling in Dutch waters (through the Dutch Exclusive Economic Zone). |
| Effect | | For the purposes of the Environmental Impact Assessment, the term 'effects' are the consequences of changes to the baseline condition (the impacts) which occur due to a development (for example a decline in a breeding bird population is an effect which may occur due to the impact of removing hedgerows and trees). An effect may be beneficial or adverse. |

| Term | Acronym | Description |
|---|---|---|
| Electric and Magnetic Fields | EMF | Physical fields produced by electrically charged objects which are present in both natural and man-made environments, such as power lines. |
| Embedded Mitigation | | Mitigation measures that are integrated into the design of a scheme and built into the intended approach to construction, operation, and decommissioning. These include design measures, inherent mitigation, standard industry good-practice controls, and statutory requirements that are routinely applied to avoid or minimise environmental effects from the outset. |
| English Onshore Scheme | EOS | All UK Scheme onshore infrastructure between the connection point to the National Grid East Anglia Connection Node Substation and Mean Low Water Spring (MLWS) in Essex. This includes the proposed Landfall, proposed HVDC and HVAC cables, proposed Converter Station, and grid connection works northeast of Colchester. The EOS also includes any permanent accesses and any temporary working areas. |
| Environmental Impact Assessment | EIA | A statutory process under which the likely significant environmental effects of a proposed development are assessed and used to inform decision making. |
| Environmental Statement | ES | The document reporting the final findings of the Environmental Impact Assessment. |
| Exclusive Economic Zone | EEZ | A marine zone extending up to 200 nautical miles where the UK has rights to manage marine resources. |
| Frac-out | | Unintended release of drilling fluid to the surface during Horizontal Directional Drilling (HDD) when bore pressure exceeds surrounding ground strength. |
| German Scheme | | The Tarchon Project's proposed Subsea HVDC Cabling in German waters. German onshore energy infrastructure (including proposed Landfall, Onshore High Voltage Direct Current and High Voltage Alternating Current Cabling, and proposed Converter Station). |
| High Voltage Alternating Current | HVAC | Electric power transmission using alternating current at high voltages for regional grids. It is the primary method for moving large amounts of electrical energy over short distances from power plants to consumers, utilizing transformers to step voltage up for transmission and down for distribution. |
| High Voltage Direct Current | HVDC | An efficient technology using direct current to transmit large amounts of high voltage electricity over long distances with the ability to transmit in either direction and connect asynchronous networks. |

| Term | Acronym | Description |
|---|---|---|
| Historic environment | | All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora. |
| Horizontal Directional Drilling | HDD | Trenchless method for installing underground utilities infrastructure with minimal surface disruption. Commonly used to cross under obstacles like roads, rivers, and areas of sensitive habitat. |
| Hydrography | | The physical characteristics and movement of water bodies, including tides, currents, waves, and water levels. |
| Impact | | A change arising from a project that may lead to an environmental effect. |
| Indicative Landfall Zone | | Refers to the area of the Scoping Boundary under consideration for placement of the proposed Landfall. |
| Interconnectors | | High-voltage land and/or subsea cables linking the electricity systems of different countries or separate regional grids. |
| Interrelationship Effects | | Effects that arise from interactions between different environmental topics (e.g. noise affecting ecology), assessed to understand combined effects on receptors. |
| Joint bays | | Buried concrete pad with joint between adjacent sections of cable, to be approximately every 800 m – 1.2 km onshore. |
| 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 agriculture and forestry. |
| Landfall | | The area and infrastructure where offshore cables come ashore.<br>The UK Landfall is the interface between the UK Marine Scheme and the EOS. |
| Local Plan | | A plan for the future development of a local area, drawn up by the local planning authority in consultation with the community. |
| Local Wildlife Site | LWS | A non-statutory conservation designation used by local authorities to identify sites of substantive ecological value at the local level. |
| Magnitude | | The scale, intensity, or extent of an impact. |

| Term | Acronym | Description |
|---|---|---|
| Managed Realignment | | The intentional reconfiguration of sea defences to allow coastal flooding in controlled areas, creating natural buffer zones that improve long-term flood protection, ecological value, and coastal resilience. |
| Marine Licence | ML | A consent issued by the Marine Management Organisation for activities in the UK marine area. A Marine Licence can also be deemed as part of a Development Consent Order. |
| Marine Protected Area | MPA | A collective term for designated conservation areas in the marine environment, including Marine Conservation Zones (MCZs), Special Areas of Conservation (SACs), and Special Protection Areas (SPAs). |
| Maximum Design Scenario | MDS | Or Design Envelope. These define the worst-case design parameters of the UK Scheme, or factors arising from them. |
| Mean High Water Springs | MHWS | The average height of high waters during spring tides. |
| Mean Low Water Springs | MLWS | The average height of low waters during spring tides. |
| Mitigation Measures | | Actions taken to reduce or prevent adverse environmental effects. |
| National Grid's East Anglia Connection Node Substation | EACN | The substation owned and operated by National Grid that the UK Scheme will connect to (to be constructed). |
| National Planning Policy Framework | NPPF | A key document in the UK's planning system for England. It outlines the Government's planning policies and how they should be applied, guiding local authorities in their planning decisions and local plan development. |
| National Planning Practice Guidance | | A collection of online guidance documents that support the National Planning Policy Framework in England. It provides detailed advice on how to apply the policies outlined in the National Planning Policy Framework and is intended to be read alongside it. |
| National Policy Statement for Electricity Networks Infrastructure (EN-5) | | The national policy statement for decisions taken by the Secretary of State made in respect of nationally significant electricity networks infrastructure. |

| Term | Acronym | Description |
|---|---|---|
| National Policy Statement for Energy (EN-1) | | Overarching National Policy Statement for Energy (EN-1) sets out the government's overarching national policy for nationally significant energy infrastructure. Combined with any relevant technology specific energy National Policy Statements (for example National Policy Statement for Renewable Energy Infrastructure (EN-3)), it provides the primary policy for decisions taken by the Secretary of State on development consent order applications under the Planning Act 2008 for energy developments that are nationally significant. |
| National Policy Statement for Renewable Energy Infrastructure (EN-3) | | Provides the primary policy for decisions by the Secretary of State on Development Consent Order applications under the Planning Act 2008 for nationally significant renewable energy infrastructure alongside the Overarching National Policy Statement for Energy (EN-1). |
| National Policy Statements | NPS | Policy documents that outline the need for specific types of infrastructure in England and Wales, the government's policy for meeting that need, and detailed planning guidance, including how to mitigate scheme impacts. National Policy Statements have a special status under the Planning Act 2008 and are the primary consideration in development consent decisions. |
| National Site Network sites | | Special Protection Areas (SPA), Special Areas of Conservation (SAC), and Candidate Special Areas of Conservation (cSAC) and those treated of equal status under UK Government policy. |
| Nationally Significant Infrastructure Projects | NSIP | Large scale major development projects in England or Wales which fall into the following categories: energy, transport, waste, wastewater or water; and which meet the threshold described in Part 3 of the Planning Act 2008 or projects which are designated as projects of national significance by the relevant Secretary of State issuing a Section 35 Direction. |
| Navigational Risk Assessment | NRA | A systematic process for identifying, evaluating, and mitigating the risks associated with vessel navigation, particularly in port and harbour environments, aquaculture sites, and offshore areas. It aims to proactively address potential hazards and reduce the likelihood of accidents caused by factors like faulty navigation or major failures. |
| Net Zero | | In the UK, "net zero" refers to a target to reduce net greenhouse gas emissions to zero by 2050, meaning the total amount of greenhouse gas emissions produced is equal to or less than the emissions removed. |
| Noise Sensitive Receptor | | Any location where noise may adversely affect humans or activities, including residential properties, schools, hospitals, and quiet recreational areas. |

| Term | Acronym | Description |
|---|---|---|
| Open-cut Trenching | | An installation method involving excavation of a continuous trench from the surface to lay underground infrastructure such as ducts and cables. It typically results in greater surface disturbance than trenchless techniques and requires reinstatement once installation is complete. |
| Operational Phase | | The period when the scheme is in operation after construction. |
| Other Developments | | Other developments or schemes which are considered as having the potential to impact the same receptor(s) as the Scheme and therefore are considered within the assessment of cumulative effects. |
| Pathway | | The mechanism or route by which a source may interact with a receptor, forming part of the source–pathway–receptor model used in ground conditions, water, and contamination assessments. |
| Planning Inspectorate | | The agency of the United Kingdom government responsible for examining and making recommendations on nationally significant infrastructure projects, planning appeals, and local development plans in England and Wales. |
| Public Right of Way | PRoW | A route over which the public has a legally protected right to pass, including footpaths, bridleways, restricted byways, and byways open to all traffic. |
| Receptor | | A component of the environment (such as a species, habitat, community, landscape, heritage asset, or human population) that may be affected by a change arising from the project. |
| Residual Effects | | The environmental effects that remain after mitigation measures have been implemented. |
| Safety Zones | | Areas established around construction or installation vessels to ensure safety during offshore works, typically prohibiting unauthorised vessel access. |
| Scoping | | The process of determining the extent of issues to be considered in the Environmental Impact Assessment and reported in the Environmental Statement. |

| Term | Acronym | Description |
|---|---|---|
| Scoping Boundary | | The Scoping Boundary is the maximum area of land and sea currently identified for assessment in the EIA and included within the Scoping Report. It represents the broadest extent of land and marine areas that may be required for construction, operation (including maintenance), and decommissioning. This area is intentionally larger than the final project footprint to allow for ongoing site selection and consultation.<br>Where appropriate, the terms Onshore Scoping Boundary (covering the English Onshore Scheme, EOS) and Offshore Scoping Boundary (covering the UK Marine Scheme, UKMS) may be used. |
| Scoping Opinion | | The formal opinion issued by the Secretary of State on the proposed scope of the EIA. This includes the views of statutory consultees and other relevant organisations. |
| Sensitivity | | The degree to which a receptor is susceptible to change and the value attributed to it. |
| Significant Effect / Significance | | The degree of environmental effect determined by combining magnitude of impact and receptor sensitivity/value, used to identify effects that are likely to be important in the decision-making process. |
| Site of Special Scientific Interest | SSSI | A statutory conservation designation for areas of national importance for wildlife, geology, or landforms. |
| Source (contamination) | | The origin of a potential hazard or contaminant that may cause harm to a receptor through an identified pathway. |
| Statutory Consultation | | The legal requirement to involve prescribed bodies and individuals in the consultation process before a Development Consent Order application can be made. These bodies, known as statutory consultees, are required by law to be consulted on a proposed project. |
| Study Area | | The Study Area is the geographic extent within which potential environmental effects of the UK Scheme are assessed. It extends outward from the project footprint to include all areas where significant effects may reasonably be expected to occur. The size and shape of the Study Area varies by technical discipline and is defined at the start of each Scoping Report chapter. |
| Subsea Cables | | The cables (HVDC) to be installed as part of the UK Marine Scheme. |

| Term | Acronym | Description |
|---|---|---|
| Sustainable Drainage Systems | SuDS | Sustainable Drainage Systems (SuDS) are engineered features that manage surface water in a way that mimics natural processes, typically by controlling rainfall close to where it falls. SuDS can convey surface water, slow runoff, store water temporarily, allow infiltration into the ground, support evaporation and evapotranspiration, and help remove contaminants to improve water quality. |
| Tarchon Interconnector Project | | A proposed direct power link between Essex, in East Anglia in the United Kingdom, and Niederlangen, in Lower Saxony, Germany. Also referred to as the Tarchon Project. |
| Tarchon Energy Limited | | The company promoting the Project (referred to as “the Applicant”). |
| Temporary construction compound | | Areas used for storage, laydown, welfare, and site management during construction. |
| Temporary construction compound | | Any working area defined for the purpose of storage of plant, materials or equipment or for the use of welfare and site management.<br>Note: the cable working width will be used for storage and laydown also on an ad hoc basis to facilitate constructability. |
| The Applicant | | Tarchon Energy Limited. |
| The UK Scheme | | The collective term for the English Onshore Scheme (EOS) and UK Marine Scheme (UKMS). This represents the currently identified maximum extent of land to be acquired or used for construction, operation (including maintenance), and decommissioning. I.e. the land that will be subject of the Scoping Report. |
| Transboundary Effects | | Effects that would affect the environment in another state within the European Economic Area. |
| Transition Joint Bay | TJB | A buried inspection chamber/buried joint connecting offshore and onshore cables. Located above MHWS. |
| Transmission System Operator | TSO | An entity responsible for managing and operating the high-voltage transmission system and ensuring the delivery of electricity from generation plants to distribution operators. |
| Trenchless Technique | | A trenchless technique installs underground infrastructure without open-cut excavation. Horizontal Directional Drilling (HDD) is a common example, allowing cables or ducts to be installed beneath sensitive features with minimal surface disturbance. |

| Term | Acronym | Description |
|---|---|---|
| UK Marine Policy Statement | | A document that sets out the framework for how marine plans are created and decisions are made regarding the marine environment across the UK. It provides guidance for marine licensing and other authorisation systems, ensuring consistency in marine planning and decision-making across the UK. |
| UK Marine Scheme | UKMS | This includes the elements of the UK Scheme situated between Mean High-Water Springs in UK territorial waters up to the extent of the UK's Exclusive Economic Zone. |
| UK Territorial Waters | | The UK's territorial waters, as defined by the Territorial Sea Act 1987, extend 12 nautical miles (approximately 22 kilometres) from shore. |
| UK Waters | | Collective term for UK territorial waters and the UK Exclusive Economic Zone. |
| Underwater Noise | | Sound generated underwater from natural or human activities, including construction vessels, HDD works, and UXO risk mitigation activities, which may affect marine fauna. |
| Unexploded Ordnance | UXO | Military munitions (e.g. bombs or shells) that were not detonated when deployed and still pose a risk. |
| Watercourse | | Any channel through which water flows, including rivers, streams, drains, culverts, and ditches. |
| Zone of Influence | ZoI | The limit determined for each specialist study in which the construction or operation of the UK Scheme component has the potential to cause an adverse or beneficial effect on a receptor. This will inform the definition of the discipline-specific study area. |
| Zone of Theoretical Visibility | ZTV | A digitally produced map showing areas of land within which specific elements of a scheme or development are theoretically visible. |

## 1.2 References

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# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 01, Chapter 01: Introduction

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00001 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| Role | Name |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| AC | Alternating Current |
| CIP | Copenhagen Infrastructure Partners |
| DC | Direct Current |
| DCO | Development Consent Order |
| EACN | East Anglia Connection Node |
| EEA | European Economic Area |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| EU | European Union |
| GW | Gigawatt |
| HRA | Habitats Regulations Assessment |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| IEMA | Institute of Environmental Management and Assessment |
| ISEP | Institute of Sustainability and Environmental Professionals |
| km | Kilometres |
| MHWS | Mean High Water Springs |
| MLWS | Mean Low Water Springs |
| NETS | National Electricity Transmission System |
| NM | Nautical Mile |
| NSIP | Nationally Significant Infrastructure Project |
| PA 2008 | Planning Act 2008 |
| PCI | Projects of Common Interest |
| PEIR | Preliminary Environmental Information Report |
| PINS | Planning Inspectorate |
| PMI | Project of Mutual Interest |
| SoS | Secretary of State |
| The EIA Regulations | Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 |
| UK | United Kingdom |

# 1. Introduction

## 1.1 Background and Need for the Tarchon Project

1.1.1.1 Tarchon Energy Limited (hereafter 'the Applicant') proposes to develop the Tarchon Interconnector Project (‘the Tarchon Project’) a new high-capacity electricity interconnector linking Essex, East Anglia, United Kingdom (UK), and Niederlangen, Lower Saxony, Germany (Figure 1-1). The Tarchon Project will enhance cross-border energy trading, improve system resilience and security of supply, and facilitate the integration of additional intermittent renewable generation into both national grids. The Tarchon Project encompasses all infrastructure between the connection points to the National Electricity Transmission Systems (NETS) in England and Germany.

1.1.1.2 The Tarchon Project will comprise both onshore and subsea electricity cables and associated infrastructure, with an indicative total length of approximately 800 kilometres (km). This total length reflects the currently anticipated envelope across all jurisdictions pending design refinement through a combined Engineering, Consenting and Environmental Impact Assessment (EIA) process.

1.1.1.3 The transmission system will operate primarily using High Voltage Direct Current (HVDC) technology to maximise efficiency over long distances. At each end of the interconnector, Converter Stations will convert electricity between High Voltage Direct Current (DC) and High Voltage Alternating Current (HVAC) to interface with the respective NETS and onward distribution (Figure 1-2). The proposed design allows a transfer capacity of up to 1.8 Gigawatts (GW) at the UK receiving end, which is enough to power upwards of 1.9 million homes (using standard domestic demand equivalences).

1.1.1.4 The Tarchon Project includes the following principal elements:

- **English Onshore Scheme (EOS)**: UK onshore infrastructure in Essex, including proposed landfall, onshore HVDC and HVAC cables, a Converter Station, and grid connection works to National Grid’s East Anglia Connection Node (EACN) substation northeast of Colchester (section 1.2);
- **Marine Scheme:** Subsea HVDC cables connecting UK and German onshore infrastructure. For assessment and consenting purposes, this is divided into three jurisdictional components:
  - **UK Marine Scheme (UKMS)**: UK territorial waters (12 Nautical Miles (nm) from shore) and the UK Exclusive Economic Zone (EEZ) up to the UK - Netherlands median line (Section 1.2).
  - Netherlands Marine Scheme (in Dutch waters);
  - German Marine Scheme (in German waters);
- **German Onshore Scheme**: Onshore cabling and a Converter Station connecting to a new substation near Niederlangen, Lower Saxony, Germany.

1.1.1.5 Collectively, the EOS and UKMS form the “the UK Scheme”. Full details of the UK Scheme are provided in Volume 01, Chapter 02: UK Project Description.

1.1.1.6 Figure 1-1 presents an indicative schematic of the interconnector and overall routing concept, and Figure 1-2 provides a high-level overview of the Tarchon Project’s components by jurisdiction.

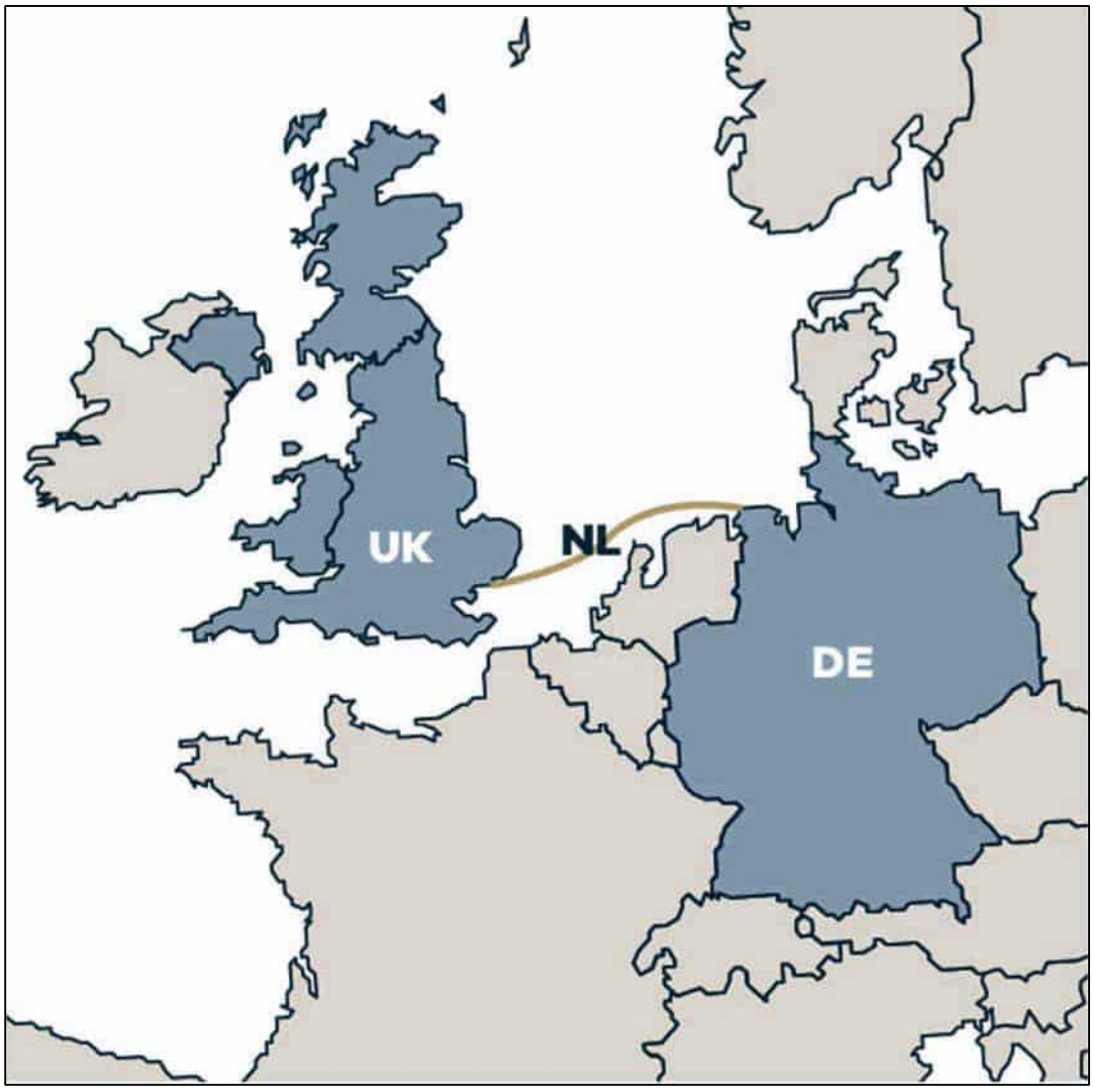



**Figure 1-1: Tarchon Project Indicative Schematic**

1.1.1.7 The Tarchon Project has been identified by the European Union (EU) as a Project of Mutual Interest (PMI) in the latest Union List of Projects of Common Interest (PCI) and PMI (European Commission, 2024) for cross-border energy infrastructure projects (the Union list)[1]. This is the first PMI involving the UK, demonstrating the Project’s contribution to shared policy objectives for affordable, secure energy and long-term decarbonisation across the UK and EU. Inclusion on the Union List shows recognition of the Project’s strategic importance of UK and

[1] The main difference between European Union Projects of Common Interest (PCIs) and Projects of Mutual Interest (PMIs) is that PCIs focus on cross-border energy infrastructure within the EU, while PMIs extend this focus to include projects with non-EU countries. Both types of projects aim to contribute to the EU's energy and climate objectives, but PMIs are specifically designed to foster cooperation with countries outside the EU, such as the UK.

European cross border electricity projects (subject to the outcomes of the environmental assessment and consenting process).

1.1.1.8 Paragraph 11 of the Union list clearly states that all PMIs “may be needed to demonstrate technical and economic viability and compliance with Union legislation, including environmental legislation”; and that “potential negative impacts on the environment should be adequately identified, assessed and avoided or mitigated”. Moreover, “relevant climate adaptation measures as regards the development of the projects should be identified and taken into consideration” (European Commission, 2024).

1.1.1.9 Further description of the Tarchon Project’s objectives and needs case is provided in Volume 01, Chapter 03: Approach to Alternatives.

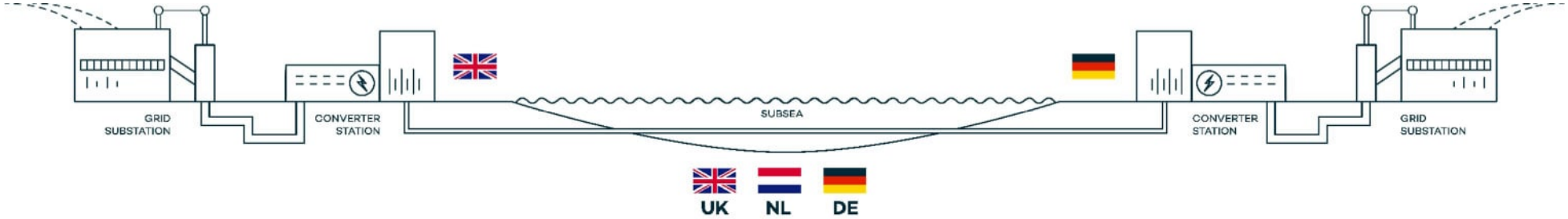



Figure 1-2: Components of the Tarchon Project

## 1.2 Geographical Context for Scoping

### 1.2.1 The UK Scheme Scoping Boundary

1.2.1.1 For the purposes of Scoping, the UK Scheme comprises the EOS and the UKMS. The overall extent is defined by the UK Scheme Scoping Boundary shown in Figure 1-3. There are two sub boundaries for the UK; one for the EOS (Figure 1-4) and one for the UKMS (Figure 1-5). Together, these boundaries describe the current maximum area of land and sea potentially required for construction, operation and maintenance in the UK. Their extent may be refined as the design evolves and as the EIA progresses. Further description is provided in Volume 01, Chapter 02: UK Project Description.

1.2.1.2 The EOS Scoping Boundary (Figure 1-4) extends seawards to Mean Low Water Springs (MLWS), whilst the UKMS Scoping Boundary (Figure 1-5) extends landwards to Mean High Water Springs (MHWS); the EOS and UKMS therefore overlap in the intertidal zone. This approach ensures that intertidal receptors and potential interactions between marine and terrestrial activities are appropriately assessed.

### 1.2.2 English Onshore Scheme (EOS)

1.2.2.1 The EOS lies within the administrative areas of Tendring District Council and Essex County Council. The settlements of Little Bromley, Horsleycross, Wix, Great Oakley, Little Oakley and Dovercourt fall wholly or partially within the EOS Scoping Boundary. As part of the current design principles, no permanent infrastructure is proposed to be located within or beneath occupied residential properties, commercial premises or other buildings. The design envelope will continue to be refined to avoid sensitive receptors where reasonably practicable, with the final alignment and siting to be confirmed through the EIA and DCO process.

1.2.2.2 The EOS includes the UK Landfall (to MLWS), onshore HVDC and HVAC cables, the Converter Station, any permanent access requirements, landscaping and biodiversity areas, as well as temporary working areas required for construction. Further details are provided in Volume 01, Chapter 02: UK Project Description and relevant topic chapters of this Scoping Report.

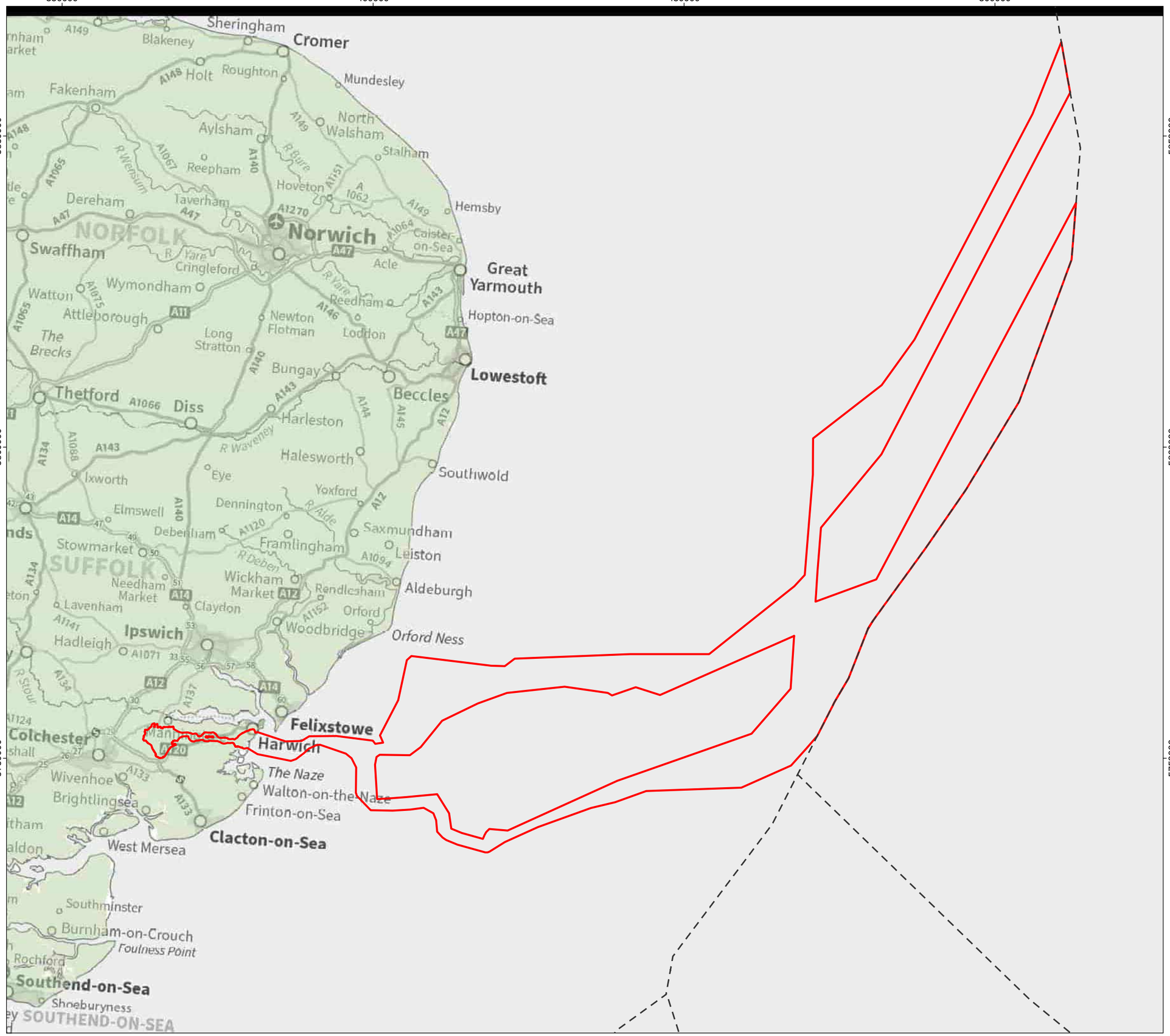



Figure Reference: Tarchon_Scoping_IN_Fig1-3_TheUKSchemeRLB_v3

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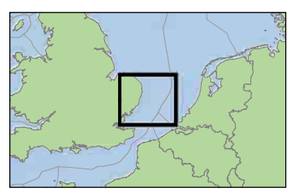
# Tarchon Interconnector Project

Scoping Report

## UK Scheme Scoping Boundary

Legend

- UK Scheme Scoping Boundary
- Exclusive Economic Zones (EEZ) Boundaries



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

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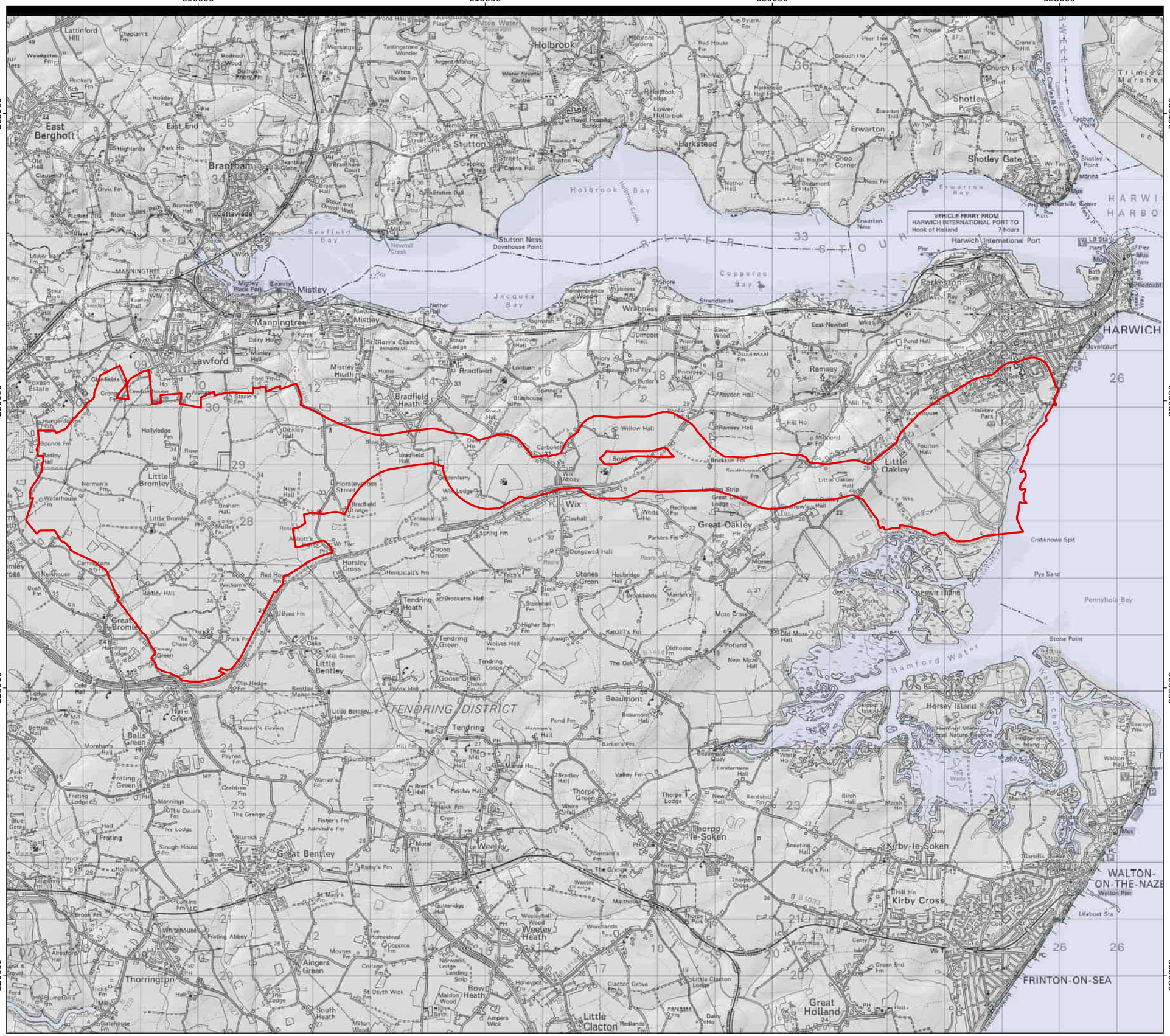
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Figure 1-3

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# TARCHON

## Tarchon Interconnector Project
Scoping Report

## English Onshore Scheme (EOS) Scoping Boundary

**Legend**

English Onshore Scheme (EOS) Scoping Boundary

**Notes**

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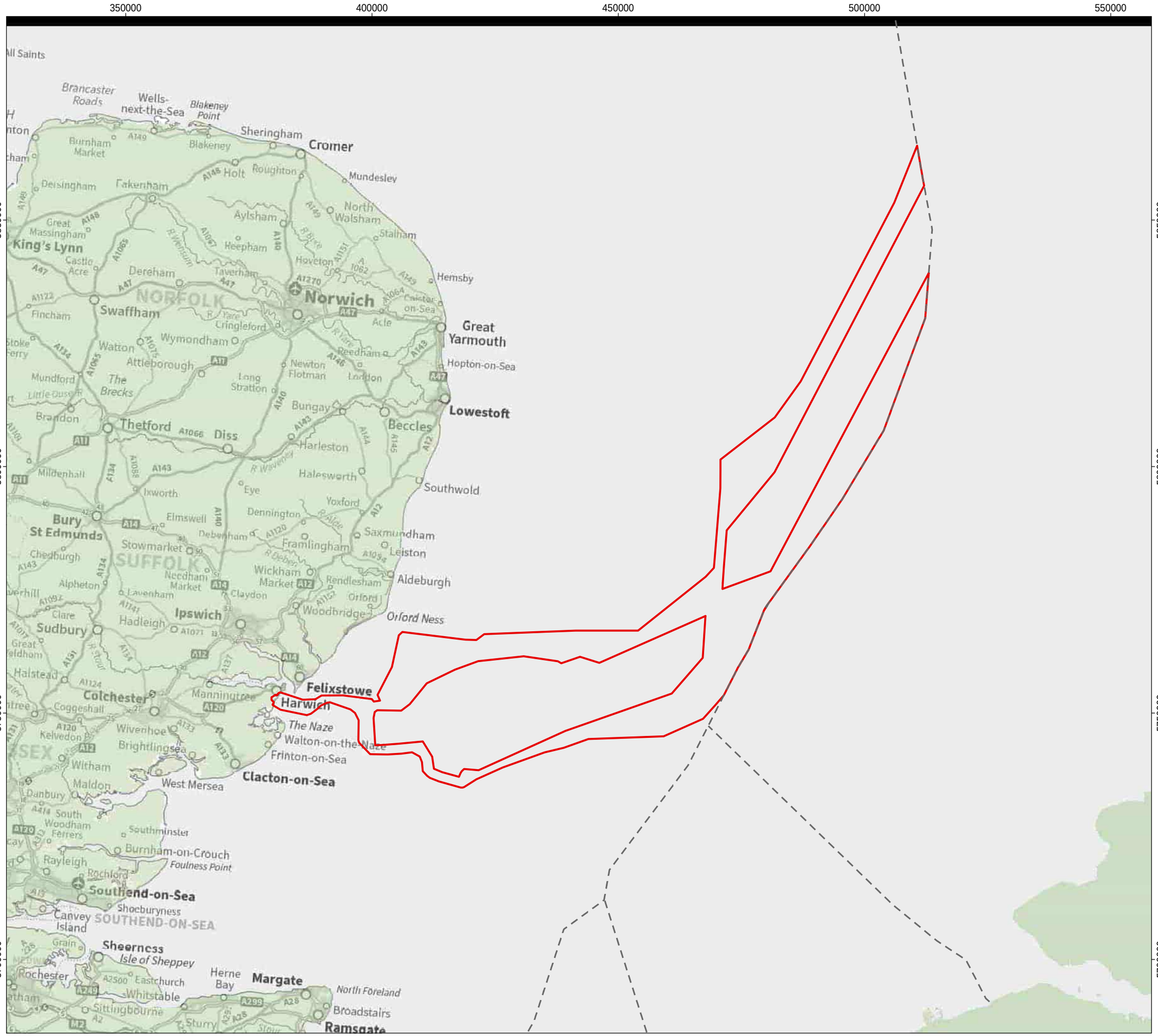
Figure 1-4

Figure Reference: Tarchon_Scoping_IN_Fig1-4_ScopingBoundary_v2

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### 1.2.3 UK Marine Scheme (UKMS)

1.2.3.1 The UKMS forms the UK offshore element of the interconnector route to the point where jurisdiction transfers at the UK–Netherlands median line. The UKMS is located in UK waters between MHWS in Essex, England and the boundary of the UK EEZ with the Netherlands. The UKMS Scoping Boundary is shown in Figure 1-5 and is further described in Volume 01, Chapter 02: UK Project Description.



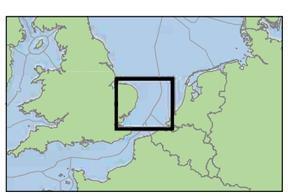

# TARCHON

## Tarchon Interconnector Project
Scoping Report

## UK Marine Scheme Scoping Boundary

**Legend**

- UK Marine Scheme (UKMS) Scoping Boundary
- Exclusive Economic Zones (EEZ) Boundaries



**Notes**

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System:
WGS 1984 UTM Zone 31N

0 — 20 — 40 km

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| Scale | Date | Drawn by | Checked by | Approved by |
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Figure 1-5

Figure Reference: Tarchon_Scoping_IN_Fig1-5_OffshoreScopingBoundary_v1

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## 1.3 The Applicant

1.3.1.1 The Applicant is a UK-registered company established in 2017, specialising in the development of HVDC interconnector projects. The Tarchon Project is the Applicant's flagship scheme, enabling direct power exchange between the UK and Germany to support reliable, secure, and lower-carbon electricity systems.

1.3.1.2 The Tarchon Project is being developed by Copenhagen Infrastructure Partners (CIP), a global leader in renewable energy investments committed to making significant and meaningful contributions to the green transition, with support from a broad array of experts in their fields.

1.3.1.3 Volta Partners has a minority ownership stake in Tarchon Energy Limited (the Applicant). The team has experience developing transmission lines and interconnectors, including the 1.4GW NeuConnect interconnector between Great Britain and Germany.

## 1.4 Purpose of the Scoping Report

1.4.1.1 On 7 April 2025, the Secretary of State (SoS) for Energy Security and Net Zero issued a direction under section 35 of the Planning Act 2008 (PA 2008) (HM Government, 2008), confirming that the EOS is to be treated as a development requiring development consent (Wagstaff, 2025). The Applicant therefore intends to submit an application for a Development Consent Order (DCO) under the PA 2008 for the construction, operation and maintenance, and decommissioning of the EOS. The DCO Application will also include the UKMS as 'associated development' under Section 115 of the PA 2008 (HM Government, 2008).

1.4.1.2 As a project requiring a DCO, the UK Scheme is subject to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations). Scoping is a key stage in the EIA process and provides a clear framework for identifying likely significant effects, determining the topics and impacts to be assessed. The Scoping Report therefore sets out the proposed scope, methods and assumptions for the EIA, including justification for topics proposed to be scoped in or out. This has been informed by the nature and location of the UK Scheme, the emerging design, a review of baseline environmental conditions, embedded mitigation and expert judgement regarding pathways of effect.

1.4.1.3 Under Regulation 10(1) of the EIA Regulations (HM Government, 2017), the Scoping Report provides:

- Detailed plans of the objectives and scope of the UK Scheme including construction, operation, maintenance and eventual decommissioning, to allow engagement with stakeholders on key topics to be addressed in the EIA process.
- Specification of baseline data collection methods and initial identification of key environmental features that may be effected, signposting to topic methodologies (see Section 1.5).

1.4.1.4 This Scoping Report supports the Applicant's formal request to the Planning Inspectorate (PINS), on behalf of the SoS, to provide a Scoping Opinion. Following receipt of a Scoping Opinion, the Applicant will prepare and consult on a Preliminary Environmental Information Report (PEIR) to present emerging assessment findings, potential findings and mitigation to enable meaningful pre-application consultation. A Consultation Report will subsequently summarise all consultation feedback and the Applicant's responses. This will accompany the final DCO Application.

1.4.1.5 Overarching legislation and planning policy relevant to the EIA are discussed in Volume 01, Chapter 05: Legislative and Planning Policy Context.

## 1.5 Structure of the Scoping Report

1.5.1.1 This Scoping Report has been prepared in accordance with the EIA Regulations (HM Government, 2017), having due regard to PINS Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements ('Advice Note Seven') (Planning Inspectorate, 2020). Table 1-1 summarises how the requirements of Advice Note Seven are addressed within this Scoping Report.

### Table 1-1: Compliance with PINS Advice Note Seven

| Information to be included within the Scoping Report | Location of information within this Scoping Report |
|---|---|
| **The Proposed Development** | |
| An explanation of the approach to addressing uncertainty which remains in relation to elements of the Proposed Development. | Information relating to elements of the UK Scheme are outlined in Volume 01, Chapter 02: UK Project Description. The approach to addressing the assessment is outlined in Volume 01, Chapter 06: EIA Approach and Methodology. Some topic specific methodologies for assessing significant effects may deviate slightly. Where this is the case, it will be outlined in the individual topic Chapters (Chapters 07 – 31). |
| Referenced plans presented at an appropriate scale to convey clearly the information and all known features associated with the Proposed Development. | The UK Scheme Scoping Boundary is shown on Figure 1-3.<br>The EOS Scoping Boundary is shown in Figure 1-4.<br>The UKMS Scoping Boundary is shown in Figure 1-5.<br>Topic specific plans are contained within the individual topic Chapters (Chapters 07 – 31). |
| **EIA Approach and Topic Areas** | |
| An outline of the reasonable alternatives considered and the reasons for selecting the preferred option. | This information is contained within Volume 01, Chapter 03: Approach to Alternatives. |

| Information to be included within the Scoping Report | Location of information within this Scoping Report |
|---|---|
| A summary table depicting each of the aspects and matters that are requested to be scoped out allowing for quick identification of issues. | Volume 05, Chapter 34: Summary and Conclusions contains an overview table of the scoped-in and scoped-out EIA topics. Additionally, each of the technical Chapters presents a summary table of matters proposed to be scoped in and out, in relation to each specific discipline. |
| 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 Volumes 02 to 04. |
| Results of desktop and baseline studies where available and where relevant to the decision to scope in or out aspects or matters. | Where available, information on the baseline characteristics is included in each of the technical Chapters in Volumes 02 to 04. |
| Aspects and matters to be scoped in, the report should include details of the methods to be used to assess impacts and to determine significance of effect e.g., criteria for determining sensitivity and magnitude. | Sources, impacts and receptors proposed to be 'scoped in' for the purpose of the EIA are identified within each of the technical Chapters in Volumes 02 to 04.<br>The proposed EIA approach and methods are described in Volume 01, Chapter 06: EIA Approach and Methodology.<br>Each of the technical Chapters in Volumes 02 to 04 describe how they will apply that methodology to their assessments or where it differs due to specific topic guidance set out in 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 Volumes 02 to 04. |
| **Information Sources** | |
| References to any guidance and best practice to be relied upon. | These are set out within each of the technical Chapters in Volumes 02 to 04. |
| Evidence of agreements reached with consultation bodies (for example the statutory nature conservation bodies or local authorities). | These are set out within each of the technical Chapters in Volumes 02 to 04. |
| An outline of the structure of the proposed ES. | This is set out in Volume 05, Chapter 33: Structure of the Environmental Statement |
| **Transboundary Effects** | |
| The Applicant may also wish to provide a completed transboundary screening matrix | Volume 06, Annex 32-1: Transboundary Screening Matrix presents the Applicant's Transboundary Screening Matrix, which follows the suggested |

| Information to be included within the Scoping Report | Location of information within this Scoping Report |
|---|---|
| dealing with the potential effects of the proposed development on other European Economic Area ('EEA') states | format provided in Nationally Significant Infrastructure Projects: Advice on Transboundary Impacts and Process (Planning Inspectorate, 2024). |

1.5.1.2 This Scoping Report is split into four volumes that group topic Chapters. The structure of this report and the corresponding Chapter authors are outlined in Table 1-2.

1.5.1.3 It should be noted that a Habitats Regulations Assessment (HRA) Screening will not be undertaken at this Scoping stage of the EIA. Instead, this will be undertaken at a later date, allowing the HRA Screening to benefit from early feedback on the EIA.

**Table 1-2: Structure of Scoping Report**

| Volume | Chapter | Author |
|---|---|---|
| Volume 01: Introductory Chapters | Chapter 01: Introduction | APEM Group |
| | Chapter 02: UK Project Description | APEM Group |
| | Chapter 03: Approach to Alternatives | APEM Group |
| | Chapter 04: Approach to Consultation | APEM Group |
| | Chapter 05: Legislative and Planning Policy Context | APEM Group |
| | Chapter 06: EIA Approach and Methodology | APEM Group |
| Volume 02: Onshore Chapters | Chapter 07: Ground Conditions and Contamination | Geosyntec Consultants, Inc |
| | Chapter 08: Water Environment | APEM Group |
| | Chapter 09: Land Use, Soils and Agriculture | Geosyntec Consultants, Inc |
| | Chapter 10: Onshore Biodiversity | APEM Group |
| | Chapter 11: Onshore Archaeology and Cultural Heritage | Wessex Archaeology Ltd |
| | Chapter 12: Traffic and Transport | Systra Ltd |
| Volume 03: Offshore Chapters | Chapter 13: Marine Physical Environment | APEM Group |
| | Chapter 14: Benthic and Intertidal Ecology | APEM Group |
| | Chapter 15: Fish and Shellfish Ecology | APEM Group |
| | Chapter 16: Marine Mammal Ecology | APEM Group |
| | Chapter 17: Commercial Fisheries | APEM Group |
| | Chapter 18: Shipping and Navigation | Anatec Limited |
| | Chapter 19: Offshore Archaeology and Cultural Heritage | Maritime Archaeology Trust |
| | Chapter 20: Offshore Infrastructure and Other Sea Users | APEM Group |
| Volume 04: Project Wide Aspects | Chapter 21: Landscape and Visual Impact Assessment | SLR Consulting Ltd |
| | Chapter 22: Noise and Vibration | Trium |

| Volume | Chapter | Author |
|---|---|---|
| | Chapter 23: Ornithology | APEM Group |
| | Chapter 24: Socio-Economics and Land Use | Quod Limited |
| | Chapter 25: Health and Wellbeing | Quod Limited |
| | Chapter 26: Materials and Waste | APEM Group |
| | Chapter 27: Tourism and Recreation | Quod Limited |
| | Chapter 28: Air Quality | Air Quality Consultants |
| | Chapter 29: Carbon and Climate Change | APEM Group |
| | Chapter 30: Risk of Major Accidents and Disasters | APEM Group |
| | Chapter 31: Other Environmental Topics | APEM Group |
| Volume 05: Summary Chapters | Chapter 32: Approach to Cumulative Effects | APEM Group |
| | Chapter 33: Structure of the Environmental Statement | APEM Group |
| | Chapter 34: Summary and Conclusions | APEM Group |
| Volume 06: Annexes | Annex 10-1: Essex Field Club Data Search Report | APEM Group |
| | Annex 11-1: Gazetteer of Known Designated and Non-designated Assets | Wessex Archaeology Ltd |
| | Annex 22-2: Indicative Receptor Identification | APEM Group |
| | Annex 22-2: Underwater Sound Assessment Methodology | APEM Group |
| | Annex 32-1: Transboundary Screening Matrix | APEM Group |

## 1.6 The ISEP Quality Mark

1.6.1.1 Regulation 14 (4) of the EIA Regulations (HM Government, 2017) requires that applicants ensure that the ES is prepared by competent experts. Each statement must be accompanied by a declaration from the applicant explaining the experts' relevant qualification or expertise.

1.6.1.2 The EIA for the Scheme will be prepared by the APEM Group. APEM Group is an Institute of Sustainability and Environmental Professionals (ISEP) Registered Impact Assessor and holds the ISEP EIA Quality

Mark (formerly IEMA). This is in recognition the quality of its EIA outputs and the ongoing professional development of its environmental consultants.

1.6.1.3 A Statement of Competence will be included within the ES outlining the relevant expertise or qualifications of the experts who prepared the ES.

## 1.7 References

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 01, Chapter 02: UK Project Description

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00003 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| Role | Name |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| CBP | Cable Burial Plan |
| CBRA | Cable Burial Risk Assessment |
| CBS | Cement Bound Sand |
| CEMP | Construction Environmental Management Plan |
| CPT | Cone Penetration Test |
| DCO | Development Consent Order |
| DEMP | Decommissioning Environmental Management Plan |
| DESNZ | Department of Energy Security and Net Zero |
| DNO | Distributed Network Operator |
| EACN | East Anglia Connection Node |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| FE | Flow Excavator |
| ha | Hectare |
| HDD | Horizontal Directional Drilling |
| HDPE | High-Density Polyethylene |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| ICPC | International Cable Protection Committee |
| km | Kilometre |
| LGV | Light Goods Vehicle |
| m | Metre |
| $m^2$ | Metre Squared |
| MBES | Multi-Beam Echo Sounder |
| MDS | Maximum Design Scenario |
| MHWS | Mean High Water Springs |
| MI | Mass Impregnated |
| MLWS | Mean Low Water Springs |
| MW | Megawatt |
| NETS | National Energy Transmission Systems |
| nm | Nautical Miles |
| NMRL | Non-Mobile Reference Level |
| NNR | National Nature Reserve |
| NPS | National Policy Statement |
| NSIP | Nationally Significant Infrastructure Project |
| O&M | Operations and Maintenance |
| OEMP | Operations Environmental Management Plan |
| OOS | Out of Service |

| Acronym | Definition |
|---|---|
| PE | Polyethylene |
| PEIR | Preliminary Environmental Information Report |
| PINS | Planning Inspectorate |
| PLGR | Pre-Lay Grapnel Run |
| ROV | Remote Operated Vehicle |
| SAC | Special Area of Conservation |
| SBP | Sub-Bottom Profiler |
| SLB | Simultaneous Lay Burial |
| SPA | Special Protection Area |
| SoS | Secretary of State |
| SSS | Side Scan Sonar |
| TJB | Transition Joint Bay |
| TSHD | Trailing Suction Hopper Dredger |
| UK | United Kingdom |
| UXO | Unexploded Ordnance |
| XPLE | Cross Linked Polyethylene |

# 2. UK Project Description

## 2.1 Introduction

2.1.1.1 The Tarchon Interconnector Project (the 'Tarchon Project') comprises all proposed infrastructure between the grid connection points to the National Electricity Transmission Systems (NETS) in England and Germany (see Figure 2-1). While the wider Tarchon Project is outlined in Volume 01, Chapter 01: Introduction, this Project Description focuses on the elements of the Tarchon Project within the UK only, hereafter referred to as the "UK Scheme". The UK Scheme comprises the English Onshore Scheme (EOS) and the UK Marine Scheme (UKMS):

- **English Onshore Scheme (EOS)** - all proposed Tarchon Project infrastructure between the NETS connection point and Mean Low Water Springs (MLWS) in Tendring District, England. This covers the UK Landfall elements above MLWS (such as the onshore entry/exit point for trenchless cable installation at the UK Landfall, and the Transition Joint Bay), onshore High Voltage Direct Current (HVDC) and High Voltage Alternating Current (HVAC) transmission cables, fibre optic cable, the Converter Station, any permanent access road(s), landscaping and areas to provide biodiversity mitigation, compensation, offsetting and net gain, as well as all required temporary working areas; and
- **The UK Marine Scheme (UKMS)** - all proposed Tarchon Project infrastructure within UK waters, including UK territorial waters (within 12 Nautical Miles (nm) from shore) and the UK Exclusive Economic Zone (EEZ) (12 to 200 nm from shore). This includes offshore HVDC transmission cables, the associated fibre optic cable, and the elements of the UK Landfall that will be present below MHWS (for example, the offshore entry/exit point for trenchless cable installation at the UK Landfall). The UKMS extends from MHWS to the UK EEZ boundary.

2.1.1.2 The UK Scheme Project Description is sufficiently detailed to inform the scope and approach to the Environmental Impact Assessment (EIA).

2.1.1.3 The UK Scheme Scoping Boundary represents the anticipated maximum extent of land and sea required to accommodate all potential development options for the final UK Scheme design. The maximum onshore area is defined by the EOS Scoping Boundary (Figure 2-2) and the maximum offshore area is defined by the UKMS Scoping Boundary (Figure 2-3).

2.1.1.4 It is important to note that the Scoping boundaries are intentionally broad to provide design flexibility at this early stage. They reflect current working assumptions for the preparation of the Scoping Report and will be refined as design work progresses and further information becomes available. The final Order Limits for the UK Scheme will be refined as part of the EIA process, consultation dialogue, and presented in the Environmental Statement (ES) and Development Consent Order (DCO) Application.

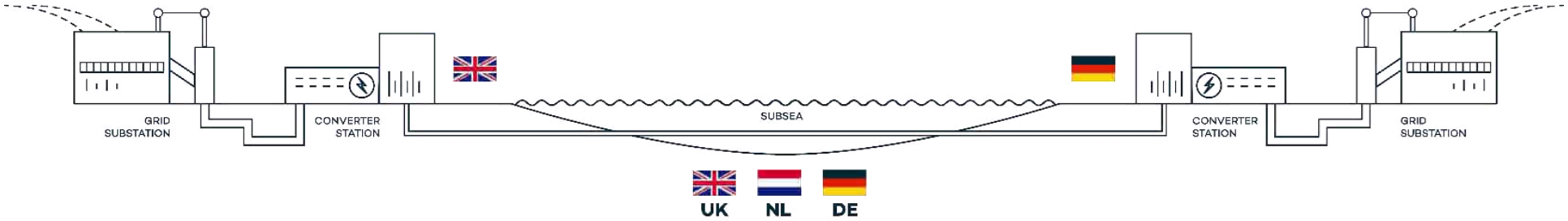



Figure 2-1: Components of the Tarchon Project

610000 615000 620000 625000

235000 230000 225000 220000

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# Tarchon Interconnector Project

Scoping Report

## English Onshore Scheme Scoping Boundary

Legend

English Onshore Scheme Scoping Boundary




Notes

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Coordinate System: British National Grid

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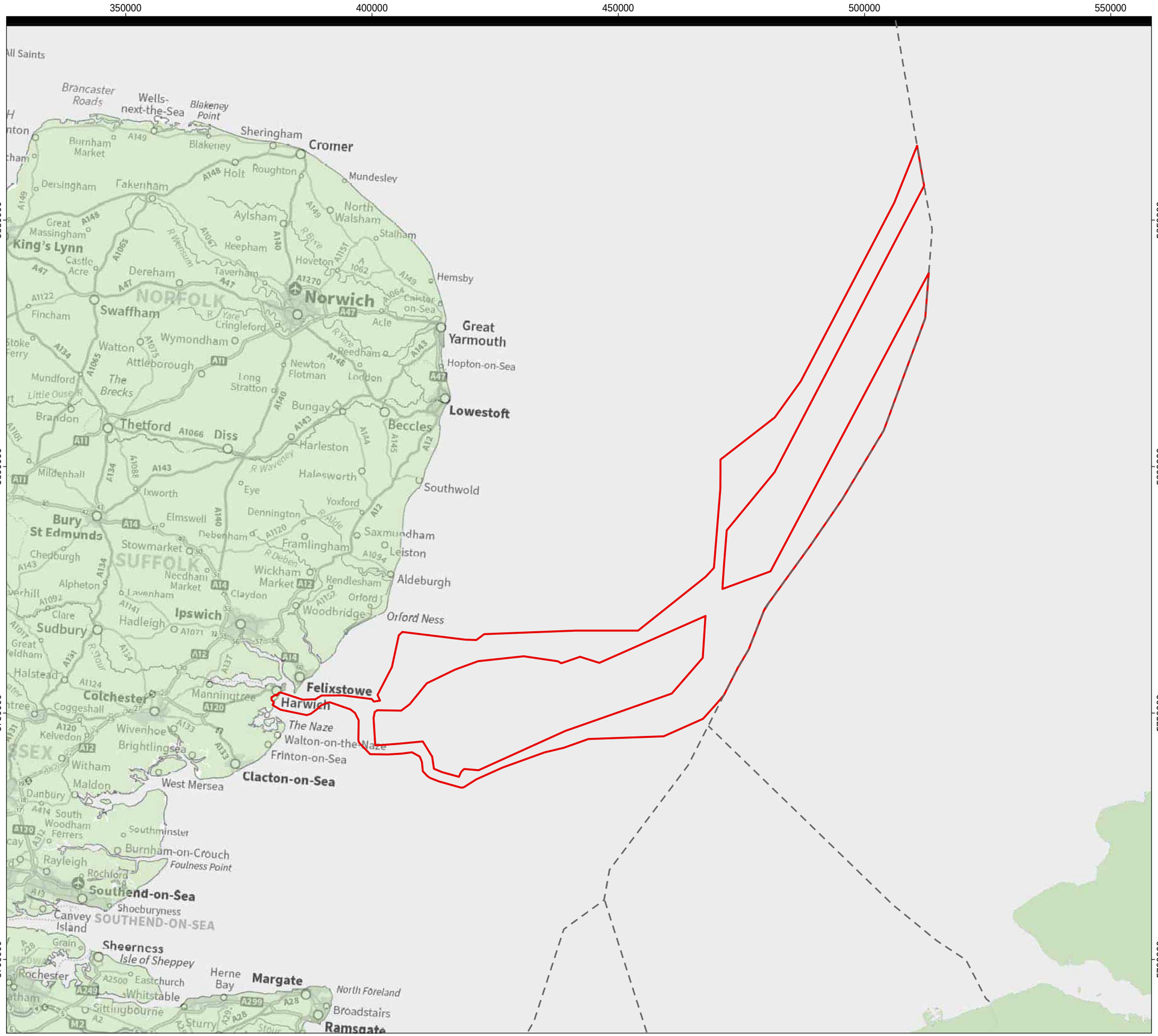
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Figure 2-2

Figure Reference: Tarchon_Scoping_TS_Fig2-2_ScopingBoundary_v1

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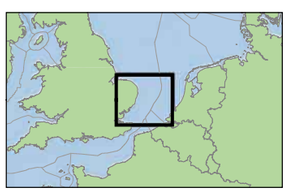

# TARCHON

## Tarchon Interconnector Project
Scoping Report

## UK Marine Scheme Scoping Boundary

**Legend**

- UK Marine Scheme Scoping Boundary
- Exclusive Economic Zones (EEZ) Boundaries



**Notes**

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

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| Scale | Date | Drawn by | Checked by | Approved by |
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Figure 2-3

Figure Reference: Tarchon_Scoping_TS_Fig2-3_OffshoreScopingBoundary_v1

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## 2.2 Design Envelope Approach

2.2.1.1 The Design Envelope, known widely in planning terms as the 'Rochdale Envelope', defines the maximum parameters, or Maximum Design Scenario' (MDS), that will be used to assess environmental and community impacts within the EIA. These parameters form the basis on which consent for the UK Scheme will be sought. The final detailed design may vary within this agreed envelope without compromising the validity of the EIA, meaning the built UK Scheme will not exceed the environmental and community impacts assessed in the DCO Application.

2.2.1.2 Using a Design Envelope (or MDS) allows the EIA to provide a robust and meaningful assessment while retaining reasonable flexibility for future design decisions. This approach is supported by the Overarching National Policy Statement (NPS) for Energy (NPS EN-1) (DESNZ, 2025), the NPS for renewable energy infrastructure (EN-3) (DESNZ, 2025) and the NPS for Electricity Networks Infrastructure (NPS EN-5) (DESNZ, 2025), and aligns with the Planning Inspectorate's (PINS) Advice Note Nine: Rochdale Envelope (Planning Inspectorate (PINS), 2018) which states that: "*The Rochdale Envelope assessment approach is an acknowledged way of assessing a Proposed Development comprising EIA development where uncertainty exists and necessary flexibility is sought.*" This approach is widely used across DCO applications, including interconnector projects.

2.2.1.3 This Chapter sets out the Design Envelope (or MDS) for the UK Scheme.

## 2.3 Overview of the UK Scheme

2.3.1.1 The UK Scheme comprises the UKMS and EOS Scoping boundaries and can be broadly divided into the components summarised in Table 2-1 below. It should be noted that all design information presented in this Chapter is indicative and subject to change.

**Table 2-1: Key Components of the UK Scheme**

| Component | Description |
|---|---|
| **Offshore cables (HVDC and Fibre Optic)** (UKMS) | The UKMS will have one bundle of up to two HVDC cables in two circuits, plus one fibre optic cable, running from the Transition Joint Bay (TJB) at the UK Landfall to the border between the UK and Netherlands waters. The cable route will be designed to avoid major seabed obstacles where practical and minimise electrical losses. Cable installation will typically occur in section of 100 - 200 km (depending on cable lay vessel capacity), reducing to 30 km in shallower nearshore areas approaching the UK Landfall. |
| **Cable protection** (UKMS) | The UKMS is targeting 100% burial except at cable crossings or where seabed geology prevents sufficient burial. In such locations external cable protection (e.g. rock berms, concrete mattress, or similar) will be used. |
| **Cable crossings** (UKMS) | Where the cable route intersects existing seabed infrastructure, the UKMS cable bundle will cross the asset. These crossings are typically at an angle as close to 90 degrees as possible, to |

| Component | Description |
|---|---|
| | minimise crossing length, interaction and interference with existing assets. Existing infrastructure will be protected (e.g. by concrete mattress or similar), and the UKMS cable will be protected (e.g. by rock berm or similar). The number of crossings will be confirmed in the Preliminary Environmental Information Report (PEIR) and later refined if required. |
| **Landfall** (UKMS and EOS) | The UK Landfall is the interface between the UKMS and the EOS. At the UK Landfall, the Subsea HVDC Cables will connect to the underground onshore HVDC cables via a buried TJB (typical dimensions for this TJB would be up to 40 m long, 10 m wide, 4 m deep), with a 2 x 2 m ground level access manhole. Cable landfall will be made using a trenchless crossing technique (e.g. Horizontal Directional Drilling (HDD) or micro tunnelling, and potentially a degree of open trenching where necessary). Trenchless crossings/installation is prioritised to reduce impacts on sensitive ecological sites and technical features at the coastline. |
| **Transition Joint Bays (TJBs)** (EOS) | TJBs are sealed, typically buried chambers located landwards of Mean High-Water Springs (MHWS), where offshore and onshore cables are jointed at the UK Landfall. |
| **Joint Bays** (EOS) | Joint bays are buried concrete chambers positioned at the interfaces between EOS cable sections. Spacing depends on cable drum length (expected to be between 800 m and 1,500 m). |
| **Link Boxes** (EOS) | Link boxes are underground inspection pits, approximately 2 m by 2 m and less than 2 m deep, typically installed at each cable joint to enable inspection and maintenance during operation. |
| **Onshore Cables (HVDC and Fibre Optic)** (EOS) | Up to two HVDC cables and one fibre optic cable bundled together and installed in a single trench connecting the Converter Station to the UK Landfall. |
| **Converter Station** (EOS) | The Converter Station houses specialist equipment to convert HVDC to HVAC (and vice versa) in a series of buildings. The total required footprint for the Converter Station buildings will be up to 7.50 ha, with a building height of up to 26 m, and lightning masts up to 30m in height. |
| **Onshore Cables (HVAC and Fibre Optic)** (EOS) | Up to six HVAC cables in two circuits, plus up to two fibre optic cables bundled and installed in two trenches (one in each) linking the Converter Station to the Grid Connection Point. |
| **Grid Connection Point** | The Tarchon project's UK Grid Connection Point is National Grid's proposed East Anglia Connection Node (EACN) 400 kilovolt (kV) substation. This infrastructure does not form part of the Tarchon project but is a key factor in informing its design and location. Obtaining consent for, and the construction of the EACN is the responsibility of National Grid and forms part of its Norwich to Tilbury Project. |

### 2.3.2 Transmission Technology

2.3.2.1 The transmission technology to be used for the UKMS is HVDC. HVDC transmission is used for long distance power transmission as it incurs lower electrical losses over distance compared to HVAC transmission. A fibre optic cable will be installed within the overall cable bundle to provide real time monitoring, control and management of the interconnector system.

2.3.2.2 The EOS will use a combination of HVDC and HVAC transmission technology. The onshore HVDC cable route will be up to 20 km long. HVDC cables will be installed between the UK Landfall and Converter Station to minimise electrical losses and number of cables required. At the Converter Station, HVDC will be converted to HVAC for onward transmission to the UK national grid (via the EACN grid connection point) (which uses AC transmission technology) - and vice versa for power flows from the UK to Germany. The onshore HVAC cable route will be up to 5 km long. HVAC cable length will be kept to a minimum where practicable to minimise voltage drop and electrical losses . A fibre optic cable will be included alongside both HVDC and HVAC cables to provide a link for monitoring and control of the interconnector system.

### 2.3.3 Proposed Development Location

2.3.3.1 The UKMS extends from MHWS in Essex, England to the boundary of the UK EEZ with the Netherlands. Two potential cable corridors into Netherlands waters are currently being considered (only one is required), with the final selection depending on ongoing discussions with UK consultees, stakeholders and Netherlands regulators. The total length of the UKMS will be confirmed following further refinement of the offshore route; current estimates indicate a maximum length of approximately 280km (up to 35 km from MHWS to UK territorial waters, and up to 245 km from UK territorial waters to the UK-Netherlands EEZ).

2.3.3.2 The EOS is located within the administrative areas of Tendring District Council and Essex County Council. It extends from the EACN Grid Connection Point - situated north of the Little Bromley Road and west of the Grange Road – to the proposed UK Landfall location on the Essex coast south of Harwich and north of Hamford Water.

2.3.3.3 The final location of the Converter Station has not yet been determined; however, it will be sited within 5km of the EACN in accordance with National Grid's Horlock Rules for siting electrical infrastructure to minimise voltage drop and electrical losses. The EOS Scoping Boundary (Figure 2-2) reflects the current stage of site selection for both the Converter Station and the UK Landfall, providing a wide corridor for cable routing options. As the UK Scheme progresses the boundary will be refined in line with national policy to reflect landowner and stakeholder feedback, survey results, environmental assessments, proposed mitigation and ongoing design work.

2.3.3.4 Further detail on the approach to the site selection process, alternatives considered and UK Scheme justification is provided in Volume 01, Chapter 03 (Approach to Alternatives).

## 2.4 Maximum Design Scenarios (MDS)

2.4.1.1 The sections below provide the MDS for each of the key components of the UK Scheme as listed in Table 2-1. All components listed within this Section (2.4) are indicative.

### 2.4.2 Offshore Cables (HVDC & Fibre Optic)

2.4.2.1 The MDS for the offshore HVDC cables is outlined in Table 2-2.

**Table 2-2: Maximum Design Scenario: Offshore Cables (HVDC)**

| Parameters | Maximum Design Scenario |
|---|---|
| Maximum number of HVDC cables | 2 |
| Maximum number of fibre optic cables | 1 |
| Number of cable bundles | 1 bundle (two HVDC cables bundled together, with the fibre optic cable laid between them). |
| Maximum number of cable circuits | 2 |
| Cable Voltage (kV) | 525 |
| Transmission Capacity (GW) | Up to 1.8GW at the UK receiving end |
| Maximum number of fibre optic cable 'repeaters' | To be confirmed at the PEIR or ES stage. |
| Maximum Length of Cable Corridor (km) | 280 |
| Maximum Length of Cable (km) (from MHWS to UK territorial waters) | 35 |
| Maximum Length of Cable (km) (from UK territorial waters to UK EEZ) | 245 |
| Maximum Trench Width (m) | Up to 10 m. Potential variations (e.g. in sandwave areas) will be identified during PEIR or ES stage. |
| Maximum width of seabed disturbance from installation tool (m) | Dependant on the installation tool, final values to be confirmed in the PEIR and ES following completion of the geophysical and geotechnical surveys. For initial planning purposes, indicative impact widths for three potential installation tools are provided below:<br>• Vertical injector: approximately 2 m;<br>• Hydroplow or T1200/T1500 jetting: approximately 6 m; and<br>• Trailing Suction Hopper Dredgers (TSHD): up to 60 m (0 to 8 m dredge layer). |
| Maximum cable installation target burial depth (m) | Final value to be confirmed in the PEIR and ES following completion of the geophysical and geotechnical surveys. For planning purposes, indicative burial depths for two example scenarios are provided below: |

| Parameters | Maximum Design Scenario |
|---|---|
| | • For standard burial, up to 3 m depth below non-mobile reference level (NMRL) will be required; and<br>• In special case such as installing near/within deep water shipping channels, the cable will be buried much deeper at up to 24 m below NMRL. |
| Installation methodology | The installation methodologies will depend on ground conditions and cable burial assessments. Methods will be confirmed in the PEIR and ES following completion of the geophysical and geotechnical surveys, additionally, the final installation method selection will be defined by the chosen contractor and the availability of vessel type and burial tools. Based on current assumptions, the following approaches are anticipated:<br>• Nearshore (<15 m water depth): deep burial and shallow water installation methodologies.<br>• Offshore: Simultaneous Lay Burial (SLB) or Pre-trenching and Post Lay Burial (PLB). Methods will depend on factors such as soil conditions, cable integrity, burial assessments etc. |

2.4.2.2 The subsea cable bundle will consist of up to two HVDC cables and one fibre optic cable. Each HDVC cable will contain a single conductor core made of aluminium or copper with cross linked polyethylene (XPLE) or mass impregnated (MI) insulation. The cables will be protected by a lead alloy sheath, a polyethylene (PE) inner sheath, steel armour, PE or galvanised steel wire and coated in corrosion protection bitumen and PE yarn. An indicative cross section of a HVDC subsea cable and bundled cable configuration is provided in Figure 2-4.

2.4.2.3 The cable bundle will be installed within a single trench or surface laid (in case of post lay burial) where burial is not achievable due to surrounding conditions (in such a circumstance, some form of cable protection/armouring such as mattressing or rock berms would be utilised). The smaller fibre-optic cable will lay between the two HVDC cables for monitoring and control purposes.

2.4.2.4 The cable bundle will typically be buried up to 3 m below the seabed to ensure long-term cable protection, subject to geological conditions. In areas with mobiles sandwaves, offshore surveys will be undertaken to find the non-mobile reference level (NMRL), and burial depths targeted up to 3 m below this level. In specific locations - such as deep water dredged shipping channels - the cable may be buried deeper, potentially up to 24 m below LAT.

2.4.2.5 The UKMS is targeting 100% burial of cables, however until further geophysical and geotechnical surveys are undertaken this cannot be validated. Based on current knowledge of the site 80% of the cable route is initially anticipated to be buried and the remaining 20% be subject to rock placement or other mitigations – as more data is collected resulting from offshore surveys it is anticipated that this number can be refined. As the design progresses, burial depths and cable protection requirements will be refined further, as a result of information stemming from survey results and Cable Burial Risk Assessments.

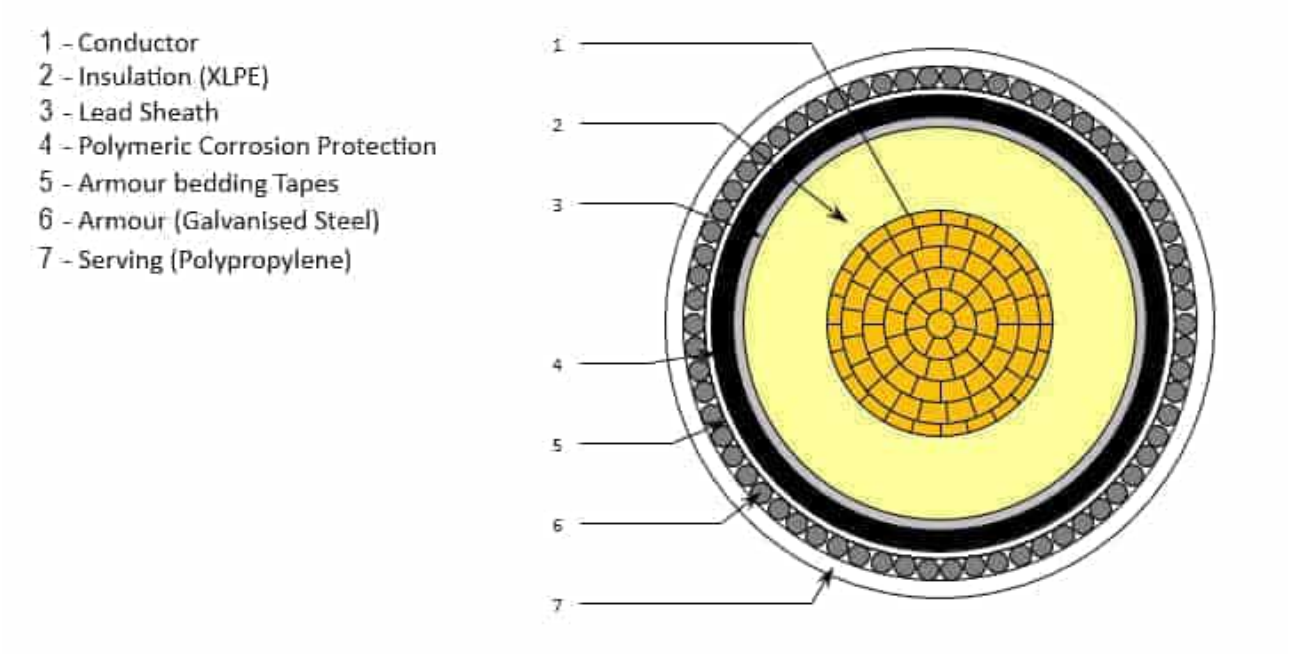



**Figure 2-4: Indicative HVDC subsea cable cross-section**

2.4.2.6 Installation of a subsea HVDC cable system typically includes the following activities:

- Pre-Installation Activities including:
  - Pre-cable-lay surveys;
  - Cable route clearance including Pre Lay Grapnel Run (PLGR);
  - Pre-sweeping of sandwaves (if required); and
  - Unexploded Ordnance (UXO) clearance (if required).
- Installation of the subsea cable;
- Installation of cable crossings over existing infrastructure; and
- Placement of external cable protection where required such as rock berms over cable crossings.

2.4.2.7 Further detail on seabed preparation methodology and associated design parameters for cable installation will be presented in the PEIR or ES as the UKMS develops. Anticipated seabed preparation and cable installation methodologies are briefly described below.

### Pre-Construction

#### *UKMS Surveys:*

2.4.2.8 Prior to cable installation, a full suite of geophysical and geotechnical surveys will be undertaken to confirm seabed conditions, bathymetry, benthic habitats, archaeological features and presence of unexploded ordnance (UXO). Survey methods will include but are not limited to the following:

- Multi-Beam Echo Sounder (MBES);
- Side-Scan Sonar (SSS);
- Sub-Bottom Profiler (SBP);
- Magnetometer;
- Surface grab samples;
- Cone Penetration Testing (CPT); and
- Vibrocore samples

2.4.2.9 In addition, visual inspections may be undertaken using a Remotely Operated Vehicle (ROV) or other suitable equipment to ground truth features that may be sensitive to installation or hinder correct installation. Geotechnical surveys will involve removal of a limited volume of seabed material and are subject to survey permits, which are being progressed separately.

#### *Route Clearance/Preparation:*

2.4.2.10 Route preparation is expected to involve clearing boulders, dropped object debris and other obstacles such as Out-Of-Service (OOS) cables. This may include the use of ploughs, ROVs and grabs.

2.4.2.11 A full route PLGR clearance will be undertaken to remove surface and shallow buried debris that could impede installation or pose risks to the installed cable system. Grapnel tools and penetration depths will vary depending on seabed conditions.

2.4.2.12 The International Cable Protection Committee (ICPC) recommends undertaking PLGR operations as close as possible to the time of cable installation to reduce the risk of new obstructions arising.

2.4.2.13 Any route preparation activities near live third-party assets will be subject to risk assessment and prior agreement with asset owners.

2.4.2.14 At the conclusion of these preparation activities, the route shall be as far as reasonably practicable:

- Clear of OOS cables; and
- Clear of chains, boulders, wires, ropes, warps, abandoned fishing gear and other seabed debris.

#### *Pre-sweeping:*

2.4.2.15 Pre-sweeping may be required to reach the NMRL in areas with large sandwaves. Tools may include dredgers, ploughs or flow excavators (FE). THSDs are likely to

be used along the majority of the corridor, with FE deployed depending on seabed characteristics and water depths. UXO clearance will be licensed separately and will be conducted prior to these pre-sweeping activities. A brief description of sweeping tools is provided below:

- FE uses high-volume, low-pressure water flow to fluidise and move sediment. Unlike mechanical dredging, it does not cut or dig but instead uses water jets to create a controlled flow that lifts and moves sediment away from the target area. It is especially effective in soft seabeds (sandy or silty) and reduces the risk of damaging sensitive infrastructure like cables or pipelines.
- TSHD is mostly used for dredging loose and soft sediments such as sand, gravel, silt, or clay. One or two suction tubes, equipped with a drag head are lowered onto the seabed and the drag head is trailed over the bottom. A pump system sucks up a mixture of sand or soil and water and discharges it into the 'hopper' or the hold of the vessel. As the TSHD completes each section of pre-sweeping, the vessel will move to an appropriate location and deposit the collected material by opening the vessel's bottom doors. The disposal location(s) will be determined and assessed in the PEIR or ES.

#### Construction

##### *Preferred Protection Method*

2.4.2.16 Burial through trenching is the preferred method of marine cable protection for the UKMS (as outlined in Volume 01, Chapter 03: Approach to Alternatives). Cables will be buried wherever practicable using appropriate techniques for local conditions. Final methods will be detailed and assessed in relation to various sensitivities within the PEIR or ES.

##### *Nearshore Installation*

2.4.2.17 In shallow nearshore waters, the cable bundle is expected to be installed in trenches using a Vertical Injector tool, hydroplow or similar.

- Vertical Injector: designed for simultaneous lay and burial of subsea cables in shallow waters. It uses pressurised water jets to fluidise sediment while the cable is laid through a duct in the Vertical Injector.
- Hydroplow: uses vessel pulling force and fluidisation of seabed materials via high pressure jets for the passage of the towed jet-assisted cable burial system, or tool. This tool is likely to enter into the seabed to create a trench and simultaneously guide the cable to the desired burial depth.

##### *Offshore Installation (beyond nearshore)*

2.4.2.18 Further offshore, installation techniques will depend on sediment type:

- Soft, silty or muddy sediments: jetting tools (e.g. T1200 or T1500 Trencher)
- Sandy sediments: plough-jet combination (e.g. Hydroplow).
- Sandwave areas: TSHD followed by a plough-jet combination (e.g. Hydroplow).

### 2.4.3 Cable Crossings and Protection

2.4.3.1 The cable route is expected to cross multiple existing subsea assets, such as subsea cables and pipelines. The MDS for cable crossings is outlined in Table 2-3.

**Table 2-3: Maximum Design Scenario: Cable crossings.**

| Parameters | Maximum Design Scenario |
|---|---|
| Number of cable crossings | To be confirmed at PEIR or ES once the cable route is confirmed and various crossings known. |
| Number of active power cables to be crossed | |
| Number of proposed power cables to be crossed | |
| Number of active telecoms cables to be crossed | |
| Number of decommissioned cables to be crossed | |
| Number of active oil and gas pipelines to be crossed | |

### Pre-Construction

2.4.3.2 Prior to installation A Cable Burial Plan (CBP) and Cable Burial Risk Assessment (CBRA) will be completed. These will identify areas where burial is not likely to be achievable, as well as crossing points of existing assets. Crossing agreements will be established with relevant third party infrastructure owners. Additionally, where the UKMS cables come within close proximity of other assets (i.e. cables or pipelines) without crossing these, a dialogue and commercial agreement will be established with the relevant asset owners.

### Construction

2.4.3.3 At each crossing, the existing asset will typically be protected by concrete mattresses (or similar) allowing the new cables to pass over it in accordance with good industry practice. The new cable will then be protected with rock berm (or similar). Rock berms (or similar) may also be required in locations where sufficient burial is not achievable (for example due to geological features).

2.4.3.4 For all protection works, details such as size, location, rock grade and volume of each protection measure will be provided to inform environmental assessments. Further details will be based on geophysical survey results and ongoing cable design studies to inform the PEIR and ES. Typical protection methods include:

- Concrete Mattresses: Frequently used to protect cables as part of infrastructure crossing constructions. The flexibility of the mattresses allows them to follow the contours of the seabed and any exposed subsea asset. Several types of mattresses are available for potential deployment in different environments, and appropriate types will be used for the local conditions.
- Rock Placement (designed berms): Installation of a pre-designed berm over the installed cables may be required to provide a stable protection structure. Rock placement for berm construction is likely to be undertaken either in the form of rock dumping, or targeted rock placement from a vessel (dependent on water

depths). Other methods may be selected to minimise environmental disturbance, such as side placement or open hopper placement.

- Rock Placement (remedial berms): Rock placement in the form of remedial berms may also be required in order to enhance the external cable protection for example in the unplanned event that insufficient burial depth is achieved. Rock placement will take place using the same methods specified above for ‘designed berms’.

### 2.4.4 UK Landfall and Associated Components

2.4.4.1 The UK Landfall is the interface between the EOS and the UKMS. The UK Landfall area is shown in Figure 2-5.

2.4.4.2 At the UK Landfall, the Offshore HVDC Cables will connect to the underground onshore HVDC cables via a buried TJB, with a ground level access manhole. The TJB will be set back from the coastline, beyond areas at risk of coastal erosion, to avoid future exposure of the cables.

618000 620000 622000 624000 626000 628000 630000

234000 232000 230000 228000 226000 224000

VEHICLE FERRY FROM HARWICH INTERNATIONAL PORT TO Hook of Holland 7 hours

RIVER STOUR

HARWICH HARBOUR

Shotley Gate
Shotley Point
Marina
Erwarton Bay
Erwarton Ness
Martello Tower
Harwich International Port
LB Sta
Piers
Ferry P
The Port of Felixstowe
Martello Tower Lookout Sta
Copperas Bay
Parkeston
Bath Side
Redoubt Fort
Landguard Fort
Landguard Point
HARWICH
Dovercourt
Upper Dovercourt
Strandlands
East Newhall
Stour Wood
Primrose Hill
Stourwood Fm
Primrose Hall
Ramsey
Pond Hall Fm
Home Fm
Roydon Hall
Poplar Hall
Ramsey Hall
Hill Ho
Mill Fm
Burntlouse Fm
South Hall
Holiday Park
Foulton Hall
Little Oakley
Little Oakley Hall
Landing Strip
Great Oakley Lodge
Great Oakley Hall
Great Oakley
Redhouse Fm
Sparrow's Fm
Holt Fm
Mosses Fm
Marden's Fm
Moze Cross
Old Moze Hall
Potland
New Moze Hall
Oldhouse Fm
Crabknowe Spit
Pye Sand
Pewit Island
Pennyhole Bay
Stone Point
Stone Marsh
Hamford Water
Walton Channel
Horsey Island
Skipper's Island
Hamford Water National Nature Reserve
Hedge-end Island
Sewage Wks
Walton Hall
Tower
THE NAZE
Beaumont Quay
White Ho
Landermere Hall

Figure Reference: Tarchon_Scoping_TS_Fig2-5_ScopingBoundaryLandfall_v2

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TARCHON

# Tarchon Interconnector Project

Scoping Report

## Scoping Boundaries (Landfall)

Legend

- English Onshore Scheme Scoping Boundary
- UK Marine Scheme Scoping Boundary




Notes

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Coordinate System: British National Grid

0 1 2 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:40,000 @A3 | 02/04/2026 | BPHB | RB | MB |

Riverview
A17 The Embankment Business Park
Heaton Mersey
Stockport
SK4 3GN
http://www.apemltd.com
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Sheet 1 of 1

Figure 2-5

2.4.4.3 The MDS for the UK Landfall and its associated components is outlined in Table 2-4.

**Table 2-4: Maximum Design Scenario: UK Landfall and Associated Components**

| Parameters | Maximum Design Scenario |
|---|---|
| Maximum number of Transition Joint Bays (TJBs) | 1 |
| Maximum number of trenchless installations | 3 |
| Maximum dimensions of TJBs (m) | Up to 40 m long, 10 m wide, 4 m deep. Above ground dimensions of a manhole cover 2 mx2 m |
| Temporary UK Landfall area (landwards of MHWS) ($m^2$) | 10,000 $m^2$ |
| Permanent UK Landfall area (landwards of MHWS) ($m^2$) | 2 m x 2 m cover |
| Installation methodology | Until the assessment is undertaken, the MDS in relation to environmental sensitivities is unknown, and therefore the UK Scheme will consider options such as:<br>• Trenchless techniques (e.g. HDD, pipe jacking, or similar) - pilot from the onshore to the offshore location. There will be installation of High-Density Polyethylene (HPDE) ducts. The cable will then be pulled through the duct by a winch.<br>• Open cut trenching for cable duct installation may be required. |

### Pre-Construction

2.4.4.4 Further pre-construction surveys will be undertaken including ground investigations and environmental constraints mapping to inform UK Landfall siting and detailed design including mitigation.

2.4.4.5 An outline Construction Environmental Management Plan (CEMP) will accompany the DCO application, which will describe the framework of mitigation measures identified in the ES to be followed and to be carried forward to a Detailed CEMP prior to construction. The aim of the CEMP is to reduce potential adverse impacts from:

- Use of land for temporary laydown areas, accommodation, etc.;
- Construction traffic (including parking and access requirements) and changes to access and temporary road or footpath closure (if required);
- Noise and vibration;
- Utilities diversion;
- Dust generation (air quality impacts);

- Soil removal; and
- Waste generation.

2.4.4.6 The Detailed CEMP will be produced by the appointed construction contractor and agreed with the local planning authorities following grant of the DCO and prior to the start of construction (for example, as part of a requirement attached to the DCO) and will identify the procedures to be adhered to and managed by the Principal Contractor throughout construction.

### Construction

2.4.4.7 The proposed UK Landfall will be installed using trenchless techniques (such as HDD, pipe jacking, or similar), or potentially open cut where necessary to cross the intertidal area. Preferentially a trenchless methodology would be chosen in order to minimise disruption and potential negative impacts to the designated ecological sites within the intertidal and nearshore adjacent to the UK Landfall area, such as the Hamford Water Special Protection Area (SPA), Special Area of Conservation (SAC), Ramsar site and National Nature Reserve (NNR). Cables will not be installed beneath residential properties (including gardens), commercial premises (excluding farmland) or other buildings.

2.4.4.8 It is currently expected that the techniques will involve installation of High-Density Polyethylene (HDPE) ducting through a trench (whether trenchless or open trench), through which the cable will be pulled; however, this is to be confirmed following technical studies.

2.4.4.9 Works at the proposed UK Landfall will be undertaken in two seasons (separate years). In the first season the cable ducts will be installed; in the second season the cables will be pulled through the ducts to the UK Landfall. Each of the two cables will be pulled through a separate duct, therefore multiple trenches (either via trenchless or open trench techniques) are required (see 2.4.32). Completion of season two works is dependent upon the availability of the offshore HVDC cables and therefore season two may not be the year immediately following season one. Where trenchless installation cannot be undertaken, such timescales may be shortened to a single season where open cut techniques are utilised and the cable laid shortly afterwards.

2.4.4.10 The first season of UK Landfall works will include:

- Site preparation and mobilisation of equipment;
- Installation of a minimum of two HDPE cable ducts (up to a maximum of three ducts) via either;
  - Trenchless technologies such as HDD, pipe jacking, or similar: This could involve the completion of up to three trenchless routes (one per cable plus a contingency in case of challenging ground conditions and the risk of a duct being damaged), installation of ducting, and hydrostatic testing of the installed ducts;

- Open cut trenched technology: This could involve the preparation of a trench using an excavator, installation of a loose gravel base, laying the cable and adding additional strike protection shielding, backfilling the trench and compacting this. As an alternative ducts could be installed in the open cut trench to enable a later installation of the UKMS cables – in case of the delay to this part.
- Demobilisation of equipment and temporary sealing and burial of the HDPE ducts after successfully instalment. The cables will be pulled through the HDPE ducts at a later stage; and

- Site reinstatement.

2.4.4.11 With trenchless technologies such as HDD, the first season works are anticipated to take between four and five months to complete, depending upon factors such as the length of the HDD bores to be achieved.

2.4.4.12 Works during the second season will include:

- Mobilisation;
- Site preparation including construction of the TJB and re-excavating the ends of the ducts;
- Installation of winches and cable-pull equipment;
- Cable pull in and joining at TJB;
- Testing;
- Demobilisation of plant, equipment and welfare facilities; and
- Site reinstatement.

2.4.4.13 The second season of works are anticipated to take up to four months to complete.

2.4.4.14 With an open cut trenched technology the majority of the works should be able to be undertaken in a single season. If there is a misalignment with cable installation from offshore to onshore, or for maintenance purposes, open cut technologies may also utilise the installation of a duct through which the cable is installed to avoid the need to excavate material in the future

2.4.4.15 Construction access to the proposed UK Landfall is likely to be via a temporary access track or haul road from the existing road network. As the location of the proposed UK Landfall is not known, the requirement for a permanent access will be determined at a later stage i.e. PEIR or ES.

2.4.4.16 Other than marker posts, there will be no visible above ground infrastructure between completion of season one work and commencement of season two works. Once the season two works (and hence all UK Landfall works) are completed, the only visible above ground aspect of the proposed UK Landfall will be a manhole cover over the TJB. This will have approximate dimensions of 2 m by 2 m and will be flush to, or slightly raised above, the land surface. A smaller inspection bay for the fibre optic transmission may also be required; this would result in an additional

manhole cover of approximately 1 m by 1 m which will be either be flush to or slightly raised above the land surface.

### 2.4.5 Onshore Cables (HVDC)

2.4.5.1 The MDS for the onshore HVDC cables is outlined in Table 2-5.

**Table 2-5: Maximum Design Scenario: Onshore Cables (HVDC).**

| Parameters | Maximum Design Scenario |
|---|---|
| Maximum number | 2 cables (plus 1 fibre optic cables) |
| Maximum number of trenches | 1 trench |
| Maximum corridor length (km) | 20 km |
| Maximum temporary corridor width (m) | 40 m |
| Maximum permanent corridor width (m) | 20 m |
| Maximum cable installation target burial depth (m) | 2.0 m (minimum 0.9m, target 1.2 m) |
| Minimum approximate cable burial depth (m) | 0.9 m |
| Cable section length | Minimum 800 m, Maximum 1500 m |
| Number of joint bays/link boxes | Up to 25 |
| Link box dimensions | Up to 2 m x 2 m |
| Installation methodology | Open cut trenches with cables either direct buried or ducted and back filled with cement bound sand (CBS). Where open cut trenching is not feasible (e.g. watercourse crossings) trenchless techniques such as HDD, pipe jacking, or similar will be used. |

2.4.5.2 The onshore HVDC cables will connect the proposed Converter Station to the UK Landfall. As the TJB will be above MHWS, the indicative onshore HVDC cable corridor does not extend into the intertidal. All HVDC cabling will be buried, no pylons (towers) or overhead lines will be constructed as part of the EOS. The onshore HVDC cables will not be located beneath residential properties (including gardens), commercial premises (excluding farmland) or other buildings. The area of the EOS Scoping Boundary (Figure 2-2) represents the area in which the HVDC cables will be routed.

2.4.5.3 Until the locations of the proposed Converter Station and proposed UK Landfall are confirmed, the onshore HVDC Cable Route cannot be defined; therefore, the EOS Scoping boundary (Figure 2-2) is considered the maximum extent of the area in which the proposed onshore HVDC cables could be laid.

#### Pre-Construction

2.4.5.4 Following the identification of the onshore HVDC cable corridor, pre-construction surveys will be undertaken across the entirety of the route; these will include ground investigations, drainage studies and environmental constraints. The purpose of these surveys is to enable pre- and post-construction detailed design and inform any necessary mitigation measures to ensure the EOS is delivered within the framework of the ES conclusions.

2.4.5.5 An outline CEMP will accompany the DCO application and will describe the framework of mitigation measures identified in the ES to be followed and to be carried forward to a detailed CEMP prior to construction (detail as per the UK Landfall section above).

#### Construction

2.4.5.6 Two 525 kV underground HVDC cables plus a fibre optic cable for performance monitoring will be installed within a single trench. The exact methods for cable installation will depend on the final cable route and constraints present. Both open cut and trenchless onshore cable installation works are anticipated to be used. Typically, cable installation will involve the following activities:

- **Open cut**: the cable trench is excavated by a mechanical excavator, then backfilled using a combination of excavated soils and Cement Bound Sand (CBS) and the land reinstated. Cable installation within the trench can be either:
  - direct lay, in which the cables are laid directly into the trench and secured with CBS. This is more commonly used in areas with low water tables; or
  - A ducted solution in which ducts are laid into the trench and secured with CBS, and the cables are pulled through later. This is more commonly used in areas with higher water tables;
- **Trenchless methods such as HDD or pipe jacking**: trenchless methods of cable installation which allow the cables to be installed beneath obstacles/constraints/sensitive receptors (e.g. watercourse crossings, railways, roads, sensitive habitats) without open cut excavation, thereby avoiding direct impacts. Methods include:

- HDD**:** involves the use of a drill to bore a route below the ground through which ducts will be pulled and cables installed. A HDD rig and associated equipment are set up at one side of the obstacle to be crossed (the 'entry' or 'rig' site). This typically includes electricity supply (portable generator), drill mud mixing unit, optional recycle unit, control unit and welfare facilities. Drilling utilises a drill bit, drill head and drilling fluid. Drilling fluid (typically an inert 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 reaming runs increasing the borehole size until the final required diameter that is achieved. The location and direction of drilling is monitored to ensure drilling follows the pre-planned path. Ducting is then pulled back through the drilled hole (from the pipe / exit site) towards the HDD rig and the cables pulled through the duct. Ducts can be capped to ensure no attenuation of water or sediment or prevent use by animals if left prior to cable pulling.
- Pipe Jacking: is a trenchless construction method whereby pipe sections are hydraulically pushed through the ground from a launch pit to a reception pit. The launch and reception pits are excavated prior to drilling commencing and their size and depth are dependent upon the required installation depth of the cable (deeper cables require deeper and larger pits). A hydraulic ram or jack and associated boring equipment would be located in the launch 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). The direction of the tunnel is determined by the set-up equipment in the launch pit and it is continuously surveyed until the reception pit is reached. The launch and reception pits may require sheet piling and further works to ensure a dry and stable working environment. The cables are installed within the pipes.

- **Cable jointing**: sections of cable are unwound from cable drums into the trenches (and/or pulled through ducts) with adjacent sections of cable jointed together at joint bays. Joint bays are buried concrete pads, and the exact size of which are subject to detailed design. The distance between each joint bay is dependent upon the length of cable per drum (anticipated to be between 800 m and 1,200 m). The exact number of joint bays will depend on the cable route and constraints present. These will be formed by building a concrete floor (or similar) in the base of the trenches approximately 12 m by 5 m by 1.5 m. Joint bays must be clean and dry so temporary covers will be erected at jointing locations. Dependent on the precise nature of engineering employed, joint bays could remain open for several weeks to allow for trench and joint bay excavation, cable pulling, jointing and reinstatement.
- **Link boxes**: to maintain access to the joints during the operational period for monitoring and maintenance, link boxes (underground inspection pits approximately 2.0 m by 2.0 m and up to 2.0 m deep) will be created at the location of each joint. Manhole covers above each link box (flush to or slightly raised above the land surface) with a footprint of approximately 2.0 m by 2.0 m, and an associated marker post will be the only permanent above ground infrastructure associated with the underground cabling. Where possible, link boxes will be installed at field boundaries or in non-agricultural land to minimise disruption to agricultural practices.

2.4.5.7 The installation of the proposed onshore HVDC cables will require a maximum working corridor width of 40 m to be established along the length of the cable route.

The working corridor will be demarcated by a post and rail fence (or similar) and will typically comprise:

- Storage areas for topsoil and subsoil stripped from the working width;
- Drainage measures;
- Temporary haul road for the movement of installation traffic with an anticipated maximum width of 9 m, with passing places;
- Cable installation trench up to 2 m deep and up to 1.5 m wide;
- Storage areas for excavated material; and
- Other mitigation measures as necessary.

### 2.4.6 Converter Station

2.4.6.1 The MDS for the converter station is outlined in Table 2-6.

**Table 2-6: Maximum Design Scenario: Converter Station.**

| Parameters | Maximum Design Scenario |
|---|---|
| Maximum temporary construction area (ha) | Up to 10 |
| Maximum permanent platform footprint (ha) | 7.50 |
| Maximum number of main buildings | 5 |
| Maximum height of main buildings (m) | Up to 26 |
| Maximum height of lightning mast (m) | Up to 30 |
| Converter station platform length (m) | Up to 300 |
| Maximum width of main buildings (m) | Up to 250 |

2.4.6.2 The proposed Converter Station is designed to convert electricity between HVDC, used for long-distance transmission between the UK and Germany, and HVAC which is used within the NETS of both countries and vice versa.

2.4.6.3 The proposed Converter Station will occupy a securely fenced compound with a footprint of approximately 300 m x 250 m (7.50ha). The final site area may extend beyond this to accommodate visual screening measures and earthworks.

2.4.6.4 The main infrastructure components of the Converter Station include:

- **Converter Buildings:** Two main Converter Buildings will house the power electronics required for AC/DC conversion. Each building will feature a steel structural frame and reach a maximum height of 26 m (measured from finished ground floor slab level). Internally, each building will include an AC Hall, Valve Hall, and DC Hall, along with the valve cooling system;
- **Gas insulated Substation (GIS) Building (optional):** A GIS substation building would provide a compact high-voltage substation in which major components - including circuit breakers, busbars, and disconnectors - are housed inside sealed metal enclosures filled with insulating gas. The alternative to a GIS substation building would be an open Air Insulated Substation (AIS) design with no enclosed buildings.

- **Control Building**: A two-storey structure will be approximately 13 m high. It will house control and protection plant rooms, HVAC systems, battery rooms, workshops, offices, meeting and mess rooms, and welfare facilities;
- **Spare Parts Building**: A single-storey, 15 m high steel-framed structure. It will include roller shutter doors and access ramps for plant and equipment handling;
- **Outdoor Equipment**: Similar to standard electrical substations, the outdoor equipment will be arranged for optimal connectivity and safe maintenance, this will include electrical transformers only in the case of a GIS substation design, or, all equipment (not contained in Converter Buildings and Control Buildings) in the case of an AIS converter station design. Lightning protection will be provided by masts up to 4 m taller than the tallest building, with catenary wires shielding critical components;
- **Lighting:** Energy-efficient luminaires mounted on mid-hinged columns (up to 15 m high) will provide illumination during emergency or maintenance events only;
- **Cooling Systems:** These will manage heat generated within the Converter Buildings. External components include fans and pipework, while internal systems will house pumps, control units, and additional pipework; and
- **Auxiliary Power Supply:** A medium-voltage AC supply from the Distributed Network Operator (DNO) will serve as a backup to the converter transformer tertiary supply. Standby diesel generators will be available during construction and in the event of auxiliary supply failure.

#### Pre-Construction

2.4.6.5 Pre-construction surveys will be undertaken at the proposed Converter Station location; these will include ground investigations, drainage studies and environmental constraints. The purpose of these is to inform siting and pre- and post-construction detailed design including mitigation.

2.4.6.6 An outline CEMP will accompany the DCO application, which will describe the framework of mitigation measures identified in the ES to be followed and to be carried forward to a detailed CEMP prior to construction (detail as per the UK Landfall section above).

2.4.6.7 An outline Landscape and Ecology Mitigation Plan (LEMP) will accompany the DCO application. This will include outline details of the screening design around the Converter Station, as well as ecological mitigation, compensation and offsetting.

#### Construction

2.4.6.8 The maximum size of the construction area for the proposed Converter Station will be 10 ha. The temporary construction compound for the proposed Converter Station will be a maximum of 4 ha which will be contained within the 10 ha footprint. It is important to note that screening planting could extend over a slightly larger area (within the overall EOS Scoping Boundary), to be determined in the PEIR and ES following Landscape and Visual Impact Assessment of the selected Converter Station location.

2.4.6.9 The temporary construction compound will be progressively 'built out' as construction progresses (either developed as part of the proposed Converter Station or, in the case of the Converter Station's associated landscaping and/or screening planting, planted up over time) or reinstated to its previous use at the end of the construction period. The compound is expected to include facilities such as, but not limited to, temporary site offices and welfare facilities (anticipated to be of a porta-cabin type construction and up to three storeys in height), plant and materials storage, a refuelling area, and wheel wash facilities.

2.4.6.10 The construction duration for the UK Scheme will be up to 60 months (five years).

### 2.4.7 Onshore Cables (HVAC)

2.4.7.1 The MDS for the onshore HVAC cables is outlined in Table 2-7. An indicative cross section of a typical HVAC cable corridor is provided in Figure 2-6.

**Table 2-7: Maximum Design Scenario: Onshore Cables (HVAC).**

| Parameters | Maximum Design Scenario |
|---|---|
| Maximum number | 6 cables (plus up to 2 fibre optic cables) |
| Maximum number of trenches | 2 trenches |
| Maximum corridor length (km) | 5 |
| Maximum temporary corridor width (m) | 40 m |
| Maximum permanent corridor width (m) | 20 m |
| Maximum cable installation target burial depth (m) | 2.0 m (minimum 0.9 m, target 1.2m) |
| Minimum approximate cable burial depth (m) | 0.9 m |
| Cable section length | Minimum 800 m, maximum 1200 m |
| Number of joint bays/link boxes | Up to 12 |
| Link box dimensions | Up to 2 m x 2 m |
| Installation methodology | Open cut trenches with cables either direct buried or ducted and back filled with cement bound sand (CBS). Where open cut trenching is not feasible (e.g. watercourse crossings) a trenchless technique (e.g. HDD, or similar) will be used. |

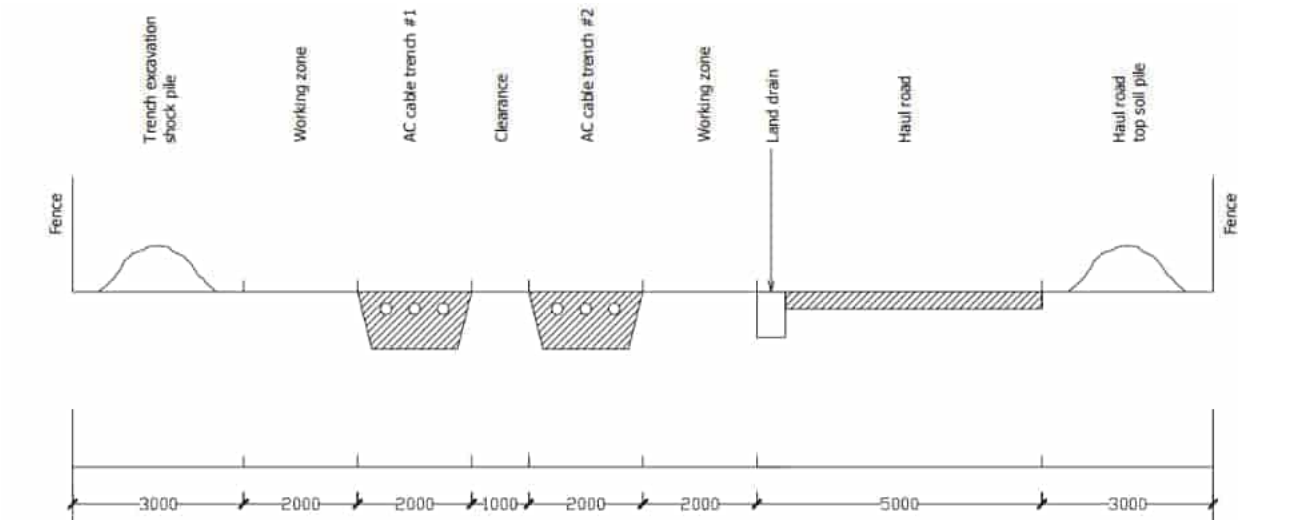



**Figure 2-6: Indicative cross section of typical corridor construction**

2.4.7.2 The installation of the proposed onshore HVAC cables will require a maximum working corridor width of 40m to be established along the length of the route. Figure 2-6 shows the indicative cross section of a typical corridor construction based on two circuits and a haul road for HVDC cables. If installation through urban areas is required, it will generally be limited to the width of paths and roadways and will be subject to considerably more planning in terms of traffic management and progress. Where possible the cable corridor will be sized to try and fit within half of a road width to allow for contraflow arrangements to be made. Sections of ducting will be installed and the road reinstated before moving forward.

2.4.7.3 The proposed onshore HVAC cables will connect National Grid's EACN Substation to the proposed Converter Station for the EOS. All onshore HVAC cabling will be buried, no pylons (towers) or overhead lines will be constructed as part of the EOS. It is intended that all land associated with onshore cable construction will be returned to original condition and use following installation e.g. farmland. The proposed onshore HVAC cables will not go beneath residential properties (including gardens), commercial premises (excluding farmland) or other buildings.

2.4.7.4 Until the location of the proposed Converter Station is confirmed the onshore HVAC Cable Route cannot be defined, therefore the Area of Search for the Converter Station Site and HVAC Cable Route is considered to represent the maximum extent of the area in which these cables could be laid (although the cables are unlikely to be laid in land between the B1035: Clacton Road and the Refined Area of Search for a Converter Station).

### Pre-Construction

2.4.7.5 Following the identification of the onshore HVAC cable route, pre-construction surveys will be undertaken across the entirety of the route; these will include ground investigations, drainage studies and environmental constraints. The purpose of these surveys is to inform routing and pre- and post-construction detailed design including mitigation.

2.4.7.6 An outline CEMP will accompany the DCO application and will describe the framework of mitigation measures identified in the ES to be followed and to be carried forward to a Detailed CEMP prior to construction (detail as per the UK Landfall section above).

#### Construction

2.4.7.7 The exact methods for cable installation will depend on the final cable route and the constraints present. Both open cut and trenchless onshore cable installation works are anticipated to be used. Details of the potential methods to be used can be found in the onshore Cables (HVDC) section above (paragraph 2.4.5.6).

2.4.7.8 The installation of the proposed onshore HVAC cables requires a maximum working corridor width of 40 m along the length of the route but widening and narrowing as required to accommodate the works required for the installation of the cables. To retain design flexibility during construction, consent will be sought for a wider corridor in which the working corridor will be developed. The working corridor is demarcated by a post and rail fence and will typically comprise:

- Storage areas for topsoil and subsoil stripped from the working width;
- Drainage measures;
- Temporary haul road for the movement of installation traffic with an anticipated maximum width of up to 9 m, with passing places where required;
- Cable installation trench sufficient to achieve a cable burial depth of between 0.9 m and 2.0 m (depending upon land use and local conditions) with a target of 1.2 m trenches each up to 4 m wide;
- Storage areas for excavated material; and
- Other mitigation measures as necessary.

### 2.4.8 Grid Connection Point

2.4.8.1 In the UK, the grid connection point for the Tarchon Project is National Grid's proposed 400 kV East Anglia Connection Node (EACN) Substation, which will be located approximately six kilometres north-east of Colchester between the villages of Great Bromley, Little Bromley, Ardleigh, and Lawford, Essex. This infrastructure does not form part of the EOS but is a key factor in informing its design and location. Obtaining consent for, and the construction of, the EACN Substation is the responsibility of National Grid and forms part of its Norwich to Tilbury Project.

2.4.8.2 The location of the point of connection within National Grid's EACN Substation is not confirmed at this time (i.e., it is not known whether the EOS will be required to connect into a bay located in the north, south, east or west of the EACN Substation).

2.4.8.3 If consented, a further two Nationally Significant Infrastructure Projects (NSIP), which are not related to the Tarchon Project, will also connect into National Grid's proposed EACN Substation:

- Five Estuaries Offshore Wind Farm (DCO Application Reference: EN010115OSWF) – awarded consent by the Secretary of State (SoS) on 17th December 2025; and
- North Falls Offshore Windfarm (DCO Application Reference: EN010119) – the DCO examination concluded on 28th July 2025; it is awaiting the SoS's decision on whether to award consent.

2.4.8.4 The onshore routing of these two NSIPs are co-located, with the onshore sections of the draft order limits being identical for both projects. Both NSIPs make landfall between Clacton-on-Sea and Frinton-on-Sea with cable routing progressing towards National Grid's proposed EACN Substation in an approximate south-east to north-west orientation. Therefore, the EOS and these other NSIPs are only envisaged to interact (cross) in close proximity to National Grid's proposed EACN Substation.

## 2.5 Indicative Construction Programme

2.5.1.1 Construction of the Tarchon Project will commence following DCO determination (currently anticipated in Q2 of 2029) and then the developer undertaking an internal Financial Investment Decision. The construction phase is expected to take up to 5 years, with a target year for commercial operation in 2034.

2.5.1.2 The anticipated duration for each activity is set out in the text below and will be refined as the UK Scheme progresses. All dates and durations are subject to change, and a refined version of the programme will be presented in the PEIR or ES.

### 2.5.2 UKMS

2.5.2.1 Notifications of works will be issued according to an agreed schedule ahead of construction. The cable lay will likely be performed on a 24-hour basis to reduce navigational impacts, optimise weather windows, and maximise vessel and equipment efficiency. This detail will be confirmed in the PEIR or ES.

2.5.2.2 **Pre-installation activities:** The first activities to take place for the UKMS will be pre-installation activities (e.g. crossing preparation and pre-sweeping). An indicative duration for these activities is approximately three months. However, this may change as the design progresses, vessel choices are made, depending on weather in terms of access to the site, and the extent of pre-installation activities is known.

2.5.2.3 **UK Landfall construction:** More details are provided on the UK Landfall works below (under 'English Onshore Scheme'). However, the cable duct installation works will be completed in advance of the cable installation to enable cable pull-in. The installation of the cable duct is anticipated to take one season (likely a period of four to five months over the summer period).

2.5.2.4 **Cable installation:** Cable installation (lay and burial) of the UKMS is anticipated to take up to three years or seasons of summer working (an approximate period of two to three months a year). It is anticipated that the cable will be installed at an approximate rate of 3 to 4 km/day, depending on vessel operation, seabed conditions and weather conditions.

2.5.2.5 **Remedial works:** Following installation of the cable, any required remedial works will take place (such as the construction of rock berms). These remedial works are expected to take approximately two weeks, subject to final design details. Should remedial burial by trenching be undertaken, the duration of the works may be up to two months, depending on seabed and weather conditions.

### 2.5.3 English Onshore Scheme (EOS)

2.5.3.1 **Onshore enabling works:** Various enabling works such as the construction of accesses/bell mouths are anticipated to be undertaken following DCO determination, in 2029 or 2030.

2.5.3.2 **First season of UK Landfall works:** A trenchless technique (such as HDD or pipe jacking) and installation of the onshore/offshore ducting is anticipated to take one year or season (approximately four to five months in a single year) to complete. The actual duration will depend upon factors such as the length of the trenchless section to be achieved, which is still being determined as the design progresses. Depending on ground conditions and other factors, a section of the onshore UK Landfall may include open cut trenching for cable duct installation.

2.5.3.3 **Second season of UK Landfall works:** Pull-in of the proposed Subsea HVDC cables (through the ducting installed during season one). This requires the Subsea HVDC Cabling to be available for pull-in. As the likely date for availability of the subsea cabling for pull-in is not known at this time, it cannot be confirmed when this activity will occur within the construction period.

2.5.3.4 **Onshore HVDC cables:** Installation of the proposed onshore HVDC cables is anticipated to take up to two years to complete. The exact start and finish of this activity is not yet known.

2.5.3.5 **Onshore HVAC cables:** Installation of the proposed onshore HVAC cables is anticipated to take up to one year to complete. The exact start and finish of this activity is not yet known.

2.5.3.6 **Converter Station:** Construction of the proposed Converter Station is anticipated to commence in 2030 and take up to four years to complete, excluding required enabling works.

2.5.3.7 End-to-end commissioning activities which will include various tests to ensure individual components and the full link is operating appropriately before integrating it into the existing electricity transmission network are likely to be undertaken at the earliest in 2033.

## 2.6 Operations and Maintenance Phase

2.6.1.1 The Operations and Maintenance (O&M) phase is considered to commence once construction is completed and the Tarchon Project is fully operational. The Tarchon Project is assumed to be operational for at least 40-years, although it is possible that this operational lifetime could be extended. Should this be the case, all relevant consents and permits would be sought at the relevant time including planned upgrades of the control system and power electronic components during the Tarchon Project's lifetime.

### 2.6.2 Offshore Cables

2.6.2.1 Operation and Maintenance (O&M) activities offshore will include routine inspections, geophysical surveys and replacement of external cable protection. Non-routine major O&M activities may include cable reburial and cable repair activities. Routine inspections and geophysical surveys are likely to be undertaken using survey vessels, unmanned surface vessels, and/or remotely operated vehicles. Replacement of external cable protection, or any non-routine major O&M activities are likely to require specialist vessels such as Construction Support Vessels, cable repair and/or cable laying vessels. The proposed approach to O&M will be discussed further in the PEIR and ES, and an Operational Environmental Management Plan (OEMP) will be produced.

### 2.6.3 Converter Station

2.6.3.1 Once operational, the installed infrastructure will form an integral part of the electricity transmission network in both the UK and Germany. The design lifetime of the installed system is assumed to be 40 years. This includes planned upgrades of the control system and power electronic components during this period. Continued upgrades and maintenance beyond this 40-year date would allow the extension of the life of the system. The extension of the lifetime of the system will not require the wholesale replacement or reinstallation of the proposed onshore HVAC or HVDC cables.

2.6.3.2 It is expected that the proposed Converter Station will be in operation 24 hours a day, all year round. The proposed Converter Station will be remotely monitored and operated, and there will be no staff permanently based on site. During normal operational periods there will be occasional visitors to site (for example to undertake general maintenance) and ad-hoc deliveries via Light Goods Vehicles (LGVs).

2.6.3.3 Planned maintenance will be implemented throughout the operational phase. Occasional unscheduled maintenance (for example to restore faults or redundancy loss) may also be undertaken. It is envisaged that O&M works during the operational phase works would require approximately:

- Up to 3 weeks of non-outage maintenance, potentially yearly, but expected to occur every third year;
- Up to 3 weeks of outage maintenance, potentially yearly, but expected to occur every third year; and

- Occasional unscheduled maintenance to restore faults or redundancy loss, requiring one to three days per month.

2.6.3.4 Consequently, operational traffic movements are expected to be limited.

### 2.6.4 Onshore Cables

2.6.4.1 The proposed onshore HVAC and HVDC cables will be continuously monitored remotely to ensure these are operating optimally. The cables may require infrequent on-site inspections and corrective maintenance activities, if and where a need is identified. Operational access to the proposed onshore HVAC and HVDC cables will be via the manhole covers above the TJB and at Link Box locations.

2.6.4.2 O&M of the EOS would be managed through an Operational Environmental Management Plan (OEMP).

## 2.7 Decommissioning Phase

2.7.1.1 At the end of the operational lifetime, the UK Scheme infrastructure would be decommissioned. The decommissioning sequence would generally be the reverse of the construction sequence and would involve similar types and numbers (or fewer) of vehicles, vessels and equipment.

2.7.1.2 The approach for decommissioning the offshore cables and any external cable protection materials on the seabed is yet to be determined; however, this will be reviewed throughout the lifetime of the infrastructure and good practice guidance at time of decommissioning will be followed. As part of the decommissioning of the UK Scheme, the offshore cables and any external cable protection may be either fully removed or left in-situ. The proposed approach to decommissioning will be discussed further in the PEIR and/or ES and an outline Decommissioning Environmental Management Plan (DEMP) will be produced.

## 2.8 References

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 01, Chapter 03: Approach to Alternatives

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00004 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| Role | Name |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Glossary of Acronyms

| Acronym | Definition |
|---|---|
| DCO | Development Consent Order |
| EACN | East Anglia Connection Node |
| EIA | Environmental Impact Assessment |
| ES | Environmental Statement |
| NPS EN-1 | Overarching National Policy Statement for Energy |
| NPS EN-3 | National Policy Statement for Renewable Energy Infrastructure |
| NPS EN-5 | National Policy Statement for Electricity Networks Infrastructure |
| NPS | National Policy Statement |
| HVDC | High Voltage Direct Current |
| HVAC | High Voltage Alternating Current |
| The EIA Regulations | Regulation 14(2) of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 |
| UK | United Kingdom |

# 3. Approach to Alternatives

## 3.1 Introduction

### 3.1.1 Chapter Summary

3.1.1.1 Regulation 14(2) of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations') (HM Government, 2017) requires an EIA to describe the reasonable alternatives considered which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment. This may include options related to design, technology, location, size and scale.

3.1.1.2 This Chapter explains the alternatives assessment process for the UK Scheme that has been applied at the Scoping stage and will continue to be applied at the ES stage (Sections 3.1.3 and 3.1.4). To provide context, it first outlines the need for the UK Scheme.

### 3.1.2 Need for the UK Scheme

3.1.2.1 The UK Scheme is a key part of the wider Tarchon Project, a new high capacity electricity interconnector between the UK and Germany designed to strengthen energy security, resilience and market flexibility. When one market has surplus electricity and the other faces a shortage, Tarchon will enable power to be transferred between them, helping to meet demand where it is needed most.

3.1.2.2 Ongoing geopolitical volatility, constrained domestic generation and increasing periods of system stress have reinforced the UK's urgent need to diversify and stabilise its electricity supply. Greater interconnection is now recognised as one of the most effective tools for improving national energy resilience (Department for Energy Security and Net Zero, 2025). Enhanced cross-border capacity allows the UK to draw on a wider pool of generation when domestic supply is tight, while also exporting excess electricity during periods of high renewable output.

3.1.2.3 The Tarchon Project will materially strengthen the UK's security of supply by providing a firm, high-capacity link to mainland Europe that can help manage fluctuations in demand and generation across multiple markets. This added flexibility reduces reliance on any single fuel type or region, supports system stability during outages or extreme weather events and contributes to the overall robustness of the UK's transmission network. When operational, the Project will be capable of supplying electricity equivalent to powering up to 1.95 million homes, representing approximately 72% of households in the East of England (comprising Bedfordshire, Cambridgeshire, Essex, Hertfordshire, Norfolk, and Suffolk).

3.1.2.4 Analysis by National Grid (National Grid, 2026), shows that since 2023, National Grid's electricity interconnectors have delivered £1.65 billion in net consumer benefits for the UK by enabling access to 86 TWh of lower-cost imported electricity, enough to power 10 million homes over three years. By drawing on cleaner, cheaper

surplus energy from European markets, interconnectors reduce wholesale electricity prices, limit price spikes, and enhance system flexibility. Their performance has also generated over £300 million in payments back to UK consumers under the Cap and Floor regime.

3.1.2.5 With more than two-thirds of imports being zero-carbon since 2023, interconnectors support the UK's Clean Power targets and will become even more important as the UK is expected to shift from being a net importer to a net exporter of renewable electricity in the 2030s, reducing wind curtailment and lowering consumer bills further (National Grid, 2026).

3.1.2.6 The Tarchon Project comprises approximately 800 km of onshore and subsea cable corridors, capable of transferring a maximum of 1.8 GW of electricity in either direction.

3.1.2.7 The European Union has designated Tarchon as a Project of Mutual Interest (PMI), the first in the UK, reflecting its contribution to secure, affordable and sustainable energy and to long-term decarbonisation across the region. The Tarchon Project is expected to help save approximately 7 megatonnes of combined UK and German $CO_2$ emissions. PMIs extend the EU's cross-border energy cooperation to non-EU member states.

### 3.1.3 Alternatives at the Scoping Stage

3.1.3.1 Whilst there is no statutory requirement to include an assessment of alternatives as part of a request for a Scoping Opinion, the Planning Inspectorate's publication 'Nationally Significant Infrastructure Projects - Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements' (HM Government, 2017) recommends that a Scoping Report includes *"an outline of the reasonable alternatives considered and the reasons for selecting the preferred option"*.

3.1.3.2 Figure 3-1 below, provides an overview of the stages that will be applied to the Project design. Stage 1 is complete, with the allocation of National Grid's EACN as the grid connection point. Securing this connection point is essential, as it determines the technical feasibility of the overall scheme and influences subsequent design, routing, and site-selection activities. Stage 2 is complete, the broad Project parameters are known as described in Volume 01, Chapter 02: UK Project Description. Stage 3 has also largely been completed, broad search areas have been identified and define the extent of the UK Scheme (see Volume 01, Chapter 01: Introduction, and as detailed throughout this Scoping Report), this area will be refined as the project deign progresses and with feedback from stakeholders and specialist studies. We are currently in stage 4 – potential sites are in the process of being identified within the broad areas of search for the Cable Corridors, Landfall and Converter Station. Upcoming phases will include appraisal of potential sites (Stage 5) and selection of preferred sites and locations (Stage 6). A full account of the site selection process will be provided in the ES.

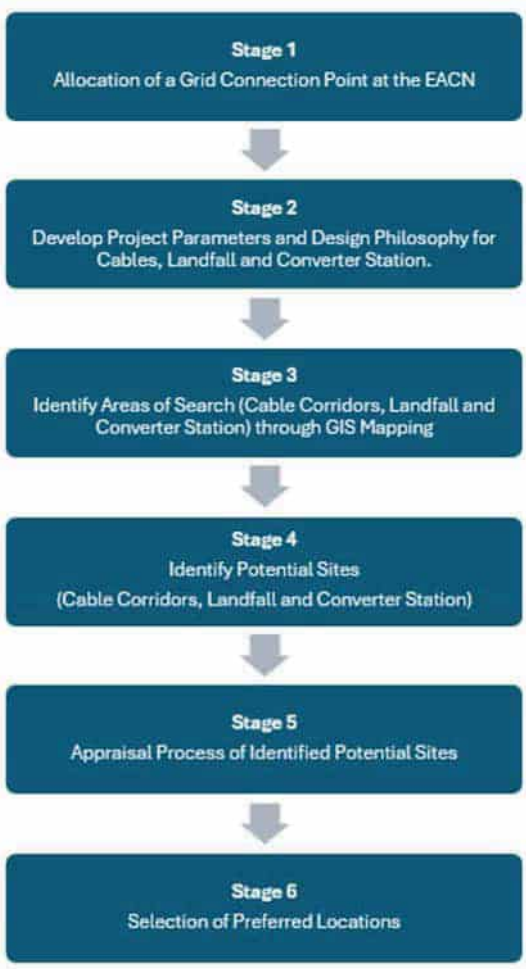



**Figure 3-1: Staged Approach to Site Selection**

3.1.3.3 Sections 3.2 and 3.4 summarise decisions made in the lead-up to Scoping. Further optioneering and site selection will take place before the ES is finalised. Progress will be detailed appropriately in the PEIR and subsequent ES (see Section 3.5).

### 3.1.4 Alternatives at the Environmental Statement (ES) Stage

3.1.4.1 Under Regulation 14 (2)(d), in conjunction with Schedule 4, paragraph 2 of the EIA Regulations (HM Government, 2017), the ES must provide: *"a description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment"*.

*3.1.4.2* The ES will also be informed by the National Policy Statements (NPS EN-1 and NPS EN-5) (Department for Energy Security and Net Zero, 2025)). Paragraph 4.3.15 in NPS EN-1 states that: *"Applicants are obliged to include information about the reasonable alternatives they have studied in their ES. This should include an indication of the main reasons for the applicant's choice, taking into account the environmental, social and economic effects and including, where relevant, technical and commercial feasibility".*

3.1.4.3 Paragraph 4.3.16 of NPS EN-1 states that: *"In some circumstances, the NPSs may impose a policy requirement to consider alternatives" and* Paragraph 4.3.17 of NPS EN-1 acknowledges that: "*Where there is a policy or legal requirement to consider alternatives, the applicant should describe the alternatives considered in compliance with these requirements".*

3.1.4.4 The appraisal process must take into account engineering feasibility, environmental constraints, land-use and the communities it the project could impact. This is informed by Paragraph 2.2.7 of NPS EN-5 states: "*The connection between the initiating and terminating points of a proposed new electricity line will often not be via the most direct route. Siting constraints, such as engineering, environmental or community considerations will be important in determining a feasible route".*

3.1.4.5 Paragraphs 2.2.8 and 2.2.9 of NPS EN-5 continue: *"There will usually be a degree of flexibility in the location of the development's associated infrastructure such as substations, and applicants should consider carefully their location, as well as their design. In particular, the applicant should consider such characteristics as the local topography, the possibilities for screening of the infrastructure and/or other options to mitigate any impacts"*.

3.1.4.6 Site selection and design of new electricity infrastructure and associated development are shaped by factors largely outside of the control of any applicant. For example, the start and end points of such infrastructure are predominantly determined by external system needs rather than developer preference.

3.1.4.7 The following sections of this Chapter summarise the alternatives considered to date and the information expected to be presented in the ES.

## 3.2 English Onshore Scheme (EOS) HVDC and HVAC Cabling Design Options

3.2.1.1 The Applicant has chosen to install all onshore cables underground. This includes the EOS High Voltage Direct Current (HVDC) and the EOS High Voltage Alternating Current (HVAC) cables. This has been done for the follow reasons:

- **Landscape and visual impact:** undergrounding the onshore cable infrastructure reduces landscape and visual impacts and is less intrusive for local communities as it avoids the need for large pylons and extensive land clearance;
- **Reliability and efficiency:** underground systems often experience reduced transmission losses over long distances when compared to overhead lines, making them more efficient. Underground cables are less susceptible to weather-related disruptions, such as storm/wind damage, harsh sea air and associated corrosion, ensuring a more reliable and resilient energy supply;
- **Effective cable footprint**: underground HVAC cables onshore can be bundled in three-core circuits within one cable sheath; if overhead lines are used, the three-core cable (single circuit) would need to be supported by three different arms of each pylon. Similarly, although to a lesser extent, HVDC cables will also be installed underground removing the need for pylons on the Project altogether and reducing permanent land take;

- **Cost and maintenance**: Overhead lines are cheaper and easier to maintain, however this has to be balanced against environmental effects which are deemed to be significantly greater when compared to underground cables; and
- **Electromagnetic emissions**: undergrounding cables significantly reduces electric fields as they are effectively screened out by the sheath around the cable (Department for Energy Security and Net Zero, 2024). Magnetic fields from underground cables can be higher at ground level immediately above the cable (in comparison to overhead lines), however magnetic fields reduce rapidly with distance in both underground and overhead systems.

3.2.1.2 Taking into consideration the above factors, landscape and visual, and reliability and efficiency benefits, the Applicant has chosen to underground all onshore cables.

## 3.3 UK Marine Scheme (UKMS) HVDC Cabling Design Options

3.3.1.1 The long transmission distance between UK and German landfalls makes HVDC more efficient than HVAC, reducing losses and eliminating the need for intermediate offshore booster stations (Kirby, Luckett, Xu, & Siepmann, 2001). HVDC systems require fewer cables, reducing seabed footprint and disturbance (Martinez de Alegria, Martin, Kortabarria, Andreu, & Ereno, 2009). HVDC bipole cables are being proposed for the Tarchon Project, which effectively allows the transfer of energy both ways on a single cable circuit, reducing the number of cables required and increasing the efficiency of transmission. The Applicant has therefore decided to utilise HVDC cables for the long distance transmission of the UK Marine Scheme (UKMS).

3.3.1.2 Due to risks associated with having exposed cables in the marine environment, such as anchor strikes, interference with fishing gear, deliberate damage and natural events, UKMS cables will be buried rather than surface-laid (Pohoryles, 2025).

## 3.4 Siting and Routing Options

3.4.1.1 Optioneering exercises have, and continue to be undertaken, to be able to assess the options for siting and routing of the following key components of the UK Scheme:

- Onshore HVAC Cable Route;
- Converter Station;
- Onshore HVDC Cable Route;
- Landfall; and
- Subsea HVDC Cable Route.

3.4.1.2 The optioneering work done to date has informed the UK Scheme Redline Scoping Boundary presented in Volume 01, Chapter 01: Introduction.

3.4.1.3 The precise point of connection within the National Grid East Anglia Connection Node (EACN) Substation is still to be confirmed i.e. it is not known whether the UK Scheme will be required to connect into a bay located in the north, south, east or west of the EACN Substation.

3.4.1.4 The appraisal process uses a sequential and logical approach, taking account of:

- Relevant NPS policy requirements, for example NPS EN-5 Section 2.2, which outlines that new electricity network siting is largely dictated by connection needs and NESO system requirements. When combined with national net-zero commitments, Clean Power 2030 drive and energy security needs, this necessitates substantial new infrastructure even in areas with little existing development;
- The Horlock Rules[1] (National Grid, 2009) for Converter Station related infrastructure; and
- The Holford Rules (Holford, 1959) for transmission related infrastructure.

3.4.1.5 Environmental and land-use exclusion criteria have been applied to avoid significant constraints where practicable. Engineering criteria ensure construction and operation are feasible.

3.4.1.6 Workshops attended by engineering, environment, planning and land specialists also inform the selection or rejection of options.

3.4.1.7 The assessment of siting and routing options is continuing and will be informed by ongoing consultation during the pre-application process. The optioneering exercises and decision-making regarding alternatives are being documented and this documentation will be submitted with the ES.

## 3.5 Alternatives to be reported in the ES

3.5.1.1 In line with the EIA Regulations (HM Government, 2017) and the NPSs for Energy Infrastructure (Department for Energy Security and Net Zero, 2025), the ES will include a description of the reasonable alternatives considered, outlining specific characteristics, and the reasons for selecting chosen options. This is likely to include:

- Details of optioneering work undertaken for each UK Scheme component (outlined in paragraph 3.4.1.1);
- Alternative construction methods;
- Alternative layouts and design parameters considered; and
- Alternative mitigation measures considered.

3.5.1.2 The ES will also describe how consultation and engagement have influenced design evolution through an iterative process.

3.5.1.3 Should alternatives for any particular element of the Scheme remain at the time of ES submission, the EIA will assess the reasonable 'worst case' impacts of such optionality, in accordance with PINS Advice Note 9 (The Planning Inspectorate, 2018).

3.5.1.4 A ‘no development’ scenario (termed ‘do nothing’) will not be presented as a reasonable alternative, as it would not meet the needs case for the Tarchon Project.

[1] These guidelines (National Grid, 2009) were established by National Grid for the siting and design of new substations and extensions to existing substations and embody the principles which should be followed to ensure the mitigation of the potential environmental effects of the development as far as is practicable. Whilst this guidance was not specifically written for converter stations, the measures it describes are equally applicable, and the guidance is often interpreted to be an industry standard for the siting of substations and similar energy infrastructure such as converter stations.

3.5.1.5 This position is clarified in paragraph 4.3.27 of NPS EN-1 (Department for Energy Security and Net Zero, 2025), which states: "*Alternative proposals which mean the necessary development could not proceed, for example because the alternative proposals are not commercially viable or alternative proposals for sites would not be physically suitable, can be excluded on the grounds that they are not important and relevant to the Secretary of State's decision*".

3.5.1.6 However, a "future baseline without the UK Scheme" will still be required within specific technical assessments.

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# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 01, Chapter 04: Approach to Consultation

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00005 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| CFWG | Commercial Fisheries Working Group |
| CNP | Critical National Priority |
| DCO | Development Consent Order |
| EA | Environment Agency |
| EIA | Environmental Impact Assessment |
| EPP | Evidence Plan Process |
| ES | Environmental Statement |
| ETG | Expert Topic Groups |
| HE | Historic England |
| HHA | Harwich Haven Authority |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| JNCC | Joint Nature Conservation Committee |
| KEIFCA | Kent and Essex Inshore Fisheries and Conservation Authority |
| MCA | Maritime and Coastguard Agency |
| MMO | Marine Management Organisation |
| NE | Natural England |
| NFFO | National Federation of Fishermen's Organisations |
| NPS | National Policy Statement |
| NPS EN-1 | National Policy Statement for Energy |
| NPS EN-3 | National Policy Statement for Renewable Energy Infrastructure |
| NPS EN-5 | National Policy Statement for Electricity Networks Infrastructure |
| NSIP | Nationally Significant Infrastructure Project |
| PA 2008 | Planning Act 2008 |
| PEIR | Preliminary Environmental Information Report |
| PINS | Planning Inspectorate |
| PLA | Port of London Authority |
| PMIE | Potential Main Issues for Examination |
| SoCC | Statement of Community Consultation |
| SoCG | Statements of Common Ground |
| SoS | Secretary of State |
| TCE | The Crown Estate |
| The EIA Regulations | Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 |
| TWG | Technical Working Group |
| UK | United Kingdom |

# 4. Approach to Consultation

## 4.1 Introduction

### 4.1.1 Overview

4.1.1.1 This Chapter explains Tarchon Energy Limited's (the Applicant) approach to consultation for the UK Scheme, which comprises the English Onshore Scheme (EOS) and the UK Marine Scheme (UKMS) (as detailed in Volume 01, Chapter 02: UK Project Description). The approach outlined in this document aligns with UK planning regimes for the pre-application stage of the Development Consent Order (DCO) for the UK Scheme. The objective is to ensure that stakeholders and local communities can share views that genuinely inform design and assessment.

4.1.1.2 Consultation is integral to focusing environmental studies, identifying issues that require further investigation, and shaping optioneering and design. Engagement will continue throughout the Environmental Impact Assessment (EIA) process and be adapted as the UK Scheme evolves.

4.1.1.3 Stakeholders have been identified through relevant legislation and guidance, and by applying local knowledge within and around the UK Scheme Scoping Red Line Boundary (see Volume 01, Chapter 02: UK Project Description). Communication activities are targeted to the needs of specific audiences.

### 4.1.2 Consultation Guidance

4.1.2.1 Effective stakeholder engagement by informal and formal statutory consultation is a process set out by the Planning Act 2008 (PA 2008) (HM Government, 2008), The Infrastructure Planning (EIA) Regulations 2017 (the EIA Regulations) (HM Government, 2017) and associated guidance.

4.1.2.2 The Applicant follows guidance published by the Planning Inspectorate (PINS) which provides updated advice on pre-application consultation for Nationally Significant Infrastructure Projects (NSIPs) (Planning Inspectorate, 2024). Consistent with the Planning Act 2008: Pre-application stage for Nationally Significant Infrastructure Projects (Ministry of Housing, Communities and Local Government and Department for Levelling Up, Housing and Communities, 2024), Stakeholder engagement for the UK Scheme is guided by the following principles:

- Early and ongoing engagement to inform and influence the design process;
- Providing clear opportunities to seek feedback in the iterative design process and taking this feedback into consideration;
- Building long-term relationships with key stakeholders throughout the different stages of the UK Scheme to help better understand their views;
- Providing a mechanism by which concerns can be addressed where possible with explanation provided where not feasible to be addressed; and

- Ensuring appropriate statutory consultation is undertaken in compliance with legislative requirements and relevant guidance.

## 4.2 Stakeholder Engagement to Date

### 4.2.1 Public Engagement

4.2.1.1 A four-week non-statutory consultation ran from 10 March to 07 April 2025. This provided the communities and stakeholders with an introduction to the overarching Tarchon Project and the UK Scheme, and an opportunity for the Applicant to gather feedback (Tarchon Energy Ltd, 2025). The Tarchon Project website[1] contains all up-to-date details about past and future non-statutory consultation events, with continued updates as the UK Scheme progresses.

4.2.1.2 Prior to this, the Applicant had meetings with Officers and Councillors at Tendring District Council and Essex County Council to introduce the UK Scheme and ask how the authorities would like to be engaged.

4.2.1.3 The Applicant also undertook outreach activity with Councillors at Essex County Council, Tendring District Council, and 14 Parish and Town Councils from the potential landfall area, along the cable corridor area and around the initial area of search for a Converter Station site, offering briefings and advising of the non-statutory consultation and events (providing posters and digital media graphics to help publicise the consultation to the local community).

4.2.1.4 Four in-person consultation events were held: two events in locations in proximity to the Initial Area of Search for a Converter Station Site and High Voltage Alternating Current (HVAC) Cable Route (Ardleigh and Lawford); a third event in proximity to the Indicative Onshore High Voltage Direct Current (HVDC) Corridor (Wix); and a fourth event in proximity to the Indicative Landfall Zone (Harwich) (Table 4-1).

**Table 4-1: Non-Statutory Consultation Events**

| Venue | Date | Time |
|---|---|---|
| Ardleigh Village Hall, Station Road, Ardleigh, Essex, CO7 7RS | Monday 17 March 2025 | 18.30 to 21.30 |
| Wix Village Hall, Harwich Road, Wix, Essex, CO11 2RY | Tuesday 18 March 2025 | 14.00 to 20.00 |
| Venture Centre 2000, Bromley Road, Lawford, Manningtree CO11 2JE | Wednesday 19 March 2025 | 13.00 to 17.00 |
| Harwich and Dovercourt Golf Club, Station Road, Parkeston CO12 4NZ | Thursday 20 March 2025 | 14.00 to 20.00 |

4.2.1.5 In the weeks leading up to the consultation events, a newsletter outlining the Tarchon Project and event schedule was delivered to over 8,300 properties within a defined radius of key areas. Print and digital advertisements appeared in the Harwich & Manningtree Standard and online from 28 February to 16 March 2025. These advertisements targeted residents and businesses that live in Essex and Tendring to

[1]The Tarchon Project website, https://www.tarchonenergy.net/consultation/ displays current and past consultation events and materials.

promote consultation events and highlighting the Tarchon Project website for further detail. The engagement from these advertisements generated over 62,000 impressions and 415 website clicks. Media releases were issued to local press and radio at key stages of the consultation, and posters were distributed to prominent locations and Parish Councils across Tendring and Essex[2].

4.2.1.6 There were 292 attendees across the four events and 111 responses were received. The key themes and concerns that were identified during this non-statutory consultation primarily focused upon:

- Site selection, alternatives and co-ordination with other projects such as Five Estuaries Offshore Wind Farm and North Falls Offshore Wind Farm;
- Design (particularly the proposed Converter Station, as discussed in Volume 01, Chapter 02: UK Project Description);
- Impacts of the UK Scheme in relation to landscape and visual amenity;
- Impacts of the UK Scheme in relation to biodiversity;
- Impacts of the UK Scheme in relation to shipping and navigation;
- Cumulative impacts with other proposed development in the area; and
- Community impacts.

4.2.1.7 The Applicant also issued a further newsletter in October 2025 (https://www.tarchonenergy.net/media/xhjnt505/the-tarchon-interconnector-project-q4-newsletter-2025.pdf) to inform the local community of outcomes of the non-statutory consultation and to provide updates as to the next steps proposed including the onshore surveys.

### 4.2.2 Early Technical Stakeholder Engagement

4.2.2.1 As part of the UK Scheme's early engagement activities, a number of meetings with statutory and non-statutory consultees have taken place to provide an introduction to the Tarchon Project and the UK Scheme. These included a combination of introductory meetings and consultations with:

- Local authority officers of Essex County Council and Tendring District Council;
- Local authority officers of Suffolk County Council, Babergh District Council and Mid Suffolk District Council;
- Parish councils;
  - Ardleigh;
  - Great Bromley;
  - Lawford;
  - Little Bromley;
- Landowners in the vicinity of the EOS;
- Environment Agency (EA);

[2] Including, but not limited to, village shops and post offices, village halls, libraries, and selected cafes/pubs.

- The Crown Estate (TCE);
- Marine Management Organisation (MMO);
- Natural England (NE);
- Historic England (HE);
- Joint Nature Conservation Committee (JNCC);
- Maritime and Coastguard Agency (MCA);
- Trinity House;
- Harwich Haven Authority (HHA);
- Port of London Authority (PLA);
- Port of Felixstowe (Hutchison Ports);
- National Federation of Fishermen's Organisations (NFFO);
- Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA); and Commercial Fisheries Working Group (CFWG) and individual fishers;
- Dedham Vale National Landscape Partnership; and
- Suffolk & Essex Coast & Heaths National Landscape Partnership.

4.2.2.2 Early contact has been made with additional Parish Councils and an initial briefing has been offered. Parishes will be updated ahead of any wider community communications, including receiving email newsletters the day before postal versions are delivered. Additional briefings will be provided in advance of major project updates. These Parish Councils include:

- Bradfield;
- Elmstead;
- Great Oakley;
- Harwich Town;
- Little Bentley;
- Little Oakley;
- Manningtree Town;
- Mistley;
- Ramsey & Parkeston;
- Tendring;
- Wix; and
- Wrabness.

4.2.2.3 Consultation with identified stakeholders will continue to take place following submission of the formal request for a Scoping Opinion; noting that future consultation and engagement might be shaped and influenced by the feedback provided in the Scoping Opinion.

4.2.2.4 To ensure effective consultation, grouping technical stakeholders can improve engagement by aligning common interests and expertise. The Applicant is exploring the implementation of thematic meetings through focused Expert Topic Groups (ETGs). The ETGs will provide a platform for statutory and non-statutory bodies to share technical input, resolve issues, and support EIA development through collaborative discussion on key environmental topics.

### 4.2.3 Co-ordination with Other Projects

#### Relevant National Policy

4.2.3.1 The National Policy Statement (NPS) EN-1 (DESNZ, 2026) sets out the government's overarching national policy for the development of NSIPs in the energy sector. The NPS EN-1 forms the primary basis for determining if development consent should be granted for developments covered by the Energy NPS. Paragraphs 4.2.14 and 4.2.15 of NPS EN-1 states that "*With the increasing number of development consent applications coming forward, this will put pressure on existing systems within the NSIP regime. It's therefore important that all parts of the system work together cohesively to ensure that the impacts of projects are properly assessed and mitigated so that good quality schemes are consented".*

4.2.3.2 The NPS for Renewable Energy Infrastructure (EN-3) (DESNZ, 2026) is primarily focussed on offshore wind projects, relevant transmission policies can be considered where relevant for the UKMS, particularly interactions with other offshore infrastructure and the need to consider cumulative effects.

4.2.3.3 The NPS for Electricity Networks (EN-5) (DESNZ, 2026) supports the delivery of nationally significant electricity transmission infrastructure as a Critical National Priority (CNP). It further clarifies that the need for qualifying electricity network infrastructure is established at a national level and should not normally be considered as part of individual DCO examinations. This highlights the importance of considering the wider context of the UK Scheme in relation with other projects.

#### Project Co-ordination

4.2.3.4 The Applicant recognises the importance of an integrated and co-ordinated approach to developing the UK Scheme alongside other infrastructure projects in the same or nearby areas. This approach also includes collaboration with other marine users, such as commercial fisheries and shipping and navigation activities. Co-ordination with other projects within the region ensures effective co-existence and minimises the potential for cumulative impacts between the UK Scheme and other developments.

4.2.3.5 Engagement has been carried out through meetings and written correspondence and will continue with the promoters of the following projects:

- North Falls Offshore Wind Farm Limited regarding the North Falls Offshore Wind Farm Project;

- Five Estuaries Offshore Wind Farm Limited regarding the Five Estuaries Offshore Wind Farm Project;
- National Grid Electricity Transmission in relation to the East Anglia Connection Node (EACN) component of the Norwich to Tilbury Project;
- National Grid Electricity Transmission in relation to the Sea Link Project; and
- NeuConnect Britain Limited in relation to the NeuConnect Project.

## 4.3 EIA Scoping Consultation

4.3.1.1 The Planning Inspectorate on behalf of the Secretary of State (SoS) will consult on this Scoping Report under Regulation 10(6) of the EIA Regulations (HM Government, 2017). The views from consultation bodies will be considered and used to inform the Scoping Opinion to be issued by PINS (on behalf of the SoS).

4.3.1.2 Regulation 3(1) of the EIA Regulations (HM Government, 2017) further defines 'consultation bodies'. The full list of consultation bodies is contained in sections 42 and 43 of the PA 2008 (HM Government, 2008), and Regulation 3 and Schedule 1 of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended) (HM Government, 2009) noting that not all consultation bodies will be relevant to every scheme. The consultation bodies for the UK Scheme will include, but not be limited to, those presented in Section 4.2.2.1.

## 4.4 Statutory Consultation

4.4.1.1 The DCO process has a number of statutory requirements regarding consultation. These requirements stipulate that certain stakeholder groups and the community must be consulted as part of the pre-application process, as set out in Sections 42, 47 and 48 of the PA 2008 (HM Government, 2008) and Regulation 13 of the EIA Regulations (HM Government, 2017). Further requirements set out how the UK Scheme must be publicised and the specific documents to be produced; these include:

- Statement of Community Consultation (SoCC);
- Preliminary Environmental Information Report (PEIR); and
- Consultation Report.

4.4.1.2 Statutory consultation will take place in Q4 2026, following the publication of the PEIR. Attendees to the consultation events will be asked to complete a feedback form. The summary of the feedback will be a basis for the Consultation Summary Report that will accompany the application for consent. Following statutory consultation, the Applicant will share its Adequacy of Consultation Milestone Document with PINS and the local authority in Q1 2027.

4.4.1.3 The indicative dates provided for each part of the DCO pre-application process (Figure 4-1) are subject to change. Any updates or revisions to the dates will be communicated to stakeholders and published through the appropriate channels.




**Figure 4-1: Pre-application indicative consultation timeline**

### 4.4.2 Statement of Community Consultation

4.4.2.1 As required in Section 47 of the PA 2008 (HM Government, 2008), the Applicant will prepare a SoCC and must conduct consultation in line with this plan. The SoCC will explain how the Applicant intends to engage with the local community and outline its plans to publish and consult on the preliminary environmental information presented in the PEIR.

4.4.2.2 The Applicant is required to consult the host local authorities (i.e., Essex County Council and Tendring District Council) on the draft SoCC (pursuant to section 43 of the PA 2008 (HM Government, 2008)). This consultation on the draft SoCC is intended to provide an opportunity for the host local authorities to give feedback to the Applicant that influences both the informal and statutory consultation. This will create a consultation programme that is tailored to the needs of the communities likely to be affected.

4.4.2.3 This draft is due to take place in Q2 to Q3 2026. The local authorities will have a period of at least 28 days following receipt of the request to comment to provide feedback. The Applicant will pay regard to the host authorities' comments prior to publication of the SoCC for inspection by the public in Q3 2026.

### 4.4.3 Evidence Plan Process

4.4.3.1 The Evidence Plan Process (EPP) for the UK Scheme will begin in Q2 2026 and will continue until the application for consent is submitted. The EPP meetings and workshops have been strategically planned to coincide with key milestones within the UK Scheme's application programme for development consent.

4.4.3.2 As part of this process, key stakeholders and statutory bodies will be invited to form Expert Topic Groups (ETGs). Workshops for the ETGs will constitute three rounds of consultation between the preparation of the SoCC in 2026 and during the preparation of the ES in 2027.

4.4.3.3 The EPP aims to secure key stakeholder agreement on the data and information that will be included in the Environmental Statement (ES), which supports the DCO Application to PINS for development consent (HM Government, 2017). The process will also serve to outline how the Applicant intends to deliver a proportionate EIA and specify the details that will be included in the ES.

4.4.3.4 The EPP typically commences alongside the preparation of the SoCC, as it sets out the framework for discussing environmental issues and engaging in consultation with statutory bodies and other interested parties. The EPP establishes agreements on the ecological and environmental evidence required to support the Habitats Regulations Assessment, in line with NSIPs: Advice on Habitats Regulations Assessments (HM Government, 2017).

4.4.3.5 The EPP is an informal process that records agreements and disagreements between the Applicant and interested parties. These agreement logs feed into the issues tracker, which helps identify Potential Main Issues for Examination (PMIE).

The EPP provides the foundation for many documents submitted as part of the DCO application and is a critical component of the Statements of Common Ground (SoCG) required by PINS.

### 4.4.4 Preliminary Environmental Information Report

4.4.4.1 As required by Regulation 12 of the EIA Regulations 2017 (HM Government, 2017), developments seeking a DCO and considered to be a NSIP must publish sufficient preliminary environmental information to consultees. There is no prescribed level of detail for the PEIR but it must enable consultees to develop a clear and informed view of the likely environmental effects of the proposed development.

4.4.4.2 The Applicant plans to submit a PEIR in Q4 2026. This is intended as part of the consultation process. Consultation feedback will be considered and updates made to produce the final Environmental Statement (ES) that will be accompanied by the final Consultation Report as part of the DCO Application.

### 4.4.5 Consultation Report

4.4.5.1 In accordance with Sections 42, 47 and 48 of the PA 2008 (HM Government, 2008) the Applicant will hold a statutory consultation part way through undertaking the EIA to inform the community of the Applicant's plans and to seek their feedback. Following the publication of the PEIR, the two-week statutory consultation period will take place in Q1 or Q2 2027. During this period the Applicant will hold events such as, public information days, webinars and virtual consultation meetings. The dates, times and venues for these events will be confirmed and advertised online nearer to the dates.

4.4.5.2 Feedback from the statutory consultation will be gathered using both printed and an online feedback form available through the Tarchon Project website: https://www.tarchonenergy.net/. The Applicant will also receive feedback through the Tarchon Project email address: info@tarchonenergy.net. After analysis, the Applicant will release a summary of responses will be presented in a Consultation Report; this will be submitted alongside the DCO Application.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 01, Chapter 05: Legislative and Planning Policy Context

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00006 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| BNG | Biodiversity Net Gain |
| CNP | Critical National Priority |
| DCO | Development Consent Order |
| DESNZ | Department of Energy Security and Net Zero |
| EEA | European Economic Area |
| EEZ | European Economic Area |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| EPS | European Protected Species |
| ES | Environmental Statement |
| HRA | Habitats Regulation Assessment |
| ISEP | Institute of Sustainability and Environmental Professionals |
| km | Kilometres |
| kV | Kilovolts |
| MCAA 2009 | Marine and Coastal Access Act 2009 |
| MMO | Marine Management Organisation |
| MPS | Marine Policy Statement |
| NM | Nautical Miles |
| NNR | National Nature Reserve |
| NPPF | National Planning Policy Framework |
| NPS | National Policy Statements |
| NPS EN-1 | Overarching National Policy Statement for Energy (EN-1) |
| NPS EN-3 | Renewable Energy Infrastructure (EN-3) |
| NPS EN-5 | Electricity Networks Infrastructure (EN-5) |
| NPSP | National Policy Statement for Ports |
| NSIP | Nationally Significant Infrastructure Project |
| PA 2008 | Planning Act 2008 |
| PEIR | Preliminary Environmental Information Report |
| PINS | Planning Inspectorate |
| PPG | Planning Practice Guidance |
| RIAA | Report to Inform Appropriate Assessment |
| SAC | Special Area of Conservation |
| SoS | Secretary of State |
| SPA | Special Protection Area |
| SSSI | Site of Special Scientific Interest |
| The EIA Regulations | Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 |
| UK | United Kingdom of Great Britain and Northern Ireland |
| UKMS | United Kingdom Marine Scheme |
| WFD | Water Framework Directive |

# 5. Legislative and Planning Policy Context

## 5.1 Introduction

5.1.1.1 This Chapter of the Scoping Report provides an overview of the legislation, regulatory requirements and planning policy frameworks relevant to undertaking the Environmental Impact Assessment (EIA) for the United Kingdom (UK) Scheme, which forms part of the wider Tarchon Interconnector Project (Tarchon Project). The UK Scheme comprises the English Onshore Scheme (EOS) and the UK Marine Scheme (UKMS), as defined in Volume 01, Chapter 02: UK Project Description. That Chapter also sets out the legislation under which Tarchon Energy Limited (the Applicant) will seek a Development Consent Order (DCO) pursuant to the Planning Act 2008 (PA 2008) and outlines the policy framework and guidance that will inform the determination of the DCO application.

5.1.1.2 Considering planning policy at the EIA scoping stage ensures that relevant policies influencing receptor sensitivity, mitigation requirements, and method of assessments are identified early. This helps to inform the development of a proportionate and compliant EIA approach.

5.1.1.3 A full list of all the relevant legislation, permits and authorisations associated with the delivery of the UK Scheme will be provided in the Environmental Statement (ES) to support the DCO Application. A summary of specific legislation and national and local planning policy relevant to each technical assessment is provided for each environmental topics across Volume 02, Chapter 07 to Volume 04, Chapter 31 of this Scoping Report. Alongside the DCO Application, the Applicant will prepare and submit a Planning Statement that identifies the need for the Tarchon Project and the how it aligns with the relevant planning policies.

5.1.1.4 This Chapter provides details of the policy, legislation and guidance in context of the EIA of which, will accompany the DCO Application for the Tarchon Project.

## 5.2 Legislation

5.2.1.1 The Secretary of State (SoS) has designated the Tarchon Project as a Nationally Significant Infrastructure Project (NSIP) via a Section 35 Direction, therefore requiring development consent under the PA 2008 (HM Government, 2008).

5.2.1.2 The consenting process will be undertaken in the context of the Planning and Infrastructure Act 2025, which introduces reforms intended to streamline the NSIP consenting regime (HM Government, 2025). These reforms amend procedural aspects of the PA 2008 to improve efficiency, reduce delay and provide greater flexibility in the examination and determination of applications.

5.2.1.3 The PA 2008 (HM Government, 2008), the Electricity Act 1989 (Electricity Act, 1989), the Marine and Coastal Access Act 2009 (MCAA 2009) (HM Government, 2009), and the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) (HM Government, 2017) are considered to be the relevant overarching legislative framework and are summarised below.

### 5.2.2 The Planning Act 2008

5.2.2.1 The PA 2008 (HM Government, 2008) provides the legislative basis for DCO applications and establishes the application process under which a DCO is sought. The PA 2008 (HM Government, 2008) also sets out that projects meeting certain defined criteria are classified as NSIPs. It requires that developers wishing to construct, operate and maintain NSIPs must obtain a DCO from the relevant Secretary of State to authorise their project.

5.2.2.2 Section 14 of the PA 2008 (HM Government, 2008) defines the 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. The most relevant criteria to consider for the purposes of the UK Scheme are contained in Section 16 of the PA 2008 (HM Government, 2008) which relates to projects comprising 'electric lines'.

5.2.2.3 When assessing the UK Scheme in relation to Sections 14 and 16 of the PA 2008 (HM Government, 2008), it can be determined that it does not meet the definition of an NSIP. In Section 16 of the PA 2008 (HM Government, 2008), only electric lines that are above ground, 132 kilovolts (kV) or greater and 2 kilometres (km) or more in length are defined as NSIPs. The UK Scheme, as described in Volume 01, Chapter 02: UK Project Description, will not include any above ground electric line of 132 kV or more that is 2 km or more in length, and both the Onshore High Voltage Direct Current (HVDC) and High Voltage Alternating Current (HVAC) Cables will be installed underground (see also Volume 01, Chapter 03: Approach to Alternatives).

5.2.2.4 However, under Section 35(1) of the PA 2008 (HM Government, 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 form and location of the development, and whether it can be considered of national significance) are met.

5.2.2.5 On 28 February 2025, the Applicant submitted a request to the SoS for the Department for Energy Security and Net Zero (DESNZ) (HM Government, 2008) for a Section 35 Direction for the EOS to be treated as development for which development consent is required.

5.2.2.6 On 7 April 2025, the SoS confirmed that the UK Scheme is to be treated as development for which development consent is required (Wagstaff, 2025).

5.2.2.7 The PA 2008 assigns responsibility for assessing development consent applications for NSIPs to the Planning Inspectorate (PINS). Following a review, recommendations are provided by PINS to the SoS for the DESNZ, who determines whether consent should be granted.

5.2.2.8 National Policy Statements (NPS) provide the policy framework for the assessment of DCO applications for NSIPs, as established under the PA 2008. They set out objectives for infrastructure development and guide both applicants and the SoS in determining whether a project should be consented. Compliance with relevant NPS is a key consideration during the examination and decision-making process. For the

Tarchon Project, the applicable NPS are EN-1 (Overarching National Policy Statement for Energy), EN-3 (Renewable Energy Infrastructure), EN-5 (Electricity Networks Infrastructure), and the NPS for Ports (NPSP), which are listed in Section 2.7 of this Chapter.

5.2.2.9 The Applicant proposes to include the UKMS in the DCO as 'associated development' for which development may be granted under Section 115 (2)(b) of the PA 2008 (HM Government, 2008), wherein an "Associated development" means development which does not consist of or include the construction or extension of one or more dwellings, and is to be carried out wholly in England and waters adjacent to England up to the seaward limits of the territorial sea.

5.2.2.10 This is also in accordance with the 'Planning Act 2008: Guidance on associated development applications for major infrastructure projects' (HM Government, 2008) which states at paragraph 8: "*it is for applicants to decide whether to include something that could be considered as associated development in an application for development consent or whether to apply for consent for it via other routes*".

5.2.2.11 The Applicant requested that the SoS exercise their powers under Section 35 (1) of the PA 2008 (HM Government, 2008) to direct that the UK onshore elements for the Tarchon Interconnector Project be treated as development for which development consent is required under the PA 2008 (Wagstaff, 2025). The SoS noted that the request related to:

- *The UK onshore elements comprising the construction and operation of a converter station to convert electricity to and from the National Electricity Transmission System ("NETS"); HVAC cabling from the converter station to the point of connection with the NETS; and HVDC cabling from the converter station to the UK landfall site comprising a transition joint bay where onshore cables transition into offshore cables, forms the development for which development consent should be required and*
- *Associated development, which may include the licensable activities including works to install cables within UK territorial sea and Renewable Energy Zone and provision of offshore cable protection; and other works to facilitate the connection of the Proposed Project to the NETS*

5.2.2.12 The SoS confirmed that *together the elements for which development consent should be required and its associated development make up the "Proposed Project"* and directed that the Proposed Project (as defined above) is a energy project wihtin the scope of section 35 of the Planning Act (2008) and is to be treated as development for which development consent is required (Wagstaff, 2025).

### 5.2.3 Marine and Coastal Access Act 2009

5.2.3.1 A spatial planning system for the management of the marine environment was introduced by the MCAA 2009 (HM Government, 2009). This includes a requirement to obtain marine licences for certain works in the marine area.

5.2.3.2 Under Part 4 of the MCAA 2009 (HM Government, 2009), the Marine Management Organisation (MMO) is responsible for administering marine licensing of activities

related to construction or removal of any substance or object in UK territorial waters. The MMO is also responsible for regulating activities undertaken outside of the UK territorial waters, such as within the UK Exclusive Economic Zone (EEZ), and fulfils this role by issuing Marine Licence(s).

5.2.3.3 Licensable marine activities for the UKMS include constructing, altering or improving works on or under the seabed and depositing a substance or object in these environments, as per Part 4, section 66 (1)(7)(b) (HM Government, 2009).

5.2.3.4 The PA 2008 (HM Government, 2008) enables an applicant for a DCO to apply for a 'Deemed Marine Licence' as part of the DCO process, by virtue of Section 149A of the PA 2008 (HM Government, 2008) which was inserted by the MCAA 2009 (HM Government, 2009). As the UK Scheme is located across both UK territorial waters and the UK EEZ (i.e., outside 12 Nautical Miles (NM) from the UK coast), all elements of the UKMS that are considered licensable activities will be included in the deemed Marine Licence to be included in the DCO.

### 5.2.4 Electricity Act 1989

5.2.4.1 Section 9(2) of the Electricity Act 1989 (Electricity Act, 1989) places general duties on the Applicant as a licence holder to develop and maintain an efficient, co-ordinated and economical network. The Applicant was granted an 'Electricity Interconnector Licence' on 3 February 2023.

5.2.4.2 In addition, Section 38 and Schedule 9 (Electricity Act, 1989) require the Applicant, when formulating proposals to generate, distribute, supply or participate in the transmission of electricity, 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*".

5.2.4.3 The UK Scheme will be designed in a way that incorporates the mitigation hierarchy, as far as practicable, to avoid, reduce and mitigate impacts on relevant environmental, community and heritage receptors. National Policy Statement (EN-5), Paragraph 2.14.2 states that applicants should "demonstrate: how environmental, community and other impacts have been considered and how adverse impacts have followed the mitigation hierarchy i.e. avoidance, reduction and mitigation of adverse impacts through good design."

5.2.4.4 Compliance with the Electricity Act 1989 operates alongside the marine licencing requirements under the Marine and Coastal Access Act 2009 and relevant national policy documents.

### 5.2.5 The Infrastructure Planning (EIA) Regulations 2017

5.2.5.1 The EIA Regulations (HM Government, 2017) set out the process and requirements for providing adequate environmental information to enable the EIA process under

the PA 2008 (HM Government, 2008). In accordance with these Regulations, an ES will be submitted in support of the application for development consent for the UK Scheme, providing the information required by the determining authority to assess the significant effects of the UK Scheme on the environment. Further detail on the EIA approach is provided in Volume 01, Chapter 06: EIA Approach and Methodology.

5.2.5.2 Schedules 1 and 2 of the EIA Regulations identify projects that require EIA or may be considered EIA development, with Schedule 3 setting out selection criteria based on the characteristics of the development, its location, and potential impacts. While the UK Scheme does not fall explicitly under Schedule 1 or 2, consideration of Schedule 3 criteria indicates that the UK Scheme is likely to have significant environmental effects (HM Government, 2017). Therefore, the Applicant proposes to undertake an EIA.

5.2.5.3 Considering the criteria for Schedule 3, the UK Scheme was considered to be an 'EIA Development' for reasons such as, but not limited to:

- The geographic extent of the UK Scheme;
- The proximity of the UK Scheme to other proposed NSIPs and other projects such as North Falls Offshore Wind Farm, Five Estuaries Offshore Wind Farm, the Norwich to Tilbury Project, the Sealink Project and NeuConnect;
- The presence of wetlands such as saltmarshes and mudflats within and adjacent to the Scoping Boundary;
- The inclusion of coastal zones and the marine environment within the Scoping Boundary;
- The presence of sites with National and International designations such as Hamford Water Special Protection Area (SPA), Special Area of Conservation (SAC), National Nature Reserve (NNR), Ramsar Site, and Site of Special Scientific Interest (SSSI) within the Scoping Boundary; and
- The high likelihood of archaeological significance of the land within the EOS Scoping Boundary and the proximity of the Dedham Vale and the Suffolk Coasts & Heaths National Landscapes to the EOS Scoping Boundary.

5.2.5.4 In line with guidance and legislation this EIA Scoping Report seeks, where appropriate, to scope in aspects/matters to assess and also scope out aspects/matters from further assessment with suitable justification provided. This will streamline the assessment to focus on key significant effects and ensure the EIA for the UK Scheme is proportionate, as promoted by the Institute of Sustainability and Environmental Professionals (ISEP) (2017) in its 'Delivering Proportionate EIA: A Collaborative Strategy for Enhancing UK Environmental Impact Practice' guidance document (IEMA).

5.2.5.5 The ES will be prepared in accordance with Regulation 5(2)(a) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (HM Government, 2009) and will include all information required under Regulation 14 and Schedule 4 of the EIA Regulations. This approach ensures compliance with

legislation and delivers a proportionate assessment, as promoted by the ISEP guidance.

5.2.5.6 Regulation 32(1) of the EIA Regulations requires applicants to consider transboundary effects, meaning, those effects that could affect the environment in another state within the European Economic Area (EEA), i.e. effects which would be experienced beyond the borders of the UK. A screening exercise has been undertaken as part of the scoping process and is documented in Volume 6, Annex 31-1: Transboundary Screening Matrix.

## 5.3 The Development Consent Order (DCO) Process

5.3.1.1 Under Section 31 of the Planning Act 2008, a DCO is required for all developments that is, or forms part of, a NSIP.

5.3.1.2 The process for obtaining a DCO is separated into several phases including, pre-application, acceptance, pre-examination, examination, decision and post decision (Figure 5-1). Once granted, the DCO provides the principle statutory consent needed for the UK Scheme to be constructed and operated.

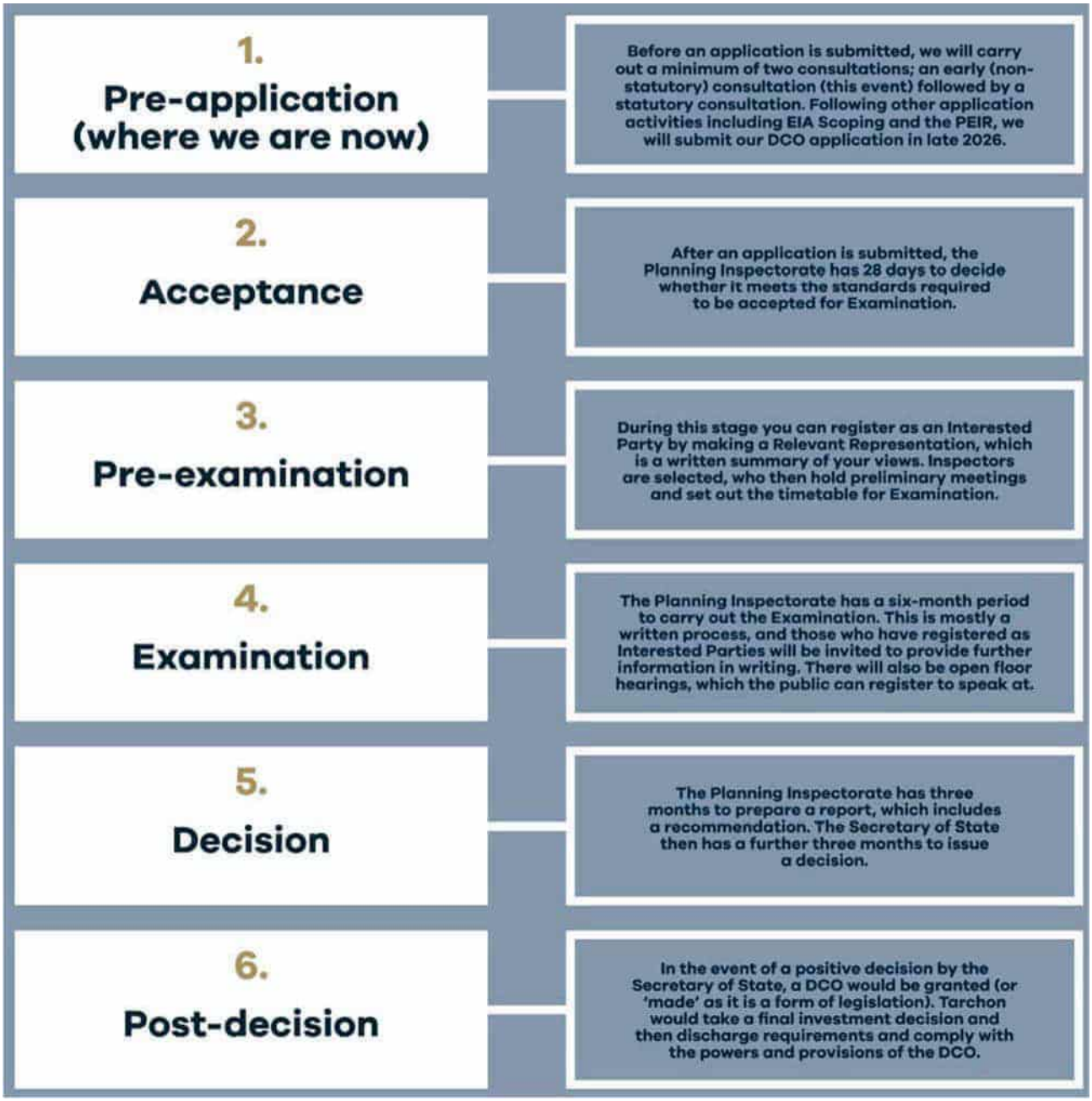



**Figure 5-1: DCO Process**

5.3.1.3 The DCO application for the UK Scheme will be submitted to PINS with the prescribed form and documentation required under the PA 2008 and the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (HM Government, 2009). The DCO process operates in accordance with the PA 2008, as amended by the Planning and Infrastructure Act 2025, which introduces procedural reforms intended to streamline the consenting of NSIPs (HM Government, 2025).

5.3.1.4 In accordance with the Regulation 8(1)(b) of the EIA Regulations, prior to carrying out consultation under Section 42 PA 2008, the Applicant notifies PINS in writing that the DCO application for the UK Scheme will be accompanied by an ES. The ES will present the findings of the EIA Assessment.

## 5.4 The Environmental Impact Assessment (EIA) Process

5.4.1.1 The requirements for EIAs in the context of the PA 2008 are set out in the EIA Regulations. An EIA identifies the potential significant effects of the UK Scheme to ensure that the relevant authority and consultees have sufficient information to make informed decisions and comments during the DCO process. The findings of the EIA must be reported in an ES to be submitted as part of a DCO application (HM Government, 2017). The specific approach and technical methods used for conducting the EIA for the UK Scheme is detailed in Volume 01, Chapter 06: EIA Approach and Methodology.

## 5.5 Related Assessments

5.5.1.1 The UK Scheme will be assessed in accordance with other legislation where this applies. Information on this legislation is included in the topic Chapters of this Scoping Report where applicable.

- **Biodiversity Net Gain (BNG)**: A BNG assessment will be prepared in accordance with Schedule 15 of the Environment Act 2021 (HM Government, 2021). Mandatory BNG requirements are expected to apply to all DCO applications submitted from May 2026 under Sections 104 or 105 of the PA 2008, including those made following a Section 35 Direction (HM Government, 2008). These requirements will therefore apply to the UK Scheme. The BNG assessment will be prepared at the Preliminary Environmental Information Report (PEIR)/ES stage
- **Water Framework Directive (WFD) Assessment**: A WFD assessment will be prepared in accordance with The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (HM Government, 2017).The purpose of the WFD Assessment is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters, and ground waters. The Directive aims to prevent further deterioration in, and enhance, water quality, and promote sustainable water use. The UK Scoping Boundary contains various water bodies, including surface water features, river catchments and coastal zones. Further details are set out in Volume 02, Chapter 08: Water Environment and Volume 03, Chapter 13: Marine Physical Environment. The WFD screening will be prepared at the PEIR/ES stage.
- **Habitats Regulations Assessment (HRA)**: A HRA will be undertaken in line with the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (collectively named ‘the Habitats Regulations’):
  - These regulations set out the assessment of the UK Scheme’s impact on internationally important nature conservation sites. These regulations require an assessment of any significant effects on designated habitats and species arising from the UK Scheme, either alone or in combination with other projects. Due to the presence of SPAs, SACs and Ramsar sites within and in close proximity to the UK Scoping Boundary (see Volume 02, Chapter 10: Onshore Biodiversity, Figure 10-1), a Habitats Regulation Assessment (HRA) Screening Assessment will be prepared.

5.5.1.2 The SoS, for Energy Security and Net Zero, is the Competent Authority responsible for undertaking the HRA for the purposes of the DCO application. To support the Competent Authority in carrying out this assessment, a HRA report (referred to as the Report to Inform Appropriate Assessment (RIAA)) will be submitted with the DCO application. The RIAA will accompany the ES and will consider potential effects from the UK Scheme on relevant European sites, taking account of both project-alone impacts and those arising in combination with other relevant activities. The RIAA will assess the likelihood of the UK Scheme affecting any European Protected Species (EPS) and relevant European sites, and identify the measures incorporated into the UK Scheme to avoid or minimise such effects. Where required, EPS licence applications will be sought in accordance with the appropriate regulatory process (HM Government, 2017). These HRA documents will provide all the relevant information needed for the SoS for Energy Security and Net Zero to undertake Stages 1 and 2 of a HRA as required under the Habitats Regulations.

## 5.6 Planning Policy

### 5.6.1 National Policy Statements

5.6.1.1 Under Section 104 (3) of the PA 2008 (HM Government, 2008), the SoS is required to decide applications for development consent in accordance with the relevant NPS, subject to certain exceptions. In exercising this duty, decision making under Section 104 is now informed by the Planning and Infrastructure Act 2025, which places increased emphasis on the timely delivery of nationally significant infrastructure in support of national development and energy-making under Section 104 is now informed by the Planning and Infrastructure Act 2025, which places increased emphasis on the timely delivery of nationally significant infrastructure in support of national development and energy objectives (HM Government, 2025).

5.6.1.2 These relevant NPSs have therefore been considered in preparing this Scoping Report.

5.6.1.3 The suite of NPSs relating to nationally significant energy infrastructure was originally designated in July 2011 and has been subject to periodic review. Updated 2025 versions of the Overarching and technology-specific energy NPSs were designated and came into force on 6 January 2026, replacing the previous 2023 revisions. The following NPSs are considered relevant for the Tarchon Project:

- Overarching National Policy Statement for Energy (EN-1) (DESNZ 2023) (NPS EN-1) (DESNZ, 2026);
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (DESNZ 2023) (NPS EN-3) (DESNZ, 2026);
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (DESNZ, 2023) (NPS EN-5) (DESNZ, 2026); and
- National Policy Statement for Ports (NPSP) (Department for Transport, 2012).

5.6.1.4 Each of these NPSs are discussed below. Following consultation the government completed its review and laid updated versions before Parliament on 13 November

2025. The final designated Energy National Policy Statements (EN-1, EN-3 and EN-5), published on 6 January 2026, include updated policy reflecting the government's commitment to delivering the infrastructure needed to achieve Clean Power by 2030 and Net Zero by 2050 (DESNZ, 2023). These NPSs support the government's Clean Power 2030 mission and provide an updated strategic framework for assessing NSIPs.

### 5.6.2 Overarching National Policy Statement for Energy (NPS EN-1)

5.6.2.1 The NPS EN-1 sets out the government's overarching national policy for the development of NSIPs in the energy sector. The NPS EN-1 forms the primary basis for determining if development consent should be granted for developments covered by the Energy NPSs. Paragraph 1.3.10 of NPS EN-1 states that in circumstances where the SoS has given a Section 35 Direction: *"[NPS] EN-1, in conjunction with any relevant technology specific NPS, will be the primary policy for Secretary of State decision making on projects in the field of energy for which a direction has been given under section 35*" (DESNZ, 2026).

5.6.2.2 The 2025 version of EN-1 (in force from 6 January 2026) strengthens the statement of national need for energy infrastructure in support of the Government's Clean Power 2030 and net zero objectives and reinforces the presumption in favour of granting development consent for applications that accord with the relevant Energy NPSs. EN-1 requires the SoS to give substantial weight to this national need when balancing the benefits of a proposal against its potential adverse impacts, including cumulative effects and the consideration of associated and connected infrastructure. Volume 05, Chapter 32: Approach to Cumulative Effects provides the methodology for the assessment of cumulative effects.

5.6.2.3 The NPS EN-1 also outlines key assessment principles, including the Critical National Priority for low-carbon infrastructure, environmental and biodiversity considerations, design quality, climate resilience, and other regulatory and safety matters. These principles inform the UK Scheme's approach to alternatives, the scope of technical assessments, and the evaluation of potential effects across environmental topics. A summary of the generic impacts relevant to each technical assessment is provided in each topic -specific environmental Chapter.

### 5.6.3 National Policy Statement for Renewable Energy Infrastructure (NPS EN-3)

5.6.3.1 The NPS EN-3 (DESNZ, 2026), in conjunction with NPS EN-1 (DESNZ, 2026), provides the primary policy for decisions by the SoS on applications received for nationally significant renewable energy infrastructure. EN-3 applies to relevant development consent applications, including offshore infrastructure directed into the NSIP regime under Section 35 of the Planning Act 2008, such as interconnector projects where they form part of, or are associated with, renewable energy generation and transmission infrastructure (HM Government, 2008).

5.6.3.2 Although primarily focused on renewable energy generating stations, NPS EN-3 is applicable to offshore transmission infrastructure directed into the NSIP regime. It is

deemed that offshore transmission and interconnector projects are integral to the effective delivery of renewable energy projects (DESNZ, 2026).

5.6.3.3 While the policies are not specific to interconnector projects, relevant offshore wind transmission policies have been considered where they apply to the UKMS. Updated guidance within EN-3 relating to cumulative effects, interactions with offshore wind infrastructure, and the need for proportionate assessment has informed the scope of the environmental assessments. These considerations have been reflected in the scoping approach adopted for the UK Scheme.

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

5.6.4.1 The NPS EN-5 (DESNZ, 2026) sets out policy framework for the development of electricity network infrastructure. The 2025 version of EN-5 (in force from 6 January 2026) supports the delivery of nationally significant electricity transmission infrastructure as a Critical National Priority (CNP). It clarifies that the need for qualifying electricity networks infrastructure is established at a national level and should not normally be reconsidered as part of individual DCO examinations.

5.6.4.2 EN-5 includes assessment principles relating to good design, biodiversity and geological conservation, landscape and visual impacts, and noise and vibration. These policies have informed the preparation of this Scoping Report, with relevant generic impacts addressed within each environmental topic Chapter.

5.6.4.3 The NPS EN-5 also reiterates the duties under Schedule 9 of the Electricity Act 1989 (Electricity Act, 1989), requiring network developers to ensure an efficient and economical system while having regard to conserving natural beauty, protecting ecological and geological features, and safeguarding sites of historic, architectural or archaeological interest, and to take reasonable steps to mitigate adverse effects.

### 5.6.5 National Policy Statement for Ports (NPSP)

5.6.5.1 The National Policy Statement for Ports (NPSP) (Department for Transport, 2012) provides the framework for decisions on proposals for new port development, recognising the essential role they play in the UK economy and the wider economic benefits that they can bring. Whilst the UK Scheme does not propose new port development, it does interact with Harwich and Felixstowe ports. Under Section 104 (2)(d) of the PA 2008, it is considered that relevant content within the NPSP is both important and relevant to the SoS decision (HM Government, 2008). The Applicant has therefore considered the relevant policies within the NPSP as part of scoping the assessment.

### 5.6.6 Marine Planning Policy

5.6.6.1 Marine Planning Policy is a relevant consideration for the UKMS, which requires the SoS to determine applications in accordance with applicable marine policy planning (HM Government, 2008). The relevant marine policy documents have therefore been considered in preparing this Scoping Report. A Marine Plan Policy Assessment will be submitted as part of the DCO Application in support of the deemed Marine

Licence, demonstrating the UKMS' conformity with the relevant marine planning policies.

5.6.6.2 The UK Marine Policy Statement (MPS) (HM Government, 2011) provides the overarching framework for marine spatial planning and must be followed alongside the relevant Marine Plans under the MCAA 2009 (HM Government, 2009). The MMO has taken a regional approach to developing marine plans in English waters.

5.6.6.3 The MCAA 2009 (HM Government, 2009) requires all public authorities to take authorisation or enforcement decisions that affect or might affect the UK marine area in accordance with the MPS (HM Government, 2011) and the relevant Marine Plans.

5.6.6.4 The MPS (HM Government, 2011) specifies that the following issues should be considered by decision-makers when examining applications for energy infrastructure:

- The national level of need for energy infrastructure, as set out in NPS EN-1 (DESNZ, 2026);
- The positive wider environmental, societal and economic benefits of low-carbon electricity generation and carbon capture and storage as key technologies for reducing carbon dioxide emissions; and
- The potential impact of inward investment in offshore wind, wave, tidal stream and tidal range energy-related manufacturing and deployment activity, as well as the impact of associated employment opportunities on the regeneration of local and national economies. These activities support the objective of developing the UK's low-carbon manufacturing capability (MPS, paragraph 3.3.4 (HM Government, 2011)).

5.6.6.5 The following Marine Plans have been considered in the development of this Scoping Report:

- South-East Inshore Marine Plan Area (June 2021) (HM Government, MMO, 2021); and
- East Inshore and East Offshore Marine Plan, April 2014 (Marine Management Organisation, 2014) (HM Government, MMO, 2014).

5.6.6.6 A summary of specific marine policies relevant to each technical assessment is provided within each environmental topic Chapter relating to the UKMS.

5.6.6.7 In 2023, the SoS for Environment, Food and Rural Affairs agreed with the MMO's recommendation to replace the East Inshore and East Offshore Marine Plan (HM Government, MMO, 2014). The adopted East Inshore and East Offshore Marine Plan will be replaced with a new 'East Marine Plan' which is in draft and will be the first of a second generation of plans for English waters. The new document will be referred to as the 'East Marine Plan' with a proposed adoption date of Autumn 2026 (MMO, 2023).

### 5.6.7 Local Planning Policy

5.6.7.1 The EOS lies within the administrative boundaries of Tendring District Council and Essex County Council. The adopted development plan for this area comprises the following documents which have been considered in the preparation of the Scoping Report:

- Tendring District Local Plan 2013-2033 and Beyond: North Essex Authorities' Shared Strategic Section 1 (adopted 26th January 2021) (Tendring District Council, 2021);Tendring District Local Plan 2013-2033 and Beyond Section 2 (adopted 25 January 2022) (Tendring District Council, 2022);
- Tendring District Local Plan Review 2025-2042 and Beyond (Tendring District Council, 2026);
- Essex Minerals Local Plan (adopted July 2014) (Essex County Council, 2014);
- Essex and Southend-on-Sea Waste Local Plan (adopted July 2017) (Southend-on-Sea City Council, 2017); and
- Ardleigh Neighbourhood Plan (made September 2024) (Ardleigh Parish Council, 2024).

5.6.7.2 A summary of local planning policy that is relevant to each technical assessment is provided in each environmental topic Chapter. Supplementary Planning Guidance provides more detail as to how local planning policy should be applied, where relevant to the EOS, this has also been considered in each of the topic Chapters.

5.6.7.3 At the time of writing, Tendring District Council are in the process of undertaking a review of their Local Plan (Tendring District Council, 2021; Tendring District Council, 2022). The Local Development Scheme indicates that the new Local Plan will be submitted in late 2026, move into examination in Summer 2027 and be adopted in Winter 2027 (Tendring District Council, 2026). The Applicant will ensure due consideration is given to the updated Local Plan alongside other relevant emerging policies.

5.6.7.4 Essex County Council are in the process of undertaking a review of the Minerals Local Plan (Essex County Council, 2014). The future plan is envisaged to be adopted during 2026.

### 5.6.8 National Planning Policy Framework

5.6.8.1 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2024), revised in December 2024 with further minor amendments in February 2025, does not contain specific policies for nationally significant infrastructure projects. Instead, such projects are determined under the PA 2008 and the relevant NPS, with the NPPF only considered where it is deemed an important and relevant matter.

5.6.8.2 On this basis, the NPPF is less important to the SoS decision than the relevant NPS. However, the NPPF is supported by the Planning Practice Guidance (PPG), which provides practical advice on how planning policies should be applied (Ministry of Housing, Communities and Local Government, Ministry and Department for

Levelling Up, Housing and Communities, 2016 - 2024). Therefore, reference is made to the NPPF and PPG in the Scoping Report, but only in respect of relevant matters.

5.6.8.3 The Ministry of Housing, Communities and Local Government opened a consultation on proposed reforms to the NPPF in December 2025 (HM Government, 2025), due to close in March 2026, with an intention to:

- Ensure national planning policy is accessible and understandable for everyone who uses it;
- Establish a comprehensive suite of national policies on general planning matters which will apply across the country, to avoid these matters being repeated or deviated from in locally-produced plans; in so doing helping to speed up their preparation and preventing an unnecessary increase of different standards that can complicate development; and
- Make the policy which it contains more 'rules-based' and certain, and so more capable of supporting timely and consistent planning; especially in those places where development is most desirable, where national policy should provide for a default "yes" to the principle of development

5.6.8.4 Once adopted, the Applicant will take into account anything within the NPPF that has relevance to the Tarchon Project.

## 5.7 Guidance, Advice and Other Policies and Agreements

### 5.7.1 Guidance and Advice

5.7.1.1 The Government and PINS has produced a set of guidance and advice notes for applicants submitting a DCO application for a NSIP which are relevant to the development of the UK Scheme.

- Nationally Significant Infrastructure Projects: Advice on the Preparation and Submission of Application Documents (Planning Inspectorate, 2024);
- Nationally Significant Infrastructure Projects: Advice on EIA Notification and Consultation (Planning Inspectorate, 2024);
- Advice Note Seven: Environmental Impact Assessments; process, preliminary environmental information and environmental statements (Version 7) (Planning Inspectorate, 2020);
- Advice Note Nine; Rochdale Envelope (Version 3) (Planning Inspectorate, 2018);
- Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments (Planning Inspectorate, 2024);
- Nationally Significant Infrastructure Projects: Advice on working with public bodies in the infrastructure planning process Annexes (Planning Inspectorate, 2012);
- Nationally Significant Infrastructure Projects: Advice on Transboundary Impacts and Process (Planning Inspectorate, 2024);
- Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (Planning Inspectorate, 2024);

- Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive (Planning Inspectorate, 2024); and
- Planning Act 2008: Pre-application stage for Nationally Significant Infrastructure Projects (Planning Inspectorate, 2024)

### 5.7.2 North Sea Alliance

5.7.2.1 At the North Sea Summit 2026, the governments of Belgium, Denmark, France, Germany, Ireland, Luxembourg, the Netherlands, Norway and the United Kingdom, wind industry, and Transmission System Operators of the electricity and hydrogen networks come together in a spirit of partnership and shared responsibility to advance Europe's energy security, competitiveness, and decarbonisation ambitions (The North Sea Summit, 2026).

5.7.2.2 At the summit, all signing sides committed to working together to:

- Scale offshore wind energy to the levels required for Europe's decarbonisation;
- Enable hydrogen as complementary energy carrier to offshore renewable electricity (where cost-efficient);
- Ensure affordable and secure energy for citizens and businesses; and
- Strengthen Europe's industrial base and technological leadership.

### 5.7.3 Connections Action Plan and Transmission Acceleration Plan Policy Papers

5.7.3.1 The Connections Action Plan and Transmission Acceleration Plan were both published in 2023 by the UK government to set ambitious targets to allow Ofgem, industry and the government to increase the speed at which grid connections are approved and implemented as a means to expand the grid capacity rapidly enough to meet increasing demands for transmission infrastructure (DESNZ, 2023; DESNZ, 2023).

5.7.3.2 Ofgem and the National Energy System Operator concluded that Great Britain will become a net energy exporter by 2030 due to the increase in renewable energy generation assets (Ofgem, 2024) and this, combined with the Connections Action Plan, Transmission Acceleration Plan, led to Ofgem assessing the Tarchon Project as likely to be in the interest of GB consumers and granting it a cap and floor regime in principle (Ofgem, 2024).

## 5.8 References

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 01, Chapter 06: EIA Approach and Methodology

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00008 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| CEMP | Construction Environmental Management Plan |
| DCO | Development Consent Order |
| DEMP | Decommissioning Environmental Management Plan |
| DMRB | Design Manual for Roads and Bridges |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| HRA | Habitats Regulations Assessment |
| MDS | Maximum Design Scenario |
| NSIP | Nationally Significant Infrastructure Project |
| PEIR | Preliminary Environmental Information Report |
| PINS | Planning Inspectorate |
| SoS | Secretary of State |
| UK | United Kingdom |
| UKMS | UK Marine Scheme |

# 6. EIA Approach and Methodology

## 6.1 Chapter Introduction

6.1.1.1 This Chapter describes how the Environmental Impact Assessment (EIA) for the United Kingdom Scheme (UK Scheme) will be undertaken and reported (for further definition of the UK Scheme see Volume 01, Chapter 01: Introduction and Volume 01, Chapter 02: UK Project Description. It sets out the methods used to identify, predict, and evaluate potential significant effects arising from construction, operation and maintenance, and decommissioning, in accordance with the Infrastructure Planning (EIA) Regulations 2017 ('the EIA Regulations') (HM Government, 2017). Findings will be presented in the final EIA Environmental Statement (ES) that will accompany the Development Consent Order (DCO) Application. The ES will follow EIA Regulations Schedule 4 requirements.

6.1.1.2 The EIA will apply a proportionate, evidence-based approach across the natural, human, and built environment. Early identification of potential significant effects will enable mitigation to be integrated into the UK Scheme design and/or secured through commitments. Topic-specific methods are set out in the respective technical Chapters (Volumes 02–04) and relevant annexes (Volume 06) of this Scoping Report.

## 6.2 EIA Legislation, Guidance and Policy

### 6.2.1 Introduction

6.2.1.1 The EIA will be undertaken with regard to relevant law, policy and accepted practice, including (as applicable):

- Planning Inspectorate Advice Notes (3, 7, 9, 10, 11, 12, 17 and 18);
- National Policy Statements (EN-1, EN-3, and EN-5) (see Volume 01, Chapter 05: Legislative and Planning Policy Context);
- National Planning Policy Framework (where relevant);
- Design Manual for Roads and Bridges (DMRB);
- UK Marine Policy Statement;
- Marine Planning Policy;
  - South-East Inshore Marine Plan (HM Government, MMO, 2021);
  - East Inshore and East Offshore Marine Plan (HM Government, MMO, 2014);
- Schedule 15 of the Environment Act 2021 (Biodiversity Net Gain Assessment) (HM Government, 2021);
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (HM Government, 2017);
- Professional EIA guidance documents:
  - Guidelines for Environmental Impact Assessment (ISEP, Guidelines for Environmental Impact Assessment, 2004);

- Guide to Shaping Quality Development (ISEP, Guide to Shaping Quality Development, 2016); and
- Delivering Proportionate EIA, a Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice (ISEP, 2017).

6.2.1.2 Specific guidance on assessing the environmental impact of interconnector infrastructure is minimal at the time of writing. However, EIA guidance documents are available for offshore wind infrastructure, which includes transmission cables from the offshore wind farm to the onshore grid and, as such, are considered relevant to the UK Scheme. Industry EIA guidance documents that have been used for the assessments include:

- Assessment of the environmental impact of offshore windfarms (OSPAR, 2008);
- Offshore Wind Farms: Guidance Note for Environmental Impact Assessment in Respect of Food and Environment Protection Act 1985 and Coastal Protection Act 1949 requirements (Cefas, 2004);
- Cumulative Impact Assessment Guidelines – Guiding Principles for Cumulative Impact Assessment in Offshore Wind Farms (UK, 2013); and
- Guidelines for data acquisition to support marine environmental assessments of offshore renewable energy projects (Cefas, 2012).

6.2.1.3 Where a technical topic follows specific industry guidance, this is identified within that topic Chapter.

### 6.2.2 General Approach

6.2.2.1 The EIA will provide the Planning Inspectorate (PINS) and statutory consultees with information on potential significant effects to support engagement and determination of the DCO.

6.2.2.2 Each topic Chapter will identify potential significant effects that may arise as a result of the construction, operation and maintenance, and decommissioning of the UK Scheme. Potential significant effects are effects that cannot be ruled out on the basis of objective scientific information when comparing the predicted future baseline with and without the UK Scheme.

6.2.2.3 To ensure a robust assessment, a Maximum Design Scenario (MDS) (presented in Volume 01, Chapter 02: UK Project Description) will be applied to each element of the UK Scheme consistent with the Rochdale Envelope approach (see Section 6.2.4) (The Planning Inspectorate, 2018, republished 2025). This will help to ensure that realistic worst-case parameters are assessed for each receptor.

### 6.2.3 EIA Process

6.2.3.1 Three main EIA documents will be produced by the Developer as part of the DCO pre-application process:

- **Scoping Report**: defines the form of the EIA, methods to be applied, and topics proposed for assessment. The Scoping Report will be issued to consultees by PINS to help inform the Scoping Opinion.

- **Preliminary Environmental Information Report (PEIR)**: used by consultees to inform their consultation responses during the Statutory Consultation period and is published at the same time the Statutory Consultation starts. PINS Advice Note 7 states that PEIR information '*is reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development*' (Planning Inspectorate, 2020); and
- **Environmental Statement (ES)**: reports the EIA results, the potential significant effects if the UK Scheme proceeds, and the mitigation to avoid, reduce or offset any significant adverse effects envisaged. The ES is submitted with the DCO application and will help inform the regulatory decision-making process.

6.2.3.2 The EIA process is iterative and will accommodate design evolution and consultation feedback, including mitigation introduced throughout the EIA process. While design refinement will continue, the location, scale, design principles and technology will seek to remain within the parameter ranges described in Volume 01, Chapter 02: UK Project Description. The PEIR will revisit the parameter ranges, reconfirm and refine these within the project description Chapter at that time.

6.2.3.3 As set out in Volume 01, Chapter 03: Approach to Alternatives, the overall approach to appraising siting and routing options considers key engineering, environmental and land use factors, as well as community considerations. Further details on optioneering and decision making will be presented in the PEIR and ES.

6.2.3.4 The EIA Process follows the high-level steps shown in Figure 6-1 below.

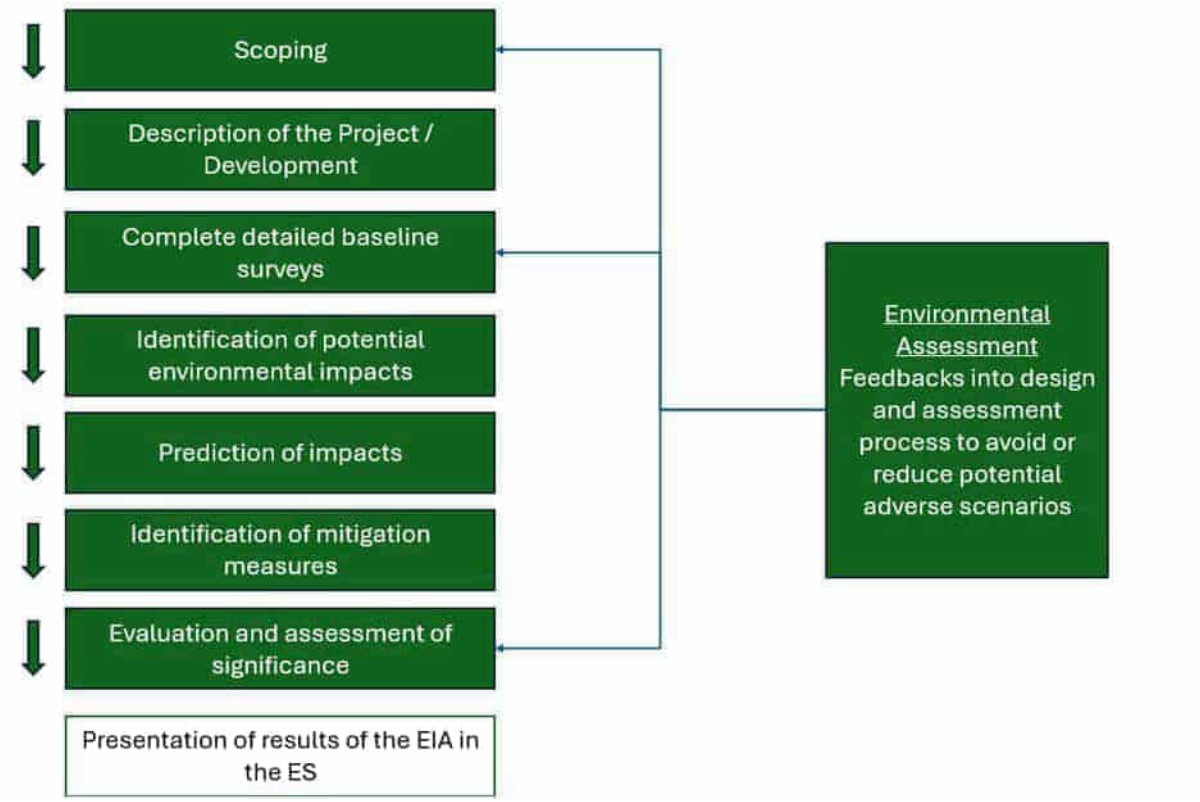



**Figure 6-1: EIA Process**

### 6.2.4 The Rochdale Envelope

6.2.4.1 In line with PINS Advice Note 9 (The Planning Inspectorate, 2018, republished 2025), the assessment will apply the Rochdale Envelope approach. This approach allows a degree of flexibility in project design by assessing a defined range of parameters that represents a realistic worst-case scenario, where final design details are not yet fixed. The parameters used in the EIA will be no wider than necessary to capture potential worst-case effects, while avoiding artificial overstatement. Technical authors will set out topic-specific worst-case assumptions in the PEIR and ES, ensuring that the environmental assessment remains robust within the agreed Rochdale Envelope.

6.2.4.2 The level of flexibility required will depend on the level of design information available at the time of the EIA assessment. A reasonable degree of flexibility is required when submitting the DCO application, in order for detailed design to be informed by environmental and technical considerations from the EIA process, post-consent work and continued innovations in technology for a development of this nature and scale. It is expected that the following aspects of the UK Scheme will require design flexibility at the time of EIA assessment (note this list is not exhaustive):

- The height of the buildings within the proposed Converter Station;
- The footprint of the proposed Converter Station;
- The footprint of the proposed Landfall;

- The exact routing of the proposed Onshore High Voltage Direct Current (HVDC) and Onshore High Voltage Alternating Current (HVAC) Cables within the Order limits[1];
- The exact routing of the proposed Subsea HVDC Cables within the Order limits;
- The specific construction methods, approaches and techniques to be used in both the construction of the English Onshore Scheme (EOS) and in the installation of the UK Marine Scheme (UKMS); and
- The depth of cable burial.

## 6.3 Baseline and Future Baseline

6.3.1.1 In order to predict the potential significant effects of the UK Scheme, it will be necessary to determine the environmental conditions that currently exist within its boundary and the surrounding area, in the absence of the UK Scheme. These are known as 'baseline conditions'. Gathering accurate baseline data ensures that a reliable assessment can take place as part of the EIA.

6.3.1.2 Detailed environmental baseline information will be collected and the methodology for the collection process will be presented in the ES. The baseline information will be gathered from various sources, including:

- Online/digital resources and data searches;
- Baseline site surveys; and
- Environmental information submitted (or with the view of being later submitted) as part of other applications for developments in the vicinity of the UK Scheme.

6.3.1.3 Where additional baseline site surveys are required, the survey work will be subject to consultation with statutory bodies at that time.

6.3.1.4 Consideration will also be given to how baseline conditions will evolve in the absence of the UK Scheme. This is known as the 'future baseline' and involves the consideration of the 'no development' or 'do nothing' scenario to understand how natural and man-made changes would occur over time without the UK Scheme. This comparison helps assess the potential significant effects of the UK Scheme by evaluating environmental changes, (for examples; noise levels), during construction, operational and maintenance, and decommissioning phases.

## 6.4 Mitigation and Monitoring

### 6.4.1 Introduction

6.4.1.1 Regulation 14, Part 2 (c) of the EIA Regulations (HM Government, 2017) requires that the ES provides *"a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset adverse potential significant effects on the environment.*" These are referred to as mitigation measures.

[1] The Order limits will define the boundary of the UK Scheme within which the authorised development can be carried out, and hence represent the maximum extent of land to be acquired or used for the construction, operation (including maintenance), and decommissioning of the UK Scheme.

6.4.1.2 The UK Scheme will adopt a standard hierarchical approach to identifying mitigation measures:

- **Avoid or Prevent**: In the first instance, mitigation should seek to avoid or prevent the adverse effect at source, for example by routing the proposed onshore or subsea cabling away from a sensitive receptor;
- **Reduce**: If the effect is unavoidable, mitigation measures should be implemented which seek to reduce the significance of the effect, for example the use of a noise barriers to reduce airborne construction noise at nearby noise sensitive receptors; and
- **Offset**: If the effect can neither be avoided nor sufficiently reduced, mitigation should seek to offset the effect through the implementation of compensatory mitigation, for example habitat creation to replace habitat losses.

6.4.1.3 Mitigation measures fall into two categories:

- **Embedded mitigation** – measures incorporated into the design and intended construction approach; and
- **Additional mitigation** – measures beyond the embedded design to further reduce residual effects where significant adverse effects would otherwise remain.

### 6.4.2 Embedded Mitigation Measures

6.4.2.1 The UK Scheme will be developed through an iterative EIA and design process which involves seeking to avoid or reduce and, if practicable, offset potential significant effects. Where practicable, these measures will be incorporated into the form or design of the UK Scheme, for example through the appropriate routing and siting of infrastructure.

6.4.2.2 Once these measures are incorporated into the design, they are termed ‘embedded measures’. Embedded measures relevant to the construction phase of the UK Scheme will be described within each technical ES Chapter. For the operational phase of the UK Scheme, such embedded measures will be represented primarily in the design. Embedded measures are therefore either incorporated into the design from the outset or identified through the EIA process.

6.4.2.3 The ES will also incorporate legislative requirements and industry standard control measures which are common practice on construction sites, into the embedded measures. These will be described in each technical Chapter and included in and outline Construction Environmental Management Plan(s) (CEMP) for construction activities associated with the UK Scheme which will be prepared as part of the DCO submission. The outline CEMP(s) provide the appointed Contractor(s) (including any sub-contractors or suppliers involved in the works) with a plan to implement and deliver environmental management, mitigation and monitoring requirements during the construction phase of the UK Scheme. The outline CEMP(s) will be developed into a Detailed (or construction issue) CEMP(s) by the appointed Contractor(s) prior to the start of construction. It is intended that the Detailed CEMP(s) will be ‘live’ documents and subject to periodic reviews and updates, and updated as and when

the need arises throughout the construction period, for example to reflect any changes in personnel, or to include any relevant additional information. Production of the detailed CEMP(s) will be secured through the DCO as a post consent requirement.

### 6.4.3 Additional Mitigation Measures

6.4.3.1 Initial EIA assessments will be undertaken on the basis of embedded measures being delivered and/or implemented. Where significant adverse environmental effects remain, 'additional mitigation measures' will be proposed with the intention of reducing adverse effects so far as practicable. These additional measures will be presented within each of the technical Chapters, and may include bespoke/site-specific measures beyond industry standard controls such as the installation of temporary fencing until planting establishes for visual screening. These measures will also be contained within the relevant outline CEMP(s) and an environmental mitigation and commitments register.

6.4.3.2 Where additional mitigation is proposed this will be set out in the relevant topic Chapter.

### 6.4.4 Monitoring

6.4.4.1 Schedule 4, Paragraph 7 of the EIA Regulations (HM Government, 2017) states that, where appropriate, the ES should include "*A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases"*.

6.4.4.2 Where monitoring is proposed this will be set out in the relevant topic Chapter.

## 6.5 Timescales and Assessment Years

### 6.5.1 Construction Phase Effects

6.5.1.1 Unless specifically stated within a technical Chapter, construction phase effects will be those for which the source begins and ends within the construction period, and the effects do not endure beyond the completion of the construction phase.

6.5.1.2 In the onshore environment this covers sources of effects such as construction traffic, noise, vibration and dust emissions from construction activities and the visual intrusion of plant and machinery on-site. In the marine environment this may include sources of effects such as underwater noise from vessel activities and seabed sediment disturbance. Some aspects of construction-related effects will last for a longer duration than others, for example impacts related to the establishment of construction compounds are likely to be relatively short in duration in respect of the whole construction period, whereas the construction of energy infrastructure and landscaping activities are likely to persist throughout the entire construction period.

### 6.5.2 Operational Phase Effects

6.5.2.1 Operational phase effects may start during construction, and are either permanent, endure for a substantial period beyond construction, or represent an extended cumulative effect of construction or decommissioning activity. This includes the effects of the physical presence of the energy infrastructure and its operation, use and maintenance (including possible emergency repair work). Timescales associated with these enduring effects are as follows (unless otherwise specified within a technical Chapter):

- **Short term** – endures for up to 12 months after construction completion;
- **Medium term** – endures for one to five years after construction completion;
- **Long term** – endures for more than five years after construction completion;
- **Reversible long-term effects** – long-term effects which endure throughout the lifetime of the UK Scheme, but which cease once the UK Scheme has been decommissioned; and
- **Irreversible effects** – effects which cannot be reversed following decommissioning (for example where buried archaeology is permanently removed during construction).

### 6.5.3 Decommissioning Phase Effects

6.5.3.1 For the assessment, these effects will be those for which the source begins and ends during the decommissioning stage. This covers sources of effects such as, but not limited to, decommissioning traffic, noise, vibration, dust emissions, and the visual intrusion of plant and machinery on-site as a result of decommissioning of the infrastructure (i.e. removal of previously installed equipment). As with construction phase effects, some aspects of decommissioning will endure for longer than others and may extend beyond the completion of the decommissioning phase.

### 6.5.4 Assessment Years

6.5.4.1 To ensure that the EIA is robust in considering the potential significant effects of the UK Scheme, appropriate assessment scenarios and years have been identified and are outlined in Volume 01, Chapter 02: UK Project Description.

## 6.6 Assessment of Impacts and Significance of Effects

### 6.6.1 Introduction

6.6.1.1 A source-pathway-receptor framework will be applied within each EIA topic to identify and evaluate potential effects on topic specific receptors arising from the construction, operational and decommissioning phases of the UK Scheme. This is stepped approach defined as:

- **Step 1: Source (and impact);**
  - The origin of a potential impact;
- **Step 2: Pathway;**

  - The mechanism by which the impact may affect a receptor; and
- **Step 3: Receptor (and effect);**
  - The component of the environment that may be affected.

#### Step 1: Source (and impact)

6.6.1.2 Step 1 involves the identification of potential impacts based on expected sources, such as during construction, increases in vessel numbers in certain areas are expected which could lead to potential noise increases. These identified sources and impacts are then set out in the topic Chapter, arranged by UK Scheme phase (construction, operational and/or decommissioning) as per the example below which is provided in the context of ornithology (Table 6-1).

**Table 6-1: Example table of identified sources and impacts**

| Project Phase | Source | Potential Impact | Potential for significant effects | Proposed to be scoped in/out |
|---|---|---|---|---|
| Construction, operational and decommissioning | All vessel activities associated with the project | Direct disturbance and displacement of waterbirds and offshore bird species caused by vessel noise, visual stimuli and vessel presence. Potentially altering flight paths, foraging activity or resting behaviour. | Yes | Scoped In |

#### Step 2: Pathway

6.6.1.3 Step 2 involves assessing how each potential impact could affect identified receptors. This process requires identifying possible receptors, such as marine mammals or seabirds, and determining how they might be affected by the impact created by the source. Identified pathways and receptors are then laid out in the topic Chapter as shown in the example below which is provided in the context of ornithology (Table 6-2).

#### Step 3: Receptor (and effect)

6.6.1.4 Step 3 involves the identification of potential effects on the receptors caused by the impact created by the source. These potential effects can be either adverse or beneficial and this step is key in assessing whether the potential effect could be significant. The evaluation of the significance of an effect is important as it is the significance of the effect that determines the value of a beneficial effect or resources that should be deployed to avoid or mitigate a potentially adverse effect. These effects are laid out as per Table 6-2 and are provided in the context of ornithology.

**Table 6-2: Example table of identified impact pathways and receptors**

| Impact Pathway | Receptor(s) | Potential Impact | Potential for significant effects | Proposed to be scoped in/out |
|---|---|---|---|---|
| Direct disturbance of birds with sound, visual impacts and presence of vessels | Onshore ornithology Marine ornithology | Displacement of birds | Yes | Scoped In |

6.6.1.5 A simplified example of one source-pathway-receptor approach would be:

- Step 1: cable laying during construction (source) results in increased sediment disturbance (impact);
- Step 2: increased sediment disturbance results in a change to benthic habitats due to alter sediment deposition rates and locations (pathway); and
- Step 3: benthic species (receptor) are smothered resulting in increased mortality (adverse effect).

6.6.1.6 The overall environmental acceptability of the UK Scheme is a matter for the Secretary of State ('SoS') to determine, having taken into account, amongst other matters, the environmental information set out in the ES, including all likely potential beneficial and adverse significant environmental effects. The SoS will consider this information against the relevant tests described in NPS EN-1, EN-3 and EN-5, as well as Section 105 of the Planning Act 2008.

6.6.1.7 Where quantification is not possible, qualitative assessments will be undertaken using professional judgement and explicit assumptions. Topic-specific criteria will be provided in each Chapter, drawing on accepted standards where available.

6.6.1.8 The overall potential significance of an effect is derived by combining receptor sensitivity with impact magnitude using a consistent matrix. Receptor sensitivity, impact magnitude and the matrix are outlined further in Sections 6.6.2, 6.6.3, and 6.6.4 respectively.

### 6.6.2 Sensitivity of the Receptor

6.6.2.1 The sensitivity of a receptor is characterised by the vulnerability to change, recoverability and importance of the receptor or feature (Table 6-3). Characterisation of a receptor is achieved by considering three factors to determine its 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 before the UK Scheme impact caused the change; and
- **Importance / Value**: a measure of the value assigned to that receptor such as biodiversity and ecosystem services, rarity, social value and economic value.

Importance of the receptor is also defined within a geographical context, i.e. whether it is important internationally, nationally or locally.

6.6.2.2 The criteria in Table 6-3 draw on established EIA good practice, adapted from ISEP guidance, DMRB, and typical NSIP precedent.

**Table 6-3: Sensitivity Criteria**

| Sensitivity | Description |
|---|---|
| Very High | Very high importance and rarity, valued at an international level and limited potential for recovery or substitution. |
| 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 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, strong potential for recovery or replacement. |

### 6.6.3 Magnitude of Impacts

6.6.3.1 General criteria for defining the magnitude (or scale) of an impact are set out in Table 6-4. Key factors that influence this include:

- **Magnitude of change**: the magnitude (or scale) of change refers to the degree of change relative to the baseline environment caused by the impact being described;
- **Spatial extent**: the spatial extent of an impact is the full area over which the impact occurs;
- **Duration and frequency**: the duration is the period within which the impact is expected to last prior to recovery or replacement of the feature. Frequency refers to how often the impact will occur; and
- **Reversibility of the impact**: can it be reversed following completion of construction, operation, or decommissioning of the development.

6.6.3.2 The criteria in Table 6-4 draw on established EIA good practice, adapted from ISEP guidance, DMRB, and typical NSIP precedent.

**Table 6-4: Magnitude of Change Criteria**

| Magnitude | Criteria |
|---|---|
| Large | Long term and/or regional level (or above 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 UK Scheme footprint) or alteration to one or more key elements/features of the baseline conditions such that post- |

| Magnitude | Criteria |
|---|---|
| | 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. |

### 6.6.4 Evaluating the Significance of Effects

6.6.4.1 Having established the sensitivity of the receptor and magnitude of impact, the significance of an effect can be assessed. The significance of residual effects[2] will be evaluated with reference to available definitive standards and accepted criteria as follows:

- Value or importance (i.e. sensitivity) of the receptor (described as very high, high, medium, low and negligible);
- The extent and magnitude of the impact (i.e., the magnitude of change from the baseline) (described as large, small, medium and negligible);
- Effect duration and whether effects are temporary, reversible or permanent; and
- Effect nature (whether direct or indirect, reversible or irreversible, beneficial or adverse).

6.6.4.2 Each of the technical Chapters will provide the specific criteria, including sources and justifications, for quantifying the different categories of effect. Where possible, this will be based on quantitative and accepted criteria (for example, noise assessment guidelines), together with the use of value judgement and expert interpretation to establish to what extent an effect is environmentally significant. A precautionary worst-case approach will be adopted to ensure that the recorded effects are not understated.

6.6.4.3 Table 6-5 illustrates an example of the classification of effects matrix (often referred to as a significance matrix).

**Table 6-5: Example Matrix to Classify Environmental Effects**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Negligible |
| Very High | Major | Major | Moderate | Minor |
| High | Major | Moderate | Moderate | Minor |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

[2] Residual effects are effects predicted to remain following the implementation of embedded and, if required additional, mitigation measures.

6.6.4.4 Following the classification of an effect, a clear statement will be made within the relevant topic Chapter as to whether that effect is considered significant or not significant.

6.6.4.5 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

6.6.4.6 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UK Scheme design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UK Scheme.

6.6.4.7 Generic definitions for the classification of effects are provided in Table 6-6, drawing on established EIA good practice, adapted from ISEP guidance, DMRB, and typical NSIP precedent.

**Table 6-6: Generic Effect Descriptions**

| Generic Effect | Description |
|---|---|
| Major | 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 which are unique and which, if lost, cannot be replaced or relocated. |
| Moderate | These effects, if adverse, are likely to be important at a local scale and on their own could have a material influence on decision making. |
| Minor | These effects may be raised as local issues and may be of relevance in the detailed design of the UK Scheme but are unlikely to be critical in the decision-making process. |
| Negligible | 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. |

6.6.4.8 Where mitigation measures are identified to eliminate, mitigate or reduce adverse impacts, these will either be incorporated into the design of the UK Scheme; translated into construction commitments; or operational or managerial standards/procedures. The ES will highlight ‘residual’ effects, which remain following the implementation of mitigation measures, and classify them in accordance with the effect classification terminology presented above.

6.6.4.9 Should significant residual effects be identified (i.e., effects which remain significant even with mitigation in place) these will be highlighted within the ES.

6.6.4.10 It should be noted that some technical disciplines may utilise different, topic specific criteria when undertaking assessments due to differences in industry accepted guidelines and specifications. Where this is the case, the individual Chapter will discuss how the assessment methodology or classification of effects differs for the general EIA methodology described in this Chapter and provide justification.

### 6.6.5 Assessment of Construction and Decommissioning Effects

6.6.5.1 The identification of construction and decommissioning effects will be made on the basis of existing knowledge, techniques and equipment. Current assumptions on decommissioning are set out in Volume 01, Chapter 02: UK Project Description. A 'reasonable worst-case' scenario will be used with respect to the envisaged construction and decommissioning methods, location (proximity to sensitive receptors), phasing and timing of construction and decommissioning activities. An outline Decommissioning Environmental Management Plan (DEMP) will set out the general principles to be followed in the decommissioning of the UK Scheme, this document is further discussed in Volume 01, Chapter 02: UK Project Description.

6.6.5.2 The assessment of construction, operational and decommissioning effects will assume the implementation of standard good practice measures, for example the use of temporary noise barriers to reduce airborne noise levels as appropriate and, where practicable, control of dust on haul roads, etc. The purpose of this is to focus on the UK Scheme-specific effects, rather than generic construction effects that can be easily addressed using standard best practice mitigation measures. Construction and decommissioning assumptions, including what has been assumed in terms of good practice measures, will be set out within the ES, and the outline CEMP and outline DEMP. The ES will identify and assess construction and decommissioning effects that are likely to remain after these mitigation measures are in place (significant residual effects).

## 6.7 Cumulative Effects, Interrelationships and Combined Effects

6.7.1.1 Even where individual effects are not significant, multiple effects acting together may result in a cumulative effect. The cumulative assessment therefore considers effects acting in combination with other project components or external plans and projects.

6.7.1.2 Accordingly, the scope of the EIA will include a cumulative effects assessment, the purpose of which will be to identify:

- **Cumulative effects**: interactions between the UK Scheme (and whole Tarchon Project where relevant to impacts in the UK) and other relevant developments/plans within the UK jurisdiction; and
- **Interrelationships and combined effects**: interactions among different UK Scheme activities.

6.7.1.3 Full details of the proposed methodology for the cumulative effects assessment and an indicative list of the potential interactions identified as part of the Scoping process are presented in Volume 05, Chapter 32: Approach to Cumulative Effects.

## 6.8 Transboundary Effects

6.8.1.1 Transboundary effects are described in the Planning Inspectorate's publication Nationally Significant Infrastructure Projects: Advice on Transboundary Impacts and Process (Planning Inspectorate, 2024) as comprising those effects that would affect the environment in another state within the European Economic Area (EEA).

6.8.1.2 A preliminary internal screening exercise has been undertaken to inform whether or not transboundary effects are likely. Further details regarding transboundary effects and the outcomes of the preliminary screening exercise are presented in Volume 05, Chapter 32: Approach to Cumulative Effects and Volume 06, Annex 32-1: Transboundary Screening Matrix.

## 6.9 Proposed Topics to be Included in the EIA

6.9.1.1 This Scoping Report is split into six volumes that group topic Chapters. The structure of this report is outlined below:

- Volume 01: Introductory Chapters;
- Volume 02: Onshore Environment Chapters;
- Volume 03: Offshore Environment Chapters;
- Volume 04: UK Scheme Wide Aspects;
- Volume 05: Summary Chapters; and
- Volume 06: Annexes.

6.9.1.2 It should be noted that there is no separate volume for figures, figure are incorporated into Chapters where relevant.

6.9.1.3 A full list of the Chapters included within Volumes 01 to 06 is provided in Table 1-2 of Volume 01, Chapter 01: Introduction.

### Other Environmental Topics

6.9.1.4 Volume 04, Chapter 31: Other Environmental Topics provides a summary of other environmental topics that have been considered during the preparation of this Scoping Report, and for which standalone Chapters are not anticipated to be required in the ES. For these topics it is considered, from previous experience, that the demonstration of no significant effects can be established at an early stage for the majority of receptors considered.

6.9.1.5 This approach has been used for previous NSIP interconnector projects and ensures that a proportionate approach to assessment is undertaken. For clarity, the topics within Volume 04, Chapter 31: Other Environmental Topics comprise:

- Aviation;
- Telecommunications, Television Reception and Utilities; and
- Heat and Electromagnetic fields.

## 6.10 Scoping Results

6.10.1.1 A summary of the results of the Scoping assessments is provided in Volume 05, Chapter 34: Summary and Conclusions.

## 6.11 Topic Chapter Structure

6.11.1.1 The following common reporting structure has been adopted for Volumes 02-04 of this EIA Scoping report, as follows:

- Introduction;
- Study Area;
- Relevant Legislation, Planning Policy and Guidance;
- Consultation and Engagement;
- Baseline Environment;
- Assessment Methodology;
- Potential Effects and Mitigation;
- Assumptions, Limitations and Uncertainties;
- Questions for Stakeholders; and
- References.

6.11.1.2 For Volume 05, Chapter 34: Summary and Conclusions, a general discussion of each topic is provided, including elements listed above where relevant.

6.11.1.3 In accordance with the Advice Note 7 (Planning Inspectorate, 2020), Volume 05, Chapter 33: Structure of the Environmental Statement sets out the how the ES is proposed to be structured.

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TARCHON



# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 02: Onshore Environment

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Volume 06, Annex 11-1: Gazetteer of Known Designated and Non-designated Assets

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 02, Chapter 07: Ground Conditions and Contamination

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00007 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| BGS | British Geological Survey |
| CEMP | Construction Environmental Management Plan |
| CIEEM | Chartered Institute of Ecology and Environmental Management |
| CIEH | Chartered Institute of Environmental Health |
| CIRIA | Construction Industry Research and Information Association |
| CL:AIRE | Contaminated Land: Applications in Real Environments |
| CSM | Conceptual Site Model |
| DCO | Development Consent Order |
| DEMP | Decommissioning Environmental Management Plan |
| DMRB | Design Manual for Roads and Bridges |
| DWSZ | Drinking Water Safeguarding Zone |
| EA | Environment Agency |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| EPR | Environmental Permitting Regulations |
| ES | Environmental Statement |
| GCR | Geological Conservation Review |
| GWDTE | Groundwater Dependent Terrestrial Ecosystem |
| JNCC | Joint Nature Conservation Committee |
| km | Kilometre |
| LCRM | Land Contamination Risk Management |
| LoGS | Local Geological Sites |
| m | Metre |
| MAGIC | Multi-Agency Geographic Information for the Countryside |
| MCA | Mineral Consultation Area |
| MLWS | Mean Low Water Springs |
| MSA | Mineral Safeguarding Area |
| MRA | Mining Remediation Authority |
| NHBC | National House Building Council |
| NLS | National Library of Scotland |
| NNR | National Nature Reserve |
| NPS | National Policy Statement |
| NSIP | Nationally Significant Infrastructure Project |
| PEIR | Preliminary Environmental Information Report |
| RIGS | Regionally Important Geological and Geomorphological Site |
| SAC | Special Area of Conservation |
| SMP | Soil Management Plan |
| SPA | Special Protection Area |
| SPZ | Source Protection Zone |

| | |
|---|---|
| SoS | Secretary of State |
| SSSI | Site of Special Scientific Interest |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| UXO | Unexploded Ordnance |
| WFD | Water Framework Directive |

# 7. Ground Conditions and Contamination

## 7.1 Introduction

7.1.1.1 This Chapter presents the Ground Conditions and Contamination assessment which will consider the potentially significant effects on Ground Conditions and Contamination receptors during the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Area used and receptors considered in this Chapter, only the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. Effects on offshore ground conditions are addressed in Volume 03, Chapter 16: Marine Physical Environment. The UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description is therefore not considered further for ground conditions and contamination.

7.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Ground Conditions and Contamination baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and Ground Conditions and Contamination receptors from the proposed components of the UKMS and EOS; and
- Highlights the potentially significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

7.1.1.3 The Ground Conditions and Contamination assessment is focused on, but is not limited to, geology, geological designated sites, mineral resources (Mineral Safeguarding Areas (MSAs) and Mineral Consultation Areas (MCAs)), hydrogeology and land contamination.

7.1.1.4 This Chapter should be read in conjunction with:

- Volume 01, Chapter 02: UK Project Description
- Volume 02, Chapter 08: Water Environment;
- Volume 02, Chapter 09: Land Use, Soils and Agriculture;
- Volume 02, Chapter 10: Onshore Biodiversity; and
- Volume 04, Chapter 26: Materials and Waste.

7.1.1.5 Groundwater, surface water and ecological receptors are discussed within this Chapter as they will be assessed as potential receptors to any land contamination. Groundwater and surface water as strategic resources and/or discharge points, hydrogeological response to dewatering, and flooding are considered in Volume 02,

Chapter 08: Water Environment, and ecological receptors are considered in more detail in Volume 02, Chapter 10: Onshore Biodiversity.

7.1.1.6 Pollution-related impacts to surface water and groundwater (including any licensed or unlicensed abstractions) from the construction and operational phases of the EOS are covered in Volume 02, Chapter 08: Water Environment. Pollution-related impacts on ecological receptors are covered in Volume 02, Chapter 10: Onshore Biodiversity. The approach to the assessment of excavated materials and any related waste management is covered in Volume 04, Chapter 26: Materials and Waste.

7.1.1.7 Effects from the EOS to mineral resources (MSA and MCA) will be assessed within this Chapter. Safeguarded minerals sites, defined as operational sites within Local Plan documents, such as quarries, are considered in Volume 04, Chapter 26: Materials and Waste.

7.1.1.8 Volume 02, Chapter 09: Land Use, Soils and Agriculture addresses impacts to agricultural land and soil resources.

7.1.1.9 The potential for the disturbance and redistribution of potentially contaminated marine sediments is addressed in Volume 03, Chapter 13: Marine Physical Environment, and potential impacts of such sediments on marine fauna is discussed in Volume 03, Chapter 14: Benthic and Intertidal Ecology, Volume 03, Chapter 15: Fish and Shellfish Ecology and Volume 03, Chapter 16: Marine Mammal Ecology.

7.1.1.10 Air pollution related impacts from increased dust during construction is covered in Volume 04, Chapter 28: Air Quality.

7.1.1.11 There are no annexes associated with this Chapter.

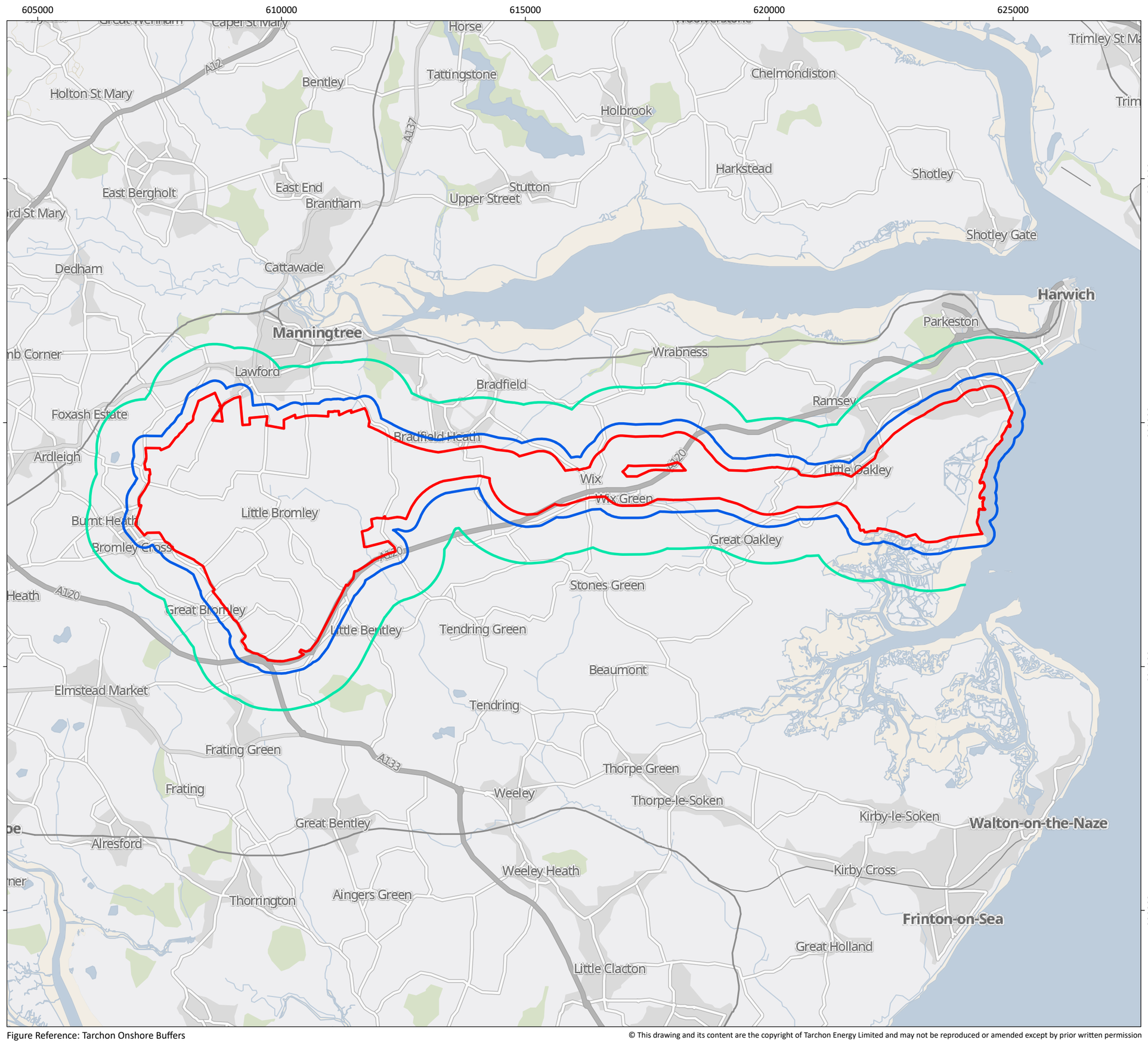
## 7.2 Study Area

7.2.1.1 Impacts from the EOS on geological features, MSA and MCA will typically occur directly within the Ground Conditions and Contamination Study Area where construction and operation activities could take place or interface directly with these receptors. The EOS Scoping Boundary is presented in Volume 01, Chapter 02: UK Project Description, Figure 2-1

7.2.1.2 For the purposes of determining the wider geological context, geodiversity and to support the conceptual understanding of the ground model, the geology baseline will consider an extended 250 metres (m) Ground Conditions and Contamination Study Area from the EOS Scoping Boundary (see Figure 7-1).

7.2.1.3 For the purposes of determining the local baseline conditions with respect to land contamination, a Study Area that also extends 250 m from the EOS Boundary will be adopted. A Study Area of 250 m is considered sufficiently conservative to account for the likely pathways and effects in absence of prescriptive guidance, and is a distance widely used and adopted in the industry for identifying baseline conditions for land contamination.

7.2.1.4 The Ground Conditions and Contamination Study Area will be extended for terrestrial hydrogeology to 1 kilometre (km) from the EOS Scoping Boundary. In the absence of prescriptive guidance, this distance is considered appropriate to assess the hydrogeological setting, and any influence that potential land contamination might have on the EOS or local receptors (taking into consideration the pathways for contaminant migration). The Ground Conditions and Contamination Study Area is presented in Figure 7-1.




# TARCHON

## Tarchon Interconnector Project

Scoping Report

## Ground Conditions and Contamination Study Area

### Legend

- Terrestrial Hydrogeology Study Area
- Ground Conditions and Contamination Study Area
- English Onshore Scheme Scoping Boundary

**Notes**

Contains OS data © Crown Copyright and database right 2026. Contains data from OS Zoomstack

Coordinate System: British National Grid

0 2.5 5 km

N

| Scale | Date | Drawn By | Checked By | Approved By |
|---|---|---|---|---|
| 1:75,000 @A3 | 27/02/2026 | BPHB | GB | MB |

Riverview
A17 The Embankment Business Park
Heaton Mersey
Stockport
SK4 3GN
http://www.apemltd.com
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APEM



**Figure 7-1**

Figure Reference: Tarchon Onshore Buffers

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7.2.1.5 The Ground Conditions and Contamination Study Area extends to Mean Low Water Springs (MLWS). There are no contaminated land sites in the North Sea; however, the geology within the 250 m Ground Condition Study Area will be considered for context, i.e. to understand the extent of relevant geological units.

## 7.3 Relevant Legislation, Planning Policy and Guidance

### 7.3.1 Legislation

7.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context, provides an overview of all relevant legislation and planning policy context. This Section refers to legislation, planning policy and guidance relating to the assessment of potential effects on Ground Conditions and Contamination that may arise from the construction, operational and decommissioning phases of the EOS.

7.3.1.2 The applicable legislation includes:

- The Water Environment (Water Framework Directive (England and Wales) Regulations 2017 (HM Government, 2017);
- The Groundwater (England and Wales) Regulations 2009 (HM Government, 2009);
- Environmental Protection Act 1990 (HM Government, 1990a);
- Water Act 2003 (HM Government, 2003);
- Water Resources Act 1991 (HM Government, 1991);
- Building Act 1984 (HM Government, 1984);
- The Building Regulations 2010 (HM Government, 2010);
- Natural Environment and Rural Communities Act 2006 (HM Government, 2006a);
- Environment Act 1995 (HM Government, 1995)
- Environment Act 2021 (HM Government, 2021);
- Town and Country Planning Act 1990 (HM Government, 1990b);
- Health and Safety at Work etc. Act 1974 (HM Government, 1974);
- The Environmental Permitting (England and Wales) Regulations (EPR) 2016 (HM Government, 2016);
- The Hazardous Waste (England and Wales) Regulations 2005 (HM Government, 2005);
- Contaminated Land (England) Regulations 2006 (HM Government, 2006b);
- The Environmental Damage (Prevention and Remediation) Regulations 2009 (HM Government, 2015a);
- The Anti-Pollution Works Regulations 1999 (HM Government, 1999);
- The Construction (Design and Management) Regulations 2015 (HM Government, 2015b); and
- The Control of Asbestos Regulations 2012 (HM Government, 2012).

7.3.1.3 The above legislation has informed the scope of the Ground Conditions and Contamination assessment including the identification of sensitive receptors and likely significant effects (Sections 7.5 and 7.6).

### 7.3.2 National Planning Policy Framework

7.3.2.1 The Overarching National Policy Statement for Energy (EN-1) (NPS EN-1) (DESNZ, 2026a) describes the UK government's policy for delivering major energy infrastructure, providing the legal framework for assessing Nationally Significant Infrastructure Projects (NSIPs). The following sections of NPS EN-1 are relevant to this Chapter.

*7.3.2.2* Paragraph 5.4.18 of the Overarching NPS for Energy (EN-1) (NPS EN-1) (DESNZ, 2026a) sets out that *"the applicant should ensure that the ES clearly sets out any effects on internationally, nationally, and locally designated sites of ecological or geological conservation importance (including those outside England), on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity, including irreplaceable habitats".*

*7.3.2.3* Paragraph 5.4.19 of NPS EN-1 (DESNZ, 2026a) goes on to state that *"The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests".*

*7.3.2.4* Paragraph 5.4.39 of NPS EN-1 (DESNZ, 2026a) adds that *"To further minimise any adverse impacts on geodiversity, where appropriate applicants are encouraged to produce and implement a Geodiversity Management Strategy to preserve and enhance access to geological interest features, as part of relevant development proposals".*

*7.3.2.5* Paragraph 5.4.43 of NPS EN-1 (DESNZ, 2026a) states that *"development should, in line with the mitigation hierarchy, aim to avoid significant harm to biodiversity and geological conservation interests".*

*7.3.2.6* Paragraph 5.11.4 of NPS EN-1 (DESNZ, 2026a) sets out *"Development of land will affect soil resources, including physical loss of and damage to soil resources, through land contamination and structural damage. Indirect impacts may also arise from changes in the local water regime, organic matter content, soil biodiversity and soil processes".*

7.3.2.7 Paragraph 5.11.13 of NPS EN-1 (DESNZ, 2026a) states that *"Applicants should also identify any effects and seek to minimise impacts on soil health and protect and improve soil quality taking into account any mitigation measures proposed".*

*7.3.2.8* Paragraph 5.11.14 of NPS EN-1 (DESNZ, 2026a) sets out that *"Applicants are encouraged to develop and implement a Soil Management Plan (SMP) which could help minimise potential land contamination. The sustainable reuse of soils needs to be carefully considered in line with good practice guidance where large quantities of soils are surplus to requirements or are affected by contamination".*

7.3.2.9 Paragraph 5.11.17 of NPS EN-1 (DESNZ, 2026a) states *"Applicants should ensure that a site is suitable for its proposed use, taking account of ground conditions and any risks arising from land instability and contamination".*

*7.3.2.10* Paragraph 5.11.18 of NPS EN-1 (DESNZ, 2026a) also states that *"For developments on previously developed land, applicants should ensure that they have considered the risk posed by land contamination, and where contamination is present, applicants should consider opportunities for remediation where possible. It is important to do this as early as possible as part of engagement with relevant bodies before the official pre-application stage".*

*7.3.2.11* Paragraph 5.11.19 of NPS EN-1 (DESNZ, 2026a) states *"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".*

*7.3.2.12* Paragraph 5.11.28 of NPS EN-1 (DESNZ, 2026a) sets out that *"Where a proposed development has an impact upon a Mineral Safeguarding Area (MSA), the Secretary of State (SoS) should ensure that appropriate mitigation measures have been put in place to safeguard mineral resources".*

7.3.2.13 The NPS for Electricity Networks Infrastructure (EN-5) (NSP EN-5) (DESNZ, 2026b) describes the legal basis for planning decisions on NSIPs for electricity networks, such as high-voltage underground cables, substations, and converter stations. The following sections of NSP EN-5 are relevant to this Chapter.

*7.3.2.14* Paragraph 2.2.10 of NPS for Electricity Networks Infrastructure (EN-5) (NSP EN-5) (DESNZ, 2026b) states *"applicants must take into account Schedule 9 to the Electricity Act 1989, which places a duty on all transmission and distribution licence holders, in formulating proposals for new electricity networks infrastructure, to have regard to the desirability of preserving … geological or physiographical features of special interest … ; and … do what [they] reasonably can to mitigate any effect which the proposals would have … on any such … features, sites".*

7.3.2.15 Further legislative context is provided in Volume 01, Chapter 05: Legislative and Planning Policy Context.

### 7.3.3 Guidance

7.3.3.1 Relevant guidance and standards which have been used as part of the Scoping process and which will also be taken into account as part of the assessment are listed below:

- Environment Agency (EA)'s online guidance for the management of land contamination: Land Contamination Risk Management (LCRM) (EA, 2023);
- British Standard (BS) 10175 (2011 + A2 2017), Investigation of Potentially Contaminated Sites – Code of Practice (British Standard, 2017);
- BS 5930 (2015 + A1:2020), Code of Practice for Ground Investigations. (British Standard, 2020);

- BS 8576 (2013), Guidance on Investigations for Ground Gas. Permanent Gases and Volatile Organic Compounds (VOCs) (British Standard, 2013);
- BS 8485 (2019), Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings (British Standard, 2019);
- Construction Industry Research and Information Association (CIRIA) C665, Assessing Risks Posed by Hazardous Ground Gases to Buildings, 2007 (CIRIA, 2007);
- CIRIA C811, Environmental Good Practice on Site Guide (fifth edition), 2023 (CIRIA, 2023);
- EA, Guidance Note on Piling/Penetrative Ground Improvement Methods on Land Affected by Contamination NC/99/73, 2001 (EA, 2001), understood to be in the process of being revised;
- Contaminated Land: Applications in Real Environments (CL:AIRE), Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention (CL:AIRE, 2025);
- Design Manual for Roads and Bridges (DMRB), LA109 Geology and Soils (2019) (Highways England, 2019);
- DMRB, LA104 Environmental Assessment and Monitoring (2020) (Highways England, 2020a);
- DMRB, LA113 Road Drainage and the Water Environment (2020) (Highways England, 2020b);
- Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for ecological impact assessment in the UK and Ireland: Terrestrial, Freshwater. Version 1.3 (2024) (CIEEM, 2024);
- National House Building Council (NHBC), EA and Chartered Institute of Environmental Health (CIEH) report R&D66 ‘Guidance for the Safe Development of Housing on Land Affected by Contamination’ (NHBC, 2008); and
- CL:AIRE Framework for Assessing the Sustainability of Soil and Groundwater Remediation (2010) (CL:AIRE, 2010).

### 7.3.4 Local Planning Policy

7.3.4.1 The relevant local policies for assessing potential impacts on Ground Conditions and Contamination are summarised as follows.

7.3.4.2 Within the Tendring District Local Plan 2013-2033 and Beyond (Section 2) (Tendring District Council, 2022), the following policies are relevant to ground conditions:

7.3.4.3 The relevant sections of Policy SPL3 – Sustainable Design Part C *Impacts and Compatibility* states:

- *“New development (including changes of use) should be compatible with surrounding uses and minimise any adverse environmental impacts. The following criteria must be met*:

- *the development, including any additional road traffic arising, will not have unacceptable levels of pollution on: air, land, water (including groundwater), amenity, health or safety through noise, smell, dust, light, heat, vibration, fumes or other forms of pollution or nuisance";*

7.3.4.4 The relevant sections of Policy PPL4 – Biodiversity and Geodiversity states:

- *"Sites designated for their international, European and national importance to nature conservation: including Ramsar sites; Special Protection Areas (SPAs); Special Areas of Conservation (SACs); Marine Conservation Zones (MCZs); National Nature Reserves (NNRs); and Sites of Special Scientific Interest (SSSIs) will be protected from development likely to have an adverse effect on their integrity.*
- *As a minimum, there should be no significant impacts upon any protected species, including European Protected Species and schemes should consider (and include provision, as may be relevant for) the preservation, restoration or re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations".*

7.3.4.5 The Essex Minerals Local Plan Adopted July 2014 (Essex County Council, 2014) is part of the statutory Development Plan for Essex County Council. Policy S8 – Safeguarding mineral resources and mineral reserves is relevant for the EOS, specifically for ground conditions. It states:

- "*the Mineral Planning Authority will safeguard mineral resources of national and local importance from surface development that would sterilise a significant economic resource or prejudice the effective working of a permitted mineral reserve, Preferred or Reserve Site allocation within the Minerals Local Plan*".

## 7.4 Consultation and Engagement

7.4.1.1 Initial liaison between the Applicant's Lands Team and Tendring District Council was undertaken in December 2024 to obtain council-held records pertaining to the former Dovercourt Landfill site, as part of the correspondence, the Council also provided details of other potential land contamination nearby. Relevant information has been included in Section 7.5 of this Chapter.

7.4.1.2 Further engagement with Tendring District Council, Essex County Council and local geological groups will be undertaken during the EIA process.

7.4.1.3 Responses on the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council, Tendring District Council and Mid Suffolk and Babergh District Council. Where comments relevant to Ground Conditions and Contamination have been provided, these are summarised and responded to in Table 7-1.

**Table 7-1: Non-Statutory Consultation Responses**

| Consultee | Subject | Response |
|---|---|---|
| Essex County Council | Essex County Council supports trenchless construction method to install cables under roads, rivers and designated sites. Essex County Council recommends geotechnical investigations and surveys should be undertaken. | Geotechnical investigations will be undertaken to support design development. Where available, further detail will be provided within the Preliminary Environmental Information Report (PEIR) and/or Environmental Statements (ES). |

7.4.1.4 The following stakeholders will be consulted as part of the assessment of Ground Conditions and Contamination:

- EA;
- Natural England;
- Local planning authorities;
- Mineral planning authorities (if required, for further information on MSA/MCA); and
- Local geology groups (where relevant).

7.4.1.5 The Ground Conditions and Contamination Study Area is not located within a Coal Mining Reporting Area according to the Mining Remediation Authority (MRA) Map Viewer (MRA, 2025), therefore there is no requirement to contact the MRA.

## 7.5 Baseline Environment

### 7.5.1 Geology

7.5.1.1 Publicly available sources have been reviewed, including the British Geological Survey (BGS) website (BGS, 2026a) and the BGS Geoindex Onshore map viewer (BGS, 2026b), BGS geological map (Sheet 224/242, Colchester and Brightlingsea, 1:50,000 scale (BGS, 2010) and selected historical borehole records held by the BGS to summarise the expected geology within the Ground Conditions and Contamination Study Area.

7.5.1.2 Made Ground is mapped in part of the north-eastern-most extent of the Ground Conditions and Contamination Study Area. Further localised areas of Made Ground are likely to be present through the Ground Conditions and Contamination Study Area. The potential for unexploded ordnance (UXO) onshore will be included in the baseline at PEIR stage following completion of further desk-based studies. It is anticipated that a detailed UXO desk study will be procured in order to understand the risk posed by UXO, which will be procured prior to production of the PEIR.

7.5.1.3 Superficial deposits underlying the Ground Conditions and Contamination Study Area are discontinuous, especially in the central portion of the Ground Conditions and Contamination Study Area.

7.5.1.4 The bedrock geology underlying the majority of the Ground Conditions and Contamination Study Area comprises the Thames Group – clay, silt and sand (including London Clay Formation and Harwich Formation); this is defined by the BGS as *"mainly silty clays and clays, some sandy or gravelly, with some silts, sands, gravels and calcareous mudstones".* According to the BGS, this can be between 15 m to 35 m in thickness.

7.5.1.5 Isolated outcrops of Red Crag Formation sand are present in the eastern, central and western parts of the Study Area. These are defined by the BGS as *"coarse-grained, poorly sorted, cross-bedded, abundantly shelly sands".* According to the BGS, this can be up to 15 m in thickness.

7.5.1.6 According to the BGS geological map (BGS, 2010), the Thames Group is expected to be underlain by the Lambeth Group and Thanet Sand Formation, Undifferentiated and to be approximately 15 m to 30 m in thickness. These are in turn, underlain by the White Chalk Subgroup and Grey Chalk Subgroup, which combined are around 270 m in thickness, in turn underlain by the Gault Formation, which is approximately 6 m to 23 m in thickness.

### 7.5.2 Geological Sites

7.5.2.1 Mapping available from online sources including Defra's Multi-Agency Geographic Information for the Countryside (MAGIC) Map (Defra, 2026), the Local Development Plans detailed in Section 7.3, Local Geological Groups (GeoEssex, 2026) and the Joint Nature Conservation Committee (JNCC) (JNCC, 2026), have been used to identify geological SSSI, Local Geological Sites (LoGS) (previously referred to as Regionally Important Geological and Geomorphological Sites (RIGS')) and Geological Conservation Review (GCR) sites within the Study Area.

7.5.2.2 The geological SSSI Little Oakley Channel Deposit (Natural England, 2026) overlaps into the EOS Scoping Boundary, north-east of Little Oakley. This SSSI provides a reserve of Pleistocene interglacial channel-fill sediments, unique in Britain and is of great importance for Quaternary studies. According to the JNCC website, a GCR (Little Oakley) is also mapped in this area, however its extent is unclear.

7.5.2.3 No LoGS have been identified within the Ground Conditions and Contamination Study Area.

### 7.5.3 Mineral Resources

7.5.3.1 Information provided by Tendring District Council and Essex County Council has been used to identify MSA and MCA within the Ground Conditions and Contamination Study Area.

7.5.3.2 A MSA for sand and gravel overlaps the vast majority of the western portion of the Ground Conditions and Contamination Study Area.

7.5.3.3 MSA for sand and gravel are also present across some areas of the central and eastern portions of the Ground Conditions and Contamination Study Area. No MSA are present in the eastern-most extent of the Ground Conditions and Contamination

Study Area, other than limited areas of overlap into the Ground Conditions and Contamination Study Area around Little Oakley.

7.5.3.4 No MCA have been identified within the Ground Conditions and Contamination Study Area.

### 7.5.4 Aquifer Classification

7.5.4.1 According to aquifer designations available on Defra's MAGIC Map (Defra, 2026), the following superficial aquifer designations are located within the Ground Conditions and Contamination Study Area:

- Secondary A aquifers (including alluvium, storm beach deposits, intertidal deposits (undifferentiated), some of the Cover Sand, interglacial deposits, Kesgrave Catchment Subgroup) are generally located in the eastern portion of the Ground Conditions and Contamination Study Area along with some areas within the western portion;
- Secondary (undifferentiated) aquifers (including head deposits) are isolated in the western portion of the Ground Conditions and Contamination Study Area; and
- Secondary B aquifers (including Cover Sand) are located mostly in the western and central portions of the Ground Conditions and Contamination Study Area.

7.5.4.2 For the solid geology, the Thames Group is classified as an Unproductive aquifer. The Red Crag Formation (isolated outcrops in the Ground Conditions and Contamination Study Area) is classified as a Principal aquifer.

### 7.5.5 Source Protection Zones and Drinking Water Safeguarding Zones

7.5.5.1 Based on information available on Defra's MAGIC Map (Defra, 2026), the western half of the Ground Conditions and Contamination Study Area, approximately up to the west of Wix, are within Zone III of a Source Protection Zone (SPZ). The closest SPZ Zones I and II are located over 1 km away to the north of the Ground Conditions and Contamination Study Area.

7.5.5.2 No groundwater Drinking Water Safeguarding Zones (DWSZ) are located within 1 km from the Ground Conditions and Contamination Study Area.

### 7.5.6 Surface Water Features

7.5.6.1 A number of surface water features have been identified in the Study Area. These include The North Sea, Holland Brook, Wrabness Brook and Dovercourt Boating Lake and Dovercourt Designated Bathing Water. Further information is provided in Volume 02, Chapter 08: Water Environment.

### 7.5.7 Ecologically Sensitive Sites

7.5.7.1 Defra's MAGIC map indicates that the Hamford Water SPA overlaps the Ground Conditions and Contamination Study Area in the easternmost extent. It extends offshore and also adjacent to the Ground Conditions and Contamination Study Area south of Little Oakley. A portion of the SPA is also classified as a NNR, Ramsar site

and SSSI. Two isolated areas of the Hamford Water Special Area of Conservation (SAC) are present in the easternmost extent of the Ground Conditions and Contamination Study Area and adjacent to the Ground Conditions and Contamination Study Area south of Little Oakley. The Ecologically Sensitive Sites in the vicinity of the Study Area are summarised in Figure 10-1 within Volume 02, Chapter 10: Onshore Biodiversity.

### 7.5.8 Land Contamination

7.5.8.1 The historical land use within the Ground Conditions and Contamination Study Area has been evaluated using freely available historical maps from National Library of Scotland (NLS) (NLS, 2026) which holds maps for England, recent aerial photographs from Google Earth (Google, 2026), internet research, information provided by the local planning authorities and publicly available landfill mapping.

7.5.8.2 Based on the land use history determined from the stated sources of information, the following potential sources of contamination have been identified in the Study Area:

- Made Ground, potentially present in developed areas (residential) and along existing roads;
- Historical and current farms;
- Infilled land - information provided by Tendring District Council indicates an area of infilled land is located in the easternmost portion of the Ground Conditions and Contamination Study Area;
- Dovercourt, West End Lane historic landfill site - this is located in the north-eastern extent of the Ground Conditions and Contamination Study Area, along a short section of coastline. Information provided by Tendring District Council indicates that the landfill received industrial, commercial and household waste until 1982 and was operated by Essex County Council;
- Great Oakley Airfield - currently located in the central portion of the Ground Conditions and Contamination Study Area, north-west of Great Oakley; and
- Rifle ranges - information provided by Tendring District Council indicates the presence of two historical rifle ranges located in the easternmost portion of the Ground Conditions and Contamination Study Area.

### 7.5.9 Summary of Sensitive Receptors and Potential Pathways

7.5.9.1 The sensitive receptors within the Ground Conditions and Contamination Study Area can be divided into controlled waters, human health, development infrastructure, ecological/geological designated sites and MSA:

- Controlled water receptors include:
  - Surface water features including the North Sea, Holland Brook, Ramsey Creek, South Hall Creek and unnamed water features;
  - The underlying aquifers including superficial aquifers classified as Secondary A, Secondary B and Secondary (undifferentiated); the bedrock aquifer of the

Red Crag Formation classified as Principal aquifer and bedrock aquifer of the Thames Group classified as Unproductive strata; and

- SPZ Zone III in the western portion of the Ground Conditions and Contamination Study Area.

- Human health receptors include:
  - Nearby residents, agricultural and commercial workers;
  - Future site workers (at the Converter Station) including maintenance workers; and
  - Construction workers undertaking the site works.
- Future and current buildings and infrastructure, including foundations, cables and other services (including pipelines);
- Ecological sites including the Hamford Water SPA, NNR, Ramsar site, SSSI and SAC;
- Geological site (Geological SSSI and GCR Little Oakley Channel Deposit); and
- MSA for sand and gravel across areas of the Ground Conditions and Contamination Study Area.

7.5.9.2 The following potential pathways are considered to be present:

- Direct contact, dermal absorption or ingestion of contaminated soil;
- Inhalation of soil particulates derived from soils and inhalation of soil vapour derived from soils and groundwater;
- Migration of hazardous gases and vapours via permeable strata into confined spaces (asphyxiation and explosion);
- Leaching of chemicals and vertical migration via permeable unsaturated strata to the shallow aquifer and vertical migration of impacted shallow groundwater to the deeper aquifer;
- Spillage, loss or run-off from surface water to receiving water features;
- Lateral migration of impacted shallow groundwater towards surface water baseflow;
- Lateral migration of impacted groundwater towards SPZs;
- Migration via underground utilities to surface water; and
- Contact of services and concrete with contaminated soils and aggressive ground conditions.

### 7.5.10 Future Baseline Conditions

7.5.10.1 The baseline environment is not static and is expected to change over time, irrespective of the EOS. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the EOS over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

7.5.10.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

7.5.10.3 The Ground Conditions and Contamination baseline conditions are unlikely to be altered over time without a significant change of land use.

7.5.10.4 With respect to land contamination, any future development within the Study Area is subject to appropriate consenting regimes. This requires consideration of the potential for contamination to be present. In the event that contamination is present, remediation would be required to ensure the development is suitable for its proposed use.

7.5.10.5 Furthermore, natural attenuation processes have the potential to mitigate risks over time from any existing sources of contaminants present within soil and groundwater.

7.5.10.6 Changes in groundwater abstractions could affect the groundwater flow regime and climate change could influence the future baseline conditions, due to changes on the rainfall regime, recharge potential, groundwater levels and flow, sea level rise and coastal erosion.

7.5.10.7 Potential operational phase risks exist in association with the operation of the Converter Station, i.e. escape of firefighting foams in the event of fire and with sub-surface cabling, i.e. escapes of insulating fluids, heat pollution of contacted groundwater, but these risks can be effectively mitigated through appropriate design solutions.

### 7.5.11 Additional Proposed Data Sources

7.5.11.1 The additional data sources that should be considered in further assessment of baseline conditions are outlined in Table 7-2 below:

**Table 7-2: Additional Data Sources**

| Data Source | Baseline Element | Justification |
|---|---|---|
| Environmental Data Report | Geology<br>Surface Water<br>Groundwater<br>Ecologically Sensitive Areas<br>Land Contamination | To obtain comprehensive data on potential sources, pathways and receptors to underpin desk study reports |
| Private Water Supply Register – Local Authority | Groundwater | To determine the presence of private water abstractions within the Study Area |
| UXO Assessment via Detailed Desk Study | Human Health | To assess the likelihood of UXO being present in the Study Area, considering the |

presence of rifle ranges within the boundary

## 7.6 Assessment Methodology

7.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the construction, operational and decommissioning phases of the EOS. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description. A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on Ground Conditions and Contamination receptors arising from the construction, operational and decommissioning phases of the EOS. This approach defines:

- **Sources and impacts:** The origin of a potential impact;
- **Pathway:** The mechanism by which the impact may affect a receptor; and
- **Receptor:** The component of the environment that may be affected.

7.6.1.2 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

### 7.6.2 Geology and Minerals Impact Assessment Methodology

7.6.2.1 The likely significance of effects of the construction, operational and decommissioning phases of the EOS to geology and mineral resources will be assessed based on the sensitivity and importance of the resource and the magnitude of potential impact.

### 7.6.3 Land Contamination Impact Assessment Methodology

7.6.3.1 The approach to assessing the potential impacts of the EOS from and to land contamination, will be undertaken following a risk-based approach which is consistent with LCRM (EA, 2023). The assessment will be based on comparing the risk levels at baseline via the preliminary Conceptual Site Model (CSM) (developed in the Phase 1 desk-based assessment) and the assessed risk levels for the construction and decommissioning phases, respectively, to evaluate the change in risk at each phase. Potential risks are evaluated and assessed based on the likelihood (or probability) and consequence using the principles given in the NHBC, CIEH and EA report R&D66 (NHBC, 2008) and LCRM (EA, 2023). This provides guidance on development and application of the consequence and probability matrix to risk assessment and provides broad definitions of consequence which is widely used for a range of developments.

7.6.3.2 The significance of the effects of land contamination are assessed by comparing the difference in risk of each contaminant linkage at baseline to those at the construction phase. Where there is shown to be a decrease in contamination risk, the EOS will be assessed as having a beneficial effect on the environment. Reference will be made to DMRB LA109 (Highways England, 2019), LA104 (Highways England,

2020a), LA113 (Highways England, 2020b) and CIEEM (CIEEM, 2024), which although applicable to road schemes, is considered to provide a suitable framework within which to conduct EIA for ground conditions on schemes which include linear elements (such as the EOS).

7.6.3.3 Section 7.5 indicates the potential sources of contamination that have been identified within the Ground Conditions and Contamination Study Area and summarises the relevant sensitive receptors.

### 7.6.4 Hydrogeological Assessment

7.6.4.1 The initial hydrogeological baseline and proposed scope of assessment of potential impacts from the EOS on groundwater is provided in Volume 02, Chapter 08: Water Environment. At this stage, a qualitative impact assessment is proposed based on a source-pathway-receptor approach. This will consider the pollution risk to groundwater during the construction, operational and decommissioning phases of the EOS, as well as potential impacts on groundwater levels and flows from any excavations that may be required. Potential impacts on Groundwater Dependent Terrestrial Ecosystems (GWDTEs), groundwater abstractions and any associated SPZ and WFD groundwater bodies will also be considered, where relevant. The scope of assessment will be kept under review as additional information becomes available.

### 7.6.5 Assessment Criteria

7.6.5.1 Definitions of magnitude of impact, sensitivity or importance of the receptor and significance of effect that will be used as part of the assessment are reported in the following sections.

### 7.6.6 Sensitivity of Receptor

7.6.6.1 The criteria for assessing receptor sensitivity are defined in Table 7-3 and is in general accordance with the LA109 (Highways England, 2019), LA113 (Highways England, 2020b) and CIEEM (CIEEM, 2024).

**Table 7-3: Definitions of Sensitivity for Ground Conditions and Contamination**

| Sensitivity | Definition | Topic |
|---|---|---|
| High | Very rare and of international importance with no potential for replacement (e.g. United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites, UNESCO Global Geoparks, SSSI and GCR sites where citations indicate features of international importance).<br>Geology meeting international designation citation criteria which is not designated as such. | Geology |
| | Presence of significant and/or rare mineral reserves and within a Mineral Consultation or Safeguarding Area. | Mineral resources |
| | Human health:<br>• Very high sensitivity land use such as residential or allotments.<br><br>Surface water:<br>• Watercourse having a WFD classification shown in a River Basin Management Plan (RBMP) and Q95 ≥ 1.0 m3/s.<br><br>Groundwater:<br>• Principal aquifer providing a regionally important resource and/or supporting a site protected and UK legislation for Ecology and Nature Conservation.<br>• Groundwater locally supports GWDTE.<br>• SPZ 1.<br><br>Ecology and Nature Conservation:<br>• Sites of international importance (e.g. SAC, SPA, Ramsar site, salmonid water) or of high sensitivity. | Contamination |
| Medium | Rare and of national importance with little potential for replacement (e.g. geological SSSIs, NNRs).<br>Geology meeting national designation citation criteria which is not designated as such. | Geology |
| | Within a Mineral Consultation or Safeguarding Area. | Mineral resources |

| Sensitivity | Definition | Topic |
|---|---|---|
| | • Human health:<br>– High sensitivity land use such as public open space.<br>• Surface water:<br>– Watercourse having a WFD classification shown in a RBMP and Q95 <1.0 m3/s.<br>• Groundwater:<br>– Principal aquifer providing locally important resource or supporting a river ecosystem.<br>– Groundwater supports a GWDTE.<br>– SPZ 2.<br>• Ecology and Nature Conservation.<br>– Sites of national importance (e.g. SSSIs, NNRs) or of medium sensitivity. | Contamination |
| Low | Of regional importance with limited potential for replacement (e.g. LoGS).<br>Geology meeting regional designation citation criteria which is not designated as such. | Geology |
| | Some mineral potential but not within a Mineral Consultation or Safeguarding Area. | Mineral resources |
| | • Human health:<br>– Medium sensitivity land use such as commercial or industrial.<br>• Surface water:<br>– Watercourses not having a WFD classification shown in a RBMP and Q95 >0.001 m3/s.<br>• Groundwater:<br>– Aquifer providing water for agricultural or industrial use with limited connection to surface water.<br>– SPZ 3.<br>• Ecology and Nature Conservation:<br>– Sites of local importance (e.g. Local Wildlife Sites, Local Nature Reserves) or of low sensitivity. | Contamination |
| Very Low | Of local importance/little or low interest with potential for replacement (e.g. non-designated geological exposures, former quarries/mining sites). | Geology |

| Sensitivity | Definition | Topic |
|---|---|---|
| | Limited potential for mineral reserves and site not within a Mineral Consultation or Safeguarding Zone. | Mineral resources |
| | • Human health:<br>– Low sensitivity land use such as highways and rail.<br>• Surface water:<br>– Watercourses not having a WFD classification shown in a RBMP and Q95 ≤0.001 m3/s.<br>• Groundwater:<br>– Unproductive strata.<br>• Ecology and Nature Conservation.<br>– Land with very low sensitivity and/or no designations. | Contamination |

### 7.6.7 Magnitude of Impact

7.6.7.1 The magnitude of impact or how considerable the change to Ground Conditions and Contamination is in comparison to the baseline conditions as a result of the construction, operational and decommissioning phases of the EOS is classified as either being:

- High adverse or beneficial;
- Medium adverse or beneficial;
- Low adverse or beneficial; and
- Very low adverse or beneficial.

7.6.7.2 The criteria and their respective magnitude of impact classification which has been applied are presented within Table 7-4 and based on the DMRB LA109 (Highways England, 2019), LA113 (Highways England, 2020b) and CIEEM (CIEEM, 2024).

**Table 7-4: Definitions of Magnitude for Ground Conditions and Contamination**

| Magnitude | Definition | Equivalent impact in Comparison to baseline |
|---|---|---|
| High | Geology and Mineral Resources<br>• Loss of geological feature/designation and/or quality and integrity, severe damage to key characteristics, features, or elements. | N/A |
| | Contamination<br>• Human health: significant contamination identified.<br>• Contamination levels significantly exceed background levels and relevant screening criteria (category 4 screening levels) within SP1010 with potential for significant harm to human health. Contamination heavily restricts future use of land;<br>• Surface water: refer to sensitivity criteria in LA113;<br>• Groundwater: refer to sensitivity criteria in LA113; and<br>• Ecological sites: refer to impact descriptions in CIEEM. | High Adverse/Beneficial |
| Medium | Geology and Mineral Resources<br>• Partial loss of geological feature/designation, potentially adversely affecting the integrity; partial loss of/damage to key characteristics, features, or elements. | N/A |
| | Contamination<br>• Human health: contaminant concentrations exceed background levels and are in line with limits of relevant screening criteria (category 4 screening levels) in SP1010. Significant contamination can be present. Control and remediation measures are required to reduce risks to human health and make land suitable for intended use;<br>• Surface water: refer to sensitivity criteria in LA113;<br>• Groundwater: refer to sensitivity criteria in LA113; and<br>• Ecological sites: refer to impact descriptions in CIEEM. | Medium Adverse/Beneficial |
| Low | Geology and Mineral Resources<br>• Minor measurable change in geological feature and designation attributes, quality, or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features, or elements. | N/A |

| Magnitude | Definition | Equivalent impact in Comparison to baseline |
|---|---|---|
| | Contamination<br>• Human health: contaminant concentrations are below relevant screening criteria (category 4 screening levels) in SP1010. Significant contamination is unlikely with a low risk to human health. Best practice measures can be required to minimise risks to human health;<br>• Surface water: refer to sensitivity criteria in LA113;<br>• Groundwater: refer to sensitivity criteria in LA113; and<br>• Ecological sites: refer to impact descriptions in CIEEM. | Low Adverse/Beneficial |
| Very Low | Geology and Mineral Resources<br>• Minor measurable change in geological feature and designation attributes, quality, or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features, or elements. | N/A |
| | Contamination<br>• Human health: contaminant concentrations substantially below levels outlined in relevant screening criteria (category 4 screening levels) in SP1010. No requirement for control measures to reduce risks to human health and make land suitable for intended use;<br>• Surface water: refer to sensitivity criteria in LA113;<br>• Groundwater: refer to sensitivity criteria in LA113; and<br>• Ecological sites: refer to impact descriptions in CIEEM. | Very Low Adverse/Beneficial |

### 7.6.8 Significance of Effect

7.6.8.1 To ensure consistency across topics, a matrix approach has been adopted to present judgements made on the significance of an effect. This terminology is outlined in Table 7-5 below.

**Table 7-5: Significance Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Very Small |
| High | Major | Major | Moderate | Minor |
| Medium | Major | Moderate | Minor | Minor |
| Low | Moderate | Minor | Minor | Negligible |
| Negligible | Minor | Minor | Negligible | Negligible |

7.6.8.2 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

7.6.8.3 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the EOS design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the EOS.

## 7.7 Potential Effects and Mitigation

7.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 7.7.2 Embedded Mitigation and Good Practice Measures

7.7.2.1 The EOS will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as *“mitigation measures that have been incorporated into a project’s description and form an inherent part of the project’s design”* (ISEP, 2024). The embedded mitigation measures which are relevant to this Chapter are presented in the table below (Table 7-6).

**Table 7-6: Embedded Mitigation Measures of Importance to Ground Conditions and Contamination**

| Measure Proposed | Rationale |
|---|---|
| Outline Construction Environmental Management Plan (CEMP) | An Outline CEMP will be compiled for the development, which will describe the construction related mitigation measures. The plan will set out best practise to ensure any environmental impacts during construction and in terms of land contamination are minimal. |
| Decommissioning Environmental Management Plan (DEMP) | The DEMP will be prepared for the decommissioning phase and will outline measures to ensure that environmental impacts associated with decommissioning activities, including those relating to Ground Conditions and Contamination, are appropriately managed in accordance with relevant legislation and good practice. |
| Discovery Strategy | A protocol shall be included within the CEMP and drawn upon to ensure that any contamination identified during construction is assessed by a specialist in land contamination. This will include limiting works in the area and ensuring the identified contamination does not pose a risk until an environmental specialist undertakes an assessment and a method is agreed to deal with the identified contamination. |
| Protection of Construction Workers | Site workers will adhere to health, safety and environmental precautions in order to reduce the potential for any accidents and incidents. Appropriate risk assessment will be undertaken to allow all responsibilities under health and safety legislation to be discharged. |

7.7.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed EOS development and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

7.7.2.3 As the EOS advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective and compliant with regulatory standards and stakeholder input.

7.7.2.4 Based on the assessment of the baseline conditions and the identification of any potential impacts, commitments to mitigation measures will be made, where relevant in the ES. These may include intrusive ground investigation (to address residual data gaps or to better delineate identified potential contaminant linkages), quantitative risk assessment, remediation and validation, secured via the draft Development Consent Order (DCO).

7.7.2.5 Mitigation measures to be implemented by contractors – should any previously unidentified contamination be discovered during construction – will be detailed in the outline CEMP, secured via the draft DCO (see Section 7.7.2.7 for further details). For

example, if unacceptable risks are identified during construction and avoiding the affected area is not possible, appropriate remedial measures will be implemented.

7.7.2.6 The presence of important geological features and MSA will be considered within the design of the EOS. The establishment of baseline conditions has been included to date and will continue by means of a desk study and ongoing engagement with stakeholders.

7.7.2.7 The primary mitigation measure to control potential adverse effects on ground conditions during the construction phase of the EOS will be to ensure good site practice and management through the development and adherence to an outline CEMP. A permit under The Environmental Permitting (England and Wales) Regulations 2016 is required to operate the proposed Converter Station will control releases to land and water. The DEMP will control effects of final decommissioning. The outline CEMP and the DEMP will be secured via the draft DCO. The final CEMP and DEMP will be live documents with detail developed by the appointed Contractor once construction methods are known. The final CEMP and DEMP will set out the specific environmental mitigation measures for the Ground Conditions and Contamination topic and provide details on how they will be implemented, for example, measure to avoid soil compaction or degradation and measures to avoid the creation of new pathways for contaminant migration in areas of land contamination.

7.7.2.8 The potential for mobilising fine sediment (and any contamination) into the water column in the marine environment from the trenchless cable installation methods (e.g. Horizontal Directional Drilling breakout) is considered further in Volume 03**,** Chapter 13: Marine Physical Environment.

7.7.2.9 Appropriate mitigation measures in relation to hydrogeological receptors are identified in Volume 02, Chapter 08: Water Environment. This includes measures such as an appropriate dewatering scheme to be developed prior to construction and decommissioning to demonstrate that there is an effective strategy to manage water arising from the construction and decommissioning operations and, where required, sufficient proposals to treat the water prior to controlled discharge.

7.7.2.10 Mitigation of impacts relating to the handling, movement and temporary storage of soils, will be controlled through an outline SMP as per the described measures in Volume 02, Chapter 09: Land Use, Soils and Agriculture.

7.7.2.11 Additional mitigation will be developed, where required, as the design is progressed and will be included in the ES, as appropriate. Where significant adverse effects are identified, additional mitigation will be provided where practicable.

### 7.7.3 Scoping Assessment

7.7.3.1 A summary of the potential effects to be considered in the ES is presented in Table 7-7 below. Operational phase effects are scoped out for this Ground Conditions and Contamination because no credible pathways for significant impacts on Ground Conditions and Contamination have been identified once construction is complete;

therefore, the Scoping table focuses solely on construction and decommissioning impacts.

Table 7-7: Elements Scoped In and Out for Ground Conditions and Contamination

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction and Decommissioning | Temporary and permanent damage, disturbance or removal of geology or geological features of interest (SSSI, LoGS and GCR). | Loss, degradation or disturbance of designated or non-designated geological features, including changes to feature integrity, exposure, or stratigraphic relationships, resulting from direct groundworks or construction activities. | Geology and Mineral Resources | Scoped In | The construction and decommissioning phases of the EOS may damage geological features through temporary and/or permanent disturbance/removal of features. |
| Construction and Decommissioning | Temporary and permanent mineral (MSA) severance or sterilisation. | Permanent or temporary sterilisation of safeguarded mineral resources, or severance of access to viable mineral deposits, due to construction footprints or built infrastructure limiting future extraction potential. | Geology and Mineral Resources | Scoped In | The construction and decommissioning phases of the EOS may sterilise existing mineral resources (MSA) through temporary and/or permanent severance or sterilisation. |
| Construction and Decommissioning | Potential impacts on groundwater and surface water from contamination. | Mobilisation or release of existing or newly introduced contaminants to surface water or groundwater receptors via excavation, dewatering, stockpiling, spills, or creation of preferential pathways, potentially leading to deterioration in | Groundwater Surface water | Scoped In | A pathway may be created for contaminants to reach sensitive groundwater receptors. There is the potential for contaminants in unsaturated soils to be exposed to surface water run-off and to leach to groundwater in open excavations. There is the potential for contaminants from uncovered stockpiles to be mobilised into |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | water quality or altered geochemical conditions. | | | surface water and groundwater receptors.<br>There is the potential for construction of underground structures/piling to affect groundwater quality. |
| Construction, Decommissioning | Potential impacts on human health and ecological receptors from contamination. | Exposure of human or ecological receptors to contaminants through direct contact, ingestion, inhalation of dust or vapours, or via mobilisation of contaminated soils/groundwater, potentially resulting in adverse health or ecological effects. | Contamination: Human Health Ecology | Scoped In | Potential for the creation of preferential pathways in these phases resulting in the migration of contamination including from unsaturated soils, contaminated groundwater and ground gases.<br>Impacts from potential contamination in dust and fine particulate matter may impact human health and ecological receptors if mobilised during these phases. |
| Construction | Potential impacts on infrastructure from contamination and ground gas | Corrosion, degradation, or permeation of buried services, structures or materials due to aggressive ground conditions, contaminants, or ground gas accumulation; potential accumulation of hazardous gases in confined spaces posing explosion or asphyxiation risks. | Contamination: Property and/or Infrastructure | Scoped In | The disturbance or mobilisation of existing contamination towards buildings, cables and other services (including pipelines) on-site or off-site may result in damage or deterioration and potential permeation of drinking water pipes by contaminants, due to aggressive ground conditions and/or contamination.<br>Creation of pathways that could facilitate accumulation of explosive ground gas (within confined spaces |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | in buildings) and potential damage to infrastructure. |
| Construction, Decommissioning | Potential impacts from remediation (if undertaken). | Short-term disturbance or mobilisation of contamination during remediation works, balanced by long-term beneficial effects from removal, treatment or control of contamination sources, improving conditions for controlled waters, human health and infrastructure. | | Scoped In | Any remediation of contamination may result in potential beneficial impacts on human health, controlled waters, property receptors and ecological receptors. |
| Construction, Decommissioning | Potential effects on hydrogeological and hydrological setting. | Potential changes to groundwater levels, flows or pathways, or changes to surface water drainage patterns, arising from excavation, dewatering, or below-ground structures during construction or decommissioning. | | Scoped Out | Potential effects on hydrogeological and hydrological setting will be discussed in Volume 02, Chapter 08: Water Environment. |
| Construction, Decommissioning | Potential impacts on construction workers. | Potential exposure of construction workers to contaminated soils, groundwater or hazardous ground gases during intrusive works, leading to health risks if unmitigated | | Scoped In | Potential impacts on construction workers will be addressed by relevant Health and Safety legislation. However, in order to effectively comply with the requirements of the legislation, an understanding of the baseline conditions will be required. |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | (e.g., dermal, inhalation or ingestion pathways). | | | Therefore, these effects should be considered and embedded mitigation relayed via the outline CEMP. |

### 7.7.4 Cumulative and Transboundary Effects

7.7.4.1 Cumulative effects may occur when other projects have the potential to act cumulatively with the EOS. Therefore, an assessment of cumulative effects with other proposed developments that could interact with the effects of the EOS will be carried out.

7.7.4.2 The impacts set out and assessed as part of the Ground Conditions and Contamination topic will already take into consideration potential inter-relationships between impacts on geology and hydrogeology and impacts on the water environment, agriculture and soil, air quality, terrestrial ecology, noise and vibration, as the effects assessed and the natural and physical processes behind them are inherently connected. Therefore, a standalone assessment of inter-related effects related to Ground Conditions and Contamination is scoped out.

7.7.4.3 As set out in Volume 05, Chapter 32: Approach to Cumulative and Transboundary Effects, transboundary effects are those that would affect the environment in another state within the European Economic Area (EEA), i.e. effects which would be experienced beyond the borders of the UK. Potential impacts to ground conditions only occur where there is direct disturbance to those resources and as such will not be experienced beyond the UK Scheme's Order Limits. Potential impacts to and from Ground Conditions and Contamination are only considered in a local or regional context in relation to Inter-project Effects and therefore impacts to Ground Conditions and Contamination in the UK are not relevant within other European States. Transboundary effects are therefore scoped out of further assessment in relation to Ground Conditions and Contamination.

## 7.8 Assumptions, Limitations and Uncertainties

7.8.1.1 The construction phase will include enabling works required to facilitate the EOS. The assessment will assume that during the construction phase, excavation, earthworks or cutting may be required anywhere within the Ground Conditions and Contamination Study Area ('worst-case' situation).

7.8.1.2 This Chapter is based on the collation and evaluation of readily available third-party information, including information from the EA, the BGS and other data sources made available. This information will be reviewed and updated as part of the EIA process.

7.8.1.3 This Chapter should be read in light of the legislation, statutory requirements and/or industry good practice applicable at the time of the assessment. Any subsequent changes in this legislation, guidance or design may necessitate the findings to be reassessed in the light of these circumstances.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 02, Chapter 08: Water Environment

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00009 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| AOD | Above Ordnance Datum |
| AONB | Area of Outstanding Natural Beauty |
| BGS | British Geological Survey |
| CEA | Cumulative Effects Assessment |
| CEMP | Construction Environmental Management Plan |
| CIEEM | Chartered Institute of Ecology and Environmental Management |
| CIRIA | Construction Industry Research and Information Association |
| CSO | Combined Sewer Overflow |
| DCO | Development Consent Order |
| DMRB | Design Manual for Roads and Bridges |
| DWPA | Drinking Water Protected Area |
| EA | Environment Agency |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| FRA | Flood Risk Assessment |
| g | Gram |
| GPP | Guidance for Pollution Prevention |
| GWDTE | Groundwater Dependent Terrestrial Ecosystem |
| ha | Hectare |
| HDD | Horizontal Directional Drilling |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| ID | Unique Identifier |
| IDB | Internal Drainage Board |
| ISEP | Institute of Sustainable & Environmental Professionals |
| km | Kilometre |
| $km^2$ | Kilometre Squared |
| LiDAR | Light Detection and Ranging |
| LLFA | Lead Local Flood Authority |
| LNR | Local Nature Reserve |
| m | Metre |
| mm | Millimetres |
| $m^3$ | Metre Cubed |
| MAGIC | Multi-Agency Geographical Information for the Countryside |
| MDS | Maximum Design Scenario |
| MMO | Marine Management Organisation |
| NGR | National Grid Reference |
| NNR | National Nature Reserve |

| Acronym | Definition |
|---|---|
| NPPF | National Planning Policy Framework |
| NPS | National Policy Statement |
| NVZ | Nitrate Vulnerable Zone |
| OC | Operational Catchment |
| OS | Ordnance Survey |
| PINS | Planning Inspectorate |
| PPG | Planning Practice Guidance |
| PWS | Private Water Supply |
| RBD | River Basin District |
| RBMP | River Basin Management Plan |
| RPS | Regulatory Position Statement |
| SAC | Special Area of Conservation |
| SFRA | Strategic Flood Risk Assessment |
| SPA | Special Protection Area |
| SPZ | Source Protection Zone |
| SSSI | Site of Special Scientific Interest |
| SNCI | Sites of Nature Conservation Interest |
| SuDS | Sustainable Drainage Systems |
| TJB | Transition Joint Bay |
| TraC | Transitional and Coastal Waters |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| WFD | Water Framework Directive |
| WHS | World Heritage Site |
| ZoI | Zone of Influence |

# 8. Water Environment

## 8.1 Introduction

8.1.1.1 This Chapter of the Scoping Report presents the proposed scope of the Water Environment assessment which will identify the potential significant effects occurring on Water Environment receptors that may arise from the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Areas used and receptors considered in this Chapter, only the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. The UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description) is therefore not considered further for the assessment of the water environment.

8.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Water Environment baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Water Environment receptors from the proposed components of the EOS; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

8.1.1.3 For the purposes of this Chapter, Water Environment receptors are assessed within the following sub-disciplines:

- Surface Water;
- Groundwater;
- Hydromorphology;
- Flood Risk; and
- Water Resources.

8.1.1.4 This Chapter should be read alongside the following Chapters for a broader understanding of the UK Scheme and Water Environment interactions:

- Volume 01, Chapter 02: UK Project Description;
- Volume 02, Chapter 07: Ground Conditions and Contamination
- Volume 02, Chapter 10: Onshore Biodiversity;
- Volume 03, Chapter 14: Benthic and Intertidal Ecology;
- Volume 03, Chapter 15: Fish and Shellfish Ecology; and
- Volume 05, Chapter 32: Approach to Cumulative Effects.

## 8.2 Study Area

8.2.1.1 For the purposes of scoping, a Study Area including all land within the EOS Scoping Boundary (as defined in Volume 01, Chapter 02: UK Project Description) as well as a buffer of up to 500 metres (m) from the EOS Scoping Boundary, has been used to identify Water Environment receptors that may be directly impacted. There is no defined site buffer distance recommended by best practice guidance for the Water Environment; buffer sizes are typically project-specific, based on hydrological connectivity, risk pathways and regulatory expectations. Based on the current understanding of the site and the likely hydrological connectivity (determined by geology, topography, ground and surface water conditions etc) this Study Area, including the 500 m buffer, is assumed to be sufficient to capture all water receptors that may be impacted by the EOS. The primary Study Area for the assessment is illustrated on each of the figures (Figure 8-1 to Figure 8-6) produced for the Water Environment Chapter.

8.2.1.2 When determining the Study Area for Water Environment, the extent of the EOSs zone of influence (ZoI) needs to reflect the potential for adverse impacts to pass along or within those receptors directly affected, resulting in indirect effects to receptors beyond the EOS Scoping Boundary and 500 m buffer; this connectivity between receptors is referred to as ‘hydrological connectivity’. Hydrological connectivity is most relevant to potential adverse effects, such as potential pollutants entering surface water receptors (such as rivers), being transported to additional downstream receptors (such as surface waters or surface water-dependent habitats and designations), resulting in indirect effects from the EOS. It can also be relevant to potential adverse effects such as direct water quality or water quantity impacts to groundwater, affecting downslope groundwater-dependent ecological habitats. Therefore, the Study Area for Water Environment is extended along surface waters such as rivers to account for the potential for indirect impacts and/or additional attributes of a receptor (such as designations) so that this can be considered when determining its importance. This extended Study Area is referred to as the ‘secondary’ Study Area. Although referred to as the ‘secondary’ Study Area, this by no means reflects a lower level of importance but merely provides a way to distinguish between the two.

8.2.1.3 The risk that significant adverse effects from the EOS passing along surface waters or via groundwater to downstream or downslope receptors is dependent on the nature and extent of the specific activity and specific impact type. Professional judgement has been applied to identify the extent to which such downstream or downslope receptors are included.

8.2.1.4 For surface waters an extended ‘secondary’ Study Area of up to 5 kilometres (km) has been used (i.e. distance to coast or confluence with major tributary where potential impacts reduce in significance due to input from additional water sources). Given the EOS’s location on the Tendring Peninsular, surface waters that might be affected by the EOS typically flow into the sea, therefore corresponding coastal waters are considered the downstream-most receptors in this instance.

8.2.1.5 The Groundwater Study Area will be extended to 1 km from the EOS Scoping Boundary. In the absence of prescriptive guidance, this distance is considered appropriate to assess the hydrogeological setting and any influence that potential sources might have on the EOS or local receptors (taking into consideration the pathways for contaminant migration).

## 8.3 Relevant Legislation, Planning Policy and Guidance

### 8.3.1 Introduction

8.3.1.1 This section identifies the key water-related legislation, planning policy and guidance relevant to this Chapter.

### 8.3.2 Legislation

8.3.2.1 The pieces of legislation (Acts of Parliament and Regulations) of relevance to Water Environment of particular relevance to the EOS are listed below.

8.3.2.2 Relevant Acts of Parliament include (but not limited to):

- Salmon and Freshwater Fisheries Act 1975 (HMSO, 1975);
- Environmental Protection Act 1990 (HMSO, 1990);
- Land Drainage Act 1991 (HMSO, 1991a);
- Water Industry Act 1991 (HMSO, 1991b);
- Water Resources Act 1991 (as amended) (HMSO, 1991c);
- Environment Act 1995 (HMSO, 1995);
- Water Act 2003 (HMSO, 2003);
- Climate Change Act 2008 (HMSO, 2008);
- Marine and Coastal Access Act 2009 (HMSO, 2009a);
- Flood and Water Management Act 2010 (HMSO, 2010);
- Water Act 2014 (HMSO, 2014); and
- Environment Act 2021 (HMSO, 2021).

8.3.2.3 Relevant Regulations include (but are not limited to):

- The Control of Pollution (Applications, Appeals and Registers) Regulations 1996 (Statutory Instrument (SI) 1996/2971) (HMSO, 1996);
- The Anti-Pollution Works Regulations 1999 (SI 1999/1006) (HMSO, 1999);
- The Control of Pollution (Oil Storage) (England) Regulations 2001 (SI 2001/ 2954) (HMSO, 2001);
- The Eels (England and Wales) Regulations 2009 (SI 2009/3344) (HMSO, 2009b);
- The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 (SI 2009/3104) (HMSO, 2009c);

- The Buildings Regulations 2010 (SI 2010/2214) Schedule 1 Part H (HMSO Government, 2010);
- The Environmental Damage (Prevention and Remediation) Regulations 2015 (as amended) (SI 2015/810) (HMSO, 2015);
- The Environmental Permitting (England and Wales) Regulations 2016 (as amended) (SI 2016/1154) (HMSO, 2016); and
- The Water Environment (Water Framework Directive (WFD)) (England and Wales) Regulations 2017 (SI 2017/407) (HMSO, 2017).

### 8.3.3 National Policy Statements

8.3.3.1 This section identifies National Policy Statements (NPSs) of relevance to the EOS and their key policy and guidance relating to the Water Environment.

#### National Policy Statement for Energy

8.3.3.2 The National Policy Statement for Energy (NPS-EN1) (Department for Energy, Security and Net Zero, 2026a) includes key policy and guidance for pollution control and the interaction with other environmental regulations (Section 4.12), flood risk (Section 5.8) and water quality and resources (Section 5.16).

8.3.3.3 Section 4.12 provides specific guidance on discharges or emissions from a proposed project, which lead to other direct or indirect impacts on terrestrial, freshwater, marine, onshore and offshore environments. Paragraph 4.12.7 of NPS EN-1 (Department for Energy, Security and Net Zero, 2026a) is of particular relevance and advises that Applicants should make early contact with relevant regulators, including the Environment Agency (EA) and the Marine Management Organisation (MMO), to discuss their requirements for Environmental Permits and other consents such as marine licences.

8.3.3.4 Section 5.8 and Section 5.16 contain detailed policy and guidance on both flood risk, and water quality and resources, respectively, as set out in Table 8-1 (Section 5.8) and Table 8-2 (Section 5.16) below.

**Table 8-1: NPS-EN1 Section 5.8 on Flood Risk**

| Paragraph | Extract/Summary |
|---|---|
| 5.8.7 | On flood risk:<br>*"Where new energy infrastructure is, exceptionally, necessary in flood risk areas (for example where there are no reasonably available sites in areas at lower risk), policy aims to make it safe for its lifetime without increasing flood risk elsewhere and, where possible, by reducing flood risk overall. It should also be designed and constructed to remain operational in times of flood".* |
| 5.8.9 | On the Sequential Test:<br>*"If, following the application of the Sequential Test, it is not possible, (taking into account wider sustainable development objectives), for the project to be located in an area of lower flood risk the Exception Test can be applied…"* |
| 5.8.10 | On the Exception Test:<br>*"It would only be appropriate to move onto the Exception Test when the Sequential Test has identified reasonably available, lower risk sites appropriate for the proposed development where, accounting for wider sustainable development objectives, application of relevant policies would provide a clear reason for refusing development in any alternative locations identified. Examples could include alternative site(s) that are subject to national designations such as landscape, heritage and nature conservation designations, for example Areas of Outstanding Natural Beauty (AONBs), SSSIs and World Heritage Sites (WHS) which would not usually be considered appropriate".* |
| 5.8.11 | On the Exception Test:<br>*"To pass the Exception Test it should be demonstrated that:*<br>• *The project would provide wider sustainability benefits to the community that outweigh flood risk; and*<br>• *The project will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible reduce flood risk overall."* |
| 5.8.12 | On the design of development:<br>*"development should be designed to ensure there is no increase in flood risk elsewhere, accounting for the predicted impacts of climate change throughout the lifetime of the development. There should be no net loss of floodplain storage and any deflection or constriction of flood flow routes should be safely managed within the site. Mitigation measures should make as much use as possible of natural flood management techniques".* |

| Paragraph | Extract/Summary |
|---|---|
| 5.8.13 | On the requirement for a Flood Risk Assessment (FRA):<br>*"A site-specific flood risk assessment should be provided for all energy projects in Flood Zones 2 and 3 in England… In Flood Zone 1 in England or Flood Zone 1 in Wales, an assessment should accompany all proposals involving:*<br>• *sites of 1 hectare or more…"* |
| 5.8.14 | On the scope of a Flood Risk Assessment:<br>*"This assessment should identify and assess the risks of all forms of flooding to and from the project and demonstrate how these flood risks will be managed, taking climate change into account".* |
| 5.8.15 | Provides a detailed list of the minimum requirements for Flood Risk Assessments which will be expanded on in the PEIR. |
| 5.8.17 | On development considerations:<br>*"Development (including construction works) will need to account for any existing watercourses and flood and coastal erosion risk management structures or features, or any land likely to be needed for future structures or features so as to ensure:*<br>• *Access, clearances and sufficient land are retained to enable their maintenance, repair, operation, and replacement, as necessary;*<br>• *Their standard of protection is not reduced; and*<br>• *Their condition or structural integrity is not reduced."* |
| 5.8.21 | On the Sequential Test:<br>*"ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account. Where it is not possible to locate development in low-risk areas, the Sequential Test should go on to compare reasonably available sites with medium risk areas and then, only where there are no reasonably available sites in low and medium risk areas, within high-risk areas".* |
| 5.8.23 | On the Sequential Test:<br>*"Consideration of alternative sites should take account of the policy on alternatives set out in Section 4.3 above [of NPS EN-1]. All projects should apply the Sequential Test to locating development within the site".* |
| 5.8.24 to 5.8.35 | Provides details on the use of mitigation to manage flood risk and surface water, including the use of Sustainable Drainage Systems (SuDS). |

**Table 8-2: NPS-EN1 Section 5.8 on Water Quality and Resources**

| Paragraph | Extract/Summary |
|---|---|
| 5.16.3 | On potential effects on the water environment:<br>*"Where the project is likely to have effects on the water environment, the applicant should undertake 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, and how this might change due to the impact of climate change on rainfall patterns and consequently water availability across the water environment, as part of the ES or equivalent".* |
| 5.16.4 | On communicating with environmental regulators:<br>*"…make early contact with the relevant regulators, including the local authority, the Environment Agency and Marine Management Organisation, where appropriate, for relevant licensing and environmental permitting requirements".* |
| 5.16.5 | On managing surface water:<br>*"where possible, applicants are encouraged to manage surface water during construction by treating surface water runoff from exposed topsoil prior to discharging and to limit the discharge of suspended solids e.g. from car parks or other areas of hard standing, during operation."* |
| 5.16.6 | On controlling the risk of pollution to groundwater:<br>*"Applicants are encouraged to consider protective measures to control the risk of pollution to groundwater beyond those outlined in River Basin Management Plans and Groundwater Protection Zones – this could include, for example, the use of protective barriers"* |
| 5.16.7 | Sets out the requirements for the information that should be included within the ES in relation to water quality and resources. |
| 5.16.9 | On design considerations:<br>*"The risk of impacts on the water environment can be reduced through careful design to facilitate adherence to good pollution control practice. For example, designated areas for storage and unloading, with appropriate drainage facilities, should be clearly marked."* |
| 5.16.11 | On the interface between planning and pollution (especially activities that discharge to the water environment): |

| Paragraph | Extract/Summary |
|---|---|
| | *"These considerations will also apply in an analogous way to the abstraction licensing regime regulating activities that take water from the water environment, and to the control regimes relating to works to, and structures in, on, or under controlled waters".* |
| 5.16.14 | On consideration of relevant plans and regulations:<br>*"The Secretary of State should be satisfied that a proposal has regard to current River Basin Management Plans and meets the requirements of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (including regulation 19)".* |

#### National Policy Statement for Electricity Networks Infrastructure

8.3.3.5 The National Policy Statement for Electricity Networks Infrastructure (NPS-EN5) (Department for Energy, Security and Net Zero, 2026b) includes policy and guidance on flood risk and climate change, notably paragraph 2.3.2 states:

*"As climate change is likely to increase risks to the resilience of some of this infrastructure, from flooding for example, or in situations where it is located near the coast or an estuary or is underground, applicants should in particular set out to what extent the proposed development is expected to be vulnerable, and, as appropriate, how it has been designed to be resilient to:*

- *Flooding, particularly for substations that are vital to the network; and especially in light of changes to groundwater levels resulting from climate change…*
- *Earth movement or subsidence caused by flooding or drought (for underground cables); and*
- *Coastal erosion – for the landfall of offshore transmission cables and their associated substations in the inshore and coastal locations respectively."*

#### Other relevant national plans

8.3.3.6 Consideration will also be given to the following national plans that set and influence strategic water management policy in England:

- UK Government's Environmental Improvement Plan 2023 (HM Government, 2023a);
- UK Government's Plan for Water: Our Integrated Plan for Delivering Clean and Plentiful Water 2023 (HM Government, 2023b); and
- UK Government's 25 Year Environment Plan (HM Government, 2021).

### 8.3.4 National Planning Policy Framework

8.3.4.1 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2024) details planning policies for England, with Section 14 'Meeting the Challenge of Climate Change, Flooding and Coastal Change' of relevance to the assessment of the EOS on the water environment, as detailed in Table 8-3 below.

**Table 8-3: NPPF Section 14**

| Paragraph | Extract/Summary |
|---|---|
| 170 | On development in areas of flood risk:<br>*"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".* |
| 173 to 180 | Set out the requirements for applications to apply the sequential test and the exception test and the criteria required to pass the exception test, which mirrors what is set out in Paragraph of 5.8.11 of NPS EN-1 (Department for Energy, Security and Net Zero, 2026a) which has been described in the NPS section above. |
| 181 | On site-specific flood-risk assessments:<br>*"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:*<br>• *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;*<br>• *the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*<br>• *it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*<br>• *any residual risk can be safely managed; and*<br>• *safe access and escape routes are included where appropriate, as part of an agreed emergency plan".* |
| 182 | On SuDS:<br>*"Applications which could affect drainage on or around the site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, and which are proportionate to the nature and scale of the proposal. These should provide multifunctional benefits wherever possible, through facilitating improvements in water quality and biodiversity, as well as benefits for amenity. Sustainable drainage systems provided as part of proposals for major development should:*<br>• *take account of advice from the Lead Local Flood Authority;*<br>• *have appropriate proposed minimum operational standards; and*<br>• *have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development".* |

### 8.3.5 Guidance

8.3.5.1 The Planning Practice Guidance (PPG) for Flood Risk and Coastal Change (Ministry of Housing, Communities and Local Government and Department for Levelling up, Housing and Communities, 2014) provides guidance for local planning authorities

on assessing the significance of water environment effects of the EOS. The PPG advises on how to take account of and address the risks associated with flooding and coastal change in the FRA.

8.3.5.2 Advice on how climate change should be taken into account in FRAs is provided in the EA's 'Flood Risk Assessments: Climate Change Allowances' (EA, 2016). The guidance ensures that developers make allowances for climate change in FRAs to help minimise vulnerability and provide resilience to flooding and coastal change.

8.3.5.3 Department for Environment, Food and Rural Affairs (Defra) recently published revised standards for how SuDS should be applied in England - 'Non-statutory technical standards for SuDS' (Defra, 2025). This will be relevant to the drainage from any permanent above-ground installations.

8.3.5.4 The EA provides guidance and position statements (EA, 2018) on the approach taken towards the protection of groundwater and aims to prevent the pollution of groundwater and protection of it as a resource. Specifically, the document will inform the Water Environment assessment of the EOS to avoid impacts on groundwater as far as practical. This includes:

- Position Statement A (Risk Based Approach);
- Position Statement B (Protection of Water Intended for Human Consumption);
- Position Statement G (Discharge of Liquid Effluents into the Ground); and
- Position Statement N (Groundwater Resources and Abstraction).

8.3.5.5 The EA also has other position statements such as Regulatory Position Statement (RPS) 261 (EA, 2023) for temporary discharges of water pumped out of excavations, that may be relevant to some construction works.

8.3.5.6 Water management in England is coordinated through 10 River Basin Management Plans (RBMPs). Each RBMP is prepared by the EA for six-year cycles and sets out how organisations, stakeholders and communities will work together to improve the water environment.

8.3.5.7 The water bodies within the Study Area fall within the Anglian River Basin District (RBD) RBMP (EA, 2022). The most recent plan was published in December 2022 and will be reviewed and updated again by December 2027. These set legally-binding locally-specific environmental objectives and contain the current WFD status of the water bodies in the area. More information on these is included in the baseline conditions section of this Chapter.

8.3.5.8 Essex Water Strategy 2024 (Essex County Council, 2024) is the first ever water strategy for Essex which was developed in partnership with Water Resources East, water companies, regulators, farmers, environmental groups and other interested parties. It outlines the current and future water issues facing Essex. The document includes 30 recommendations on ways to save water, support land use change and increase natural green infrastructure and develop new water supplies. The Strategy also provides guidance on SuDS for new development. Furthermore, Essex County

Council's SuDS Design Guide for Essex (Essex County Council, 2026) will also be a material consideration.

### 8.3.6 Local Planning Policy

8.3.6.1 The relevant local policies for assessing the impact of the EOS on the Water Environment are summarised in Table 8-4 below.

**Table 8-4: Local Planning Policy of relevance to the water environment**

| Local Plan | Extract/Summary |
|---|---|
| Tendring District Local Plan 2013-2033 and Beyond (Section 1) North Essex Authorities' Shared Strategic Section 1 Plan (Tendring District Council, 2021) | • Policy SP1 – 'Presumption in Favour of Sustainable Development' seeks to secure development that improves the economic, social and environmental conditions in the area including protecting the water environment and using water resources sustainably; and<br>• Policy SP7 – 'Place Shaping Principles' states that all development should include measures to promote environmental sustainability, including addressing energy and water efficiency, and provision of appropriate water, wastewater and flood mitigation measures, including the use of open space to provide flora- and fauna-rich sustainable drainage solutions. |
| Within Tendring District Local Plan 2013-2033 and Beyond (Section 2) (Tendring District Council, 2022) | • Policy SPL 3 – 'Sustainable Design' advises that new development must meet practical requirements, including reducing flood risk and integrating sustainable drainage within the development, creating amenity and enhancing biodiversity. Development should also not have unacceptable levels of pollution on air, land, water (including groundwater), amenity, health or safety through noise, smell, dust, light, heat, vibration, fumes or other forms of pollution or nuisance;<br>• Policy PPL1 – 'Development and Flood Risk' states that all development should include measures to respond to the risk of flooding on and/or off-site. Within the Flood Zone shown on the Policies Map and Local Maps, or for sites of 1 ha or more, development proposals must be accompanied by a FRA; and<br>• Policy PPL 5 – 'Water Conservation, Drainage and Sewerage' ensures that all new development makes adequate provision for drainage and sewerage and should include SuDS as a means of reducing flood risk, improving water quality, enhancing the Green Infrastructure network and providing amenity and biodiversity benefits. |
| Ardleigh Neighbourhood Plan 2020-2033 (Ardleigh Parish Council, 2024) | • Policy EP – Natural, Built and Historic Environment is relevant to the Water Environment matters of the EOS and so is of relevance to this assessment. |

## 8.4 Consultation and Engagement

8.4.1.1 No topic-specific consultation has taken place relating to the Water Environment to date. However, responses on the non-statutory consultation (as described in Volume

01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council and Tendring District Council, although only Essex County Council provides relevant comments to this topic. Where comments relevant to the Water Environment have been provided, these are summarised and responded to in Table 8-5 below.

**Table 8-5: Non-statutory Consultation Responses: Water Environment**

| Consultee | Summary of Comment | How Matter Will be Addressed |
|---|---|---|
| Essex County Council | Lead Local Flood Authority (LLFA) recommends the drainage proposal would comply with SuDS Design Guide (Essex County Council, 2026). Proposal should assess areas susceptible to flooding and appropriate mitigation measures during construction. | The Drainage Design for permanent facilities will consider Essex County Council's SuDS Design Guide (Essex County Council, 2026) but also the updated National SuDS Standards.<br>A flood response plan will be developed and implemented by the Contractor for all activities to be located in areas of flood risk. |
| Essex County Council | LLFA requires a construction management strategy and should include temporary works to ordinary water courses, surface water management during construction of office and storage compounds, required mitigation to prevent onsite and offsite flooding, measures taken to prevent any pollutants entering surface or ground water and appropriate measures to deal with spills and leakages on site. | An outline Construction Environment Management Plan will be prepared outlining measures taken to prevent and minimise impacts to the water environment.<br>A pollution prevention plan will be developed and implemented following good practice guidance to avoid or reduce potential impacts on water quality during construction |
| Essex County Council | Surface runoff disposal during construction phase from built area will need to be in accordance with SuDS Design Guide 2020. Surface water runoff from permanent built-up areas should be managed on site using infiltration or runoff should be restricted to one-year greenfield rates. | If temporary construction SuDS are required to attenuate and treat runoff from temporary construction areas, this will require suitable temporary areas. Where relevant to temporary construction SuDS, the SuDS Design Guide 2020 will be considered.<br>A Drainage Strategy will be prepared that will set out volumes of surface water runoff and rates for attenuation. |
| Essex County Council | Under Section 23 of the Land Drainage Act 1991 (HMSO, 1991a), consent required for the areas where project will have direct or indirect effect on drainage channels, or ordinary water courses. Protective Provisions would be required for drainage authority. | Consultation with the drainage authority (the LLFA and/or EA) will be undertaken in relation to such Protective Provisions and relevant permissions will be sought where required, which may include ordinary watercourse consents and Flood Risk Activity Permits. |

| Consultee | Summary of Comment | How Matter Will be Addressed |
|---|---|---|
| Essex County Council | Essex County Council supports trenchless construction method to install cables under roads, rivers and designated sites. Essex County Council recommends geotechnical investigations and surveys should be undertaken. | Appropriate watercourse crossing methods will be determined in consultation with regulators. This is likely to include a combination of intrusive and non-intrusive techniques (e.g. Horizontal Directional Drilling (HDD)), where practicable.<br>Geotechnical investigations will be undertaken to support design development. |

8.4.1.2 A Freedom of Information Request will be submitted to the EA to obtain baseline information to inform the Water Environment, drainage and FRA to inform the Environmental Statement (ES). The request will include water quality, resources (pollution incidents), licensed water abstractions, water activity permits (i.e. consented discharges), hydrogeology (e.g. groundwater levels), WFD data and flooding data. The Local Planning Authorities will also be contacted for details of any private water supplies (PWS') that may be present. Additional consultation with relevant third parties will take place as the impact assessment is progressed.

## 8.5 Baseline Environment

### 8.5.1 Baseline Conditions

8.5.1.1 This section characterises the baseline conditions for the Water Environment topic.

#### Baseline Data Sources

8.5.1.2 The following data sources have been used to characterise the baseline conditions for the Water Environment:

- British Geological Survey (BGS) Geoindex website (BGS, 2026a);
- BGS Geology Viewer; BGS Geology Viewer (BETA) (BGS, 2026b);
- Defra hydrology data explorer website (Defra, 2026a);
- EA Bathing Water Application (EA, 2026a);
- EA Catchment Data Explorer website (EA, 2025a);
- EA Water Quality Explorer (EA, 2026b);
- EA Online Interactive Maps:
  - Flood map for planning (rivers and sea) (EA, 2019a);
  - Risk of flooding from surface water (EA, 2019b);
  - Risk of flooding from reservoirs (EA, 2019b);
  - Flood warning areas and risk (EA, 2019b);

  - Statutory Main River Map (EA, 2025b);
- Internal Drainage Board (IDB) Map (Association of Drainage Boards, 2026);
- Multi-Agency Geographical Information for the Countryside (MAGIC) map website (Defra, 2026b);
- Meteorological Office website, UK Climate Averages (Meteorological Office, 2026);
- National Soil Resources Institute Soilscapes (1:250,000) website (Cranfield University, 2026);
- National Library of Scotland Historical Imagery (National Library of Scotland, 2026);
- Online Ordnance Survey (OS) online maps (Bing, 2019);
- OSM Landuse Landcover maps (OSM Land Use Land Cover, n.d.);
- Anglian RBD RBMP (EA, 2022);
- UK Topographic map (Topographic Map, n.d.); and
- Groundwater Dependent Terrestrial Ecosystems (GWDTEs) (EA, 2025c).

#### Topography, Land Use and Climate

8.5.1.3 The topography across the western side of the EOS Scoping Boundary is generally around 30-40 m above ordnance datum (AOD), whereas the eastern extent gradually decreases to an elevation that varies from 20-0 m AOD where the Study Area meets the coast (Topographic Map, n.d.).

8.5.1.4 The land use is typical for lowland areas in England, consisting predominantly of arable farmland, pockets of pastureland, some urban areas, wetlands and clusters of small woodlands. Main towns and villages either within or near the Study Area include Harwich, Ramsey, Little Oakley, Wix and Bradfield.

8.5.1.5 Based on the Meteorological Office website (Meteorological Office, 2026), the nearest rainfall station is Levington (National Grid Reference (NGR): TM 23354 39142; 20 m AOD) which is approximately 9 km to the north of the Study Area. Using data from this weather station for the period 1991 to 2020, it is estimated that the Study Area experiences approximately 627 millimetres (mm) of rainfall per year, with it raining more than 1 mm on approximately 115 days per year, which are both low in a UK-wide context. The driest month recorded is April with an average rainfall of 35 mm and the wettest month recorded is October with an average of 60 mm of rainfall.

#### WFD Water Bodies and their Classification

8.5.1.6 The EOS is located within the Anglian RBD within the ‘Essex Combined’ and ‘Anglian TraCs (Transitional and Coastal waters) WFD Management Catchments. The EOS is also located within three operational catchments (OC), including: ‘Stour OC’, ‘Colne Essex’ and ‘Essex TraC’ (EA, 2025a).

8.5.1.7 The WFD water bodies that may be impacted by the EOS include four rivers, one transitional, three coastal water bodies and one groundwater body (EA, 2025a). A summary of their current status and classification is shown in Table 8-6. These are also shown in Figure 8-1.

Table 8-6: WFD Water Bodies - Current Status and Classification (EA, 2025a)

| WFD water body and ID | Type | Designation | Water Body Element | Status |
|---|---|---|---|---|
| Holland Brook (GB105037077810) | River | Heavily modified | Overall | Moderate |
| | | | Ecology | Moderate (biological quality elements and Phosphate Poor) |
| | | | Chemical | Does not require assessment |
| | | | Hydromorphology | Not high |
| | | | Target status | Moderate (2015) |
| Ramsey River (GB105036040830) | River | Heavily modified | Overall | Moderate |
| | | | Ecology | Moderate (dissolved oxygen Bad and Phosphate Poor) |
| | | | Chemical | Does not require assessment |
| | | | Hydromorphology | Not high |
| | | | Target status | Moderate (2015) |
| Wrabness Brook (GB105036040800) | River | Heavily Modified | Overall | Good |
| | | | Ecology | Good |
| | | | Chemical | Does not require assessment |
| | | | Hydromorphology | Not high |
| | | | Target status | Good (2021) |
| Tenpenny Brook (GB105037041310) | River | Heavily Modified | Overall | Moderate |
| | | | Ecology | Moderate (although Phosphate Bad and Fish Poor) |
| | | | Chemical | Does not require assessment |
| | | | Hydromorphology | Not high |
| | | | Target status | Good (2027) |
| Stour (Essex) (GB520503613602) | Transitional | Heavily Modified | Overall | Moderate |
| | | | Ecology | Moderate |
| | | | Chemical | Does not require assessment |
| | | | Target status | Moderate (2015) |
| Hamford Water | Coastal | | Overall | Moderate |

| WFD water body and ID | Type | Designation | Water Body Element | Status |
|---|---|---|---|---|
| (GB680503713700) | | Not designated artificial or heavily modified | Ecology | Moderate |
| | | | Chemical | Does not require assessment |
| | | | Target status | Moderate (2015) |
| Harwich Approaches (GB650503190000) | Coastal | Heavily modified | Overall | Moderate |
| | | | Ecology | Moderate |
| | | | Chemical | Does not require assessment |
| | | | Target status | Moderate (2015) |
| Essex (GB650503520001) | Coastal | Heavily Modified | Overall | Moderate |
| | | | Ecology | Moderate |
| | | | Chemical | Does not require assessment |
| | | | Target status | Moderate (2015) |
| Essex Gravels (GB40503G000400) | Groundwater | N/A | Overall | Poor |
| | | | Quantitative | Good |
| | | | Chemical | Poor |
| | | | Target status | Poor (2015) |

605000 610000 615000 620000 625000

235000 230000 225000 220000

Stour (Essex) Transitional Water Body
Wrabness Brook
Ramsey River
Dovercourt Designated Bathing Water
Dovercourt Boating Lake
South Hall Ditch
Harwich Approaches Coastal Water Body
Foulton Hall Ditch
Hamford Water Coastal Water Body
Essex Coastal Water Body
Holland Brook
Tenpenny Brook
Mistley Brook
Tenpenny Brook Water Body
Holland Brook Water Body
Wrabness Brook Water Body
Ramsey River Water Body
MB1
MB2
MB3
MB4
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SW9
SW10
SW11
SW12
SW13
SW14
HB1
W1
W2
RB1
RB2
RB3
RB4
RB5
RB6
RB7

# TARCHON

## Tarchon Interconnector Project
Scoping Report

## Surface Water Features and their Attributes

### Legend
- English Onshore Scheme Scoping Boundary
- Study Area
- WFD Designated River - Good Ecological Status
- WFD Designated River - Moderate Ecological Status
- EA Designated Main River
- Ordinary Watercourse
- WFD Designated River Coastal/Transitional Water Body
- Waterbody
- Low Water Mark
- High Water Mark

Nitrate Vulnerable Zone (NVZ)
- Surface Water
- Groundwater

*There are no Drinking Water Safeguard Zones or Drinking Water Protection Areas




### Notes
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Coordinate System: British National Grid

0 2.5 5 km N

| Scale | | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|---|
| 1:75,000 | @A3 | 09/02/2026 | BPHB | EH | MB |

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A17 The Embankment Business Park
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APEM

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Figure 8-1

Figure Reference: Tarchon_Scoping_WE_Fig8-1_SurfaceWaterFeatures_v2

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### Surface Waters

8.5.1.8 In addition to the WFD river, transitional and coastal water bodies detailed in Table 8-6, there are a number of additional named and unnamed surface waters (including ordinary watercourses) to be considered as part of the assessment, which fall both within and outside of the WFD river water body catchments identified.

8.5.1.9 Table 8-7 lists and provides a brief description of the surface waters present within the secondary Study Area and which may be impacted by the EOS. Table 8-7 also identifies and provides a rationale for those surface waters scoped in or out of the assessment. The NGRs given for watercourses give the source of that feature unless otherwise stated. Each water feature has also been assigned a unique identifier (ID) for ease of reference and to assist where features are unnamed. These are also shown in Figure 8-1. This is a provisional list and will be refined further through further desk study and walkover surveys as the assessment is progressed.

Table 8-7: Surface Waters within the Study Area that may be impacted by the EOS

| Surface Water Name | ID | Indicative NGR | Relevance to the EOS | Scoped In or Out | Scope Rationale |
|---|---|---|---|---|---|
| **Holland Brook WFD Water Body catchment** | | | | | |
| 'Holland Brook Water Body' | Holland Brook Water Body | TM 09256 29041 | The headwaters of Holland Brook commence to the north-east of Little Bromley and Shop Road. There is a small pond at Braham Hall (approximately TM 10200 28445). Further north-west, OS maps indicate possible drainage ditches along the southern margin of Shop Road and between Shop Road and Chequers Road including a small pond at TM 09614 28771. These are likely to be part of the headwaters of Holland Brook but are expected to be ephemeral or only intermittently flowing. The WFD reportable reach has a length of approximately 21 km and drains a catchment area of 96 kilometres squared ($km^2$). Holland Brook flows through the western extent of the Study Area before flowing south-east, eventually flowing into 'Essex Water Body'. | Scoped In | Direct and indirect potential impacts on water quality, water quantity, hydromorphology and flood risk are possible. |
| Unnamed Tributary of 'Holland Brook Water Body'. | HB1 | TM 12200 28283 | HB1 is a first order channel that rises west of the B1035 near Horsleycross Street. It flows west for approximately 0.81 km into Holland Brook. | Scoped In | Direct and indirect potential impacts on water quality, water quantity, hydromorphology and flood risk are possible. |

| Surface Water Name | ID | Indicative NGR | Relevance to the EOS | Scoped In or Out | Scope Rationale |
|---|---|---|---|---|---|
| Unnamed Tributary of 'Holland Brook Water Body'. | HB2 | TM 10610 27278 and TM 10860 26896 | A second order tributary rises to the east of Bentley Road in two nearby locations and flows east for approximately 0.86 km into Holland Brook. | Scoped Out | This watercourse is outside of the EOS Scoping Boundary and upstream from the EOS. |
| Unnamed Reservoir | SW1 | TM 10852 28469 | Possible agricultural reservoir located between Little Bromley and Horsleycross Street. | Scoped In | Although this reservoir does not appear to be directly connected to with Holland Brook, it lies within the EOS Scoping Boundary and thus at this stage, direct or indirect impacts cannot be ruled out until further EOS information is available. |
| Unnamed Reservoir | SW2 | TM 11679 28080 | OS maps show a reservoir at this location. However, recent aerial imagery suggests that it may have been infilled (Ref 8.50). | Scoped In (if present) | Although this reservoir does not appear to be hydrologically connected to Holland Brook, it lies within the EOS Scoping Boundary and thus at this stage, direct or indirect impacts cannot be ruled out until further EOS information is available. |
| Unnamed Reservoir | SW3 | TM 11675 27901 | Standalone reservoir with no apparent hydrological connections. | Scoped In | Standalone reservoir just within the EOS Scoping Boundary but with no apparent hydrological connections to Holland Brook, which it would be upstream from. |
| Unnamed Reservoir | SW4 | TM 11857 27530 | Small reservoir just south of UR5. No apparent hydrological connections (inflow or outflows). | Scoped Out | Standalone reservoir just beyond the EOS Scoping Boundary with no apparent hydrological connections to Holland Brook, which it would be upstream from. |

| Surface Water Name | ID | Indicative NGR | Relevance to the EOS | Scoped In or Out | Scope Rationale |
|---|---|---|---|---|---|
| **Mistley Brook Catchment (non-WFD)** | | | | | |
| Unnamed Ordinary Watercourse (henceforth referred to as 'Mistley Brook) | Mistley Brook | TM 11370 29184 | 'Mistley Brook' rises near Dickley Hall and flows northwards, flowing adjacent to reservoir SW5. It flows for approximately 3 km before flowing into the Stour Estuary. At TM 11554 31036, the channel flows through a small online lake. | Scoped In | Direct and indirect potential impacts on water quality, water quantity, hydromorphology and flood risk are possible. |
| Unnamed Ordinary Watercourse | MB1 and SW13 | TM 10569 29462 | MB1 flows east for approximately 1 km before inflowing through two ponds orsmall reservoirs in series at Dickley Hall (TM 11394 29754) (collectively SW13). It is then culverted for approximately 68 m before entering Mistley Brook. | Scoped In | Direct and indirect potential impacts on water quality, water quantity, hydromorphology and flood risk are possible. |
| Unnamed Ordinary Watercourse | MB2 | TM 09813 30149 | MB2 rises to the east of Bromley Road, south of Lawford. It flows east through a small pond at TM 10198 30184, before passing through two small lakes either side of Chequers Road. It continues flowing east for approximately 500 m into Mistley Brook. | Scoped In | MB2 interacts with other water features and is within the Study Area where potential impacts may occur. |
| Unnamed Ordinary Watercourse | MB3 | TM 10862 30859 | MB3 flows from its source near Mistley Hall eastwards via a small fishing lake at TM 11037 30776 for approximately 0.68 km before entering the small lake that is online with Mistley Brook. | Scoped Out | Feature is outside of and not considered to be hydrologically connected to the Study Area, therefore no impacts are expected. |

| Surface Water Name | ID | Indicative NGR | Relevance to the EOS | Scoped In or Out | Scope Rationale |
|---|---|---|---|---|---|
| Unnamed Ordinary Watercourse | MB4 | TM 12716 30443 | Rises from a small pond at Dovehouse Farm TM 12735 30441 (formerly UP6) and flows westwards for around 1.5 km potentially through Mason's Lake (TM 12278 30447), Archie's Lake (Archie's Lake), Gamekeepers Pond (TM 11868 31009), and a weir at NGR TM 11833 31076 before joining with Mistley Brook. | Scoped Out | Feature flows within Study Area but is not hydrologically connected to the EOS, therefore no impacts are expected. |
| Unnamed Reservoir | SW5 | TM 11472 29280 | Positioned within the north-western extent of the EOS Scoping Boundary. | Scoped In | Although this reservoir does not appear to be online with Mistley Brook, it lies within the EOS Scoping Boundary and thus at this stage, direct or indirect impacts cannot be ruled out until further EOS information is available. |
| **Wrabness Brook WFD water body catchment** | | | | | |
| Wrabness Brook | Wrabness Brook Water Body | TM 13317 28218 | WFD reportable reach which has a length of approximately 5 km and drains a catchment area of 10.6 $km^2$.It flows in a north-easterly direction before eventually joining the River Stour. | Scoped In | Direct and indirect potential impacts on water quality, water quantity, hydromorphology and flood risk are possible. |
| Unnamed Ordinary Watercourse | W1 | TM 13232 28213 | W1 rises to the east of Horsleycross Street and initially flows north to Bradfield Hall. Here it flows east potentially via a small lake, flooded moat (both TM 13161 29296) and a small reservoir (at TM 13633 29330) | Scoped In | Direct and indirect potential impacts on water quality, water quantity, hydromorphology and flood risk are possible. |

| Surface Water Name | ID | Indicative NGR | Relevance to the EOS | Scoped In or Out | Scope Rationale |
|---|---|---|---|---|---|
| | | | before flowing into Wrabness Brook around 650 m to the east. | | |
| Unnamed Ordinary Watercourse | W2 and SW12 | TM 15429 29452 | This first order watercourse rises in an arable field just within the northern extents of the EOS Scoping Boundary. It flows north through a small agricultural reservoir (S12) and a small pond either side of Bradfield Road before entering Wrabness Brook around 1.4 km to the north. | Scoped In | Direct and indirect potential impacts on water quality, water quantity, hydromorphology and flood risk are possible. |
| Unnamed Lake Feature | SW6 | TM 14493 29363 | Potentially a small agricultural reservoir located adjacent to where W1 flows into Wrabness Brook. However, no obvious hydrological connections. | Scoped In | Although this reservoir does not appear to be online with Wrabness Brook, it lies within the EOS Scoping Boundary and thus at this stage, direct or indirect impacts cannot be ruled out until further EOS information is available. |
| Unnamed Reservoir | SW7 | TM 14070 28223 | Two small agricultural lakes/reservoirs located off Cansey Lane. | Scoped Out | Standalone water feature with no apparent hydrological connections to Wrabness Brook. Site is within Study Area but outside and upstream of the EOS Scoping Boundary. |
| **Ramsey River WFD water body catchment** | | | | | |
| Ramsey River | Ramsey River Water Body | TM 14965 27862 | The WFD reportable reach, which has a total length of approximately 14 km and drains a catchment area of 30 $km^2$, rises to the south of the A120 Wix Bypass/ Harwich Road. It flows in an easterly direction to Great Oakley before | Scoped In | Direct and indirect potential impacts on water quality, water quantity, hydromorphology and flood risk are possible. |

| Surface Water Name | ID | Indicative NGR | Relevance to the EOS | Scoped In or Out | Scope Rationale |
|---|---|---|---|---|---|
| | | | turning more north-easterly until it enters the River Stour close to Harwich International Port. This river is also named Dovercourt Dock River and Ramsey Creek in the lower reaches, perhaps where it is tidally influenced. | | |
| Unnamed Ordinary Watercourse | RB1 | TM 16605 28988 | Small and short second order tributary rising south of Spinnel's Lane near Wix Abbey and flowing into Ramsey River just south of the A120. | Scoped In | Direct and indirect potential impacts on water quality, water quantity, hydromorphology and flood risk are possible. |
| Unnamed Ordinary Watercourse | RB2 | TM 16308 28078 | Small and short first order tributary rising south of Wix Cross and flowing north into Ramsey River just south of the A120. | Scoped In | Direct and indirect potential impacts on water quality, water quantity, hydromorphology and flood risk are possible. |
| Unnamed Ordinary Watercourse | RB3 | TM 17557 29429 | Small and short first order tributary rising south of Willow Hall and flowing into Ramsey River just south of the A120. | Scoped In | Direct and indirect potential impacts on water quality, water quantity, hydromorphology and flood risk are possible. |
| Unnamed Ordinary Watercourse | RB4 | TM 19085 28516 | Small first order tributary that rises near Great Oakley Airfield and flows south into Ramsey River via three small fishing lakes (Great Oakley [Lodge] Fishing Lakes) (TM 19311 28236). | Scoped In | Direct and indirect potential impacts on water quality, water quantity, hydromorphology and flood risk are possible. |
| Unnamed Ordinary Watercourse | RB5 | TM 21288 28819 | Small and short first order tributary rising west of Little Oakley and flowing into Ramsey River, somewhere near Saltwater Bridge. | Scoped In | Direct and indirect potential impacts on water quality, water quantity, hydromorphology and flood risk are possible. |

| Surface Water Name | ID | Indicative NGR | Relevance to the EOS | Scoped In or Out | Scope Rationale |
|---|---|---|---|---|---|
| Unnamed Ordinary Watercourse | RB6 | TM 18313 29348 | Second order tributary approximately 2.5 km long and rising in two arms south of Ramsey Hall and the A120 Harwich Road. Flows east into Ramsey River near Millpond Farm. | Scoped In | Headwaters may be directly affected. Lower reach may be indirectly affected from surface water runoff and the risk of chemical spillages. |
| Unnamed Ordinary Watercourse | RB7 | TM 18526 29757 | First order watercourse that rises close to the junction of Primrose Lane with the A120. It flows east intermittently and adjacent to the A120 until ultimately flowing into Ramsey Brook. Watercourse has been significantly modified by the A120 and acts more like a highway drain. | Scoped Out | Watercourse is already significantly modified and adversely impacted by its close proximity to the A120. Therefore, any impacts due to the EOS are unlikely to further adversely affect this watercourse. |
| Unnamed Reservoirs | SW8 | TM 15503 28169 | Between the A120 and Colchester Road are two small agricultural reservoirs. It is not known if these are hydrologically connected to the upper course of Ramsey River. | Scoped Out | These two reservoirs and the upstream length of Ramsey River are outside of the EOS Scoping Boundary and thus direct impacts are unlikely. The A120 lies between these receptors and the Site and therefore there is very limited potential for hydrological connectivity and consequent effects. Therefore, these receptors have been scoped out. |
| Unnamed pond | SW9 | TM 20679 28085 | Small, isolated pond at Great Oakley Hall. | Scoped Out | Outside of EOS Scoping Boundary and no hydrological pathways. |
| **Near-coast Surface Waters (non-WFD)** | | | | | |
| South Hall Ditch | n/a | n/a | Contained within the Indicative UK Landfall Zone are a complex | Scoped In | Potential for water quality, water resource, hydromorphological and |

| Surface Water Name | ID | Indicative NGR | Relevance to the EOS | Scoped In or Out | Scope Rationale |
|---|---|---|---|---|---|
| | | | network of drainage ditches and creeks (where tidally influenced). Multiple online (i.e. flows through) and some offline pools/ponds (i.e. a watercourse is not thought to flow through them) are present. | | flood risk impacts pending siting of the UK landfall and terrestrial route of power cables. |
| Foulton Hall Ditch | n/a | n/a | Contained within the Indicative UK Landfall Zone are a complex network of drainage ditches and creeks (where tidally influenced). Multiple online (i.e. flows through) and some offline pools/ponds (i.e. a watercourse is not thought to flow through them) are present. | Scoped In | Potential for water quality, water resource, hydromorphological and flood risk impacts pending siting of the UK landfall and terrestrial route of power cables. |
| Unnamed Pond Feature | SW14 | TM 21966 27963 | Isolated pond feature. | Scoped In (provisional) | Potential for water quality impacts pending siting of the UK landfall and terrestrial route of power cables. |
| Unnamed Reservoirs | SW10 | TM 21564 27740 | Two isolated agricultural reservoirs. | Scoped Out | Standalone reservoirs with no apparent hydrological connections and outside of the EOS Scoping Boundary. |
| Unnamed Pond Feature | SW11 | TM 22326 28152 | Isolated pond with no apparent hydrological connection. Contained within the Indicative UK Landfall Zone. | Scoped In (provisional) | Potential for water quality impacts pending siting of the UK Landfall and terrestrial route of power cables. |
| Dovercourt Boating Lake | Dovercourt Boating Lake | TM 25001 30518 | Situated in the north-eastern fringe of the Study Area. Isolated lake used for recreational activities. | Scoped Out | Standalone lake with no apparent hydrological connections. Outside of the EOS Scoping Boundary. |

| Surface Water Name | ID | Indicative NGR | Relevance to the EOS | Scoped In or Out | Scope Rationale |
|---|---|---|---|---|---|
| **Transitional and Coastal WFD Water Bodies** | | | | | |
| Hamford Water Water Body | Hamford Water Coastal Water Body | Centred around TM 23323 25886 | WFD reportable coastal water with a surface area of approximately 1171 hectares (ha). This water body is situated just south of the Indicative UK Landfall Zone. Hamford Water is an ebb tide dominated tidal inlet consisting of tidal creeks, intertidal mud, sandflats and marshes. Various ecological designations apply to this inlet which are described later in this section. | Scoped In | Potential for direct and indirect impacts on water quality and hydrology, given the EOS Scoping Boundary runs along the northern Edge of Hamford Water WFD Water Body. |
| Harwich Approaches Water Body | Harwich Approaches Coastal Water Body | n/a | WFD reportable coastal water with a surface area of approximately 24 $km^2$. This water body is situated just east of the Indicative UK Landfall Zone. | Scoped In | Potential for indirect impacts on surface water quality via any temporary works above the bed as part of the EOS and potential spillage risk via flows from Ramsey Brook. |
| Essex Water Body | Essex Coastal Water Body | n/a | WFD reportable coastal water with a surface area of approximately 1195 $km^2$. This water body is situated approximately 3 km east of the EOS Scoping Boundary at the Indicative UK Landfall Zone. | Scoped In | Holland Brook Water Body provides a flow path from EOS to the Essex Coastal Water Body. This water feature is therefore scoped in for indirect water quality impacts only. |
| Stour Estuary | Stour (Essex) Transitional water body | n/a | Located to the north of the Tendring Peninsula into which Wrabness Brook and ‘Mistley Brook’ flow. | Scoped In | Wrabness Brook and ‘Mistley Brook’ provide a flow path from the EOS to the Stour Estuary. This water feature is therefore scoped in for indirect water quality impacts only. |

*Water Quality*

8.5.1.10 In addition to water quality parameters assessed as the WFD classification of surface waters, further baseline water quality is available via the EA Water Quality Explorer (EA, 2026b).

8.5.1.11 An initial review of the Water Quality Explorer indicates approximately 72 sampling points within the secondary Study Area, 39 of which recorded no data within the 12 months to January 2026. Of the 33 which did record data:

- Fourteen sampling points were for final/treated effluent;
- Three sampling points were for trade effluent;
- Two sampling points were for crude effluent;
- One sampling point was for storm effluent;
- Two sampling points were for groundwater borehole monitoring; and
- One sampling point was for the sampling of shellfish species.

8.5.1.12 The above sampling points are therefore not considered appropriate for assessing baseline water quality; however, they provide an indication of potential pressures on water quality within the secondary Study Area.

8.5.1.13 The remaining 10 sampling points may provide suitable monitoring data and therefore data will be obtained and reviewed as part of the impact assessment process to provide more detailed context of the importance of water features and potential pressures. Details of these 10 potentially suitable sampling points are provided in Table 8-8.

**Table 8-8: Environment Agency Water Quality Monitoring Points Potentially Suitable for Assessment (EA, 2026b)**

| Sampling Point Name | Sampling Point ID | NGR | Sampling Point Type |
|---|---|---|---|
| Ramsey River Ramsey Bridge | AN-RA0530 | TM 21371 30470 | Freshwater – Rivers |
| Holland Bk.Rice Bridge Gs | AN-HD0117 | TM 18010 21143 | Freshwater – Rivers |
| R.Stour Town Quay Harwich | AN-SE0310 | TM 25904 32890 | Saline Water - Estuarine Sites - Non-Bathing/Shellfish |
| R.Stour Off Parkeston Quay | AN-SE05 | TM 23659 32755 | Saline Water - Estuarine Sites – Non-Bathing/Shellfish |
| R.Stour Copperas Bay | AN-SE0650 | TM 19152 32856 | Saline Water - Estuarine Sites – Non-Bathing/ Shellfish |
| R.Stour Off Dovehouse Point | AN-SE08 | TM 15252 32642 | Saline Water - Estuarine Sites – Non-Bathing/ Shellfish |
| Holland Lso 100M Downtide | AN-CW622216 | TM 22265 16507 | Saline Water - Coastal Sites – Non-Bathing/ Shellfish |

| Sampling Point Name | Sampling Point ID | NGR | Sampling Point Type |
|---|---|---|---|
| Dovercourt Beach Opposite Wick Lane (11100) | AN-HW0010 | TM 25172 30640 | Saline Water - Designated Bathing Beaches |
| R.Stour Quay St Manningtree | AN-SE1625 | TM 10758 31983 | Saline Water - Designated Bathing Beaches |
| Holland Beach Off Chevaux De Frise Point (11350) | AN-CW1765 | TM 22449 17651 | Saline Water - Designated Bathing Beaches |

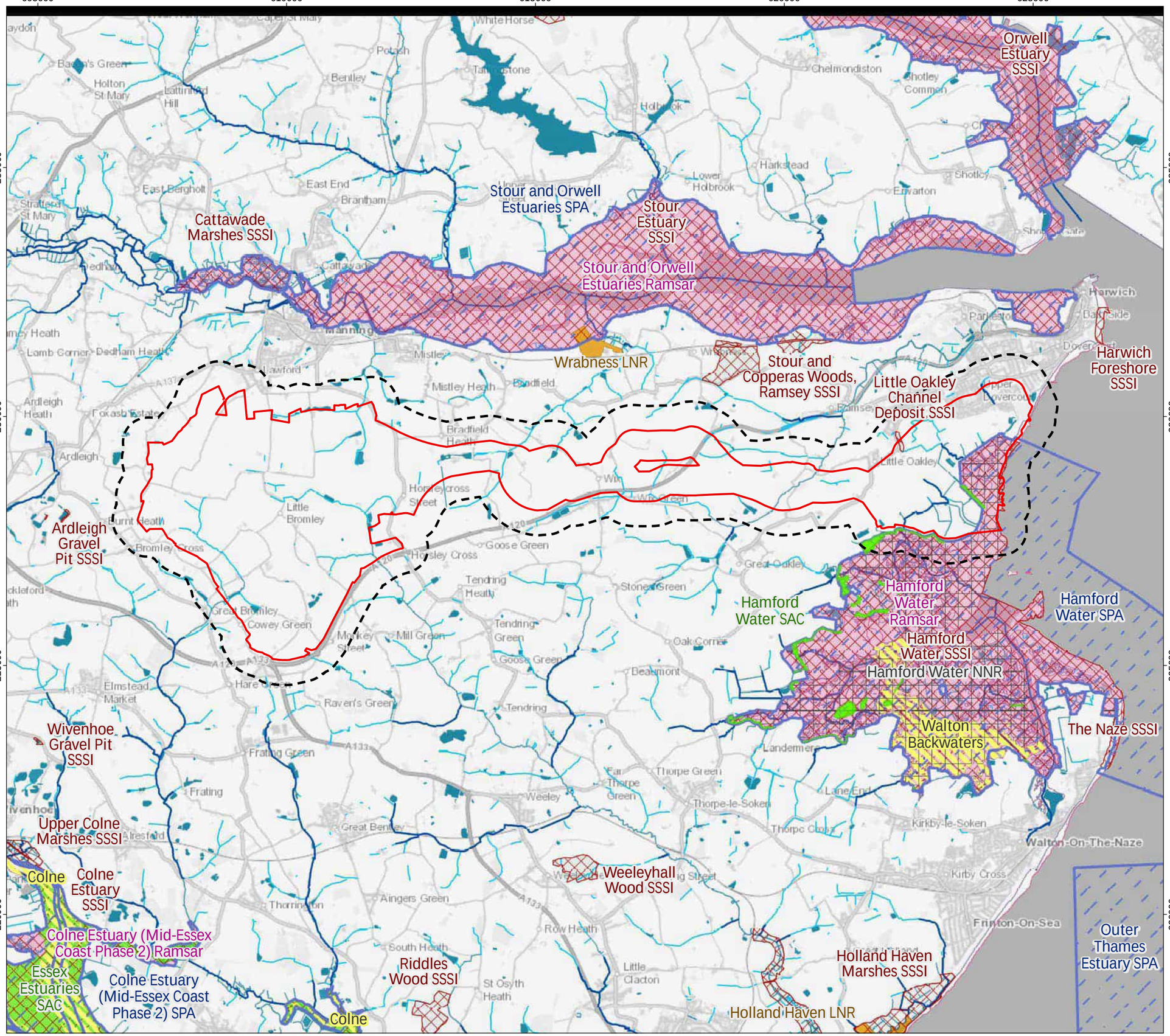
### *Nature Conservation Sites*

8.5.1.14 This section describes the statutory sites designated for nature conservation that are relevant to the water environment assessment. For further information relating to ecology, refer to Volume 02, Chapter 10: Onshore Biodiversity, Volume 03, Chapter 14: Benthic and Intertidal Ecology and Volume 03, Chapter 15: Fish and Shellfish Ecology.

8.5.1.15 Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SAC), Special Protection Area (SPA), Ramsar sites, National Nature Reserves (NNR) and Local Nature Reserves (LNR) are all present within or near to the Study Area (Defra, 2026b) and are shown in Figure 8-2. The following water-dependent nature conservation sites include:

- Hamford Water SSSI, SAC, SPA, Ramsar, NNR – A nationally important large, shallow estuarine basin comprising tidal creeks, islands, intertidal mud, sand flats and saltmarshes. Above the saltmarsh, there is unimproved and improved grassland (including grazing marsh), scrub, woodland, hedges, ditches, ponds and reedbeds (Natural England, 2016). The Indicative UK Landfall Zone within the EOS Scoping Boundary includes the coastal zone south of Harwich and thus these designated sites. There are also minor watercourses draining parts of the site towards the designated sites. The boundary then runs along the edge of these sites inland before turning north towards Harwich Road and Little Oakley. The location of temporary and permanent works are yet to be determined. Thus, for now, there remains the potential for changes in hydrology and water quality risks to affect these ecological sites and they are scoped in to the assessment as part of the consideration of the risk of potential significant effects on the Hamford Water body.
- Stour and Orwell Estuaries SPA, Ramsar and Stour Estuary SSSI – The estuaries include extensive mudflats, low cliffs, salt marsh and small areas of vegetated shingle on the lower reaches. The site also includes areas of low-lying grazing marsh at Shotley Marshes on the south side of the Orwell Estuary and at Cattawade Marshes at the head of the Stour (MMO, n.d.). Although not directly affected by the EOS, there is the potential for chemical spills to be conveyed along Wrabness Brook and an unnamed watercourse that are within the Study Area. Thus, these designated sites are scoped in to the assessment as part of the consideration of the risk of potential significant effects on the Stour (Essex) transitional water body.

- Wrabness LNR – is located close to where the Wrabness Brook water body flows into the Stour Estuary, bordering the brook for a short stretch. At this stage, it is not known whether the LNR has any dependence on flows along the brook or hydrological connectivity. The access road to the nature reserve runs along the north-western boundary and may create a barrier. The need to consider the LNR will be subject to a walkover survey at a later stage of assessment. This LNR is therefore scoped in to the assessment at this stage, as part of the consideration of the risk of potential significant effects on the Wrabness Brook water body.
- Little Oakley Channel Deposit SSSI, located to the south of the B1414 north of Little Oakley, is a geological site and thus is not water-dependent and will not be considered any further in this assessment.
- The Stour and Copperas Wood, Ramsey SSSI site is beyond the Study Area to the north. It is considered to be not hydrologically connected to the Study Area and to be upstream. Therefore, this SSSI is not considered any further by this assessment.




# TARCHON

## Tarchon Interconnector Project
Scoping Report

## Designated Ecological Areas

**Legend**

- English Onshore Scheme Scoping Boundary
- 500m Buffer from Onshore Scoping Boundary
- EA Designated Main River
- Ordinary Watercourse
- Waterbody
- Low Water Mark
- High Water Mark
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- Ramsar Site
- National Nature Reserve (NNR)
- Local Nature Reserve (LNR)
- Shellfish Water Protected Area




**Notes**

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Coordinate System: British National Grid

0 2.5 5 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:75,000 @A3 | 09/02/2026 | BPHB | EH | MB |

Riverview
A17 The Embankment Business Park
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Sheet 1 of 1

Figure 8-2

Figure Reference: Tarchon_Scoping_WE_Fig8-2_DesignatedEcologicalAreas_v1

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*Designated Bathing Waters*

8.5.1.16 There are three designated Bathing Waters within the secondary Study Area of the EOS, namely:

- Manningtree Beach, Stour Estuary;
- Dovercourt; and
- Holland.

8.5.1.17 The designated Manningtree Beach, Stour Estuary Bathing Water is a beach formed of artificial sand, within the River Stour estuary on the northern edge of Manningtree (NGR TM 10758 31980) (EA, 2026a). Water quality is tested regularly between May and October for faecal indicator organisms, and the bathing water has an 'Excellent' classification, based on sampling between 2024 and 2025 (EA, 2026a). The River Stour catchment upstream of Manningtree is largely agricultural, however no compliance issues at farms upstream of the bathing water were identified in 2024 (EA, 2026a). The Manningtree (Lawford) Sewage Treatment Works and its associated outfalls are located within 1km upstream of the bathing water and several other water recycling centres, pumping stations and Combined Sewer Overflows (CSOs) upstream of Manningtree (EA, 2026a). This designated bathing water is scoped in to the assessment at this stage, as part of the consideration of the risk of potential significant effects on the Stour (Essex) transitional water body.

8.5.1.18 The designated Dovercourt Bathing Water is a sand and shingle beach backed by a promenade and sea wall at Dovercourt Bay to the south of Harwich (NGR TM 25170 30640) (EA, 2026a). Water quality is tested regularly between April and September for faecal indicator organisms, and the bathing water has an 'Excellent' classification, based on sampling between 2022 and 2025 (EA, 2026a). According to the online bathing water profile, the Orwell and Stour estuary is 1 km to the north and although this drains a large catchment with some industry, tidal currents mean that this has minimal impact upon the beach (EA, 2026a). There are no storm or emergency discharges directly to the bathing water and, although Low Road Pumping Station has an emergency discharge to the Borrow Dyke, this is unlikely to affect bathing water quality (EA, 2026a). There are a number of surface water outfalls onto the beach which discharge road drainage from the adjacent urban area (EA, 2026a). This designated bathing water is scoped in to the assessment at this stage, as part of the consideration of the risk of potential significant effects on the Harwich Approaches coastal water body.

8.5.1.19 The designated Holland Bathing Water is a sandy beach backed by a sea wall to the north-east of Holland-on-Sea (TM 22450 17650). Water quality is tested regularly between May and October for faecal indicator organisms, and the bathing water had an 'Excellent' classification in 2025, 2023 and 2022 (EA, 2026a). In 2024, the bathing water classification was 'Good' and two pollution risk warnings were issued (EA, 2026a). According to the online bathing water profile, the two watercourses flowing into the sea near Holland Bathing Water, the Kirby Brook and Holland Brook, flow through rural catchments, which are predominantly arable with some livestock (EA,

2026a). The Clacton (Holland Haven) Water Recycling Centre is located 0.7 km south-west of the bathing water, adjacent to Holland Brook, however it discharges via a 1 km long sea outfall and therefore does not affect the bathing water at Holland (EA, 2026a). There is also a short storm overflow and emergency overflow to the south-west of the bathing water (EA, 2026a). This designated bathing water is scoped in to the assessment at this stage, as part of the consideration of the risk of potential significant effects on the Essex coastal water body.

#### *Shellfish Waters*

8.5.1.20 The Walton Backwaters Shellfish Water Protected Area (Food Standards Agency & Carcinus Ltd, 2023) is within the Hamford Water WFD Water Body. This protection is for the commercial harvesting of three bivalve molluscs, Native oyster (*Ostrea edulis*), Pacific oyster (*Crassostrea gigas*) and American hard clams (*Merceneria merceneria*). The Shellfish Water classification system seeks to protect those who choose to consume shellfish and is based on the presence of faecal indicator organisms as follows:

- Class A (80% of samples ≤ 230 E. coli/100 grams (g); no sample may exceed 700 E. coli/100 g) - molluscs can be harvested for direct human consumption;
- Class B (90% of samples must be ≤ 4600 E. coli/100 g; no sample may exceed 46000 E. coli/100 g.) - molluscs can only be sold for human consumption:
  - after purification in an approved plant or
  - after re-laying in an approved Class A re-laying area or
  - after an EU-approved heat treatment process.
- Class C (≤ 46000 E. coli/100 g) - molluscs can be sold for human consumption only after re-laying for at least two months in an approved re-laying area followed, where necessary, by treatment in a purification centre or after an EU-approved heat treatment process.

8.5.1.21 The Walton Backwaters Shellfish Water Protected Area is divided into three Classification Zones (Kirby Creek, The Wade and Twizzle) within which water quality is monitored (Food Standards Agency & Carcinus Ltd, 2023). As of June 2023, all three zones had a B Classification (on a scale of A to C) (Food Standards Agency & Carcinus Ltd, 2023).

8.5.1.22 This designated shellfish water is scoped in to the assessment at this stage as part of the consideration of the risk of potential significant effects on the Hamford Water coastal water body.

#### *Nitrate Vulnerable Zones (NVZs)*

8.5.1.23 The entire primary and secondary Study Areas are underlain by the Sandlings and Chelmsford groundwater Nitrate Vulnerable Zone (NVZ), and the Ramsey River NVZ, Holland Brook NVZ and Tenpenny Brook NVZ also intersect the primary and secondary Study Areas (Defra, 2026b).

#### *Nutrient Neutrality*

8.5.1.24 The EOS is not within a catchment affected by nutrient neutrality (Defra, 2026b); therefore, this will not be considered further.

### Groundwater

8.5.1.25 The geology underlying the Study Area has been taken from the BGS Geoindex site (BGS, 2026a) and summarised as follows:

8.5.1.26 Large widespread areas of superficial deposits are present in the western half of the Study Area with Cover sand dominating. In the eastern half, fewer superficial deposits are present; where present, they are typically as isolated pockets or limited in lateral extent.

8.5.1.27 The land within the Study Area is almost entirely underlain by the Thames Group. However, there are small pockets of outcrops of the Red Crag Formation near Little Oakley, Wix and Little Bromley. The Red Crag Formation is underlain by the Chalk Group.

#### *Aquifer Designations*

8.5.1.28 Aquifer designations associated with the geology underlying the Study Area are summarised in Table 8-9 below (BGS, 2026a), all of which will be scoped in as receptors for groundwater.

**Table 8-9: Aquifer Designations within the Study Area (BGS, 2026a)**

| Stratum | Unit | Description | Aquifer designation |
|---|---|---|---|
| Superficial Geology | Intertidal deposits (undifferentiated) | Gravel through to clay | Secondary A Aquifer |
| | Storm beach deposits | Sands and gravels | Secondary A Aquifer |
| | Head | Comprises gravel, sand and clay depending on upslope source | Secondary Undifferentiated Aquifer |
| | Cover sand | Fine sands | Secondary B Aquifer |
| | Kesgrave catchment sub-group | Sands and gravels | Secondary A Aquifer |
| | Alluvium | Clay, silt, sands and gravels | Secondary A Aquifer |
| Bedrock Geology | Thames Group | Mainly silty clays and clays, some sandy or gravelly, with some silts, sands, gravels and calcareous mudstone | Unproductive Strata |
| | Red Crag Formation | Coarse-grained poorly-sorted sands | Principal Aquifer |
| | Chalk Group | Chalk | Principal Aquifer |

#### *Groundwater Dependent Terrestrial Ecosystems*

8.5.1.29 The EA's GWDTEs (England only) dataset does not indicate the presence of any GWDTE within the Study Area (EA, 2025c). This will be kept under review as ecological surveys of the Study Area are carried out.

#### Hydromorphology

8.5.1.30 A more detailed characterisation of the hydromorphology of those surface waters identified in Table 8-7 will be undertaken once further detail on the locations of the Converter Station Site, High Voltage Alternating Current (HVAC) Cable Route, High Voltage Direct Current (HVDC) Cable Route and UK Landfall Zone are available and site surveys have been undertaken. Therefore, at this stage, the baseline characterisation is limited to the key WFD river water bodies identified earlier in this section, together with a brief description of smaller watercourses collectively.

##### *Holland Brook WFD water body*

8.5.1.31 The Holland Brook WFD water body is heavily modified. Alluvium deposits across the floodplain suggest that Holland Brook would have previously meandered across this area and, whilst Holland Brook does have some sinuosity presently, historic mapping for the area shows that even around the early 1900s, the river would have had a much more sinuous course with a series of smaller meanders (National Library of Scotland, 2026). The course of the river has not been changed greatly, but it has been straightened locally to remove these meanders and shorten the overall length of the river. It is likely that at the same time as the straightening, the river may have been widened and deepened, with the aim to maximise the efficiency at which flows move downstream to reduce flooding of the floodplain. As a result, the character of the watercourse today is likely to be more uniform than its more natural state, and the extent to which typical processes such as erosion and deposition can take place is reduced. As a result, the development and maintenance of characteristic gravel features such as riffles and point bars is constrained; no such features are visible on aerial imagery, which results in a much lower diversity of channel habitat.

##### *Ramsey Creek WFD water body*

8.5.1.32 Ramsey Creek WFD water body is heavily modified. One of the reasons for not achieving ‘Good’ potential for the water body is physical modification in the form of land drainage structures and ports and harbours. The river would have previously meandered through the corridor of alluvium across the floodplain but from aerial imagery it appears to have been straightened (National Library of Scotland, 2026). Historic mapping from around the start of the 1900s shows the watercourse with the same planform as today flowing through the Study Area (National Library of Scotland, 2026), indicating that the significant modifications date back to earlier than this time.

##### *Tenpenny Brook WFD water body*

8.5.1.33 Tenpenny Brook WFD water body is heavily modified. Alluvium deposits across the floodplain suggest that the Tenpenny Brook would have previously meandered across this area. Historic mapping (National Library of Scotland, 2026) for the area shows little change, which suggests that much of the straightening occurred before the 1900s.

##### *Wrabness Brook WFD water body*

8.5.1.34 Wrabness Brook WFD water body is heavily modified. Alluvium deposits across the floodplain suggest that the Wrabness Brook would have previously meandered

across this area. Historic mapping from around the start of the 1900s shows the watercourse with the same planform as today flowing through the Study Area (National Library of Scotland, 2026), indicating that the significant modifications date back to earlier than this time. It is likely that at the same time as the straightening, the river may have been widened and deepened, with the aim to maximise the efficiency at which flows move downstream to reduce flooding of the floodplain.

#### *Smaller watercourses and brooks*

8.5.1.35 A number of smaller watercourses are present within the Study Area and, whilst they do not have individual WFD classifications, they will be considered as part of the WFD catchment that they are within. Other than slightly larger catchments such as the unnamed Ordinary Watercourse now referred to as ‘Mistley Brook’, these watercourses are likely to be largely artificial in nature and would have been developed or modified to aid land drainage. As a result, they are likely to be relatively low energy and uniform in nature, with little floodplain connectivity or sediment erosion, transport or depositional processes. However, individually, they may contribute to the provision of aquatic habitat within the area, even if it is not the unaltered habitat of the area.

### Flood Risk

8.5.1.36 Section 14 of the NPPF (Ministry of Housing, Communities and Local Government, 2024) and the Flood Risk and Coastal Change PPG (Ministry of Housing, Communities and Local Government and Department for Levelling up, Housing and Communities, 2014) both advise how the planning process can take account of the risks associated with flooding. The main sources of flooding that are used to steer development at the planning stage are Main Rivers, the sea and surface water. The predicted flood risk from fluvial and tidal sources are shown on the EA’s Flood Map for Planning (EA, 2019a) which outlines three main zones of risk as follows:

- Flood Zone 1 ‘low probability of flooding’: This zone comprises land assessed as having a less than 0.1% annual probability of river or sea flooding;
- Flood Zone 2 ‘medium probability of flooding’: This zone comprises land assessed as having between a 1% and 1 in 0.1% annual probability of river flooding or between a 0.5% and 0.1% annual probability of sea flooding; and
- Flood Zone 3a ‘high probability of flooding’: This zone comprises land assessed as having a 1% or greater annual probability of river flooding or a 0.5% or greater annual probability of flooding from the sea.

8.5.1.37 There is also Flood Zone 3b ‘functional floodplain’ which is not distinguished separately from Flood Zone 3a on the Flood Map for Planning (EA, 2019a) but is a sub-part of Flood Zone 3. This zone comprises land having greater than 3.3% annual probability of flooding, with existing flood risk management features and structures operating effectively or land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).

8.5.1.38 The NPPF (Ministry of Housing, Communities and Local Government, 2024) dictates what development is suitable within each Flood Zone, based upon the level of vulnerability of a development which is shown in Table 8-10. The vulnerability classifications suggest the EOS is considered to be 'Essential Infrastructure' as it is essential utility infrastructure for electricity supply.

**Table 8-10: Flood Risk Vulnerability and Flood Zone Compatibility (adapted from Ministry of Housing, Communities and Local Government, 2024. (Table 3))**

| Flood Risk Vulnerability Classification | Essential Infrastructure | Water Compatible | Highly Vulnerable | More Vulnerable | Less Vulnerable |
|---|---|---|---|---|---|
| Zone 1 | ✓ | ✓ | ✓ | ✓ | ✓ |
| Zone 2 | ✓ | ✓ | Exception Test Required | ✓ | ✓ |
| Zone 3a | Exception Test Required | ✓ | ✗ | Exception Test Required | ✓ |
| Zone 3b | Exception Test Required | ✓ | ✗ | ✗ | ✗ |

8.5.1.39 Based on Table 8-10, the construction of Essential Infrastructure is acceptable in Flood Zones 1, 2 and an Exception Test is required for Flood Zones 3a and 3b. As well as fluvial and tidal flooding, it is also necessary to consider flood risk from all other sources, including surface water, groundwater, Ordinary Watercourses, artificial drainage systems and infrastructure failure.

8.5.1.40 The flood risk for the EOS from all sources is summarised in Table 8-11. Figure 8-3 shows the Flood Zones associated with fluvial and tidal sources, while Figure 8-4 shows the risk of flooding from surface water. Flood risk from all sources in Table 8-11 will be scoped in to the assessment.

**Table 8-11: Baseline Flood Risk Characterisation**

| Flood Risk Source | Baseline characterisation |
|---|---|
| Fluvial and/or Coastal | EA's Flood Map for Planning (accessed January 2026) (EA, 2019a) (Figure 8-3) indicates the majority of the Indicative UK Landfall Zone is located within Flood Zone 3. There is no above ground development in the Indicative UK Landfall Zone with only manhole covers to be above ground (flush to the surface) for access to cabling.<br>The majority of the Indicative EOS HVDC Cable Route Corridor is located within Flood Zone 1, with small areas of Flood Zones 2 and 3 located where the cable route crosses watercourses and the eastern extent of the cable route which overlaps with the Indicative UK Landfall Zone.<br>The Area of Search for the Converter Station Site is located within Flood Zone 1.<br>Data will be requested from the EA and Essex County Council (as the LLFA) to confirm the fluvial risk from surrounding watercourses, which will be detailed within a site-specific FRA. |
| Surface water | The EA's Long Term Flood Risk Map shows the annual chance of flooding from surface water (EA, 2019b). The majority of the EOS is located in areas where there is no identified chance of surface water flooding during the Present Day (Figure 8-4) and when considering climate change (2040 – 2060) (Figure 8-5). Across all elements of the EOS, there are isolated areas of low, medium and high chance of surface water flooding associated with Ordinary Watercourses and low spots in topography during the Present Day, with extents slightly greater when considering climate change (2040 – 2060). High chance means a chance of flooding of greater than 3.3% each year. Medium chance means a chance of flooding of between 1% and 3.3% each year. Low chance means a chance of flooding of between 0.1% and 1% each year. |
| Groundwater | The 2017 Tendring District Council Level 1 Strategic Flood Risk Assessment (SFRA) (Tendring District Council, 2017) includes mapping of Areas Susceptible to Groundwater Flooding. This map shows that the majority of the Area of Search for the Converter Station Site and EOS HVAC Cable Route and Indicative EOS HVDC Cable Route Corridor are located in areas with <25% susceptibility to groundwater flooding, with small areas with 25% - 50% susceptibility to groundwater flooding. The majority of the eastern extent of the Indicative EOS HVDC Cable Route Corridor and Indicative UK Landfall Zone is located within an area with between 50% and >75% susceptibility to groundwater flooding. |
| Sewer | The majority of the EOS is located within rural areas, where there is likely to be limited sewer connections. However, to confirm sewer flood risk, Affinity Water and Essex County Council will be contacted for sewer records as part of the assessment. |
| Reservoir | From a review of the EA's Long Term Flood Risk Map, the majority of the EOS is not located in an area expected to flood from reservoirs when river levels are normal or when there is also flooding from rivers. Some small areas in the Indicative EOS HVDC Cable Route Corridor are located in areas which are expected to flood from reservoirs when |

| Flood Risk Source | Baseline characterisation |
|---|---|
| | river levels are normal or when there is also flooding from rivers where watercourses are crossed, however these extents are confined along the watercourses. The cable will be buried and therefore reservoir flooding will not pose a flood risk to the cables. |

# Tarchon Interconnector Project
Scoping Report

## Flood Map for Planning (Rivers and Sea)

605000 610000 615000 620000 625000

235000 230000 225000 220000

White Horse, Potash, Bacon's Green, Holton St Mary, Lattinford Hill, Bentley, Tattingstone, Holbrook, Chelmondiston, Shotley Common, River Orwell, Church End, Harkstead, Lower Holbrook, Shotley, Erwarton, East Bergholt, East End, Brantham, Upper Street, Stutton, Stratford St Mary, Straight Reach, Shotley Gate, Dedham, Cattawade, Dedham Old River, Shir Burn, Wignall Brook, River Stour, Harwich, Parkeston, Bath Side, Manningtree, Mistley, Wrabness, Lamb Corner, Dedham Heath, Lawford, Mistley Heath, Bradfield, Dovercourt, Ardleigh Heath, Foxash Estate, Ramsey, Misty Brook, Bradfield Heath, Wrabness Brook Water Body, Ramsey River Water Body, Ardleigh, Little Oakley, Horsley Cross, Little Bromley, Burnt Heath, Bromley Cross, Goose Green, Great Oakley, Holland Brook Water Body, Tendring Heath, Stones Green, Bromley Brook, Great Bromley, Cowey Green, Mankey Street, Mill Green, Tendring Green, Tendring Brook, Oak Corner, Elmstead Market, Hare Green, Ravens Green, Beaumont, Tendring, Bentley Brook, Tenpenny Brook, Frating, Landermere, Thorpe Green, Fair Thorpe Green, Weeley, Weeley Brook, Thorpe-le-Soken, Kirkby-le-Soken, Great Bentley, Alresford, Thorpe Cross, Walton-On-The-Naze, Sixpenny Brook, River Colne, Weeley Heath, Pig Street, Kirby Brook, Kirby Cross, Aingers Green, Thorrington, Saltwater Brook, Frinton-On-Sea, Row Heath, South Heath, Great Holland, Little Clacton, St Osyth Heath

### Legend
- English Onshore Scheme Scoping Boundary
- 500m Buffer from Onshore Scoping Boundary
- EA Designated Main River
- Ordinary Watercourse
- Flood Zone 2
- Flood Zone 3

*All other non-shaded areas are Flood Zone 1




### Notes
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Coordinate System: British National Grid

0 2.5 5 km N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:75,000 @A3 | 09/02/2026 | BPHB | EH | MB |

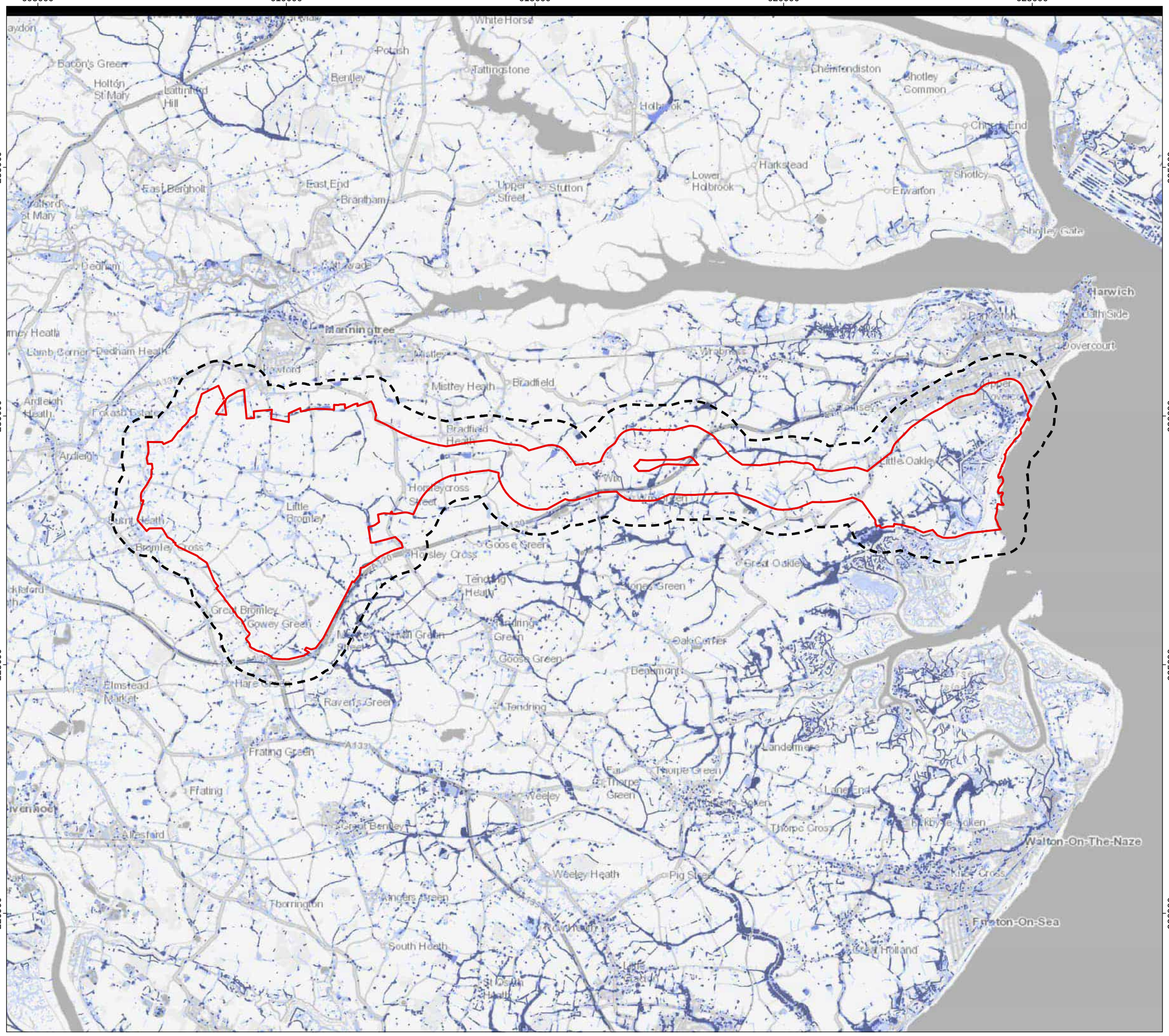
Riverview
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Figure 8-3

Figure Reference: Tarchon_Scoping_WE_Fig8-3_FloodMapPlanning_v1

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# TARCHON

## Tarchon Interconnector Project
Scoping Report

## Environment Agency's Risk of Flooding from Surface Water (Present Day)

**Legend**

- English Onshore Scheme Scoping Boundary
- 500m Buffer from Onshore Scoping Boundary

Risk of Flooding from Surface Water (Present Day)

- High
- Medium
- Low

*All other non-shaded areas have a Very Low Surface Water Flood Risk.




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N

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Figure 8-4

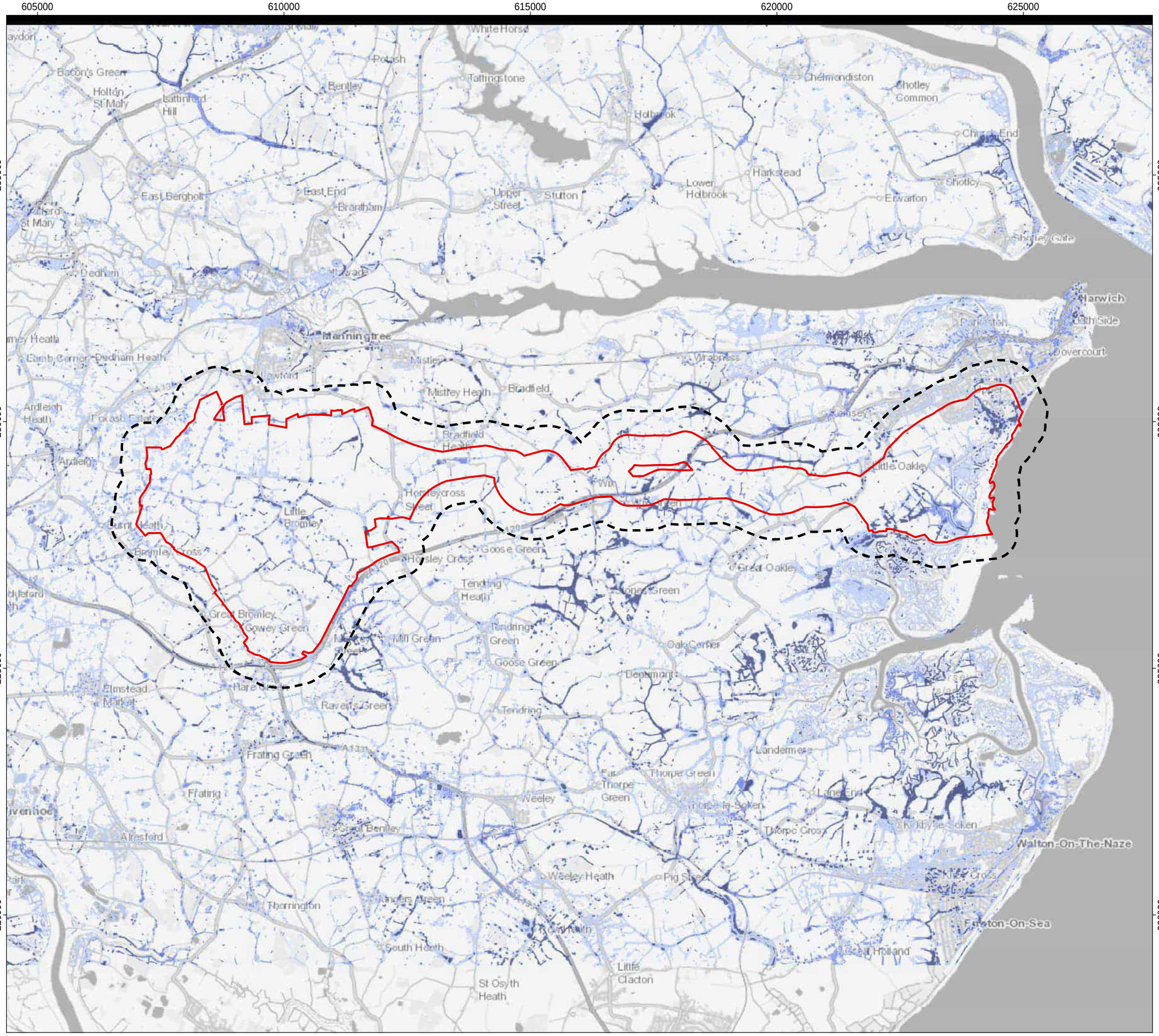
Figure Reference: Tarchon_Scoping_WE_Fig8-4_FloodingRiskPresentDay_v1

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# Tarchon Interconnector Project

Scoping Report

## Environment Agency's Risk of Flooding from Surface Water (Climate Change: 2040 - 2060)




Risk of Flooding from Surface Water (Climate Change)

- High
- Medium
- Low

*All other non-shaded areas have a Very Low Surface Water Flood Risk.




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Figure 8-5

Figure Reference: Tarchon_Scoping_WE_Fig8-5_FloodingRiskClimate Change_v1

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### Water Resources

#### *Source Protection Zones (SPZs)*

8.5.1.41 The western part of the Study Area, starting approximately 1 km west of Wix and shown in Figure 8-6, is located within a Source Protection Zone 3 (SPZ3) (Defra, 2026b). SPZ3 is classified as an area around a "*supply source that all groundwater ends up at the abstraction point".* This is likely associated within the underlying Chalk aquifer at depth.

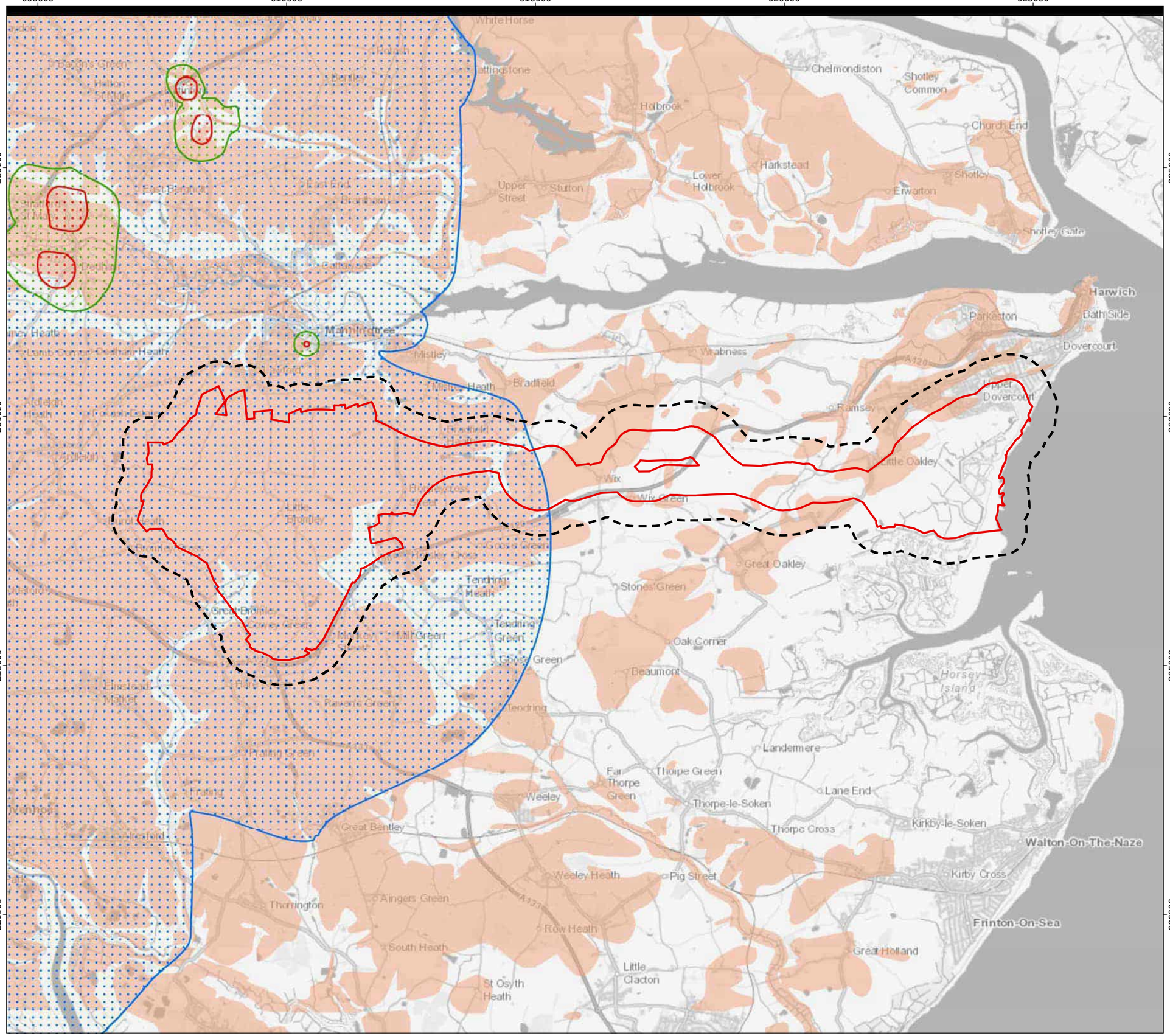



Figure Reference: Tarchon_Scoping_WE_Fig8-6_GroundwaterFeatures_v1

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TARCHON

# Tarchon Interconnector Project

Scoping Report

## Groundwater Features and their Attributes

Legend

- English Onshore Scheme Scoping Boundary
- 500m Buffer from Onshore Scoping Boundary

Source Protection Zone (SPZ)

- Zone 1
- Zone 2
- Zone 3
- WFD Groundwater Body - Poor Overall Status Essex Gravels

*There are no Drinking Water Safeguard Zones (Groundwater) or Groundwater Dependent Terrestrial Ecosystems (GWDTE)




Notes

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Figure 8-6

#### *Drinking Water Protected Areas (DWPAs) and Drinking Water Safeguard Zones*

8.5.1.42 The Study Area is not located within a Drinking Water Protected Area (DWPA) for surface water, nor a Drinking Water Safeguard Zone for surface water and groundwater (Defra, 2026b).

#### *Internal Drainage Boards (IDBs)*

8.5.1.43 There are no IDBs located within the Study Area (Association of Drainage Boards, 2026).

#### *Private Water Supplies and Abstractions*

8.5.1.44 Data on the location of private water supplies and licensed and unlicensed water abstractions is not currently available to inform the baseline assessment

### 8.5.2 Future Baseline Conditions

8.5.2.1 The baseline environment is not static and is expected to change over time, irrespective of the EOS. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the EOS over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

8.5.2.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

8.5.2.3 The EA Catchment Data Explorer (EA, 2025a) provides status objectives for the WFD water bodies identified within the primary and secondary Study Area, as presented in Table 8-6.

8.5.2.4 Long-term projected conditions or surface waters may also be influenced by increases in rainfall and flow as a result of climate change. The EA's 'Flood Risk Assessments: Climate Change Allowances' (EA, 2016) provides 'Peak river flow allowances' and 'Peak rainfall intensity allowances' for use in FRA, which can provide a useful indication of future changes to surface waters. The peak river flow allowances for the 'Combined Essex Management Catchment' (EA, 2016) are presented in Table 8-12.

**Table 8-12: Peak River Flow Allowances for The Combined Essex Management Catchment**

| | Allowance | | |
|---|---|---|---|
| **Epoch** | Central | Higher | Upper |
| 2020s | 7% | 13% | 27% |
| 2050s | 8% | 16% | 37% |
| 2080s | 25% | 38% | 72% |

8.5.2.5 The peak rainfall intensity allowances for the 'Combined Essex Management Catchment' (EA, 2016) are presented in Table 8-13.

**Table 8-13: Peak Rainfall Intensity Allowances for The Combined Essex Management Catchment**

| | 3.3% annual exceedance rainfall event | | 1% annual exceedance rainfall event | |
|---|---|---|---|---|
| **Epoch** | Central | Upper end | Central | Upper end |
| 2050s | 20% | 35% | 20% | 45% |
| 2070s | 20% | 35% | 25% | 40% |

### 8.5.3 Additional Proposed Data Sources

8.5.3.1 Requests for additional data to support the water environment assessment will be submitted at PEIR stage to the EA, Essex County Council, Tendring District Council, Affinity Water and Anglian Water.

## 8.6 Assessment Methodology

8.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the construction, operational and decommissioning phases of the EOS. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

8.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on water environment receptors arising from the construction, operational and decommissioning phases of the EOS. This approach defines:

- **Sources and impacts**: The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

8.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology

### 8.6.2 General approach

8.6.2.1 The assessment of the potential significant impacts of the EOS on Water Environment receptors will align with the principles contained within the Institute of Sustainable & Environmental Professionals (ISEP) 'Environmental Impact Assessment Guide to: Delivering Quality Development' (Institute of Environmental Management and Assessment (IEMA), 2016) and Chartered Institute of Ecology and Environmental Management (CIEEM) (CIEEM, 2024) 'Guidelines for Ecological Impact Assessment in the UK and Ireland' using the following overarching approach:

- Considering the existing (baseline) status of the Water Environment within the Study Area with respect to Surface Water, Groundwater, Hydromorphology,

Flood Risk and Water Resources, following the source-pathway-receptor approach;

- Identifying the potential impacts of the EOS on the Water Environment, drainage and flood risk during the construction, operational and decommissioning phases, as well as cumulative effects;
- Proposing suitable measures to be incorporated into the EOS design, construction, operational and decommissioning to mitigate any adverse impacts (i.e. embedded mitigation); and
- Reviewing any residual effects and presenting additional mitigation measures, where appropriate, to further reduce the significance of such effects.

8.6.2.2 Guidance for linear infrastructure projects, such as the Design Manual for Roads and Bridges (DMRB), including LA 104 Environmental Assessment and Monitoring (National Highways, 2020a) and LA 113 Road Drainage and the Water Environment (National Highways, 2020b) will also be considered as it provides an appropriately robust assessment framework in the absence of sector specific guidance for Water Environment assessments and has been adapted where appropriate.

8.6.2.3 There are five stages to the assessment of effects on the Water Environment as follows:

- A level of importance is assigned (Section 8.6.3) to the receptor;
- The magnitude of potential and residual impacts is assigned (Section 8.6.4) and determined qualitatively using professional judgement. Embedded or standard mitigation measures are considered in the initial assessment, but any other additional mitigation, such as secondary or tertiary mitigation, are not considered until the assessment of residual effects. The magnitude of impact also inherently considers the likelihood of the effect occurring (on a scale of certain, likely or unlikely), scale (local, regional or national), whether it is permanent or temporary, and its duration (i.e. short, medium or long term). Further information is provided in Volume 01, Chapter 06: EIA Approach and Methodology;
- The importance of the receptor and the magnitude of impact are determined independently from each other, and both are then used to determine the overall significance of effects (Section 8.6.5);
- Options for mitigation will be considered and secured where possible to avoid, minimise and reduce adverse impacts, particularly where significant effects (moderate or major significance of effect) may otherwise occur without appropriate mitigation measures in place; and
- The residual significance of effects (Section 8.6.5) of the EOS with identified mitigation in place will then be reported.

8.6.2.4 The typical examples presented for assigning receptor importance and magnitude of impact are adapted from the typical examples presented in DMRB LA 113 (National Highways, 2020b) (which are presented for use ‘as a gauge’) using professional experience.

8.6.2.5 Mitigation proposals will be identified in line with ISEP ‘Implementing the Mitigation Hierarchy from Concept to Construction’ (ISEP, 2024), accounting for industry standard guidance, such as those published by the Construction Industry Research and Information Association (CIRIA), including, but not limited to:

- C532: Control of water pollution from construction sites (CIRIA, 2001);
- C624: Development and Flood Risk – Guidance for the Construction Industry (CIRIA, 2004);
- C648: Control of water pollution from linear construction projects: Technical Guidance (CIRIA, 2006a);
- C649: Control of water pollution from linear Construction Projects: Site Guide (CIRIA, 2006b);
- C750: Groundwater control: design and practice (CIRIA, 2016);
- C786: Culvert, screen and outfall manual (CIRIA, 2019); and
- C811: Environmental good practice on site guide (fifth edition) (CIRIA, 2023).

### 8.6.3 Importance of Receptor

8.6.3.1 This section presents the definitions to be used in assigning the importance of Water Environment receptors. Importance will be assigned on a scale of ‘Low’ to ‘Very High’ using the typical examples provided in Table 8-14 as a guide. It is worth noting that in general no Water Environment receptors are considered to be of ‘Negligible’ importance.

**Table 8-14: Definitions of Receptor Importance for Water Environment**

| Importance | Sub-discipline | Typical examples |
|---|---|---|
| Very High | Surface Water | WFD water body achieving 'High' ecological status or potential. Protected/designated under International/European Union legislation such as a Special Area of Conservation (SAC), SPA and/or Ramsar site. Smaller, non-WFD surface water if part of a protected site. Designated Bathing Waters and/or Shellfish Waters. |
| | Groundwater | Principal bedrock and superficial aquifers providing a regionally important resource such as licensed abstractions of >1,000 metres cubed ($m^3$)/day. Groundwater associated with an SPZ1 (Inner Protection Zone).<br>Groundwater supports GWDTE with a high or moderate groundwater dependence in a Ramsar, SAC, SPA and/or SSSI. |
| | Hydromorphology | WFD water body achieving 'High' status for Hydromorphology. Smaller surface waters may be applicable if they are in stable equilibrium with diverse, natural morphological features (such as pools, riffles and bars). Diversity in morphological processes typically reflects unconstrained natural function, with limited or no pressures on hydrological regime and/or hydromorphology. |
| | Flood Risk | Essential infrastructure or highly vulnerable development within or adjacent to an area of flood risk (Ministry of Housing, Communities and Local Government, 2012). |
| | Water Resources | SPZ1 (Inner Protection Zone). Designated DWPAs and/or Drinking Water Safeguard Zones. Water supply resource or infrastructure extensively exploited for public, private domestic and/or agricultural and/or industrial use. |
| High | Surface Water | WFD water body achieving 'Good' ecological status or potential or with objectives to achieve 'Good' ecological status or potential. Contains species protected under International/European Union legislation but is not part of a protected site. Smaller, non-WFD surface water if protected species are present. |
| | Groundwater | Principal Aquifer providing locally important resource such as strata supporting licensed abstractions of 500-1,000 $m^3$/day. Groundwater associated with an SPZ2 (Outer Protection Zone). Groundwater supports GWDTE with a low groundwater dependence in a Ramsar, SAC, SPAs and/or SSSIs. |
| | Hydromorphology | WFD water body achieving 'Good' status for Hydromorphology. Smaller surface waters may be applicable if they are achieving near-stable equilibrium and have a range of natural morphological features (such as pools, riffles and bars). Diversity in morphological processes reflects relatively unconstrained natural function, with few pressures on hydrological regime and/or hydromorphology. |

| Importance | Sub-discipline | Typical examples |
|---|---|---|
| | Flood Risk | More vulnerable development within or adjacent to an area of flood risk (Ministry of Housing, Communities and Local Government, 2012). |
| | Water Resources | SPZ2 (Outer Protection Zone). Exploitation of surface or groundwater resource is not extensive. |
| Medium | Surface Water | WFD water body not achieving 'Good' ecological status or potential and with no objectives to reach 'Good' ecological status or potential due to Artificial or Heavily Modified water body designation. Smaller surface waters with a few pressures such as modifications or pollutant inputs from discharges and/or surrounding land use. |
| | Groundwater | Secondary Aquifer providing water for agricultural or industrial use with limited connection to surface water such as strata supporting water abstractions of 50-499 $m^3$/day. GWDTE with a high or moderate groundwater dependence but not within a designated site or of low groundwater dependence with sites such as Sites of Nature Conservation Interest (SNCIs) or LNRs. |
| | Hydromorphology | WFD water body not achieving 'Good' status for Hydromorphology, which may be due to Artificial or Heavily Modified water body designation. Smaller surface waters with a more limited range of natural morphological features (such as pools, riffles and bars) and with some historical or existing pressures on hydrological regime and/or hydromorphology, attempting to recover to a natural equilibrium. |
| | Flood Risk | Less vulnerable development within or adjacent an area of flood risk (Ministry of Housing, Communities and Local Government, 2012). |
| | Water Resources | SPZ3 (Total catchment). No current known direct exploitation of surface or groundwater as a resource, potential exploitation considered unlikely. |
| Low | Surface Water | Non-WFD water bodies. May have a large number of pressures such as modifications or pollutant inputs from licensed discharges and/or surrounding land-use. |
| | Groundwater | Generally unproductive strata such as strata supporting licensed water abstractions of >20 $m^3$/day and <50 $m^3$/day or unlicensed abstractions of <20 $m^3$/day. |
| | Hydromorphology | Non-WFD water body, currently showing signs of extensive pressures on hydrological regime and/or hydromorphology. There is no evidence of diverse processes and morphology and active recovery to a natural equilibrium. |
| | Flood Risk | Water compatible development within or adjacent to an area of flood risk (Ministry of Housing, Communities and Local Government, 2012). |
| | Water Resources | No known past or present exploitation of surface or groundwater as a resource. |
| Negligible | Negligible importance does not apply to Water Environment receptors. | |

### 8.6.4 Magnitude of Impact

8.6.4.1 This section presents the definitions to be used in assigning the magnitude of impacts to Water Environment receptors. Magnitude will be assigned on a scale of ‘Low’ to ‘Very High’ using the typical examples provided in Table 8-15 as a guide.

**Table 8-15: Definitions of magnitude of impact for Water Environment**

| Magnitude | Sub-discipline | Typical examples |
|---|---|---|
| Large | Surface Water | Major construction works in-water and/or adjacent to a surface water which are likely to risk a significant shift from baseline conditions. Operational activities, such as multiple discharges of pollutants, which are likely to risk a significant shift from baseline conditions. Risk of a significant cumulative impacts on a surface water from multiple construction/operational activities within its catchment. Risk of long-term or permanent adverse impacts on protected aquatic species or habitats. Loss or extensive change to a designated nature conservation site. |
| | Groundwater | Construction phase only. Groundwater impacts are scoped out during the operational phase (Table 8-18). Long-term or permanent major change to groundwater aquifer(s) quality or quantity (including level and yield) likely to risk a significant shift from baseline conditions, such as a major impact to quantity/quality or loss of a groundwater abstraction (including those within an SPZ) and/or a GWDTE where their use or value are significantly changed. These magnitude definitions apply to construction only. |
| | Hydromorphology | Construction phase only. Hydromorphology is scoped out for operational impacts (Table 8-18). Major construction works in-water and/or adjacent to a surface water which are likely to risk a significant shift from baseline conditions. Loss of or extensive changes to existing hydrological or morphological characteristics and processes, including major changes to permeable or impermeable area in a catchment, major bed and bank modifications and major impoundments that would significantly increase pressures on the surface water. |
| | Flood Risk | A change in impermeable area from construction works and/or operational infrastructure that causes a potential increase in pass forward flow and therefore may influence downstream flood risk. A change in site topography that alters overland flow pathways and therefore may influence downstream flood risk. |
| | Water Resources | Long-term disruption or permanent loss or change to quantity or quality of a water resource. |
| Medium | Surface Water | Construction works in-water and/or adjacent to a surface water or which are likely to risk a shift from baseline conditions. Operational activities, such as discharges of pollutants, which are likely to risk a shift from baseline conditions. Risk of temporary adverse impacts on protected aquatic species, habitats or nature conservation sites. |
| | Groundwater | Construction phase only. Groundwater impacts are scoped out during the operational phase (Table 8-18). Temporary or long-term change to groundwater aquifer(s) quality or quantity (including level and yield) likely to risk a shift from baseline conditions, such as a partial and/or temporary reduction in |

| Magnitude | Sub-discipline | Typical examples |
|---|---|---|
| | | quality or quantity of a groundwater abstraction and/or condition of a GWDTE where their use and value are changed. |
| | Hydromorphology | Construction phase only. Hydromorphology is scoped out for operational impacts (Table 8-18). Construction works in-water and/or adjacent to a surface water which are likely to risk a shift from baseline conditions. Operational activities, such as permanent modifications to the hydrology or hydromorphology of a surface water, which are likely to risk a shift from baseline conditions. Changes to existing hydrological or morphological characteristics and processes, including changes in permeable/impermeable area in a catchment, bed and bank modifications and impoundments that may increase pressures on the surface water. |
| | Flood Risk | Not applicable as any potential increase in flood risk elsewhere is not acceptable. |
| | Water Resources | Temporary disruption or deterioration in quantity or quality of a water resource. |
| Small | Surface Water | Minor construction works adjacent to a surface water or within the catchment of/with hydrological connectivity to a surface water which are likely to risk a minor shift from baseline conditions. Operational activities, such as discharges of pollutants, which are likely to result in a minor, but measurable shift from baseline conditions. |
| | Groundwater | Construction phase only. Groundwater impacts are scoped out during the operational phase (Table 8-18). Temporary or long-term change to groundwater aquifer(s) quality or quantity (including level and yield) which are likely to risk a minor shift from baseline conditions, such as a small but measurable reduction in quality or quantity of a groundwater abstraction and/or condition of a GWDTE but their use or value are not changed. |
| | Hydromorphology | Construction phase only. Hydromorphology is scoped out for operational impacts (Table 8-18). Minor construction works adjacent to a surface water or within the catchment of/with hydrological connectivity to a surface water which are likely to risk a minor shift from baseline conditions. Minor changes to existing hydrological or morphological characteristics and processes, including minor changes in permeable/impermeable area in a catchment minor bed and bank modifications that may result in a slight increase in pressures on the surface water. |
| | Flood Risk | Not applicable as any potential increase in flood risk elsewhere is not considered to be acceptable. |
| | Water Resources | Not applicable as impacts to the quantity or quality of a water resource are considered to be Medium or Large only. |
| Negligible | No loss or alteration of characteristic, features of elements; no discernible impact. | |

### 8.6.5 Significance of Effect

8.6.5.1 To ensure consistency across topics, a matrix approach has been adopted to present judgements made on the significance of an effect. This terminology is outlined in Table 8-16 below.

**Table 8-16: Significance of Effect Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Negligible |
| Very High | Major | Major | Moderate | Minor |
| High | Major | Moderate | Moderate | Minor |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

8.6.5.2 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

8.6.5.3 All impacts scoped in to the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the EOS design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the EOS.

### 8.6.6 Supporting Assessments and Methodologies

8.6.6.1 A range of supporting assessments may be required to support the assessment of impacts on Water Environment receptors within the ES, which are summarised in this section.

#### GWDTE Assessment

8.6.6.2 As noted in Section 8.5.1, no designated GWDTE have been identified within the Study Area (EA, 2025c). However, should ecological surveys identify the presence of GWDTE, a GWDTE assessment may be required. The requirement and scope of any further assessment will be determined based on the results of the initial UK Habitats survey and refined EOS design.

#### Private Water Supply Assessment

8.6.6.3 As noted in Section 8.5.1, data on the location of private water supplies if any, will be obtained from the EA and Tendring District Council. Should any PWS be identified to be at potential at risk from the EOS, a PWS assessment may be required to assess the potential for hydraulic connectivity to the site. The requirement and scope of any further assessment will be determined at PEIR stage following receipt of additional data and based upon refined EOS design.

8.6.6.4 A FRA will be prepared for the EOS which will be in keeping with requirements in the NPS EN-1 (Department for Energy, Security and Net Zero, 2026a) and the NPPF guidance (Ministry of Housing, Communities and Local Government, 2024). The NPPF (Ministry of Housing, Communities and Local Government, 2024) includes utility infrastructure for electricity supply as 'Essential Infrastructure', as categorised in Annex 3: Flood risk vulnerability classification. The assessment will be based upon a refined UK Scheme design and is likely to include:

- Review relevant planning policy and technical guidance;
- Review currently available flood risk information;
- Consult with the relevant local authority (LLFA) (Essex County Council);
- Submit a request for flood information to the EA;
- Assess the risk of flooding to the onshore elements of the project from known/identified sources (i.e. tidal, fluvial, surface water, groundwater, sewer and artificial sources);
- Develop flood risk mitigation measures as required for the EOS; and
- Prepare a FRA report.

8.6.6.5 With the exception of any above ground infrastructure (e.g. the Converter Station) and temporary works during construction, buried cables are not generally considered in flood risk terms. However, the approach to the Sequential and Exception Tests for the HVAC Cable Route and Indicative EOS HVDC Cable Route Corridors will be clarified with the EA and Essex County Council as required.

8.6.6.6 As it is most likely that the Converter Station will be located within Flood Zone 1 and is classified as Essential Infrastructure, it is considered to be acceptable in line with the NPPF (Ministry of Housing, Communities and Local Government, 2024) with no requirement for the Exception Test to be applied.

8.6.6.7 The design of the EOS's surface water drainage system will aim to ensure that there would be no significant increases in flood risk downstream, during storms up to and including the 1 in 100 (1%) annual probability design flood, with an allowance for climate change.

8.6.6.8 Measures to manage surface water during construction will be included within the CEMP.

8.6.6.9 At this stage, given the precise route of the HVAC and HVDC cables is not known, it is assumed existing field accesses can be used and new crossings can be avoided, therefore it is assumed hydrological and hydraulic modelling will not be required to inform the FRA. Should any new crossing structures be required, these structures would be designed such that flow is not impeded and therefore the risk of downstream flood risk would remain unchanged. Should a requirement for hydraulic modelling data be identified, data will be requested from the EA to understand fluvial and tidal flood risk (including breach scenarios). Where this is not available, hydraulic

modelling may need to be undertaken as part of the FRA. This will be discussed and agreed with the EA and Essex County Council as required.

8.6.6.10 Careful consideration of the SuDS features, in keeping with local planning policy and through liaison with the LLFA and EA, will be undertaken to ensure that the design adequately attenuates and treats runoff from the EOS, whilst minimising flood risk to the Site and surrounding areas.

8.6.6.11 In accordance with planning policies of Essex County Council (Essex County Council, 2026) and Tendring District Council (Tendring District Council, 2021), as well as general good practice, mitigation will be provided by restricting surface water discharge rates and providing on-site attenuation, primarily via SuDS techniques or other appropriate solutions.

8.6.6.12 The appropriateness of the surface water drainage measures for permanent new above-ground installations in terms of providing adequate treatment of pollutants will also be assessed with reference to the Simple Index Approach method described in C753 The SuDS Manual (CIRIA, 2015). The Simple Index Approach follows three steps:

- Step 1 – Determine suitable pollution hazard indices for the land use(s);
- Step 2 – Select SuDS with a total pollution mitigation index that equals or exceeds the pollution hazard index (for three key types of pollutants: total suspended solids, heavy metals and hydrocarbons). Only 50% efficiency should be applied to second, third etc. treatment train components; and
- Step 3 – If the discharge is to a water body protected for drinking water, consider a more precautionary approach.

8.6.6.13 The SuDS Manual (CIRIA, 2015) only provides a limited number of land use types and so those selected will be most suitable for the components of the EOS, based on professional judgement. Where more than one pollution hazard category applies to a component of the EOS, the worst pollution hazard will be selected.

### WFD Assessment

8.6.6.14 Due to the potential for impacts upon WFD designated water bodies, a WFD assessment will be required to establish compliance with the Water Environment (WFD) (England and Wales) Regulations 2017 (HMSO, 2017). Initially, a WFD Screening and Scoping Assessment will be undertaken in keeping with Planning Inspectorate (PINS) Advice (Natural Resources Wales (NRW), Northern Ireland Environment Agency (NIEA), Scottish Environment Protection Agency (SEPA) & the Oil Care Campaign et al., n.d.). This will consider what WFD water bodies and EOS activities need to be considered. It will be based on readily available online data and a walkover survey of freshwater features that may be affected by the EOS. Opportunities for enhancement will also be considered at a high level but may be limited by the temporary works and linear nature of much of the EOS. The EA will be consulted on the outcome of the WFD Screening and Scoping Assessment to

determine whether a ‘Stage 3’ Impact Assessment needs to be undertaken and, if so, what the scope would need to be.

## 8.7 Potential Effects and Mitigation

8.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 8.7.2 Embedded Mitigation and Good Practice Measures

8.7.2.1 The EOS will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as *“mitigation measures that have been incorporated into a project’s description and form an inherent part of the project’s design”* (ISEP, 2024). The embedded mitigation measures which are relevant to the Chapter are presented in the table below (Table 8-17).

**Table 8-17: Embedded Mitigation Measures of Importance to Water Environment**

| Measure Proposed | Rationale |
|---|---|
| Appointment of an Environmental Clerk of Works (ECoW) | To oversee and ensure compliance with environmental mitigation and management measures throughout the cable installation process. |
| Sensitive cable routing and/or trenchless techniques | Sensitive cable routing will be used to avoid or minimise effects on habitats and Water Environment receptors where practicable. Where this is not possible trenchless techniques will be considered. In addition, the footprint of temporary working areas will be designed to minimise the extent of habitat loss as far as is practicable. This is the preferred measure and may develop alongside the design. |
| Outline Construction Environmental Management Plan (CEMP) | To reduce the effect of potentially significant harmful effects on the Water Environment in compliance with environmental legislation. The outline CEMP will detail and formalise measures that will be implemented prior to and during construction of the UK Scheme to mitigate construction-related effects on the Water Environment.<br><br>A detailed CEMP will be produced in accordance with the outline CEMP following the Development Consent Order (DCO) to implement the measures outlined in the outline CEMP for the UK Scheme. Further details are provided in Volume 01, Chapter 02: UK Project Description. |
| Operational Environmental Management Plan (OEMP) | An outline version of the OEMP will be included within the DCO application providing details of specific commitments and how these will be secured. |

| Measure Proposed | Rationale |
|---|---|
| Decommissioning Environmental Management Plan (DEMP) | A DEMP will be prepared following appropriate environmental legislation and agreed with the relevant authorities at the time of decommissioning. |

8.7.2.2 Adherence to industry standard good practice guidance is considered to be 'tertiary' mitigation (Institute of Environmental Management and Assessment (IEMA), 2016) and would reduce the potential for significant effects. Good practice guidance of relevance to the water environment includes, but is not limited to:

- C532: Control of water pollution from construction sites (CIRIA, 2001);
- C648: Control of water pollution from linear construction projects: Technical Guidance (CIRIA, 2006a);
- C649: Control of water pollution from linear Construction Projects: Site Guide (CIRIA, 2006b);
- C750: Groundwater control: design and practice (CIRIA, 2016);
- C811: Environmental good practice on site guide (fifth edition) (CIRIA, 2023); and
- Guidance for Pollution Prevention (GPP) (various) (Natural Resources Wales (NRW), Northern Ireland Environment Agency (NIEA), Scottish Environment Protection Agency (SEPA) & the Oil Care Campaign et al., n.d.).

8.7.2.3 The above guidance would inform the development of a pollution prevention plan to avoid or reduce potential impacts on water quality during construction.

8.7.2.4 The outline CEMP will provide outline information relating to flood response. This will include (but not be limited to) the following measures:

- any temporary works within areas of flood risk to be made flood resilient where practical;
- any plant and material stored outside of areas of flood risk where practical;
- the phasing, timing and location of works to account for flood risk to reduce potential impacts where practical; and
- monitoring of rainfall, water levels in watercourses and flood warnings to allow evacuation of any in-water working areas in advance of any increased flood risk where practical.

8.7.2.5 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed EOS development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

8.7.2.6 As the EOS advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective and compliant with regulatory standards and stakeholder input.

### 8.7.3 Scoping Assessment

8.7.3.1 There are a number of activities which would be undertaken during the construction phase that have the potential to adversely impact the Water Environment, flood risk and drainage if unmitigated. The greatest risk is where there are works directly to or very close to surface waters, where SPZs are present and areas of highest flood risk. Overall, during construction, the EOS may have the following adverse impacts, typical of linear construction projects, if not mitigated:

- There is a risk of pollution to surface water or groundwater (including any licensed or unlicensed abstractions) due to deposition or spillage of soils, sediments, oils, fuels or other construction chemicals, or through uncontrolled site run-off, including de-watering of excavations, piling or drilling works;
- Construction, excavations and the placement of any sub-surface structures which require dewatering could have a potential impact on groundwater flow and levels, and nearby water features, if groundwater supports baseflow or de-waters are discharged to them;
- There may be temporary impacts on the water quality of surface waters from:
  - The establishment of site compounds, temporary haul roads and access tracks.
  - Open-cut surface water crossings of the HVAC and/or HVDC including from the establishment of dry working areas, such as direct disturbance of banks creating sediment-laden runoff and direct disturbance of the channel bed causing mobilisation of bed sediment.
  - Soil stripping and the storage/stockpiling of soil and other excavated materials.
- There may be temporary impacts on the hydromorphology of surface waters from open-cut watercourse crossings, temporary vehicle access crossings as may be required or potentially other works. This may be from direct physical changes or the interruption of flows and sediment transport;
- There may be temporary changes in flood risk from an increase in the rate and volume of surface water runoff, works on the floodplain or in the channel of watercourses that may disrupt flows or the deposition of silt, sediment or other materials in drains or ditches;
- Construction works may temporarily disrupt flood conveyance routes if materials are stored within the floodplain or existing land drainage is severed;
- Construction works may temporarily disrupt any shallow groundwater which could result in a localised increase in groundwater flood risk;
- Construction works may temporarily disrupt groundwater flow or impact groundwater quality feeding a GWDTE;
- Construction works may temporarily disrupt the quality or quantity of abstractions relating to an SPZ or PWS; and
- Cumulative construction works on multiple surface waters may result in temporary impacts to the water quality of downstream surface waters, including river, transitional and coastal water bodies.

8.7.3.2 There are also potential impacts which are specific to the EOS. At the proposed UK Landfall, the HVDC offshore cables (subsea cables) will connect to the underground proposed Onshore HVDC Cables via a buried Transition Joint Bay (TJB). The TJB will be set back from the coastline, beyond any area of coastal erosion risk, to avoid potential future cable exposure. The UK Landfall will be designed and constructed to minimise interaction with the surface water features in the area (e.g. drains and creeks) as far as practicable. Best practice guidance will be followed to minimise the potential for sediment or pollution release. As further hydrological assessment is yet to be undertaken and due to the potential interaction between the proposed UK Landfall works and surface water features with pathways to the shore, coastal waters remain scoped in to the impact assessment.

8.7.3.3 The construction of the cable route and/or temporary access crossings of watercourses has the potential to result in modifications to water features. A Watercourse Crossing Register will be prepared as part of the Water Environment assessment, which considers the importance of each watercourse in consultation with the relevant regulatory bodies and sets out the proposed method of crossing them. For larger, more important and sensitive watercourses, it is expected that cables will be crossed using a more non-intrusive method such as HDD, with open-cut techniques restricted to smaller, less sensitive water features. However, although non-intrusive watercourse crossings avoid direct physical impacts to the channel of watercourses and reduce the risk of chemical spills and water pollution more generally, they still require excavations either side of the watercourse from which there may be a need for de-watering and there is a risk of 'frac-out' events[1] of drilling fluids if not carefully controlled through appropriate methods, which will need to be considered. It is also important that the cables are installed at a sufficient depth beneath the bed to avoid future emergence and to carefully manage drilling fluids so that they do not break-out into the channel. Launch and receiving pits should be set back from the edge of the watercourse by a suitable distance and, where possible, construction works should avoid the floodplain.

8.7.3.4 Where possible, it is proposed that existing field accesses are used to access working areas. However, where this is not possible and a new access is required across a watercourse, a suitable temporary design may be required or existing crossing modified. Should new access crossings be required, they will be designed to minimise the impact to the watercourse as much as practicable and will follow best practice guidance e.g. the culvert hierarchy.

8.7.3.5 At this stage, it is assumed that temporary compounds would be either connected to Mains water supply or otherwise potable water would be supplied from another commercial source. Water for construction could also be augmented by any water running off the site and captured by the Contractor (e.g. for haul road dust suppression). It is also assumed that foul drainage from temporary compounds would be connected to the Public Sewer or otherwise captured by a sealed cesspit

[1] Frac-out (or hydrofracture) refers to the unwanted, pressurised return of drilling fluid to the surface during a horizontal directional drilling (HDD) operation. It occurs when the drilling fluid pressure in the bore exceeds the surrounding soil's ability to contain it, causing the soil to fracture and the fluid to find a path to the surface.

or tank. This would be emptied on a regular basis by a specialist waste management contractor for offsite disposal at a suitably licensed waste facility. No new abstractions or discharges of foul wastewater to surface or groundwater is proposed. A Water Resource Assessment is likely to be required by Anglian Water, but otherwise no further assessment of potable water supply or foul drainage during the construction phase is proposed.

8.7.3.6 Should any permanent watercourse crossings be required, these would be designed in accordance with relevant design guidance, including (but not limited to):

- CIRIA C786: Culvert, screen and outfall manual (CIRIA, 2019).
- DMRB CD 529: Design of outfall and culvert details (National Highways, 2025), where relevant.

8.7.3.7 The EA and LLFAs would be consulted and pre-application advice sought on the designs of permanent watercourse crossings to establish and implement the likely conditions of the consents applicable to works on main rivers (Flood Risk Activity Permits) and ordinary watercourses (Ordinary Watercourse Consent). Such conditions may include, for example, the depth of cover between watercourse bed levels and the cable in underground sections and excavation set-back distances from the banks of rivers. Watercourses would be reinstated after construction, following the principles of geomorphologically sensitive design (under the guidance of an appropriately qualified geomorphologist), including reinstatement of riparian vegetation, and natural bank and bed material (where practical).

8.7.3.8 Any new permanent watercourse crossings would be designed with an appropriate freeboard (a factor of safety) and an allowance for climate change. The freeboard and climate change allowance for new permanent watercourse crossings would be agreed with the EA and LLFA, and would align with EA's 'Flood risk assessments: climate change allowances' (EA, 2016) and Essex County Council's SuDS Design Guide for Essex (Essex County Council, 2026).

8.7.3.9 The topics proposed to be scoped in and scoped out of the Water Environment assessment are provided in Table 8-18.

Table 8-18: Elements Scoped In and Out for Water Environment

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction | All construction activities | Temporary deterioration of water quality from sediment-laden runoff, spillages or pollution during earthworks, watercourse crossings or site-compound establishment; localised alteration of surface water flows during temporary works. | Surface Water | Scoped In (Table 8-7), including associated designations. | Potential for direct and indirect impacts on surface waters during construction works. |
| | | Risk of temporary changes to groundwater levels or quality from excavation, dewatering, drilling, or accidental spills; potential interaction with SPZs or private water supplies where present. | Groundwater | Scoped In (Table 8-9) | Potential for impacts on quality and quantity during construction works. |
| | | Temporary modification of channel form and hydromorphological processes at watercourse crossings (e.g., bank disturbance, sediment mobilisation, interruption of flows). | Hydromorphology | Scoped In (Table 8-7). | Potential for direct physical impacts on the hydrology and morphology of surface waters from construction works. |
| | | Short-term increased flood risk from temporary works within floodplains, obstruction of overland flow paths, and increased runoff from | Flood Risk | Scoped In (Table 8-11) | Potential for changes in flood risk from all relevant sources. |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | disturbed ground or stockpiles. | | | |
| | | Risk of temporary impacts to water resources from contamination, dewatering activities or interruption of shallow groundwater connectivity. | Water Resources (SPZs, PWS' and Abstractions.) | Scoped In | Potential for impacts on quality and quantity during construction works. |
| Operational | Converter Station and UK Landfall | Minor long-term changes in surface water runoff patterns or quality associated with permanent above-ground infrastructure and drainage systems; potential indirect effects via hydrological connectivity to downstream water bodies. | Surface Water | Scoped In (Table 8-7), including associated designations. | Potential for direct and indirect impacts on surface waters from infrastructure during operation. |
| | | Low-level long-term risk of groundwater quality or quantity changes from permanent foundations, drainage infiltration features, or interactions with SPZs. | Groundwater | Scoped Out (Table 8-9) | No works would connect to aquifers during operation. Permanent foundations and any other below ground infrastructure will be designed such that groundwater flow will be maintained. |
| | | Potential for indirect hydromorphological changes if run-off, drainage discharge or reinstated channel banks alter flow regime or sediment dynamics. | Hydromorphology | Scoped Out (Table 8-7). | EA and LLFAs would be consulted and pre-application advice sought on the designs of permanent watercourse crossings. Watercourses would be reinstated, following the principles of geomorphologically sensitive |

| EOS Scheme Source Phase | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|
| | | | | design under the guidance of an appropriately qualified geomorphologist. |
| | Localised changes in flood risk due to new impermeable areas or altered drainage pathways associated with permanent infrastructure. | Flood Risk | Scoped In (Table 8-11) | Potential for changes in flood risk from all relevant sources during operation. |
| | Potential long-term constraints on water resource quality (particularly in SPZ3 areas) arising from permanent structures or drainage infrastructure. | Water Resources (SPZs, PWS' and Abstractions.) | Scoped Out | No works would connect to aquifers during operation. Permanent foundations and any other below ground infrastructure will be designed such that groundwater flow will be maintained. |

### 8.7.4 Cumulative and Transboundary Effects

8.7.4.1 Volume 01, Chapter 06: EIA Approach and Methodology details how potential cumulative effects will be evaluated through a Cumulative Effects Assessment (CEA). Examples will also be given of other projects likely to be included within that assessment.

8.7.4.2 The impacts set out and assessed as part of the Water Environment topic will take into consideration potential inter-relationships between impacts on geology and ground conditions, as the effects assessed and the natural and physical processes behind them are inherently connected. Therefore, a standalone assessment of inter-related effects related to Water Environment is scoped out.

8.7.4.3 As set out in Volume 05, Chapter 32: Approach to Cumulative and Transboundary Effects, transboundary effects are those that would affect the environment in another state within the European Economic Area (EEA), i.e. effects which would be experienced beyond the borders of the UK. Potential impacts to Water Environment only occur where there is direct disturbance to those resources and as such will not be experienced beyond the UK Scheme's Order limits. Potential impacts to and from the Water Environment are only considered in a local or regional context in relation to cumulative effects and therefore impacts to the water environment in the UK are not relevant within other European States. Transboundary effects are therefore scoped out of further assessment in relation to the Water Environment.

## 8.8 Assumptions, Limitations and Uncertainties

8.8.1.1 The location and layout of certain elements of infrastructure (including the Indicative UK Landfall Zone, Converter Station, cable routes, construction methodologies and mitigation) have not yet been fully determined. This is of particular relevance to potential physical impacts to surface waters from cable or access crossings (if required) or runoff from new above-ground installations. The protection of water environment receptors will be taken into account within the iterative design process, including the choice of crossing methodology, the siting of above-ground installations, management of surface water runoff and use of good practice methodologies for construction.

8.8.1.2 It is assumed that the Converter Station (Essential Infrastructure) will be located within Flood Zone 1 will therefore be in-line with the requirements of the NPPF (Ministry of Housing, Communities and Local Government, 2024), with no requirement for the Exception Test to be applied.

8.8.1.3 Details of any PWS' and licensed water abstractions have not yet been obtained. The baseline will be developed as part of the ongoing assessment process, including details of any abstractions.

8.8.1.4 It is assumed new surface water crossings can be avoided, therefore hydrological and hydraulic modelling will not be required to inform the FRA. Should a requirement for hydraulic modelling data be identified, data will be requested from the EA to

understand fluvial and tidal flood risk (including breach scenarios). Where this is not available, hydraulic modelling may need to be undertaken as part of the FRA. This will be discussed and agreed with the EA and Essex County Council as required.

8.8.1.5 A Freedom of Information Request will be submitted to the EA to obtain baseline information to inform the FRA which will accompany the ES. The request will include water quality, resources (pollution incidents), licensed water abstractions, water activity permits (i.e. consented discharges), hydrogeology (e.g. groundwater levels), WFD data and flooding data. The local planning authorities will also be contacted for details of any PWS' that may be present. Additional consultation with relevant third parties will take place as the impact assessment is progressed.

8.8.1.6 Visual surveys will be undertaken of accessible surface water features to inform the water environment impact assessment and WFD assessment. However, there may be access constraints or other visibility issues (e.g. dense vegetation). Where this is the case, proxy locations upstream or downstream may be used. In addition, some watercourses may be small, ephemeral and flow only intermittently, and these may not be identified in the field or observed when flowing.

8.8.1.7 Other than the site walkover survey, the FRA will be based on desktop surveys and best available site layout proposals in line with good practice. Where available, topographical data will be used to support the assessment. In the absence of topographical data, Light Detection and Ranging (LiDAR) data, which is a remote sensing technology that uses laser light to measure the distance to a target and create a 3D representation of the surface) will be used to inform the Flood Risk.

8.8.1.8 The assessment of temporary works will be based on available information and professional judgment of other similar projects. Only works of a potentially significant scale that have the potential to adversely affect flood risk or impact the quality or form of surface waters will typically be considered (for example, earthworks, excavations for the cable routes or non-intrusive crossings of watercourses (if required), runoff from compound areas etc.).

8.8.1.9 Groundwater level data for the Study Area is limited. Further information may be available from the EA and will be requested; however, if required, ground investigation would be undertaken to address data gaps and uncertainties with regards to geology, groundwater levels and aquifer conditions. It is anticipated that the scope of any ground investigation will be discussed in advance with the EA and relevant local planning authorities.

8.8.1.10 It is assumed water supply for construction or future operation of any above-ground facilities will be either from Anglian Water or other commercial sources (augmented with any rainfall runoff the contractor may capture and re-use on site). If required, a Water Resource Assessment will be requested from Anglian Water. However, at this stage no abstractions are currently proposed from any natural source.

8.8.1.11 It is assumed that foul drainage from temporary construction compounds or any welfare facilities in new permanent above-ground installations will either connect to

the public sewer or otherwise be captured in a cesspit/tank for regular pumping out by a specialised and licensed waste management contractor for offsite disposal at a suitably licensed waste site. At this stage, it is assumed that foul water will not be discharged to surface or groundwater.

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# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 02, Chapter 09: Land Use, Soils and Agriculture

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00010 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| Role | Name |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes accociated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| ALC | Agricultural Land Classification |
| BMV | Best and Most Versatile (agricultural land) |
| BSSS | British Society of Soil Science |
| CEMP | Construction Environmental Management Plan |
| DCO | Development Consent Order |
| Defra | Department for Environment, Food & Rural Affairs |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| EMF | Electromagnetic Field |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| FCD | Field Capacity Days |
| ha | Hectare |
| HDD | Horizontal Directional Drilling |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| IEMA | Institute of Environmental Management and Assessment |
| ISEP | Institute of Sustainability and Environmental Professionals |
| IoQ | Institute of Quarrying |
| LandIS | Land Information System |
| LPA | Local Planning Authority |
| NPS | National Policy Statement |
| m | Metre |
| MAFF | Ministry of Agriculture, Fisheries and Food |
| MAGIC | Multi-Agency Geographic Information for the Countryside |
| MDS | Maximum Design Scenario |
| NPPF | National Planning Policy Framework |
| SMP | Soil Management Plan |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |

# 9. Land Use, Soils and Agriculture

## 9.1 Introduction

9.1.1.1 This Chapter presents the Land Use, Soils and Agriculture assessment which will consider the potential significant effects on soil resources and agricultural land receptors during the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Areas used and receptors considered in this Chapter, only the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. The UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description) is therefore not considered further for Land Use, Soils and Agriculture.

9.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current soil resource and agricultural land use baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated soil resource and agricultural land receptors from the proposed components of the EOS; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

9.1.1.3 This Chapter summarises the baseline conditions relevant to Land Use, Soils and Agriculture; describes the proposed methodologies and datasets to be used within the assessment; identifies effects that have the potential to be significant; and explains the level of detail to which those effects will be assessed and reported. To support clarity across the assessment, this Chapter considers only those land use elements that directly relate to agricultural land use and agricultural soils, as these receptors are uniquely sensitive to soil disturbance, handling, and reinstatement requirements during construction and decommissioning. Wider land use topics such as effects on residential, commercial, community, recreational, and other non-agricultural land uses, as well as matters relating to land access, temporary disruption to businesses or community facilities, and changes in employment or the local economy, are assessed separately within Volume 04, Chapter 24: Socio-economics and Land Use. These topics sit within the socio-economic framework because their primary influence is on people, communities, and economic activity rather than on soil function or agricultural productivity. This separation avoids duplication, ensures that each topic is assessed using the most appropriate methodology, and aligns with the broader EIA structure and receptor-based approach adopted for the UK Scheme.

9.1.1.4 This Chapter should be read in conjunction with:

- Volume 01, Chapter 02: The UK Project Description;
- Volume 02, Chapter 07: Ground Conditions and Contaminated Land;
- Volume 02, Chapter 10: Onshore Biodiversity; and
- Volume 04, Chapter 24: Socio-economics and Land Use.

9.1.1.5 There are no Annexes associated with this Chapter.

9.1.1.6 The receptors considered within this Chapter are soil resources and agricultural land which only occur onshore (do not occur within the marine environment) and will only be impacted by activities associated with the EOS. The potential likely significant effects of the UK Scheme upon the seabed or seabed sediments are considered in Volume 03, Chapter 13: Marine Physical Environment, potential likely significant effects to marine aquaculture[1] are considered in Volume 03, Chapter 20: Offshore Infrastructure and Other Sea Users, and potential likely significant effects to commercial fisheries are considered in Volume 03, Chapter 17: Commercial Fisheries.

## 9.2 Study Area

9.2.1.1 The Study Area for the Land Use, Soils and Agriculture assessment is the EOS Scoping Boundary as defined in Volume 01, Chapter 02: The UK Project Description, excluding areas considered to be marine or intertidal which do not contain soils or agricultural land. This Chapter focuses only on land-use aspects that relate to agricultural soils and agricultural land, while wider land-use considerations, such as residential, commercial or community land uses, are assessed in Volume 04, Chapter 24: Socio-economics and Land Use.

9.2.1.2 Agricultural land and soil resources are discrete receptors in that disturbance in one location does not directly affect the same receptors in another location. It is therefore appropriate for the Study Area for Land Use, Soils and Agriculture to align with the EOS Scoping Boundary, with no additional Zone of Influence required for consideration.

## 9.3 Relevant Legislation, Planning Policy and Guidance

9.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context, provides an overview of all relevant legislation and the planning policy context. This section refers to legislation, planning policy and guidance relating to the assessment of potentially significant effects on Land Use, Soils and Agricultural land that may arise from the construction, operational and decommissioning phases of the EOS.

9.3.1.2 The following legislation, policies and guidance were reviewed as part of the scoping process, the content and requirements of which have been used to shape and develop the proposed scope of the Land Use, Soils and Agriculture assessment.

[1] The farming of aquatic organisms such as shellfish and algae/seaweed.

### 9.3.2 Legislation

9.3.2.1 Chapter 1, Part (1) (j) 'New Financial Assistance Powers' of The Agriculture Act 2020 (HM Government, 2020) enables the Secretary of State to *"give financial assistance for, or in connection with, … protecting or improving the quality of soil",* emphasising the importance placed upon soil resources and their protection.

9.3.2.2 The Agricultural Land (Removal of Surface Soil) Act 1953 (HM Government, 1953) makes it an offence to remove surface soil (topsoil) from agricultural land without planning permission. This applies to England and Wales and aims to protect agricultural land from unnecessary soil removal.

### 9.3.3 National Policy Statements

#### Overarching National Policy Statement for Energy (EN-1) (DESNZ, 2026a)

9.3.3.1 Paragraph 5.11.4 states that *"Development of land will affect soil resources, including physical loss of and damage to soil resources, through land contamination and structural damage. Indirect impacts may also arise from changes in the local water regime, organic matter content, soil biodiversity and soil processes."*

*9.3.3.2* Paragraph 5.11.12 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)."*

9.3.3.3 Paragraph 5.11.13 states that *"Applicants should also identify any effects and seek to minimise impacts on soil health and protect and improve soil quality taking into account any mitigation measures proposed."*

9.3.3.4 Paragraph 5.11.14 states that *"Applicants are encouraged to develop and implement a Soil Management Plan which could help minimise potential land contamination. The sustainable reuse of soils needs to be carefully considered in line with good practice guidance where large quantities of soils are surplus to requirements or are affected by contamination"* and refers the applicant to the Department for Environment, Food and Rural Affairs' (Defra) Code of Practice for the Sustainable Use of Soils on Construction Sites for guidance (Defra, 2009).

9.3.3.5 Paragraph 5.11.23 states that *"Although in the case of most energy infrastructure there may be little that can be done to mitigate the direct effects of an energy project on the existing use of the proposed site (assuming that some of that use can still be retained post project construction) applicants should nevertheless seek to minimise these effects and the effects on existing or planned uses near the site by the application of good design principles, including the layout of the project and the protection of soils during construction."*

9.3.3.6 Paragraph 5.11.25 goes on to note that mitigation or compensation for adverse effects on green infrastructure and other forms of open space should be considered.

9.3.3.7 Paragraph 5.11.34 states that *"The Secretary of State should ensure that applicants do not site their scheme on the best and most versatile agricultural land without justification. Where schemes are to be sited on best and most versatile agricultural land the Secretary of State should take into account the economic and other benefits of that land. Where development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality."*

**Overarching National Policy Statement for Energy (EN-3) (DESNZ, 2026b)**

9.3.3.8 The National Policy Statement (NPS) for Renewable Energy Infrastructure (NPS EN-3) advises at paragraph 2.10.25 that: *"The Agricultural Land Classification (ALC) is the only approved system for grading agricultural quality in England and Wales and, if necessary, field surveys should be used to establish the ALC grades in accordance with the current, or any successor to it, grading criteria and identify the soil types to inform soil management at the construction, operation, and decommissioning phases in line with the Defra Construction Code."*

**Overarching National Policy Statement for Energy (EN-5) (DESNZ, 2026c)**

*9.3.3.9* Paragraph 2.9.59 acknowledges that *"there is little evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs has any agriculturally significant consequences."*

9.3.3.10 Paragraph 2.9.26 states*: "In such cases the Secretary of State should only grant development consent for underground or subsea sections of a proposed line over an overhead alternative if they are satisfied that the benefits accruing from the former proposal clearly outweigh any extra economic, social, or environmental impacts that it presents, the mitigation hierarchy has been followed, and that any technical obstacles associated with it are surmountable."*

9.3.3.11 Paragraph 2.9.25 continues by advising that the Applicant should consider *"the landscape and visual baseline characteristics of the setting of the proposed route," "the additional cost of the proposed underground or sub-sea alternatives," "the potentially very disruptive effects of undergrounding on local communities, habitats, archaeological and heritage assets, marine environments, soil (including peat soils), hydrology, geology, and, for a substantial time after construction, landscape and visual amenity."* In addition, *"the potentially very disruptive effect of subsea cables on the seabed and the species that live in and on it"* should be considered.

9.3.3.12 Finally, Paragraph 2.9.25 continues by stating that the Applicant's commitment to mitigate the potential detrimental effects of undergrounding works should include *"any relevant agricultural land and soils (including peat soils), particularly regarding Best and Most Versatile land, including development and implementation of a Soil Resources and Management Plan. Such a commitment must guarantee appropriate handling of soil, backfilling, and return of the land to the baseline Agricultural Land Classification (ALC), thus ensuring no loss or degradation of agricultural land. Such a commitment should be based on soil and ALC surveys in line with the 1988 ALC*

*criteria and due consideration of the Defra Construction Code of Practice for Sustainable Use of Soils on Construction Sites."*

### 9.3.4 National Planning Policy Framework

9.3.4.1 In a national context, paragraph 187 of the National Planning Policy Framework (NPPF) ( Ministry of Housing, Communities & Local Government (2018 to 2021) and Department for Levelling Up, Housing and Communities, 2024) indicates that planning policies and decisions should contribute to and enhance the natural and local environment by:

- Protecting and enhancing soils; and
- Recognising, amongst other matters, the wider benefits from natural capital and ecosystem services, including the economic and other benefits of the BMV agricultural land.

9.3.4.2 Paragraph 188 goes on to state that plans should *"allocate land with the least environmental or amenity value, where consistent with other policies"* in the NPPF, and footnote 65 explains that *"where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality."*

### 9.3.5 Guidance

9.3.5.1 Natural England's Guide to Assessing Development Proposals on Agricultural Land (2021) (Natural England, 2021) sets out the government policies and legislation that developers and Local Planning Authorities (LPAs) should refer to when considering proposals that affect agricultural land and provides guidance on when Natural England should be consulted on development proposals. The guidance notes that the LPA should ensure that development proposals include plans to protect soils and that where there is insufficient data available, new surveys should be undertaken by soil scientists or experienced soil specialists to better inform the planning decision.

9.3.5.2 It provides a detailed explanation of Agricultural Land Classification (ALC) and information on published ALC resources. It explains circumstances in which new detailed surveys may be required and summarises the required survey methodology (also presented in Natural England's 2012 Technical Information Note 049 (Natural England, 2012)).

9.3.5.3 The Institute of Environmental Management and Assessment (IEMA) (now the Institute of Sustainability and Environmental Professionals, (ISEP)) published guidance for the consideration of the impacts of development on soils and land in EIA (hereafter referred to as 'the IEMA guidance') (IEMA, 2022). The aims of the IEMA guidance are to advocate *"a broader approach [to the assessment of soils and agricultural land in EIA] that involves assessing the natural capital and functional ecosystem services provided by land and soils".* The guidance therefore sets out a *'soil functions'* approach, to assess the effects on land and soil of developments likely to have a significant effect on the environment. The guidance introduces a soil

functions-based evaluation methodology and improved mitigation measures for soil conservation, to avoid and minimise detrimental impacts on soil.

9.3.5.4 Defra's Construction Code of Practice (Defra, 2009) provides Technical Guidance on the handling, storage and (re)use of soil within construction projects.

9.3.5.5 The Institute of Quarrying's (IoQ) Good Practice Guide for Handling Soils in Mineral Workings (Institute of Quarrying, 2021) details good practice methods for stripping, handling, storage, reinstatement, and management of soil resources. Despite originating in the quarrying sector, this is considered relevant as the described measures are applicable to all development where soils are handled, especially where soils are to be reinstated following a period of temporary development (such as for the proposed Onshore HVAC and HVDC Cables and proposed UK Landfall).

9.3.5.6 The current guidelines for grading the quality of agricultural land in England and Wales are set out in the Welsh Government and Defra ALC guidelines (Welsh Government and Defra, 2025).

9.3.5.7 The British Society of Soil Science (BSSS) Guidance Document 3: Working with Soil - Guidance Note on Benefitting from Soil Management in Development and Construction (British Society of Soil Science, 2021) has been written for development planning and control professionals, site owners and developers to help promote the protection of soils and the important functions they support within the planning system and the development of individual sites.

### 9.3.6 Local Planning Policy

9.3.6.1 Within the Tendring District Local Plan 2013-2033 and Beyond (Section 2) (Tendring District Council, 2022), the following policy is relevant to the soils and agriculture matters of the EOS:

- Policy PPL3 – The Rural Landscape supporting text states *"In order to promote sustainable development, in considering where to select sites for new development in this Local Plan, the Council has taken particular care to assess the value of the landscape and, where practical, allocate sites with the lowest sensitivity, thereby helping to protect valued landscapes and the best and most versatile agricultural land."* Policy PPL3 also states, *"The Council will protect the rural landscape and refuse planning permission for any proposed development which would cause overriding harm to its character or appearance."*

*9.3.6.2* Within the Ardleigh Neighbourhood Plan 2020 – 2033 (Ardleigh Parish Council, 2024), Policy EP – Natural, Built & Historic Environment is relevant to soils and agricultural matters associated with the EOS, as Policy EP Part 1 (f) states that development would be supported if: *"There is no unnecessary loss of best and most versatile agricultural land to non-compatible uses (the onus will be on the developer to establish the quality of any agricultural land proposed for other uses)."*

## 9.4 Consultation and Engagement

9.4.1.1 No topic-specific consultation has taken place relating to Land Use, Soils and Agriculture to date. However, responses on the non-statutory consultation (as

described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council, Tendring District Council and Babergh and Mid Suffolk district councils. No comments directly relevant to the assessment of Land Use, Soils and Agriculture have been provided.

9.4.1.2 Natural England is a statutory consultee for developments affecting 20 hectares (ha) or more of Best and Most Versatile (BMV) agricultural land[2], such as the EOS, and therefore, topic-specific consultation will be undertaken where required.

## 9.5 Baseline Environment

### 9.5.1 Baseline Conditions

#### Agricultural Land

9.5.1.1 The 1:250,000 scale Provisional ALC mapping (Natural England, 2010), which is available to view via the Government's geographic information website (Defra, 2026), is the most current and detailed published ALC data covering the whole of the Study Area. However, it is important to note that these data pre-date the revised ALC methodology issued in 1988 and as a result, the data do not differentiate between ALC Subgrades 3a (BMV) and 3b (non-BMV). Additionally, the scale of the mapping is such that it does not pick up variations in ALC grade for areas less than approximately 80 ha. The Provisional ALC mapping therefore provides a broad indication of land quality in the Study Area and the wider region.

9.5.1.2 The Provisional ALC data identifies non-agricultural and Grade 4 (poor quality) land around the Indicative UK Landfall. However, although the land has low versatility for agriculture, the soils are more likely to be a sensitive ecological receptor. The remaining agricultural land within the EOS Scoping Boundary is identified as Grades 1, 2 and 3. Given the Provisional ALC gradings identified (as shown in Figure 9-1 and summarised in Table 9-1), it is considered that BMV land will be dominant within the EOS Scoping Boundary.

9.5.1.3 Provisional Grade 2 land dominates the central parts of the EOS Scoping Boundary with areas of Provisional Grade 3 land associated primarily with soils of the Windsor and Wix soil. Provisional Grade 1 land is present widely at the western extent of the EOS Scoping Boundary and is associated with soils of the Tendring soil association.

[2] Best and Most Versatile (BMV) agricultural land comprises land graded as ALC Grade 1 (Excellent quality), Grade 2 (Very Good quality) and Subgrade 3a (Good quality).

**Table 9-1: Summary of ALC Gradings within the Study Area**

| ALC Grade | Area (ha) |
|---|---|
| Grade 1 (Excellent quality, BMV) | 435.0 |
| Grade 2 (Very good quality, BMV) | 1,026.4 |
| Grade 3 (Good to Moderate quality, potential to be BMV) | 584.8 |
| Grade 4 (Poor quality, non-BMV) | 208.0 |
| Grade 5 (Very poor quality, non-BMV) | 0.0 |
| Non-agricultural | 229.8 |
| Urban | 45.4 |

9.5.1.4 The post-1988 ALC dataset (Natural England, 2025) which is available to view via the Government's geographic information website (Defra, 2026) represents discrete areas covered by detailed (field scale) survey data and defined using the revised ALC methodology (Welsh Government and Defra, 2025). The surveys differentiate between Subgrades 3a (BMV land) and 3b (non-BMV land) and hence the amount of BMV land can be determined in those areas.

9.5.1.5 As shown on Figure 9-1, there are no post-1988 data within the EOS Scoping Boundary. Surveys within the vicinity of the EOS Scoping Boundary, however, confirm the presence of Grades 1 and 2 and Subgrades 3a and 3b land, demonstrating the degree of variation present at field level within larger areas of Provisional ALC grading. However, the data provide no additional clarity within the EOS Scoping Boundary.

610000 615000 620000 625000

235000 230000 225000 220000

TARCHON

# Tarchon Interconnector Project
Scoping Report

## Provisional and Post-1988 ALC Data

### Legend

English Onshore Scheme Scoping Boundary

Provisional Agricultural Land Classification
- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Non Agricultural
- Urban

Post-1988 Agricultural Land Classification
- Grade 1
- Grade 2
- Grade 3a
- Grade 3b
- Grade 4
- Other




### Notes

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Coordinate System: British National Grid

0 2 4 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:65,000 @A3 | 11/02/2026 | BPHB | RB | MB |

Riverview
A17 The Embankment Business Park
Heaton Mersey
Stockport
SK4 3GN
http://www.apemltd.com
+44 (0) 161 442 8938

APEM



Figure 9-1

Figure Reference: Tarchon_Scoping_SA_Fig9-1_ALC_Data_v1

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### Soil Resources

9.5.1.6 Soils may be described according to soil association. Soil associations are groups of soil types that typically occur together in the landscape. The mapped soil information (Soil Survey of England and Wales, 1984) shows five associations present across the EOS Scoping Boundary. The associations are described in order of prevalence in Table 9-2.

**Table 9-2: Soil Associations within the Study Area**

| Soil association (code) | Key Characteristics |
|---|---|
| TENDRING (582e) | Deep, often stoneless coarse loamy soils principally developed in aeolian silty and fine sandy drift over older, coarser textured, glaciofluvial deposits.<br>Soils are well-drained (Wetness Class I). Exceptionally, where older drainage systems have ceased to function or the deep subsoil is locally more clayey, these soils are occasionally waterlogged (Wetness Class II).<br>Land is mainly in arable production, particularly cereals, sugar beet and potatoes; and some horticultural crops.<br>. |
| WINDSOR (712c) | Formed over Eocene clays and associated thin glaciofluvial drifts, these are slowly permeable, seasonally-wet deep clayey soils. They are stoneless and usually well-structured.<br>Where undrained, soils remain waterlogged for long periods in winter (Wetness Class IV) and they need effective underdrainage to achieve good yields of grass and cereals. Appropriate drainage measures reduce the period of waterlogging (Wetness Class III).<br>Land can support arable agriculture but requires careful management due to soil wetness. Much land is under permanent grass or long ley. |
| WIX (573b) | Formed on glaciofluvial drift over Eocene clays, these are deep, permeable, coarse loamy soils. Associated with well-drained sandy and coarse loamy soils and some slowly permeable seasonally-waterlogged fine loamy over clayey and clayey soils, giving patterned ground locally. Soils are at slight risk of water erosion.<br>In many places, the underlying clay impedes water flow and the soils are waterlogged for varied periods in winter (Wetness Class II or III).<br>Land is mainly in arable production (cereals, sugar beet and other arable crops), some grassland. |
| WALLASEA 1 (813f) | Formed over marine alluvium, these are deep stoneless non-calcareous and calcareous clayey soils. Soils locally have humose or peaty surface horizons.<br>Subsoils are relatively permeable and waterlogging is mainly caused by groundwater. Water regimes, therefore, depend mainly on arterial drainage systems. Without adequate control of groundwater, soils are waterlogged for long periods in winter (Wetness Class IV). After pipe drains have been installed, pumped catchments or areas with |

| Soil association (code) | Key Characteristics |
|---|---|
| | efficient tidal sluices are occasionally or seasonally waterlogged (Wetness Classes II or III).<br>Land is mainly in arable production, the main crops being winter cereals with oilseed rape, peas and lucerne as breakcrops. Also may be used as pasture or grassland. |
| SALINE 1 (220) | Soils of variable texture flooded by high tides and predominantly found in coastal locations, estuaries and creeks. Formed under salt marsh vegetation in marine alluvium. Many are soft and unripened, others, often on higher sites or of a sandy texture, are firm and ripened.<br>May be used for summer grazing but are commonly areas of ecological habitat or recreational use. |

9.5.1.7 The Saline 1 and Wallasea 1 associations, which occur over marine alluvium are restricted to the proposed UK Landfall Zone. The coarse loamy soils of the Tendring association are dominant within the Study Area and are located across the west and centre. The clayey soils of the Windsor association are mainly mapped in the central and eastern parts. The coarse loamy soils of the Wix association are distributed throughout.

9.5.1.8 Additional information on soils is available from the Land Information System (LandIS) (Cranfield University, 2026), which is an environmental information system operated by Cranfield University, containing soil and soil-related information for England and Wales. LandIS allows for preliminary assessment of soil characteristics within the Study Area.

### 9.5.2 Future Baseline Conditions

9.5.2.1 The baseline environment is not static and is expected to change over time, irrespective of the EOS. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the EOS over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

9.5.2.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

9.5.2.3 Should the EOS not proceed, there are not anticipated to be any changes to the soils and agricultural baseline conditions in the future, assuming the land remains under normal management.

9.5.2.4 This is because physical soil properties evolve over millennia rather than years or decades, and the ALC system is a measure of the long-term, inherent capabilities of land.

9.5.2.5 Changes to agricultural production and crop yields due to future climate change are impossible to predict, not only as an effect of changing weather patterns, but also future developments in crop adaptations and technology, growing systems and machinery that are as yet unknown.

### 9.5.3 Additional Proposed Data Sources

9.5.3.1 It is proposed that additional data is obtained from future surveys, to further inform the baseline conditions and therefore also the assessment of effects on Land Use, Soils and Agriculture.

## 9.6 Assessment Methodology

9.6.1.1 The impacts to Land Use, Soils and Agriculture will be assessed for the construction phase only of the EOS.

9.6.1.2 As set out in Volume 01, Chapter 02: The UK Project Description, the precise methodology for decommissioning is not currently known, however impacts are expected to be similar to, or of a lesser magnitude than, construction effects. Therefore, decommissioning effects will not be specifically assessed within the ES, but to represent a worst case, decommissioning effects will be considered to be the same as construction phase effects. No effects on agricultural land and soils are anticipated to occur in the operational phase of the EOS as, other than very localised, ad-hoc, maintenance works, there will be no additional disturbance to the land and soils in this phase.

9.6.1.3 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on soil resource and agricultural land receptors arising from the construction phase of the EOS. This approach defines:

- **Sources and impacts:** The origin of a potential impact;
- **Pathway:** The mechanism by which the impact may affect a receptor; and
- **Receptor:** The component of the environment that may be affected.

9.6.1.4 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

9.6.1.5 The assessment will be undertaken in consideration of IEMA's guidance document (IEMA, 2022) with particular reference to Section 9: Assessing Impacts on Land and Soil, and focuses on the potential impacts of the EOS to agricultural land and land use including the loss of BMV land, and loss of soil functions or volumes and soil-related features.

9.6.1.6 To accurately define the ALC grading within the proposed Converter Station Site (i.e., the area of permanent development) to be presented within the ES, a soil survey will be undertaken in line with the ALC guidelines (Welsh Government and Defra, 2025).

The detailed survey will be undertaken by suitably qualified and experienced soil scientists at an approximate density of one inspection per ha using a hand-held auger capable of sampling to 1.2 metres (m) depth, plus one spade-dug soil inspection pit per main soil type identified. The information from the soil survey will be used in conjunction with the interpolated agro-climatic characteristics of the Study Area, derived from Met Office data (The Meteorological Office, 1989), to determine the ALC grading in accordance with the ALC guidelines.

9.6.1.7 This Scoping Chapter focuses on agricultural land (use) and soils, however it is recognised that soil survey requirements may extend to other land uses such as woodland and public open space, the necessity for which will depend on later refinement of the EOS design. At this stage, the assessment focuses on agricultural soils, with the potential need for further survey work to be reviewed as the design develops.

9.6.1.8 It is recognised that there will be permanent loss of agricultural land at Link Box locations along the Onshore HVAC and HVDC Cable Corridors and at the Transition Joint Bay. However, the scale of this loss (2 m by 2 m or 0.0004 ha at each location) is considered too small to warrant inclusion within the survey.

9.6.1.9 Once the detailed design is established, a targeted survey will be undertaken (post Development Consent Order (DCO) and prior to construction) on any agricultural land within the working corridor of the proposed Onshore HVAC and HVDC Cables, at the proposed UK Landfall and at temporary construction compound locations (i.e., agricultural land that will be subject to direct disturbance due to the EOS). The information will be used to inform the final detailed Soil Management Plan (SMP) and will also provide baseline land quality data for the reinstatement of land. This targeted approach is commonly adopted for linear energy infrastructure projects where the area of disturbance will not be known until the detailed routing is confirmed post-consent.

### 9.6.2 Sensitivity of Receptor

9.6.2.1 The sensitivity of agricultural land is determined according to its classification in the ALC system. Table 9-3 identifies the sensitivity criteria that will be used to inform the assessment of potential significant effects occurring to agricultural land and reflect the IEMA (now ISEP) guidance (IEMA, 2022).

9.6.2.2 The sensitivity of soil resources considers their susceptibility to damage when being handled (this is a function of soil type and is related to soil texture and structural development as described below). In accordance with the guidance, the sensitivity criteria for soils do not contain Very High sensitivity or Negligible ratings.

9.6.2.3 Assessing the sensitivity of soil resources to damage (i.e. resistance and resilience of the soil environment, not the importance of the land for agricultural use) is recognised as being complex, as soil resources provide a range of functions (ecosystem services), such as supporting plant growth (including food and other crops), water filtration and regulation (role in flood control), nutrient transformation

(e.g. role in the nitrogen cycle), carbon storage and sequestration, and supporting biodiversity. The sensitivity criteria for soil resources are therefore based on the susceptibility to damage, both temporarily and permanently, when handled. It is recognised within the IEMA guidance (IEMA, 2022), that some soils are more sensitive to damage when handled than others.

9.6.2.4 The methodology considers soils of high clay content in wetter climate regions to be most sensitive to damage. For example, the incorrect handling or reinstatement of a heavy (clay-rich) soil whilst in a plastic state may result in a reinstated soil profile with reduced natural drainage compared to the natural soil profile and a subsequent increased risk of soil loss (erosion) due to surface water run-off. Soils with high sand fraction are considered to be of low sensitivity, as the permeable nature of light sandy soils means that the natural structural recovery and drainage potential of these soils is more easily maintained. The Field Capacity Days (FCDs) are also taken into consideration. Field Capacity refers to the water retention within a soil profile after excess water has drained; FCD refers to the number of days in a year during which the soil is expected to be full or over-full of water.

9.6.2.5 The sensitivity criteria for Land Use, Soils and Agriculture are set out in Table 9-3.

**Table 9-3: Definitions of Sensitivity for Land Use, Soils and Agriculture**

| Sensitivity | Definition | |
|---|---|---|
| Very High | ALC Grades 1 and 2 | Not applicable |
| High | ALC Subgrade 3a | Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams) and organo-mineral and peaty soils where FCDs are 150 or greater.<br>Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams), where the FCDs are 225 or greater.<br>All soils in wetness classes V or VI. |
| Medium | ALC Subgrade 3b | Clays, silty clays, sandy clays, heavy silty clay loams, heavy clay loams, silty loams and organo-mineral and peaty soils, where the FCDs are fewer than 150.<br>Medium textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where FCDs are fewer than 225.<br>Sandy loamy sands, sandy loams and sandy silt loams where the FCDs are 225 or greater or are in wetness classes III and IV. |

| Sensitivity | Definition | |
|---|---|---|
| Low | ALC Grades 4 and 5 | Soils with high sand fraction (sands, loamy sands, sandy loams and sandy silt loams) where the FCDs are fewer than 225 and are in wetness classes I and II. |
| Negligible | As for low sensitivity but with only indirect, tenuous and unproven links between sources of impact and soil functions. | Not applicable |

9.6.2.6 Criteria are taken from the IEMA guidance (IEMA, 2022)

### 9.6.3 Magnitude of Impact

9.6.3.1 The magnitude of impact criteria, which will be used to inform the assessment of likely significant effects to agricultural land and to soil resources, are presented in Table 9-4. These consider the magnitude of change from current baseline conditions which could result as a consequence of the EOS; and are based *on "permanent irreversible loss of one or more soil functions or soil volumes (including the permanent sealing or land quality downgrading"* (IEMA, 2022).

**Table 9-4: Definitions of Magnitude for Land Use, Soils and Agriculture**

| Magnitude | Definition |
|---|---|
| Large | Permanent irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading) over more than 20 ha, or loss of soil-related features,<br>or<br>Potential for permanent improvement of one or more soil functions or soil volumes due to remediation or restoration over more than 20 ha or gain in soil-related features |
| Medium | Permanent irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading) over an area of between 5 and 20 ha, or loss of soil-related features,<br>or<br>Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of between 5 and 20 ha. |
| Small | Permanent irreversible loss over less than 5 ha, or a temporary reversible loss of one or more soil functions or volumes or soil-related features<br>or<br>Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of less than 5 ha 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. |
| Negligible | No discernible loss or reduction or improvement of soil functions or soil volumes that restrict current or proposed land use. |

9.6.3.2 Criteria are taken from the IEMA guidance (IEMA, 2022)

### 9.6.4 Significance of Effect

9.6.4.1 The sensitivity and magnitude criteria are then combined to determine the significance of the effect, as set out in Volume 01, Chapter 06: EIA Approach and Methodology and in Table 9-5 below.

**Table 9-5: Significance of Effect Matrix for Land Use, Soils and Agriculture**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Negligible |
| Very High | Major | Major | Moderate | Minor |
| High | Major | Moderate | Moderate | Minor |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

9.6.4.2 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

9.6.4.3 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the EOS design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the EOS.

## 9.7 Potential Effects and Mitigation

9.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

9.7.1.2 The EOS has the potential to impact on Land Use, Soils and Agriculture, both temporarily and permanently, through:

- Land use change from the loss of agricultural land; and
- Loss of soil functions or volumes and soil-related features.

#### Agricultural Land

9.7.1.3 The majority of land take for the EOS will be temporary (for example within the indicative Onshore HVAC and HVDC Cable Route Corridors and proposed UK Landfall Zone (see Volume 01, Chapter 02: The UK Project Description), with land

excluded from agricultural use for the duration of the construction phase of that activity only and returned to original land use following construction.

9.7.1.4 There is also the potential for additional temporary exclusion of land from agricultural use during the operational phase, primarily associated with maintenance of the proposed Onshore HVDC and HVAC Cables. However, maintenance works would be temporary, infrequent, and limited to discrete areas in which maintenance is required. The scale and extent of these works would be far less than required for initial construction. These limited activities are not anticipated to have any likely significant effects upon agricultural land and consequently, assessment of the operational phase is scoped out.

9.7.1.5 The proposed Converter Station will result in the permanent loss of agricultural land due to built development as well as change of land use through the introduction of landscaping and screen planting (Volume 01, Chapter 02: The UK Project Description) which will be assessed as part of the construction phase.

9.7.1.6 The decommissioning strategy is yet to be established, however details of likely operations are provided in Volume 01, Chapter 02: The UK Project Description**.** Therefore, the potential for likely significant effects to agricultural land cannot be ruled out at this stage and thus this will be taken forward for further assessment. A specific assessment of the decommissioning phase will not be undertaken and the assessment of construction effects will be used as a worst-case proxy, noting that the effects of decommissioning are usually similar to, or of a lesser magnitude than, construction effects.

9.7.1.7 Agricultural land subject to temporary disturbance will be reinstated such that it is capable of regaining its original ALC grade (noting that the ALC guidance (Welsh Government and Defra, 2025) states that ALC survey of reinstated land is not normally undertaken for five years post-restoration to allow the physical conditions of the reinstated land to stabilise). Reinstatement of the original ALC grade is in line with the requirements of paragraph 2.9.25 of NPS EN-5 (DESNZ, 2026c) which requires this in order to ensure no loss or degradation of agricultural land.

9.7.1.8 The proposed Onshore HVAC and HVDC Cables will be underground with the agricultural land above reinstated. The National Policy Statement for Electricity Networks Infrastructure (DESNZ, 2026c) acknowledges at paragraph 2.9.58 that *“there is little evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs has any agriculturally significant consequences”.* As overhead lines do not have significant agricultural consequences, it follows that this is also the case for underground cables. Therefore, EMF will not be considered as a potential effect and will be scoped out of the assessment.

#### Soil Resources

9.7.1.9 The disturbance or loss of soil resources resulting in the loss of soil functions or volumes and soil-related features may occur *in situ*, for example through trafficking by vehicles, or through soil removal, handling, storage and subsequent

reinstatement. Activities that will cause disturbance to and potentially impact upon soil resources include, but are not limited to, the following:

- Stripping and stockpiling of topsoil and subsoil, storage and reinstatement;
- Ground excavation;
- Trenchless drilling (for example Horizontal Directional Drilling (HDD));
- Stockpiling materials;
- Levelling ground;
- Cable trenching;
- Haul road construction; and
- Vehicle movements on site.

9.7.1.10 This disturbance may result in the impairment of soil function, quality and resilience. This effect comprises changes such as, but not limited to:

- Compaction and smearing (damage to soil structure);
- Conditions within the soil profile conducive to excessive drying or wetness;
- Mixing of distinct soil horizons (e.g. topsoil with subsoil) reducing their potential re-use;
- Damage or removal of vegetation layer;
- Changes in the soil profile stone content;
- Loss of nutrients (e.g. nitrogen), biota (e.g. bacteria, fungi, earthworms) and reduction in soil fertility; and
- Loss of ecosystem services, such as the ability of the soil to support food production and habitat creation.

9.7.1.11 The majority of disturbance to soil resources will occur within the construction phase. The decommissioning strategy is yet to be established, however details of likely operations are provided in Volume 01, Chapter 02: The UK Project Description. Therefore, the potential for likely significant effects cannot be ruled out at this stage and thus this will be taken forward for further assessment. A specific assessment of the decommissioning phase will not be undertaken and the assessment of construction effects will be used as a worst-case proxy, noting that the effects of decommissioning are usually similar to, or of a lesser magnitude than, construction effects.

9.7.1.12 There is also the potential for some further small-scale disturbance during the operational phase, primarily associated maintenance of the proposed Onshore HVDC and HVAC Cables. The scale and extent of these works would be far less than required for initial construction, being confined to the specific areas where maintenance is required. These limited activities are not anticipated to have any likely significant effects upon soils resources and consequently, assessment of the operational phase is scoped out.

9.7.1.13 The inappropriate removal, handling and storage of soil resources may also render them unsuitable for re-use in reinstatement which would constitute a loss of soil resource (e.g., the mixing of topsoil and subsoil; the mixing of soils of differing textures, or the mixing of soils with non-soil substrate or other unsuitable materials - as this mixing cannot be reversed nor the constituent materials returned to their original state). Incorrect handling leading to mixing and loss of suitability is considered the greatest risk to soil retention.

9.7.1.14 Loss of or damage to the soil resource may result in the impairment of the remaining soils' function, quality and resilience. This also comprises such changes as reduction of topsoil depth.

9.7.1.15 For areas of temporary development, all soil resources will be retained on-site and not exported for re-use elsewhere. It is not yet known whether permanent development at the proposed Converter Station will result in surplus soil, however soils from these areas will either be retained for re-use on site or, if surpluses are identified, exported for re-use elsewhere. As a worst-case scenario, soils retained on-site and exported off-site would be assumed to be subject to permanent losses of at least one soil function over an area larger than 20 ha. Soils are therefore scoped in to further assessment.

### 9.7.2 Embedded Mitigation and Good Practice Measures

9.7.2.1 The EOS will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as "*mitigation measures that have been incorporated into a project's description and form an inherent part of the project's design*" (ISEP, 2024).

9.7.2.2 The short-term temporary loss of land to agricultural use (including BMV land) during construction and decommissioning of the EOS and any maintenance works during operation cannot be avoided, however through ongoing consultation with landowners, measures will be taken where practicable to reduce impacts to the surrounding land and farming operations, such as, but not limited to:

- Informed and sensitive positioning of cable routing and access tracks to the edge of fields, in-field boundaries, or through less productive areas of individual fields, where practicable, to maximise the area of productive land that remains in agricultural use during the construction period (micro-siting);
- Avoidance of higher quality agricultural land (where practicable); and
- Mitigation of indirect effects such as field severance and separation of livestock from water supplies through informed design.

9.7.2.3 The permanent loss of land from agricultural use due to the EOS will be limited to the proposed Converter Station Site and the manhole covers above the Link Boxes and at the Transition Joint Bay (as described in Volume 01, Chapter 02: The UK Project Description). This loss of agricultural land to built development and land use

change such as landscape planting cannot be mitigated, as new agricultural land cannot be created elsewhere.

9.7.2.4 Where practicable, and considering technical and other environmental considerations, embedded mitigation measures to avoid or reduce soil damage and loss will be incorporated into the design of the EOS such that they inform its alignment (proposed Onshore HVAC and HVDC Cable routes), layout of the proposed Converter Station and how the EOS will be constructed. Through iterative assessment, potential impacts will be predicted and opportunities to mitigate them identified with the aim of preventing or reducing impacts as far as practicable. This approach provides the opportunity to prevent or reduce potential adverse impacts from the outset.

9.7.2.5 Industry standard guidance and current best working practice (for example, measures set out in Defra's Code of Practice (Defra, 2009) and IoQ's Good Practice Guide (Institute of Quarrying, 2021) will be followed in relation to soil workings throughout all phases of the EOS and, as such, is considered to provide embedded mitigation. This mitigation will be set out in an outline Soil Management Plan (SMP) which will identify appropriate management practices and measures so that soils are correctly handled during excavation, storage, and reinstatement, where required including measures regarding *in-situ* soil resources. The outline SMP will form the basis of a detailed SMP to be produced pre-construction. The outline SMP may be a standalone document or form an appendix sub-plan to the outline Construction Environmental Management Plan (CEMP).

9.7.2.6 Although not covered in the Land Use, Soils and Agriculture assessment, it is noted that the Applicant will mitigate potential impacts to agricultural operations as far as practicable through ongoing consultation with landowner(s) and farmer(s).

9.7.2.7 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed EOS development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

9.7.2.8 As the EOS advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective, and compliant with regulatory standards and stakeholder input.

### 9.7.3 Scoping Assessment

9.7.3.1 The likelihood of significant effects occurring to Land Use, Soils and Agriculture are limited to the construction and decommissioning phases of the EOS. It is proposed to scope out all operational and transboundary effects. The scoping rationale is summarised in Table 9-6.

Table 9-6: Elements Scoped In and Out for Land Use, Soils and Agriculture

| EOS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction | Removal of land from agricultural use for construction (permanent and temporary) | Permanent or temporary loss of agricultural land, including potential loss of Best and Most Versatile (BMV) land, due to construction activities and associated land take. | Agricultural Land, including BMV quality | Scoped In | The EOS has the potential to adversely impact agricultural land. |
| Construction | Disruption of soil resources during construction (temporary) | Temporary disturbance to soil resources from stripping, handling, storage and reinstatement, potentially affecting soil functions, quality, and resilience. | Soil resources | Scoped In | The EOS has the potential to impact soil resources in terms of disturbance and damage |
| Operational | Not applicable | Operational activities have limited potential to affect agricultural land, with only infrequent localised maintenance works required. | Agricultural Land, including BMV quality | Scoped Out | Activities taking place during the operational phase would have limited potential to lead to adverse impacts on agricultural land. |
| Operational | Not applicable | Operational activities have limited potential to disturb soil resources, with maintenance works confined to small, discrete areas. | Soil resources | Scoped Out | Activities taking place during the operational phase would have limited potential to lead to adverse impacts to soil resources. |
| Decommissioning | Disturbance of agricultural land | Disturbance and temporary loss of agricultural land during decommissioning activities, similar in type and scale to construction impacts. | Agricultural Land, including BMV quality | Scoped In | The precise details of the decommissioning, although outlined in Volume 01, Chapter 02: UK Project Description, are not known. However, decommissioning effects are expected to be similar to, or of a lesser magnitude than, construction effects. Therefore, decommissioning |

| EOS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | effects will not be subject to specific assessment, but as a worst case, construction effects will be used as proxy. |
| Decommissioning | Disturbance of soil resources | Temporary disturbance to soil resources through excavation, handling and reinstatement during decommissioning, comparable to construction impacts. | Soil resources | Scoped In | As row above. |
| Construction, Operational and Decommissioning | EMF generation | No agriculturally significant effects associated with EMF exposure from underground cables. | Agricultural land and soil resources | Scoped Out | Exposure of crops or farm animals to the levels of EMF generated during the operational phase is not considered to have any agriculturally significant impacts. |
| Transboundary effects | Not applicable | No mechanism for transboundary impacts as effects on agricultural land and soils are confined to areas of direct disturbance within the UK Scheme boundary. | Agricultural land and soil resources | Scoped Out | Impacts to soil resources are limited to the area of disturbance and therefore do not propagate beyond the boundary of a scheme. Impacts regarding the loss of agricultural land are only considered to be relevant in the context of the local area or region. Transboundary effects will therefore not arise. |

### 9.7.4 Cumulative and Transboundary Effects

9.7.4.1 An assessment of the cumulative effects on agricultural land will be presented within the ES, following the approach set out in Volume 05, Chapter 32: Approach to Cumulative Effects. Effects on soil resources do not occur cumulatively.

9.7.4.2 As set out in Volume 01, Chapter 06: EIA Approach and Methodology, transboundary effects are defined as effects that would affect the environment in another state within the European Economic Area (EEA), i.e. effects which would be experienced beyond the borders of the UK. Potential impacts to soil resources only occur where there is direct disturbance to those resources and as such will not be experienced beyond the EOS[3]. The loss of land to agricultural use as a consequence of the EOS is only considered in a local or regional context in relation to Inter-project Effects and therefore impacts to agricultural land in the UK are not relevant within other European States. Transboundary effects are therefore scoped out of further assessment in relation to Land Use, Soils and Agriculture.

## 9.8 Assumptions, Limitations and Uncertainties

9.8.1.1 This Chapter presents a summary of the available Provisional ALC data for the EOS Scoping Boundary. As set out in paragraph 9.5.1.8, these data do not differentiate between ALC Subgrades 3a (BMV) and 3b (non-BMV) and consequently cannot be used to determine the quantity or geographical distribution of BMV land. Moreover, the scale of the mapping is not accurate at the field level (it does not pick up variations in ALC grade for areas less than approximately 80 ha).

9.8.1.2 The Provisional ALC mapping was produced in the 1970s and therefore there is the potential for some areas which are shown as agricultural land on the mapping (assigned an ALC grade) to have been subject to development (change of use to non-agricultural or urban) in the time since the mapping was produced. Should the Provisional ALC mapping be used to inform the ES, it is proposed for the mapping to be reviewed against current aerial imaging and larger or obvious areas of change to be excluded from any calculations of agricultural land areas presented in the ES (reclassified in the assessment as non-agricultural). Due to the scale of the mapping, there would be some limited uncertainty as it would not be possible to capture all changes accurately.

[3] The Order limits will define the boundary of the EOS within which the authorised development can be carried out, and hence represent the maximum extent of land to be acquired or used for the construction, operational and decommissioning phases of the EOS.

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TARCHON

TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 02, Chapter 10: Onshore Biodiversity

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00011 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM Group |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

Volume 06, Annex 10-1: Essex Field Club Data search Report

## Acronyms

| Acronym | Description |
|---|---|
| BNG | Biodiversity Net Gain |
| cSAC | Candidate Special Areas of Conservation |
| CIEEM | Chartered Institute of Ecology and Environmental Management |
| CEMP | Construction Environmental Management Plan |
| CoCP | Code of Construction Practice |
| DCO | Development Consent Order |
| Defra | Department for Environment, Food and Rural Affairs |
| DEMP | Decommissioning Environmental Management Plan |
| DLL | District Level Licence |
| EcIA | Ecological Impact Assessment |
| eDNA | Environmental DNA |
| ECOW | Ecological Clerk of Works |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| GI | Green Infrastructure |
| GIS | Geographic Information System |
| HRA | Habitat Regulations Assessment |
| HSI | Habitat Suitability Index |
| HoPI | Habitats of Principal Importance |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| IEF | Important Ecological Features |
| IIA | Important Invertebrate Area |
| JNCC | Joint Nature Conservation Council’s |
| km | kilometres |
| LEMP | Landscape and Ecology Management Plan |
| LERC | Local Environmental Records Centre |
| LoWS | Local Wildlife Sites |
| m | metres |
| MoRPh | Modular River Physical |
| MAGIC | Multi-agency Geographical Information for the Countryside |
| MDS | Maximum Design Scenario |
| NBN | National Biodiversity Network |
| NERC | Natural Environment Research Council |
| NNR | National Nature Reserves |
| NPPF | National Planning Policy Framework |
| NPS | National Policy Statements |
| NVC | National Vegetation Classification |

| Acronym | Description |
|---|---|
| NSIP | Nationally Significant Infrastructure Project |
| OEMP | Operational Environmental Management Plan |
| OS | Ordnance Survey |
| PRF | Potential Roost Features |
| PYSM | Predictive System for Multimetrics |
| PEIR | Preliminary Environmental Information Report |
| PROW | Public Rights of Way |
| SINCs | Sites of Importance for Nature Conservation |
| SSSI | Sites of Special Scientific Interest |
| SAC | Special Areas of Conservation |
| SPA | Special Protection Areas |
| SBM | Statutory Biodiversity Metric |
| TWG | Technical Working Group(s) |
| UK | United Kingdom |
| UKBAP | United Kingdom Biodiversity Action Plan |
| UK Hab | United Kingdom Habitat |
| UKMS | United Kingdom Marine Scheme |
| UKTAG | United Kingdom Technical Advisory Group – Water Framework Directive |

# 10. Onshore Biodiversity

## 10.1 Introduction

10.1.1.1 This Chapter presents the Onshore Biodiversity assessment which will consider the potential significant effects on Onshore Biodiversity receptors during the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Areas used and receptors considered in this Chapter, only the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. The UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description) is therefore not considered further for Onshore Biodiversity.

10.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Onshore Biodiversity baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Onshore Biodiversity receptors from the proposed components of the UKMS and EOS; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

10.1.1.3 The Onshore Biodiversity Chapter does not consider potential effects upon ornithology as scoping for all potential ornithology impacts (and potential subsequent effects) is covered separately in Volume 04, Chapter 23: Ornithology.

10.1.1.4 This Chapter should be read in conjunction with:

- Volume 01, Chapter 02: UK Project Description;
- Volume 01, Chapter 05: Legislative and Planning Policy Context;
- Volume 03, Chapter 14: Benthic and Intertidal Ecology;
- Volume 03, Chapter 15: Fish and Shellfish Ecology;
- Volume 03, Chapter 16: Marine Mammal Ecology; and
- Volume 04, Chapter 23: Ornithology.

10.1.1.5 This Chapter is supported by the following figures:

- Figure 2-2: English Onshore Scheme Scoping Boundary; in Volume 01, Chapter 02: UK Project Description;
- Figure 2-5: Scoping Boundaries at the UK Landfall, in Volume 01, Chapter 02: UK Project Description; and

- Figure 10-1: English Onshore Scheme - Designated Sites for Nature Conservation.

10.1.1.6 This Chapter is supported by the following annex:

- Volume 06, Annex 10-1: Essex Field Club Data Search Report.

10.1.1.7 The Onshore Biodiversity assessment will identify and evaluate relevant Important Ecological Features (IEFs) (i.e. designated sites, habitats, species or ecosystems of ecological importance which warrant assessment in the ecological impact assessment).

10.1.1.8 Avoidance, reduction, mitigation and, if necessary, compensation measures that may be required to enable the EOS to proceed will be identified, in compliance with relevant nature conservation legislation and planning policy. The works for the EOS will be planned accordingly, to demonstrate that due consideration has been given to IEFs, including recommendations for biodiversity enhancements, where appropriate.

10.1.1.9 It is noted that whilst the Chapter considers Onshore Biodiversity receptors only, impacts may occur as a result of the construction, operational and decommissioning phases associated with the EOS and UKMS as the Study Areas extend up to 10 kilometres (km) from the EOS Scoping Boundary and therefore contain parts of the UKMS Scoping Boundary. The sources of impact are therefore UK Scheme-wide, but receptors are onshore only.

## 10.2 Study Area

10.2.1.1 The assessment will consider the likelihood of significant effects occurring during the construction, operational and decommissioning phases on IEF's that could be directly or indirectly affected by those activities.

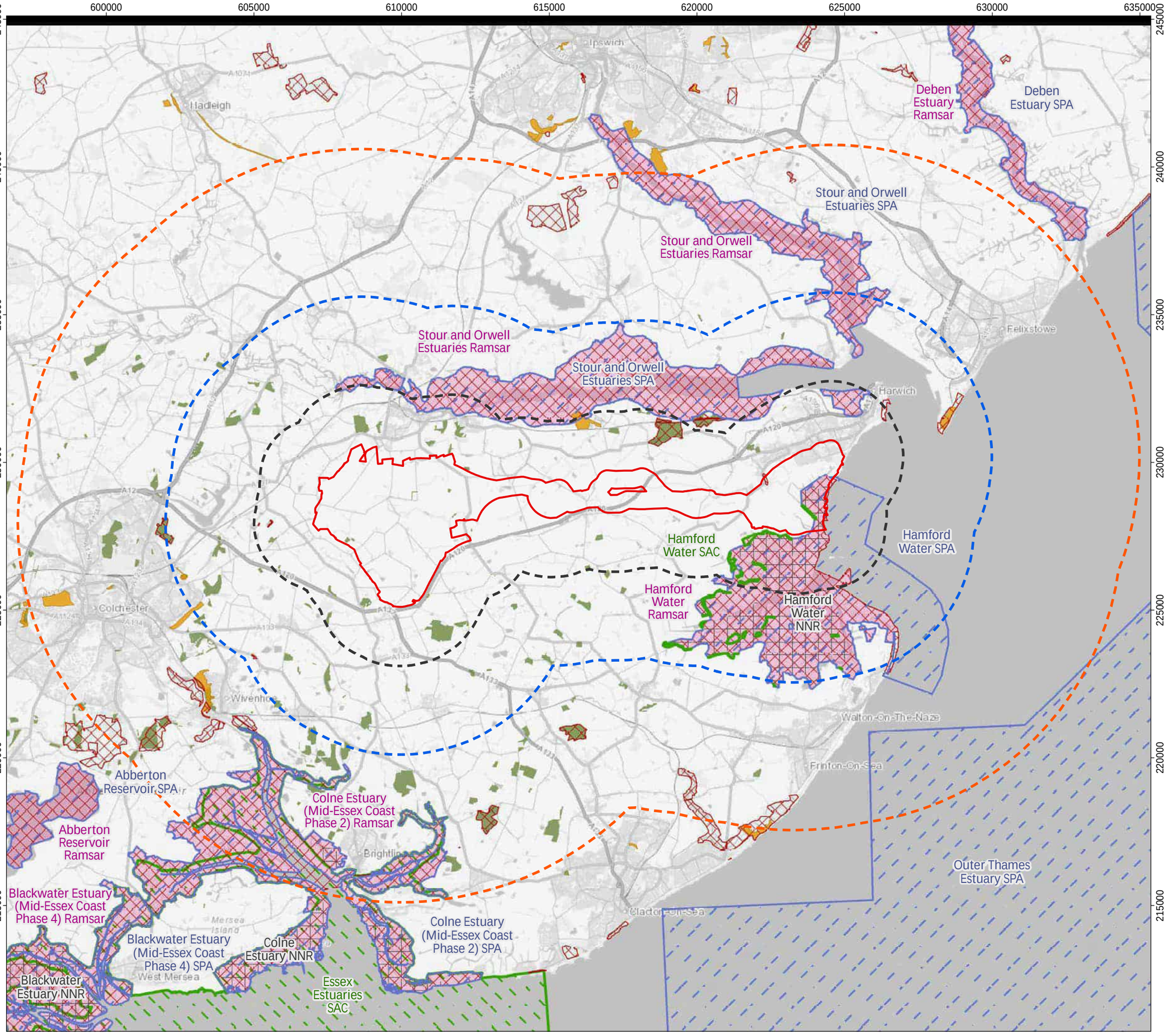
10.2.1.2 Based on the nature of the EOS, the potential for impacts (and resultant effects) upon the following Onshore Biodiversity receptors has been considered as part of the scoping assessment:

- National Site Network sites (i.e., Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Candidate Special Areas of Conservation (cSAC) and those treated of equal status under UK Government policy (i.e. Ramsar sites, proposed SACs, potential SPA's)[1] within 10km of the EOS Scoping Boundary (Figure 10-1);
- Other statutory designated sites for nature conservation (i.e., Sites of Special Scientific Interest (SSSI); National Nature Reserves (NNR); Local Nature Reserves (LNR)) within 5 km of the EOS Scoping Boundary (Figure 10-1); and
- Non-statutory designated sites for nature conservation (e.g. Local Wildlife Sites (LoWS), previously known as Sites of Importance for Nature Conservation (SINCs) or County Wildlife Sites), protected and/or notable habitats and species within 2 km of the EOS Scoping Boundary (5 km for bats and sites, habitats and species of importance for aquatic ecology).

[1] It is noted that prior to Brexit these site designations were previously collectively termed 'Internationally designated' or 'European sites' and are still commonly referred to as such

10.2.1.3 These Study Areas (shown in Figure 10-1) are considered sufficient to reflect the potential effects of the EOS and are based on published guidance and professional judgement[2]. The assessment will consider the potential impacts on Onshore Biodiversity features arising from the UK Scheme, considering works undertaken for both the EOS and the UKMS.

[2] Chartered Institute of Ecology and Environmental Management (2024) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater Coastal and Marine. Version 1.3 updated September 2024.




# TARCHON

## Tarchon Interconnector Project
Scoping Report

## English Onshore Scheme - Designated Sites for Nature Conservation

**Legend**

- English Onshore Scheme Scoping Boundary
- 2km Buffer from Scoping Boundary
- 5km Buffer from Scoping Boundary
- 10km Buffer from Scoping Boundary
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Ramsar Site
- Site of Special Scientific Interest (SSSI)
- National Nature Reserve (NNR)
- Local Nature Reserve (LNR)
- Ancient Woodland




**Notes**

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Coordinate System: British National Grid

0 2.5 5 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:125,000 @A3 | 26/02/2026 | BPHB | EH | MB |


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APEM

Sheet 1 of 1

Figure 10-1

Figure Reference: Tarchon_Scoping_BIO_Fig10-1_DesignatedSites_v1

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## 10.3 Relevant Legislation, Planning Policy and Guidance

### 10.3.1 Introduction

10.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context provides an overview of all relevant legislation and planning policy context. This section refers to legislation, planning policy and guidance relating to the assessment of potential effects on Onshore Biodiversity that may arise from the construction, operational and decommissioning phases of the EOS.

10.3.1.2 The below legislation, policies and guidance were reviewed as part of the scoping exercise, the content and requirements of which have been used to shape and develop the proposed scope of the Onshore Biodiversity assessment, including the identification of sensitive receptors and likely potential impacts and effects.

### 10.3.2 Legislation

10.3.2.1 The applicable legislation includes:

- The Conservation of Habitats and Species Regulations 2017 (as amended) (HM Government, 2017a);
- Environment Act 2021 (HM Government, 2021);
- Wildlife and Countryside Act 1981 (as amended) (HM Government, 1981);
- Natural Environment and Communities Act 2006 (HM Government, 2006a);
- Countryside and Rights of Way Act 2000 (HM Government, 2000);
- Animal Welfare Act 2006 (HM Government, 2006b);
- Protection of Badgers Act 1992 (HM Government, 1992);
- The Wild Mammals (Protection) Act 1996 (HM Government, 1996);
- The Hedgerows Regulations 1997 (HM Government, 1997);
- The Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended) (HM Government, 2019);
- Salmon and Freshwater Fisheries Act 1975 (HM Government, 1975);
- The Eels (England and Wales) Regulations 2009 (HM Government, 2009); and
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (HM Government, 2017b).

### 10.3.3 National Planning Policy

10.3.3.1 The energy National Policy Statements (NPS) set out the government's policy for the delivery of energy infrastructure and provide the legal framework for planning decisions. The current energy NPSs were published in 2024 and details of policy relevant to Onshore Biodiversity are detailed below.

10.3.3.2 Draft updates to the energy NPSs were made in April 2025, however as they do not form part of adopted planning policy they are not discussed further within this

Chapter. Volume 01, Chapter 05: Legislative and Planning Policy Context, provides an overview of these draft documents for context.

10.3.3.3 Section 4.6 of the Overarching National Policy Statement for Energy (EN-1) (NPS EN-1) (Department for Energy Security and Net Zero, 2026a) deals with environmental and biodiversity net gain. Paragraph 4.6.2 sets out that "*Projects in England should consider and seek to incorporate improvements in natural capital, ecosystem services and the benefits they deliver when planning how to deliver biodiversity net gain*".

10.3.3.4 Paragraph 4.6.6 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) sets out that energy Nationally Significant Infrastructure Project (NSIP) proposals "*should seek opportunities to contribute to and enhance the natural environment by providing net gains for biodiversity*".

10.3.3.5 Paragraph 4.6.7 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) further sets out that in England, "*applicants for onshore elements of any development are encouraged to use the latest version of the biodiversity metric to calculate biodiversity baseline*".

10.3.3.6 Paragraph 4.6.10 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) continues by stating "*Biodiversity net gain should be applied after compliance with the mitigation hierarchy and does not change or replace existing environmental obligations.*".

10.3.3.7 Paragraph 4.6.11 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) advises that "*Biodiversity net gain can be delivered onsite or wholly or partially off-site. We encourage details of any off-site delivery of biodiversity net gain to be set out within the application for development consent*".

10.3.3.8 Paragraph 4.6.15 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) sets out that "*Applications for development consent should be accompanied by a statement demonstrating how opportunities for delivering wider environmental net gains have been considered and where appropriate, incorporated into proposals as part of good design (including any relevant operational aspects) of the project*".

10.3.3.9 Section 5.4 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) deals with biodiversity and geological conservation. Paragraph 5.4.4 of NPS EN-1 states that "*The highest level of biodiversity protection is afforded to sites identified through international conventions. The Habitats Regulations set out sites for which an HRA will assess the implications of a plan or project, including Special Areas of Conservation and Special Protection Areas*".

10.3.3.10 Paragraph 5.4.8 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) refers to SSSIs and states "*Development on land within or outside a SSSI and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits (including need) of the development in the location*

*proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs*".

10.3.3.11 Paragraph 5.4.17 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) advises that "*Many individual species receive statutory protection under a range of legislative provisions. Other species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales, as well as for their continued benefit for climate mitigation and adaptation and thereby requiring conservation action*".

10.3.3.12 Paragraph 5.4.18 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) requests that "*Where the development is subject to EIA, the applicant should ensure that the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance (including those outside England and Wales), on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity, including irreplaceable habitats*".

10.3.3.13 Paragraph 5.4.20 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) sets out "*the applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests". Paragraph 5.4.21 states "Applicants should consider wider ecosystem services and benefits of natural capital when designing enhancement measures*".

10.3.3.14 Paragraph 5.4.22 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) advises that *"…the design process should embed opportunities for nature inclusive design. Energy infrastructure projects have the potential to deliver significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains (see Section 4.6 on Environmental and Biodiversity Net Gain). The scope of potential gains will be dependent on the type, scale and location of each project*".

10.3.3.15 Paragraph 5.4.23 of NPS EN- 1 (Department for Energy Security and Net Zero, 2026a) continues by stating "*The design of energy NSIP proposals will need to consider the movement of mobile/migratory species such as birds, fish and marine and terrestrial mammals and their potential to interact with infrastructure. As energy infrastructure could occur anywhere within England and Wales, both inland and onshore and offshore, the potential to affect mobile and migratory species across the UK and more widely across Europe (transboundary effects) requires consideration, depending on the location of development"*.

10.3.3.16 Paragraph 5.4.34 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) states that "*Applicants should consider any reasonable opportunities to maximise the restoration, creation and enhancement of wider biodiversity and the protection and restoration of the ability of habitats to store or sequester carbon*".

10.3.3.17 Paragraph 5.4.36 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) advises that *"Applicants should include appropriate avoidance, mitigation, compensation and enhancement measures as an integral part of the proposed development".*

10.3.3.18 Paragraph 5.4.37 of NPS EN-1 (Department for Energy Security and Net Zero, 2026a) advises that "*Applicants should produce and implement a Biodiversity Management Strategy as part of their development proposals. This could include provision for biodiversity awareness training to employees and contractors so as to avoid unnecessary adverse impacts on biodiversity during the construction and operation stages*".

10.3.3.19 Paragraph 2.5.2 of National Policy Statement for Renewable Energy Infrastructure (EN-3) (NPS EN-3) (Department for Energy Security and Net Zero, 2026b) states "*Proposals for renewable energy infrastructure should demonstrate good design, particularly in respect of landscape and visual amenity, opportunities for co-existence/co-location with other marine and terrestrial uses and in the design of the project to mitigate impacts such as noise and effects on ecology and heritage*".

10.3.3.20 Paragraph 2.5.1 of National Policy Statement for Electricity Networks Infrastructure (EN-5) (NPS EN-5) (Department for Energy Security and Net Zero, 2026c) advises that "*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 4.6) with recognition that the linear nature of electricity networks infrastructure can allow for excellent opportunities to:*

- *reconnect important habitats via green corridors, biodiversity stepping zones and reestablishment of appropriate hedgerows; and/or*
- *connect people to the environment, for instance via footpaths and cycleways constructed in tandem with environmental enhancements"*.

### 10.3.4 National Planning Policy Framework

10.3.4.1 The National Planning Policy Framework (NPPF) (2024) (Ministry of Housing, Communities and Local Government, 2024a) sets out good practice in relation to planning for biodiversity conservation. Chapter 15 of the NPPF deals with 'Conserving and enhancing the natural environment'. Paragraph 187 of the NPPF acknowledges that planning decisions "*should contribute to and enhance the natural and local environment*". It goes on to set out this can be achieved by:

- "*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);*
- *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs;*

- *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*".

10.3.4.2 Paragraph 195 advises that "*The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site*[3] *(either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site*".

### 10.3.5 Guidance

10.3.5.1 The following guidance and standards are considered relevant to the assessment of the impacts on Onshore Biodiversity and will be considered as relevant in the assessment:

- Natural Environment Planning Practice Guidance (Ministry of Housing, Communities and Local Government, 2025);
- Biodiversity Net Gain (BNG) Planning Practice Guidance (Ministry of Housing, Communities and Local Government, 2024b);
- A Green Future: Our 25-year Plan to Improve the Environment (HM Government, 2018);
- UK Biodiversity Framework 2024 (JNCC, 2024a);
- Natural England and Department for Environment, Food and Rural Affairs (Defra) Standing Advice (protected species) (Natural England, 2025);
- Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Chartered Institute of Ecology and Environmental Management (CIEEM), 2024);
- Biodiversity Net Gain: Good Practice Principles for Development (Chartered Institute of Ecology and Environmental Management (CIEEM), 2024);
- Statutory Biodiversity Metric (SBM) Tools and Guides (Defra, 2025a);
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2023);
- Hazel Dormouse Conservation Handbook (Matthews, 2025);
- Essex Local Nature Recovery Strategy (Essex Local Nature Partnership, 2025);
- Essex UKBAP Species and Habitats (Essex Field Club, 2026);
- Essex Green Infrastructure Strategy (Essex County Council, 2020a); and

[3] The NPPF defines a habitats site as any site which would be included within the definition at regulation 8 of The Conservation of Habitats and Species Regulations 2017 for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites.

- Essex Green Infrastructure Standards (Essex County Council, 2020b).

### 10.3.6 Local Planning Policy

10.3.6.1 The local policies relevant to Onshore Biodiversity are summarised as follows.

10.3.6.2 Within the Tendring District Local Plan 2013-2033 and Beyond (Section 1) North Essex Authorities' Shared Strategic Section 1 Plan (2021) (Tendring District Council, 2021), Policy SP7 – Place Shaping Principles are relevant to this Chapter. Namely that all new development should reflect place shaping principles set out in Policy SP7 which include:

- Incorporating biodiversity creation and enhancement measures; and
- Including measures to promote environmental sustainability including addressing energy and water efficiency and provision of appropriate water and wastewater and flood mitigation measures including the use of open space to provide flora- and fauna-rich sustainable drainage solutions.

10.3.6.3 Within the Tendring District Local Plan 2013-2033 and Beyond (Section 2) (2022) (Tendring District Council, 2022), the following policies are relevant to this Chapter:

- Policy SPL3 – Sustainable Design;
- Policy HP3 – Green Infrastructure; and
- Policy PPL4 – Biodiversity and Geodiversity.

10.3.6.4 Within the Ardleigh Neighbourhood Plan (2024) (Ardleigh Parish Council, 2024), the following policies are relevant to this Chapter:

- Policy EP – Natural, Built and Historic Environment
- Policy LGP – Local Green Spaces.

## 10.4 Consultation and Engagement

10.4.1.1 Responses to the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Tendring District Council and Suffolk County Council. Where comments relevant to Onshore Biodiversity have been provided, these are summarised and responded to in Table 10-1. The Project has engaged with Natural England and the Environment Agency and will continue to engage as the Project progresses.

Table 10-1: Non-statutory Consultation Responses: Onshore Biodiversity

| Consultee | Summary of Comment | How Matter Will Be Addressed |
|---|---|---|
| Essex County Council | Essex County Council note that potential location identified for landfall is wide and would dissect SSSIs and other designated areas. | The EOS Scoping Boundary represents a maximum works extent and will be refined as design of the UK Scheme progresses – see Volume 01, Chapter 03: Approach to Alternatives.<br><br>The relationship of the Indicative UK Landfall Zone (see Figure 2-5) (and the final choice of the UK Landfall location) to designated ecological sites is acknowledged and the assessment presented in the Onshore Biodiversity chapter of the ES will consider potential impacts to these sites.<br><br>As discussed in Volume 01, Chapter 02: UK Project Description, the UK Landfall will be achieved using a trenchless technique which will seek to avoid direct impacts to designated sites.<br><br>Note: Responses relating to effects on National Site Network Sites will be addressed separately in the HRA screening report. |
| | Essex County Council reiterate the need for minimum 10% BNG to be provided. | Noted and the EOS aims to deliver a minimum of 10% BNG. |
| | Essex County Council request that the UK Scheme meet the 20% BNG targets as set out by the UK Scheme promoters. | At this stage the EOS aims to deliver a minimum of 10% BNG. |
| | No reference to LoWS in documentation – proposal should seek to minimise the impact, mitigate the impact and provide lasting legacy for these sites. | LoWSs will be considered in the assessment and the mitigation hierarchy will be applied should it be required (see Table 10-3 and Section 10.7). |
| | Essex County Council ask for a Green Infrastructure Strategy to be produced based on | Essex Green Infrastructure Strategy (Essex County Council, 2020a) and Emerging Green Infrastructure standards (Essex |

| Consultee | Summary of Comment | How Matter Will Be Addressed |
|---|---|---|
| | the Essex Green Infrastructure Strategy (Essex County Council, 2020a) and Emerging Green Infrastructure Standards to provide more detailed assessment of ecological context of development. | County Council, 2020b) will be considered within the assessment presented in the ES.<br><br>The Applicant considers that a UK Scheme-specific Green Infrastructure Strategy will not be required given that the majority of the impacts will be temporary. Proposed habitat creation associated with land required for the proposed Converter Station will be detailed within an outline Landscape and Ecology Management Plan (LEMP) to be submitted as part of the Development Consent Order (DCO) application (see Volume 01, Chapter 02: UK Project Description and Volume 04, Chapter 21: Landscape and Visual Impact Assessment). |
| | Consideration should be given to use of the Essex Green Infrastructure Strategy 2020 (Essex County Council, 2020a) and emerging Essex Green Infrastructure Standards (Essex County Council, 2020b). Essex County Council is establishing Local Nature Partnership covering Greater Essex along with Local Nature Recovery Strategy (Essex Local Nature Partnership, 2025). Works of this group should be supported and acknowledged. | Noted. Due regard will be given to these strategies in the assessment. |
| | Essex County Council look forward to contributing to ongoing discussions relating to onshore HRA and highlight that at Appropriate Assessment stage, there will be a need to consider SSSI designation features to comply with Court judgement (CJEU Holohan C- 461/17). | Noted. Responses relating to effects on National Site Network Sites will be addressed separately in the HRA screening report. |
| Suffolk County Council | Suffolk County Council considers that Hedgerow surveys should also be included for both converter site and cable corridor. | No hedgerow surveys will be undertaken in Suffolk as the EOS does not include infrastructure in Suffolk. Consultation responses have been acknowledged but do not result in additional survey scope. The requirement for hedgerow |

| Consultee | Summary of Comment | How Matter Will Be Addressed |
|---|---|---|
| | | surveys will be considered and determined following the completion of the UK Habitats (UK Hab) Classification survey. |

10.4.1.2 Initial introductory meetings and follow up meetings setting out the current known details of the UK Scheme have been held with Natural England, the Environment Agency, Essex County Council and Tendring District Council. The Applicant is committed to further engagement with Natural England, the Environment Agency, biodiversity officers at Essex County Council and Tendring District Council and Essex Wildlife Trust (and other local ecology groups, if identified) throughout the EIA process. The Applicant will host Expert Topic Group (ETG) meetings as part of the Evidence Plan Process (EPP) to facilitate structured, collaborative engagement on key themes and topics around ecology and biodiversity.

## 10.5 Baseline Environment

### 10.5.1 Baseline Conditions

10.5.1.1 The following data sources have been used to inform the scoping exercise:

- The Multi-agency Geographical Information for the Countryside (MAGIC) website (Defra, 2025b)was used to provide the location of statutory designated sites; ancient woodland and location of Habitats of Principal Importance (HoPI)[4];
- Natural England's 'search for designated site details' (Natural England, 2026) for SSSI citation details;
- Joint Nature Conservation Council's (JNCC) lists of sites for details of SPAs (JNCC, 2024b), SACs (JNCC, n.d.) and Ramsar sites (JNCC, 2025);
- A data search from the Essex Field Club (see Annex 10-1) was obtained to provide details of non-statutory designated sites and the location of protected and/or notable species; and
- The Woodland Trust's Ancient Tree Inventory (Woodland Trust, 2026) for information on notable/veteran and ancient trees.

### 10.5.2 Designated Sites

10.5.2.1 Table 10-2 identifies the statutory designated sites located within the Study Areas defined in Section 10.2. Sites are ordered by distance from the EOS Scoping Boundary.

### 10.5.3 Statutory Designated Sites - National Site Network Sites

10.5.3.1 There are nine National Site Network sites, each of international importance, located within 10 km of the EOS Scoping Boundary (Figure 10-1). This includes sites with overlapping spatial extents.

10.5.3.2 The eastern extent of the EOS Scoping Boundary includes areas located within the Hamford Water SPA and Ramsar sites which are designated on the basis of the diverse breeding and wintering bird assemblages they support. In addition, two small strips of land in the east of the EOS Scoping Boundary are located within the Hamford Water SAC which is designated on the basis of Fisher's estuarine moth (*Gortyna borelii lunata*). The areas of habitat within the SAC provide areas of

[4] i.e. the list of priority habitats in England as listed under Schedule 41 of the NERC Act (2006, as amended).

habitat supporting Hog's fennel (*Peucedanum officinale*) which is the key food source for the Fisher's estuarine moth.

10.5.3.3 It is noted that the Essex Field Club Datasearch Report (Annex 10-1) identifies the following additional National Site Network and Ramsar sites within the returned results:

- Abberton Reservoir SPA and Ramsar Site (12.3 km to the south-west);
- Deben Estuary SPA and Ramsar (10.5 km to the north-east).

10.5.3.4 These sites are located outside of the Study Areas identified in Section 10.2 and therefore will not be considered further.

### 10.5.4 Other Statutory Designated Sites

10.5.4.1 There are six SSSIs within 5 km of the EOS Scoping Boundary. This includes Hamford Water SSSI which is located partially within the EOS Scoping Boundary and covers the same areas within the EOS Scoping Boundary as Hamford Water SPA and Ramsar. The majority of the SSSI area also falls within the Hamford Water NNR. Details of these sites are in Table 10-2 and their location is shown in Figure 10-1.

10.5.4.2 The Essex Field Club Datasearch Report (Annex 10-1) identifies a total of 24 SSSI's within the returned results. However, 18 sites are either designated solely on the basis of their geological interest or are outside of the 5 km Study Area.

10.5.4.3 There are two LNR within 5 km of the EOS Scoping Boundary. As shown on Figure 10-1 Wrabness LNR is located 1.7 km north of the EOS Scoping Boundary and Landguard Common LNR is located 3.5 km to the north-east.

**Table 10-2: Statutory Designated Sites for Nature Conservation Located within the Study Areas**

| Site Name | Status | Description | Distance From EOS Scoping Boundary |
|---|---|---|---|
| Hamford Water | SPA, Ramsar, NNR | Hamford Water is a large, shallow estuarine basin with an extensive network of tidal creeks, scattered islands, substantial intertidal sandflats, mudflats and saltmarshes. The area also comprises shell, sand and gravel shores, unimproved/improved grassland, scrub, woodland and reedbeds. These habitats are included in the reasons for designation for both the Ramsar and NNR.<br>Other qualifying features for the sites comprise a range of birds which will be further described in Volume 04, Chapter 23: Ornithology. | Partially within and partially adjacent to the EOS Scoping Boundary UK Landfall zone. |
| Hamford Water | SSSI | Hamford Water is a large, shallow estuarine basin with an extensive network of tidal creeks, scattered islands, substantial intertidal sandflats, mudflats and saltmarshes. The area also comprises shell, sand and gravel shores, unimproved/improved grassland, scrub, woodland and reedbeds.<br>The intertidal areas support abundant invertebrates such as ragworm (*Nereis diversicolor*). Mudflats and saltmarshes support communities of coastal plants including Narrow-leaved eelgrass (*Zostera angustifolia*) and Sea purslane (*Halimione portulacoides*), as well as the rare Hog's fennel (*Peucedanum officinale*).<br>These characteristics create a habitat suitable for internationally and nationally important breeding and migratory birds.<br>The Hamford Water SSSI designation covers the same areas as the SPA/Ramsar as well as some small additional land parcels that are distant from the EOS Scoping Boundary. | Partially within and partially adjacent to the EOS Scoping Boundary and UK Landfall zone. |
| Hamford Water | SAC | The SAC covers a smaller subset of the habitats that fall within the SPA/Ramsar described above.<br>The growth of Hog's fennel (*Peucedanum officinale*) offers a food source for the Fisher's estuarine moth (*Gortyna borelii lunata*): the qualifying feature for Hamford Water. The areas of grassland provide suitable egg laying habitat for the species. | Partially within and partially adjacent to the EOS Scoping Boundary and UK Landfall zone. |

| Site Name | Status | Description | Distance From EOS Scoping Boundary |
|---|---|---|---|
| Stour and Copperas Woods, Ramsay | SSSI | Broadleaved, mixed. Species include Chestnut (*Castanea sativa*) coppice with Pedunculate sessile oak (*Quercus robur*) and ash (*Fraxinus excelsior*). Other coppice species comprise of hornbeam (*Carpinus betulus*), hazel (*Corylus avellana*) and small-leaved lime (*Tilia cordata*). Copperas wood contains an area of cherry (*Prunus avium*) and aspen (*Populus termula*), which is met by an eroding cliff. Bramble (*Rubus fruticosus* agg.) and wood anemone (*Anemone nemorosa*) dominate ground flora.<br>In addition, small seasonal pools are colonised by skullcap (*Scutellaria galericulata*) and pendulous sedge (*Carex pendula*). | 1.10 km to the north of the EOS Scoping Boundary. |
| Stour Estuary | SSSI | Stour Estuary is a relatively simply structured estuary with a sandy outer area and a muddier inner section. Coastal saltmarshes, sheltered muddy shores and invertebrate-rich mudflats, including the nationally scarce Starlet sea anemone (*Nematostella vectensis*) enable the estuary to support an internationally significant assemblage of wildfowl and wading birds such as Grey plover (*Pluvialis squatarola*) and Cormorant (*Phalacrocorax carbo*).<br>In addition, the estuary includes three nationally important geological sites including volcanic ash formations from the early Eocene and rich fossil vertebrate fauna from the Pleistocene. | 1.20 km to the north of the EOS Scoping Boundary. |
| Stour and Orwell Estuaries | SPA, Ramsar | An estuarine site including mud-flats, low cliffs, saltmarsh and small areas of vegetated shingle on the lower reaches. There is an area of low-lying grazing marsh area on the south side of the Orwell.<br>Qualifying features for the sites comprise a range of birds which will be further described in Volume 04, Chapter 23: Ornithology | 1.64 km to the north of the EOS Scoping Boundary. |
| Wrabness | LNR | The reserve provides habitat for a number of birds including yellowhammer, whitethroat, turtle dove, song thrush, nightingale, bullfinch and short eared owl. In addition, barn owls regularly hunt over the coarse grassland. There are many wild plants such as corn mint, hairy buttercup, sea aster and ox-eye daisy. The site also supports grassland and a range of butterflies, dragonflies and damselflies. | 1.7 km to the north of the EOS Scoping Boundary. |

| Site Name | Status | Description | Distance From EOS Scoping Boundary |
|---|---|---|---|
| Cattawade Marshes | SSSI | Scattered grazing marshes lie between freshwater and tidal channels of the River Stour. Marsh areas support marsh foxtail (*Alopercurus geniculatus*), common reed (*Phragmites australis*) and sea club-rush (*Scirpus maritimus*), with saltmarshes containing species such as sea aster (*Aster tripolium*). The site also demonstrates undisturbed neutral grassland dominated by perrennial rye-grass (*Lolium perenne*) and characteristic herbs such as grass vetchling (*Lathyrus nissolia*).<br>The marshy pools, undisturbed grasslands and dense riverside vegetation provide nesting habitat for breeding birds. | 2.0 km to the north-west of the EOS Scoping Boundary. |
| Orwell Estuary | SSSI | The Orwell Estuary is of national importance for breeding avocet (*Recurvirostra avosetta*), its breeding bird assemblage of open waters and their margins, nine species of wintering waterfowl including black-tailed godwit (*Limosa limosa islandica*), an assemblage of vascular plants and intertidal mud habitats. | 3.1 km to the north-east of the EOS Scoping Boundary. |
| Landguard Common | SSSI, LNR | Landguard Common is a sand and shingle spit protecting the northern entrance to the haven ports of Harwich and Felixstowe. It consists of a loose shingle foreshore backed by a stabilized, vegetated beach, earth banks and scrub. Pioneer shingle plants and vegetated shingle beaches are fragile and nationally scarce habitat type. The site is also of some ornithological interest as a landfall site for passage migrants and for breeding shorebirds.<br>The north part of the foreshore is protected by sea defences but this and the beach crest further south is sea washed and provides bare shingle for colonizing shingle species. This includes a large population of sea kale (*Crambe maritima*) as well as sea pea (*Lathyrus japonicus*), Yellow-horned poppy, sea sandwort and sea campion. The bare shingle is also used by nesting little tern and ringed plover. | 3.5 km to the east of the EOS Scoping Boundary. |
| Outer Thames Estuary | SPA | 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 | 6.9 km to the east of the EOS Scoping Boundary. |

| Site Name | Status | Description | Distance From EOS Scoping Boundary |
|---|---|---|---|
| | | (*Sterna hirundo*) and little tern (*Sternula albifrons*) during the breeding season. | |
| Colne Estuary (Mid-Essex Coast Phase 2) | SPA, Ramsar, NNR | The Mid-Essex Coast SPA, Ramsar and NNR comprises an extensive complex of estuaries and intertidal sands and silt flats, including several islands, shingle and shell beaches and extensive areas of saltmarsh. Colne Estuary is a short, branching estuary with five tidal arms flowing into the main river channel and includes an intertidal zone of mudflat communities.<br>Qualifying features for Colne Estuary comprise, Breeding; common pochard (*Aythya ferina*), Breeding; ringed plover (*Charadrius hiaticula*), Breeding; little tern (*Sterna albifrons*), Non-breeding; dark-bellied brent goose (*Branta bernicla bernicla*), Non-breeding; hen harrier (*Circus cyaneus*), Non-breeding; Common redshank *(Tringa totanus*), Waterbird assemblage. | 7.8 km south of the EOS Scoping Boundary. |
| Essex Estuaries | SAC | This is a large estuarine site in south-east England and is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Qualifying features comprise Estuaries, Mudflats and sandflats not covered by seawater at low tide and Atlantic salt meadows (*Glauco-puccinellietalia maritimae*).<br>Essex Estuaries also qualify for specific flora including Salicornia and other annuals colonising mud and sand, Spartina swards (*Spartinion maritimae*) and Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*).<br>Sandbanks which are slightly covered by sea water all the time are a secondary qualifying feature. | 7.8 km south of the EOS Scoping Boundary. |

### 10.5.5 Non-Statutory Designated Sites

10.5.5.1 The Datasearch Report from the Essex Field Club prepared in July 2025 identified a total of 74 non-statutory designated sites (LoWS) within the Search Area. A copy of Essex Field Club's Datasearch Report is included as Annex 10-1 and contains details of these sites. A summary of those non-statutory sites located within or adjacent to the EOS Scoping Boundary are provided in Table 10-3.

**Table 10-3: Non-statutory Designated Sites for Nature Conservation located within the Study Area (further detail on the sites and their locations in provided in Annex 10-1)**

| Site Name | Description | Distance From EOS Scoping Boundary | OSGB Grid Ref. |
|---|---|---|---|
| Co136 Black Brook | Mosaic of habitats including Lowland Mixed Deciduous Woodland, Lowland Dry Acid Grassland, Wet Woodland Habitats of Principle Importance. Also, open-grazed grassland. | Within or on the EOS Scoping Boundary | TM020323 |
| Co151 Birch Wood, Langham | Ancient Woodland - lowland mixed deciduous woodland, assimilated into private gardens. | Within or on the EOS Scoping Boundary | TM031306 |
| Co156 Gun Hill Place | Large ornamental gardens, with veteran native trees, exotic ornamentals, lake and areas of dry acid grassland. Supports a wealth of wildlife, including the UK and Essex BAP stag beetle (*Lucanus cervus*), grass snake (*Natrix helvetica*), slow-worm (*Anguis fragilis*) and adder (*Vipera berus*). | Within or on the EOS Scoping Boundary | TM039331 |
| Co162 Dalethorpe Park | Small area of parkland includes oak (*Quercus robur*), ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*), field maple (*Acer campestre*), London plane (*Acer platanus*), lime (*Tilia* sp.) and hornbeam (*Carpinus betulus*). Some trees are now likely to be of importance for saproxylic invertebrates. | Within or on the EOS Scoping Boundary | TM046332 |
| Co163 Bridges Farm | This site comprises alluvial floodplain pastures with dissecting ditches and the banks of the River Stour. The pastures are of value due to the scarcity of this habitat type and their associated invertebrate interest. | Within or on the EOS Scoping Boundary | TM053334 |
| Co165 Dedham Churchyard | Small churchyard with relict acid grassland. Essex Red Data List species occur on the walls. The lichen flora on walls and gravestones is also of interest. | Within or on the EOS Scoping Boundary | TM057330 |
| Co167 Dedham Old River Marshes | Series of pastures - one of the largest blocks of remnant flood plain grassland in northeast Essex. The pastures, with the wet ditches and tree-lined hedgerows, form an important grassland resource. Supports a small number of native black (or water) poplars *Populus nigra* ssp. *Betulifolia)*, which is an Essex BAP species. The Old Dedham River channel supports varied aquatic and marginal vegetation. A number of large old osiers (*Salix viminalis*) on the | Within or on the EOS Scoping Boundary | TM067329 |

| Site Name | Description | Distance From EOS Scoping Boundary | OSGB Grid Ref. |
|---|---|---|---|
| | river bank provide good habitat conditions for dead wood invertebrates; the ditches support locally distributed invertebrates. | | |
| Te1 Ardleigh Reservoir Wood | This site comprises a linear strip of woodland along the southern shore of the reservoir's western arm, on the bank of the stream valley that existed before the reservoir was constructed. Habitats of Principal Importance: Lowland Mixed Deciduous Woodland, Wet Woodland. | Within or on the EOS Scoping Boundary | TM02687 |
| Te10 Springhead Corner Meadow | Tussocky acid grassland, rabbit-grazed. hybrid or common lime (*Tilia cordata* x *T. platyphyllos*) and horse chestnut (*Aesculus hippocastanium*) trees are planted near southern boundary. This site has also large colony of minotaur beetles (*Typhaeus typhoeus*), a scarce insect in north-east Essex. | Within or on the EOS Scoping Boundary | TM053286 |
| Te101 Wrabness Siding | Very small site significant for a population of red-tipped cudweed (*Filago lutescens*), designated as a national Biodiversity Action Plan Species and listed in Schedule 8, Wildlife and Countryside Act 1981, classified as vulnerable. | Within or on the EOS Onshore Scoping | TM180315 |
| Te102 West Grove | No information provided by Essex Field Club | Within or on the EOS Scoping Boundary | Not provided |
| Te104 East Grove | Sweet chestnut (*Castanea sativa*) coppice, with ash, pedunculate oak, wild cherry (*Prunus avium*) and hazel (*Corylus avellana*). Diverse ground flora dominated by bluebell (*Hyacinthoides non-scripta) and* bramble (*Rubus fruticosus* agg.). | Within or on the EOS Scoping Boundary | TM183318 |
| Te106 Beaumont Bridge Verge | Contains a population of sea hog's-fennel (*Peucedanum officinale*), nationally a very rare species, restricted to sites around Hamford Water in Essex and in north Kent. In addition, the Essex populations support the Nationally Rare (RDB2) UK BAP Fisher's estuarine moth. | Within or on the EOS Scoping Boundary | TM185237 |

| Site Name | Description | Distance From EOS Scoping Boundary | OSGB Grid Ref. |
|---|---|---|---|
| Te108 Beaumont Marsh | Grassland currently grazed. Small pond with grassland and rushes located in the western half. Shallow ditches support notable species. Includes open grassland sward. Site supports common lizard (*Zootoca vivipara*) and a number of beetles. | Within or on the EOS Scoping Boundary | TM188250 |
| Te110 Soils Wood | Strip of ancient coppice woodland. The remainder is planted with conifers and sycamore. Diverse ground flora. Also, a clearing and a small gravel pit provide habitat for smooth newts and frogs with winter wet pools. The banks of the stream provide a nesting site for kingfisher (*Alcedo atthis*). Soils Wood also supports a small colony of stag beetles (UK and Essex BAP species) and the Nationally Scarce clerid beetle (*Tillus elongatus*). Common lizard has been recorded on the verge near Soilspond Bridge. | Within or on the EOS Scoping Boundary | TM203286 |
| Te111 Copperas Wood East | Woodland dominated by sweet chestnut coppice, with many interspersed standard trees. Silver birch (*Betula pendula*) also present. Eastern half with coppiced sweet chestnut. Ground cover of mainly bramble. Diverse ground flora. | Within or on the EOS Scoping Boundary | TM206317 |
| Te112 Whinny Grove | Woodland dominated by very tall, sweet chestnut coppice. Several other tree species present. Ground flora comprises bramble and common nettle (*Urtica dioica*). | Within or on the EOS Scoping Boundary | TM215302 |
| Te113 Michaelstowe Hall | Mature parkland with a mix of mature trees and tall grassland. Western section includes a stag-headed holm oak (*Quercus ilex*), offering good potential for dead wood invertebrates and possibly roosting bats. Grassland comprises mainly cock's-foot grass (*Dactylis glomerata*), common bent-grass (*Agrostis capillaris*), creeping thistle (*Cirsium arvense*) and stinging nettle. Central area comprises ornamental planting around an old pond, closed canopy woodland and a small area of scattered scrub. Eastern section comprises oaks, limes, pines (*Pinus* spp.), atlas cedar (*Cedrus atlantica*) and other conifers. Eastern edge comprises open sycamore (*Acer pseudoplatanus*) wood. Diverse ground flora. | Within or on the EOS Scoping Boundary | TM218306 |
| Te115 Ramsey Ray | Mosaic of open water, marginal reedbed, riverside grassland with scattered scrub, oak woodland and a disused railway embankment, now with dense scrub cover. Also, oak wood with some field maple and common hawthorn | Within or on the EOS Scoping Boundary | TM232317 |

| Site Name | Description | Distance From EOS Scoping Boundary | OSGB Grid Ref. |
|---|---|---|---|
| | (*Crataegus monogyna*). Grassland on site is moderately species-rich. Slow-worm and common lizard have been recorded. Railway embankment scrub is largely hawthorn, with young pedunculate oak, blackthorn (*Prunus spinosa*) and locally dominant broom (*Cytisus scoparius*). Short-eared owl (*Asio flammeus*) have been known to inhabit this site. Creek and downstream pond contain areas of reedbed, as does the adjacent Delf Pond. | | |
| Te116 Dockfield Avenue Allotments | This former allotment gardens site provides habitat for dormice (*Muscardinus avellanarius*), a very scarce mammal in Essex which is also national and Essex BAP species. | Within or on the EOS Scoping Boundary | TM236312 |
| Te119 The Hangings | Woodland cover over ground flora that includes two Essex Red Data List ferns: Hart's-tongue (*Phyllitis scolopendrium*) and Soft Shield-fern (*Polystichum setiferum*), as well as sedge species. | Within or on the EOS Scoping Boundary | TM247317 |
| Te120 Station Lane Grassland | Remnants of upper beach grasslands, comprising dry, herb-rich and occasionally weedy acid grassland and "brownfield" vegetation. Common Lizards known to inhabit this site and the adjacent railway embankments. | Within or on the EOS Scoping Boundary | TM250317 |
| Te121 Walton Mere | Area of saltmarsh and a silting boating lake with developing saltmarsh flora, dominated by common cord grass (*Spartina anglica*). Site also represents a useful sheltered roosting and resting site for coastal wildfowl and waders. | Within or on the EOS Scoping Boundary | TM252224 |
| Te123 Harwich Beach | Stretch of foreshore with beach flora rare in Essex. Species include sea sandwort (*Honckenya peploides*), sea holly (*Eryngium maritimum*), sea beet (*Beta maritima*), sand sedge (*Carex arenaria*), marram grass (*Ammophila arenaria*), prickly saltwort (*Salsola kali*), sea spurge (*Euphorbia paralias*), sea rocket (*Cakile maritima*), lyme-grass (*Leymus arenarius*), sand couch (*Elymus farctus*) and sea couch (*Elymus atherica*). Sea pea (*Lathyrus japonicus*) is particularly notable. Other areas of dune grassland include wild carrot (*Daucus carota*), autumn hawkbit (*Leontodon autumnalis*), Narrow-leaved bird's-foot-trefoil (*Lotus glaber*), dittander (*Lepidium latifolium*) and sea mayweed (*Tripleurospermum maritimum*). | Within or on the EOS Scoping Boundary | TM262325 |

| Site Name | Description | Distance From EOS Scoping Boundary | OSGB Grid Ref. |
|---|---|---|---|
| Te124 The Naze | Invertebrate fauna includes some Nationally Rare species, including the Red Data Book (RDB1, Endangered) spider-hunting wasp (*Evagetes pectinipes)*. Other significant species include the UK BAP digger wasp (*Cerceris quinquefasciata)* (RDB3, Rare), its brood-parasite (*Hedychrum niemelai*) (RDB3, Rare) and the small black cuckoo-bee (*Sphecodes niger)* (also RDB3). Small pools in the undercliff support the Nationally Scarce (Nb) beetles (*Rhantus frontalis*) and *R. suturalis*, as well as smooth newts (*Lissotriton vulgaris*). The rough clifftop grassland and scattered scrub included within this Site provide foraging habitat for many of the flying insects nesting in the cliffs and also provide shelter for resident and passage migrant birds. The cliffs are also a nesting site for sand martins (*Riparia riparia*). | Within or on the EOS Scoping Boundary | TM265237 |
| Te15 Palegate Wood | Ancient woodland dominated by sweet chestnut and hazel coppice with occasional oak and beech standards. Understorey also includes holly (*Ilex aquifolium*) and elder (*Sambucus nigra*) with honeysuckle (*Lonicera periclymenum*), foxglove (*Digitalis purpurea*), wood sage (*Teucrium scorodonia*), greater stitchwort (*Stellaria holostea*) and bluebell in the generally sparse ground flora. | Within or on the EOS Scoping Boundary | TM061235 |
| Te20 Money Wood | Money Wood is a fragment of ancient woodland consisting of sweet chestnut coppice with abundant ash and only occasional pedunculate oak. Beech, silver birch and hornbeam (*Carpinus betulus*) are also present with an understorey of hazel, elder and holly. There are field maple and hawthorn on the boundaries. The ground flora is characterised by bluebell, wood sage, foxglove and bracken (*Pteridium aquilinum*), but with extensive areas of common nettle. | Within or on the EOS Scoping Boundary | TM068253 |
| Te24 Fratinghall/Captains Wood | These two contiguous ancient woods contain sweet chestnut, alder (*Alnus glutinosa*) and hazel coppice amongst silver birch, pedunculate oak, ash and sweet chestnut standards. Hornbeam exists in both coppice and standard form. Pollards of pedunculate oak and field maple are also present. Diverse ground flora. This is an important wood for the Essex and UK BAP dormouse. | Within or on the EOS Scoping Boundary | TM074228 |

| Site Name | Description | Distance From EOS Scoping Boundary | OSGB Grid Ref. |
|---|---|---|---|
| Te25 Shir Burn Wood and Meadow | Aldercar Wood is a broadleaved woodland with several spring-fed streams. The canopy composition is coppice-with-standards; the mature trees are alder, pedunculate oak, sweet chestnut, aspen (*Populus tremula*) and silver birch. Holly, hawthorn and cherry laurel form the understorey layer with cricket bat willow (*Salix alba* var. *caerulea*) growing in the damper areas. The pond contains yellow Iris (*Iris pseudacorus*), watercress (*Rorippa nasturtium-aquatica*) and water mint (*Mentha aquatica*). Diverse ground flora. Meadow is marshy adjacent to the stream with a coarse rush-pasture sward, whilst upslope the sward comprises acid grassland. | Within or on the EOS Scoping Boundary | TM074312 |
| Te27 Mill Wood | This small woodland contains mature pedunculate oak and ash standards, together with coppiced hazel, sweet chestnut and some very old ash coppice. Diverse ground flora. | Within or on the EOS Scoping Boundary | TM075248 |
| Te3 Ardleigh Reservoir Grassland | Mosaic of grassland, scrub and a small alder and willow wood. | Within or on the EOS Scoping Boundary | TM032284 |
| Te33 Manning Grove | This ancient woodland is dominated by hazel coppice and holly scrub with large pedunculate oak and sweet chestnut standards. The ground flora is mainly bracken with bluebell, bramble and climbing corydalis (*Corydalis claviculata*). | Within or on the EOS Scoping Boundary | TM081275 |
| Te34 Judas Gap Marsh | Coastal grazing marsh with dry and wet grassland. The majority of the site comprises wet rush pasture with grassland species. These habitats have declined considerably in extent in Essex; those remaining as grassland have often undergone agricultural improvement. | Within or on the EOS Scoping Boundary | TM081324 |
| Te37 Gt Bromley Churchyard | This churchyard supports a range of species in a dry acid grassland sward. A few scattered trees and shrubs are present. | Within or on the EOS Scoping Boundary | TM083262 |

| Site Name | Description | Distance From EOS Scoping Boundary | OSGB Grid Ref. |
|---|---|---|---|
| Te40 Wignall Street Grassland | Thick hedgerow bounds this area of old grassland. The site has dense scrub, which provides some habitat diversity. Finer grasses colonise the freer-draining steeper rabbit-grazed areas. Plant species present indicate acidic soil. The sward includes harebell (*Campanula rotundifolia*), a species very scarce in Tendring District and included in the Essex Red Data List of plants. Other areas have a more neutral grassland character with rough grassland species. The lower valley area comprises damp grassland, including common sedge (*Carex nigra*), an Essex Red Data List species now uncommon in Essex. | Within or on the EOS Scoping Boundary | TM086310 |
| Te42 Lawford Churchyard | Unimproved grassland supporting a wide variety of plant species. Species of particular interest include lady's bedstraw (*Galium verum*), lesser calamint (*Clinopodium calamintha*) and the evergreen fern black spleenwort (*Asplenium adiantum-nigrum*) The latter two species are recorded as Essex Red Data List species. | Within or on the EOS Scoping Boundary | TM089315 |
| Te44 Little Bromley Churchyard | Remnant of dry acid grassland. Now the only such grassland, other than the nearby Great Bromley churchyard, that remains in an otherwise intensively cultivated landscape. The sward is notable for the abundance of pignut (*Conopodium majus*). Other species of interest include thyme-leaved sandwort (*Arenaria serpyllifolia*), which also favours short, dry sward conditions. | Within or on the EOS Scoping Boundary | TM091278 |
| Te45 Wignall Brook Grasslands | Extensive series of stream valley grasslands either side of Wignall Brook. Site character varies from dry semi-acid, through dry neutral to marshy grassland. Wide variety of grass species present. Bristle club-rush (*Isolepis setacea*), an Essex red data List species is also present. It is extremely uncommon and declining in Essex. Associated with this plant are several rush species. | Within or on the EOS Scoping Boundary | TM091314 |
| Te5 Churn Wood | Ancient woodland including planted conifers and broad leaf planting. Diverse ground flora. | Within or on the EOS Scoping Boundary | TM036259 |
| Te50 Bentley Brook | Linear corridor with a mosaic of different habitats including grassland, woodland, scrub and ponds and the brook channel itself. Hedgerows form the boundaries. The ground flora contains bracken, foxglove and bluebell. Water voles (*Arvicola amphibius*) have been recorded along the brook. | Within or on the EOS Scoping Boundary | TM105208 |

| Site Name | Description | Distance From EOS Scoping Boundary | OSGB Grid Ref. |
|---|---|---|---|
| Te52 Hopping Bridge Marsh | Narrow band of saltmarsh on the south side of the River Stour SSSI. Provides valuable additional habitat to the estuarine ecosystem, albeit suffering from more recreational pressure than the SSSI itself. | Within or on the EOS Scoping Boundary | TM111319 |
| Te53 Little Bentleyhall Wood | Ancient wood dominated by sweet chestnut and hazel coppice with pedunculate oak, birch and holly standards. The north-western area is additionally planted with conifers. Ground flora typified by bramble, honeysuckle, bracken, wood sage, greater stitchwort, wood anemone (*Anemone nemorosa*), foxglove and bluebell. | Within or on the EOS Scoping Boundary | TM113244 |
| Te58 Furze Hills Complex | Grassland, woodland and a lake. Mosaic of different habitat. Furze Hills is an area of secondary woodland, with small areas of coppice. Throughout the woodland are “veteran” oak trees, up to 800 years old. These trees can support a great diversity of invertebrate species and become very important as bat roosting sites. The grassland components of the higher ground exhibit dry acid conditions. Nearer the stream the sward is either a tussocky rush-dominated pasture, or a damp meadow with diverse grass and forb species. | Within or on the EOS Scoping Boundary | TM118311 |
| Te59 High Barn Wood | Ancient wood composed of pedunculate oak, holly, ash and birch standards with sweet chestnut coppice. Also contains a small proportion of hornbeam and hazel coppice. Ground flora is sparse and consists mainly of bracken, bramble and bluebell. | Within or on the EOS Scoping Boundary | TM123229 |
| Te6 Wall's Wood | This site consists of probably ancient streamside woodland with younger woodland blocks of varying ages on the valley sides. In the central part of the stream valley, where there was once a mill, is a complex of marsh and wet woodland habitats. | Within or on the EOS Scoping Boundary | TM037271 |
| Te64 Shair Wood | Ancient woodland fragment, dominated by sweet chestnut and hazel coppice with pedunculate oak and birch standards. Bluebell, red campion (*Silene dioica*), bramble, male fern (*Dryopteris filix-mas*) and scaly male fern (*Dryopteris affinis*) are the most prevalent ground flora plants. | Within or on the EOS Scoping Boundary | TM129230 |

| Site Name | Description | Distance From EOS Scoping Boundary | OSGB Grid Ref. |
|---|---|---|---|
| Te7 Chapel Lane Verge | This site includes the roadside verge and the adjacent wood bank and ditch and it has been designated for its population of common polypody (*Polypodium vulgare*), an Essex Red Data List fern. Other species present include common knapweed (*Centaurea nigra*), common bent, hawkweed (*Hieracium sabaudum*), dog's violet (*Viola* spp.) and wood sage. | Within or on the EOS Scoping Boundary | TM039263 |
| Te70 Pilcox Wood | NVC community W10 Oak-Bracken-Bramble woodland. Canopy dominated by pedunculate oak, with some very old sweet chestnut coppice. Large quantities of standing and fallen dead wood form an important part of the woodland ecosystem. Ground flora dominated by bracken and bramble. Wood sage, foxglove and honeysuckle occur at low density. | Within or on the EOS Scoping Boundary | TM138252 |
| Te74 Goose Green Verge | Roadside verge with population of polypody. This is an Essex Red Data List fern. This roadside bank is unusual in that it has plants along its entire 85 metre length. | Within or on the EOS Scoping Boundary | TM141254 |
| Te77 Hillands Wood | Ancient woodland retaining some of its original coppice-with-standards structure. Pedunculate oak is frequent with sweet chestnut, hazel, ash, sycamore and birch. Ground flora characterised by dog's mercury (*Mercurialis perennis*), bluebell, red campion and foxglove. | Within or on the EOS Scoping Boundary | TM143234 |
| Te79 Home Wood | No information provided by Essex Field Club. | Within or on the EOS Scoping Boundary | Not provided |
| Te8 Pyecats Corner Verges | Narrow verges located between arable fields display flora that reflects the acidic soil-type and the heathland history of this area. The most significant species is the ERDL species betony, present in patches throughout the verges. | Within or on the EOS Scoping Boundary | TM043254 |
| Te81 Tendring Grove | Ancient wood with frequent pedunculate oak standards with hazel and sweet chestnut coppice. Other species include alder, ash with birch, holly and planted conifers. A large rectangular pond is fringed by bulrush (*Typha latifolia*) and young willow, with abundant pondweed (*Potamogeton* spp.). | Within or on the EOS Scoping Boundary | TM153243 |
| Te85 Stonehall Wood | Woodland of pedunculate oak with sweet chestnut, hornbeam and lime coppice. Also small area of planted poplar. Ground flora includes wood spurge (*Euphorbia amygdaloides*), bluebell and pendulous sedge (*Carex pendula*). | Within or on the EOS Scoping Boundary | TM158256 |

| Site Name | Description | Distance From EOS Scoping Boundary | OSGB Grid Ref. |
|---|---|---|---|
| Te86 Simon's Wood | Ancient woodland, densely replanted with conifers, particularly pines with scattered larch. Deciduous species include silver birch with occasional sweet chestnut, ash, hazel and pedunculate oak. | Within or on the EOS Scoping Boundary | TM160239 |
| Te88 Gravel Wood | Ancient coppice-with-standards wood dominated by sweet chestnut with pedunculate oak, holly, birch and frequent hornbeam coppice. Ground flora includes bluebell, red campion and broad buckler-fern (*Dryopteris dilatata*). Small pond and stream with pendulous sedge, lesser celandine (*Ranunculus ficaria*) and marsh marigold (*Caltha palustris*). | Within or on the EOS Scoping Boundary | TM162253 |
| Te89 Killgrove Wood | Ancient woodland dominated by pedunculate oak standards, with field maple, hazel, sweet chestnut, birch and ash also present. Ground flora includes bramble, wood sorrel (*Oxalis acetosella*) and bluebell. | Within or on the EOS Scoping Boundary | TM163265 |
| Te9 Manor House Meadow | Grassland of note for uncommon bird's-foot amongst other grass species. Other plant species include sheep's sorrel (*Rumex acetosella*), thyme-leaved speedwell (*Veronica serpyllifolia*), yarrow (*Achillea millefolium*), lesser stitchwort (*Stellaria graminea*), bird's-foot-trefoil (*Lotus corniculatus*) and knotted clover (*Trifolium striatum*). Species-rich grasslands of this type are particularly rare in Tendring district. | Within or on the EOS Scoping Boundary | TM052288 |
| Te90 Wrabness Depot and Marsh | Comprises grazed grassland, scrub, wood and ponds with marshy grassland in the northeast part, heavily grazed by ponies. These flower-rich areas provide valuable foraging habitat for a wide range of invertebrates. Also present is nationally scarce plant dittander, an Essex Red Data List species. Site is important for turtle dove (*Streptopelia turtur*), nightingale (*Luscinia megarhynchos*), bullfinch (*Pyrrhula pyrrhula*), linnet (*Linaria cannabina*) and yellowhammer (*Emberiza citrinella*). An area of old grazing marsh provides foraging opportunities for coastal waders. | Within or on the EOS Scoping Boundary | TM163315 |
| Te91 Dengewell Wood | Ancient woodland dominated by pedunculate oak standards over a coppice layer of hazel and sweet chestnut. Diverse ground flora. Dengewell is the northernmost of a cluster of ancient woods which may act as a woodland corridor for birds and some invertebrates between Stour/Copperas woods and the woods of central Tendring. | Within or on the EOS Scoping Boundary | TM166276 |

| Site Name | Description | Distance From EOS Scoping Boundary | OSGB Grid Ref. |
|---|---|---|---|
| Te94 Broadmeadow Wood | Ancient coppice-with-standards woodland with an open understorey structure. Ground flora dominated by bramble and bracken but also includes moschatel (*Adoxa moschatellina*), primrose (*Primula vulgaris*), bugle (*Ajuga reptans*), wood spurge and honeysuckle. Centrally placed within a cluster of ancient woods. | Within or on the EOS Scoping Boundary | TM169263 |
| Te96 Brakey Grove | Ancient woodland contains sweet chestnut coppice, silver birch, ash, pedunculate oak and goat willow (*Salix caprea*). Understorey includes bramble and bracken with foxglove and red campion. | Within or on the EOS Scoping Boundary | TM172313 |
| Te97 Glebe Wood | One of a number of closely grouped ancient woods in an otherwise poorly wooded part of the district. Bracken, red campion and greater stitchwort typify the ground flora. | Within or on the EOS Scoping Boundary | TM175258 |
| TePLoWS11 Millgrove Wood | Possibly ancient woodland, as indicated by the presence of wood anemone and yellow archangel (*Lamiastrum galeobdolon*) in the ground flora. | Within or on the EOS Scoping Boundary | TM140308 |
| TePLoWS17 Brook Farm Lakes and Church | This complex of habitats, including the churchyard, could be important for amphibians, including great crested newts (*Triturus cristatus*), with areas such as the churchyard forming terrestrial habitat and over-wintering hibernacula. | Within or on the EOS Scoping Boundary | TM187273 |
| TePLoWS18 Copperas Wood | It has been suggested that this area of rough grassland and scattered trees might retain an important flora. The invertebrates may also repay closer inspection. | Within or on the EOS Scoping Boundary | TM204318 |
| TePLoWS2 Fox Street Grasslands | This is a series of moderately species-rich, damp grasslands with good hedgerows. | Within or on the EOS Scoping Boundary | TM026278 |
| TePLoWS20 Walton Hall Marshes | These fields are former coastal grazing marsh that underwent arable conversion but are now thought to be reverting back to grassland. The old ditches may support an interesting aquatic invertebrate fauna. | Within or on the EOS Scoping Boundary | TM254242 |

| Site Name | Description | Distance From EOS Scoping Boundary | OSGB Grid Ref. |
|---|---|---|---|
| TePLoWS21 Beacon Hill | Old fort, now fenced off. Its prominent location on the coast makes it an obvious land-fall/resting point for passage migrant birds, as well as nesting habitat for resident species. Reptile and invertebrate populations may also be significant. Slow-worm and common lizard are known to have occurred here in the past, whilst a number of locally frequent but nationally scarce species of solitary bee were recorded previously. It has been suggested that the old buildings might also harbour roosting bats. | Within or on the EOS Scoping Boundary | TM261317 |
| TePLoWS23 West End Lane Grassland | This site comprises rough coastal grassland with lagoons and ditches. Part of the site is a former landfill that has now developed into a species-rich, weedy grassland. Likely to have important invertebrate population. Reptiles such as common lizard, slow-worm, grass snake and adder all possible here. Water voles have been known to occur here, current status unknown. | Within or on the EOS Scoping Boundary | TM245298 |
| TePLoWS3 Elmstead Churchyard | Elmstead Churchyard is a small piece of old grassland. Such species-rich grassland is now a very scarce resource in the district, particularly around Elmstead. | Within or on the EOS Scoping Boundary | TM065260 |
| TePLoWS5 Boudge Hill Embankment | Grassy embankment incorporating an earth bank ramp. The particular land form here allows for the development of a relatively wide block of flowery grassland to flourish. | Within or on the EOS Scoping Boundary | TM075256 |
| TePLoWS6 Brook Street | Small block of marshy ground and open woodland in a part of the district where Local Wildlife Sites and areas of significant wildlife interest are scarce. | Within or on the EOS Scoping Boundary | TM084259 |
| TePLoWS9 Gurnhams Grasslands | This site is a small series of damp grasslands in a part of the district largely lacking in good-quality grassland for wildlife. | Within or on the EOS Scoping Boundary | TM127237 |

### 10.5.6 Other Designations

10.5.6.1 Sections of the eastern coast within the EOS Scoping Boundary are located within the Essex Coast Important Invertebrate Area (IIA). IIA's are areas identified by Buglife as significant areas of invertebrate interest.

10.5.6.2 The eastern section of the EOS Scoping Boundary and the coast to the north is located within an area identified by Buglife as part of the B-Lines network. B-lines are a landscape scale initiative to enhance pollinator population and identify corridors within which wildflower habitat creation can be focussed to maximise gains for pollinators.

### 10.5.7 Habitats

10.5.7.1 There are three areas of ancient semi-natural woodland within the EOS Scoping Boundary, these are identified on Figure 10-1:

- Unnamed woodland south of Dickley Hall, Mistley (Ordnance Survey (OS) Centroid Grid Reference: TM 1162 2926);
- Chequers Wood (OS Centroid Grid Reference: TM 1035 2912); and
- Alder Car (OS Centroid Grid Reference: TM 1181 2840).

10.5.7.2 A further four ancient woodlands are located within 500 m of the EOS Scoping Boundary:

- Unnamed woodland ancient semi-natural woodland north of Carrington's Farm, Great Bromley (OS Centroid Grid Reference: TM 08364 27571);
- Old Mount, ancient semi-natural woodland north of the B3105, Mistley Heath (OS Centroid Grid Reference: TM1220 2999);
- Unnamed ancient semi-natural woodland south-west of Bradfield Lodge, Horsley Cross (OS Centroid Grid Reference TM1237 2789); and
- Beech Plantation, north of Clacton Road (ancient wood pasture and ancient replanted woodland) (OS Centroid Grid Reference TM1163 3062).

10.5.7.3 All ancient woodlands will be avoided where possible to prevent direct impacts and mitigation measures will be put in place in order to seek to avoid all indirect effects on ancient woodland.

10.5.7.4 The following areas of HoPI were identified within Natural England's HoPI inventory data as occurring within or adjacent to the EOS Scoping Boundary:

- Eight areas of broadleaved deciduous woodland (six west of the B1035 and two west of Little Oakley);
- A large area of coastal saltmarsh in the East of the EOS Scoping Boundary south of Harwich at South Hall Creek;
- Limited areas of reedbed were identified within the EOS Scoping Boundary in the far east in the Middle Beach area.

10.5.7.5 Prior to the submission of the ES the following habitat surveys will be undertaken:

- Extended UK Habitat Classification survey: to record habitat type and suitability for protected or notable species covering the boundary of the EOS plus a buffer of 50 m where access allows. These surveys will commence in Spring 2026;
- National Vegetation Classification (NVC) survey: of protected or notable habitats identified within the EOS Scoping Boundary and which have the potential to be impacted. These surveys will be undertaken during summer 2026;
- Hedgerow survey: those hedgerows that may be impacted by the EOS (as identified by the Extended UK Hab Classification survey) will be subject to survey in 2026 and 2027.

10.5.7.6 Table 10-4 provides a high-level summary of initial desk study analysis and the scope of further surveys that are proposed for protected and/or notable species (ornithology is covered separately in Volume 04, Chapter 23: Ornithology).

10.5.7.7 As the design of the UK Scheme progresses the boundaries of the land expected to be required will be refined and the spatial extent of surveys undertaken refined accordingly, implementing the EOS Scoping Boundary plus buffer survey extents set out in Table 10-4.

**Table 10-4: Protected and/or Notable Species – Desk Study Data and Proposed Scope of Field Surveys to be Undertaken**

| Species/Species Group | Desk Study | Proposed Field Survey Scope | Survey Methodology | Seasonal Window and Survey Programme |
|---|---|---|---|---|
| Protected and/or notable plants | Desk study identified records of the following within or adjacent to the EOS Scoping Boundary. All are on the eastern coast within Hamford Water SPA and Ramsar: Sea bindweed (*Calystegia soldanella)* (IUCN vulnerable); Sea holly (*Eryngium maritimum)* (IUCN near threatened); Dittander (*Lepidium latifolium)* (Nationally scarce); Hog's fennel (*Peucedanum officinale)* (Nationally rare); yellow glasswort (*Salicornia europea)* (Nationally scarce); prickly saltwort (*Salsola kali)* (Natural Environment Research Council (NERC) Section 41). | Bespoke further botanical surveys as required based on the outcome of the Extended UK Hab surveys. This may include dedicated survey for key species (e.g. Hog's fennel) and/or survey for important arable flora assemblages. | Bespoke by species (as required).<br><br>Methodologies as required e.g. Stroh et al. (2019), Mcleod et al. (2009) and Byfield and Wilson (2005). | • Seasonal window: April to September.<br>Programme: April to September 2026. |
| Amphibians (including great crested newt) | Desk study identified seven records of great crested newt (*Triturus cristatus)* within the Study Area. However, there are no previous records from Essex Field Club within 250 m of the EOS Scoping Boundary.<br><br>There are multiple records of common amphibian species. | Up to boundary of the EOS plus a 250 m buffer depending upon boundary refinement as project progresses and outcome of initial UK Hab surveys. | Habitat Suitability Index (HSI) evaluated suitability of ponds for great crested newt following the methodology developed by Oldham et al. (2000) Environmental DNA (eDNA) sampling in accordance with the | • Seasonal window: April to June.<br>• Programme: Majority of surveys were undertaken in June 2025 (results analysis ongoing).<br>• Any follow up eDNA, HSI surveys, additional |

| Species/Species Group | Desk Study | Proposed Field Survey Scope | Survey Methodology | Seasonal Window and Survey Programme |
|---|---|---|---|---|
| | | | standard survey technique (Biggs, et al., 2014).<br><br>Population size class surveys are not proposed as it is assumed that if a licence is required a District Level Licence (DLL) registration will be gained in consultation with Natural England. | waterbodies to be undertaken mid-April 2026 to end June 2026.<br>If required, population size class assessment mid-March 2027 to mid-June 2027. |
| Bats – Preliminary Roost Appraisal (trees and buildings) | A total of at least nine bat species were recorded within the 5km Study Area: Barbastelle (*Barbastella barbastella)*; Serotine (*Eptesicus serontinus)*; Daubenton's bat (*Myotis daubentonii)*; Naterrer's bat (*Myotis nattereri)*; Leisler's bat (*Nyctalus leisleri)*; Noctule bat (*Nyctalus noctula)*; Common pipistrelle (*Pipistrellus pipistrellus)*; Soprano pipistrelle (*Pipistrellus pygmaeus)*; and brown long-eared bat (*Plecotus auritus)*. | Up to boundary of the EOS plus a 50 m buffer depending upon boundary refinement as project progresses and outcome of initial UK Hab surveys. | Survey methods in accordance with Bat Conservation Trust guidelines (Collins, 2023). | • Seasonal window: Optimal (November to March); sub-optimal remainder of year.<br>• Programme: July 2026 to March 2027 (trees targeted in optimal season). |
| Bats – Further Inspection of Trees and Buildings with Potential Roost Features (PRFs) and emergence surveys | | Up to boundary of the EOS plus a 50 m buffer depending upon boundary refinement as project progresses and outcome of initial UK Hab surveys. | Initially trees and buildings with PRFs would be identified (in the Preliminary Roost Appraisal). Those with PRF's and the potential to be adversely impacted by the EOS | • Seasonal window: January to December.<br>• Programme:July 2026 to July 2027. |

| Species/Species Group | Desk Study | Proposed Field Survey Scope | Survey Methodology | Seasonal Window and Survey Programme |
|---|---|---|---|---|
| | No roosts were identified within or adjacent to the EOS Scoping Boundary. | | will be subject to further inspections. Potentially multiple visits across period. All surveys carried out in line with Bat Conservation Trust guidelines (Collins, 2023). | |
| Bat – Night-time Bat Walkover and Static Bat Detector surveys | | Up to boundary of the EOS plus a 50 m buffer depending upon boundary refinement as project progresses and outcome of initial UK Hab surveys. | Bat walkover surveys and static detector monitoring will be based on the use of transects within representative sampling locations to provide data to understand wider bat assemblage but ensure survey effort remains proportionate to likely impacts (particularly in relation to the EOS High Voltage Alternating Current (HVAC) and High Voltage Direct Current (HVDC) Cable Corridors). Surveys in each month. Bat Conservation Trust guidelines (Collins, 2023). | • Seasonal window: April to October.<br>• Programme: July to September 2026. |

| Species/Species Group | Desk Study | Proposed Field Survey Scope | Survey Methodology | Seasonal Window and Survey Programme |
|---|---|---|---|---|
| Bats – Hibernation Surveys (if required based on the outcome of initial tree and building roost assessment surveys) | | Bespoke – focused on specific areas of requirement. | Internal inspection and static detector monitoring.<br>A minimum of two survey visits are normally required. All surveys carried out in line with the Bat Conservation Trust Best Practice Guidance (Collins, 2023). | • Seasonal window: December to February.<br>• Programme: Decemb er 2026 to March 2027. |
| Otter and water vole | The desk study identified seven records of otter (*Lutra lutra)* within the 2 km Study Area in the last 10 years, but none from within or adjacent to the EOS Scoping Boundary.<br><br>The desk study identified no records of water vole (*Arvicola amphibus)* within the 2 km Study Area. | Up to boundary of the EOS plus a 100 m buffer depending upon boundary refinement as project progresses and outcome of initial UK Hab surveys. | Otter surveys involve searching watercourses for signs of Otter activity, following guidance in 'Monitoring the Otter' (Chanin, 2003).<br><br>Water Vole surveys involve searching watercourses for signs of Water Vole activity as described by Strachan et al. (2011) and Dean et al. (2016). | • Seasonal window: May/June and August/September.<br>• Programme: May to June 2026 and August to September 2026. |
| Hazel dormouse | The desk study identified four records of hazel dormouse (*Muscardius avellanarius)* in the last ten years but the closest is approximately 3 km | Boundary of the EOS plus where deemed necessary a 50 m buffer Up to boundary of the EOS plus a 50 m buffer depending upon boundary refinement as | Nest tube survey for presence/absence using methods described in the dormouse conservation handbook (Harris, | • Seasonal window: April to November.<br>• Programme: July 2026 to November 2026. |

| Species/Species Group | Desk Study | Proposed Field Survey Scope | Survey Methodology | Seasonal Window and Survey Programme |
|---|---|---|---|---|
| | to the north of the EOS Scoping Boundary. | project progresses and outcome of initial UK Hab surveys. | Cresswell, & Jefferies, 1989). | |
| Badger | The desk study identified 14 records of badger (*Meles meles)* within the 2 km Study Area in the last 10 years but none from within or adjacent to the EOS Scoping Boundary. | Proposed UK Landfall, proposed Converter Station Site and proposed EOS HVAC and HVDC Cable Corridors, plus, where deemed necessary, a 50 m buffer. | Surveys for Badger involve a walkover survey searching for signs of Badger activity as described in the Mammal Society publication, Surveying Badgers (Harris, Cresswell, & Jefferies, 1989). | • Seasonal window: January to December (i.e. surveys can be undertaken at any time).<br>• Programme: July 2026 to December 2026. |
| Reptiles | The desk study identified 22 records of common reptiles (grass snake (*Natrix helvetica)*, slow worm (*Anuis fragilis)* and common lizard (*Zootoca vivipara)*) within the last 10 years but none from within or adjacent to the EOS Scoping Boundary. | Proposed UK Landfall, proposed Converter Station Site and proposed Onshore HVAC and HVDC Cable Corridors, plus, where deemed necessary, a 50 m buffer. | Reptile surveys involve recording reptile species using artificial refugia in accordance with Froglife's Advice Sheet 10 for Reptile Surveys (FrogLife, 1999) and Natural England's Standing Advice Reptiles (2022). | • Seasonal window: April/May and September/ October.<br>• Programme: September 2026 and/or April/May 2027. |
| Terrestrial invertebrates | The desk study identified a high volume of records of protected and/or notable invertebrates with records primarily associated with existing designated sites. Key species previously recorded within the search area include | Proposed UK Landfall, proposed Converter Station Site and proposed EOS HVAC and HVDC Cable Corridors, plus, where deemed necessary, a 50 m buffer. | Scoping for the requirement for further survey based on guidance within Buglife: Good planning practice for invertebrate surveys (WFD-UKTAG, 2008) and Natural England | • Seasonal window: April to September/October.<br>• Programme: June to October 2026 and/or April/May 2027(as required). |

| Species/Species Group | Desk Study | Proposed Field Survey Scope | Survey Methodology | Seasonal Window and Survey Programme |
|---|---|---|---|---|
| | fire bug (*Pyrrhocorris apterus)*, Jersey tiger (*Euplagia quadripunctaria)*, and (*Colletus strangulatus)* (a beetle). | | research report NERR005 (2007) to be undertake following completion of UK Habitat classification surveys. | |
| Fish | The desk study will be completed and included in the ES. The desk study will review EA, NBN atlas and LERC records within a 2 km study area within the last 10 years. Where migratory fish species are identified, then the search will be expanding to the whole catchment to assess if species could be seasonal within the study area. | The requirement for fish surveys will be dependent on the results of the desk study, whereby watercourses being crossed by the EOS that are absent of data will be scoped in for fish habitat assessments. Those watercourses which are absent of data and deemed suitable for fish will be scoped in for fish surveys. | Following the outcome of the desk study and subsequent scoping surveys, where habitat was deemed suitable for fish, surveys will be scoped in following BS EN 149622006, Guidance on the scope and selection of fish sampling methods. At this stage, exact methodologies are unknown as this will be dependent on the results of the scoping surveys. However, fish surveys will be undertaken over a 100 m representable stretch of watercourses following the UKTAG Rivers Assessment Methods for Fish Fauna (WFD-UKTAG, 2008). | • Seasonal window: June – September.<br>• Programme: June – September 2026. |

| Species/Species Group | Desk Study | Proposed Field Survey Scope | Survey Methodology | Seasonal Window and Survey Programme |
|---|---|---|---|---|
| Aquatic Macro-invertebrates | The desk study will be completed and included in the ES. The desk study will review EA, NBN atlas and LERC records within a 2 km study area within the last 10 years. | Where survey access was available, surveys have commenced within watercourses within the EOS Scoping Boundary plus, where deemed necessary, a 50 m buffer. Scope to be reduced as the boundary is refined. | Surveys for aquatic macro-invertebrates undertaken using the ditch survey method detailed by Buglife (Palmer, Drake, & Stewert, 2013) The first survey can commence in either spring or autumn, but the follow up survey must be undertaken in the next survey window for the survey be valid. | • Seasonal window: Completion of Macro-invertebrate survey requires two survey visits/sets of samples – spring and autumn.<br>• Programme: May and September 2026 (samples collected analysis ongoing).<br>• Surveys to continue in spring 2027 where required to complete two consecutive survey visits. |
| Aquatic Macrophytes | The desk study will be completed and included in the ES. The desk study will review EA, NBN atlas and LERC records within a 2 km study area within the last 10 years. | Within watercourses within the EOS Scoping Boundary plus, where deemed necessary, a 50 m buffer. Scope to be reduced as the boundary is refined. | Surveys In line with BS EN 14184:2014, Guidance for the surveying of aquatic macrophytes in running waters (British Standard Institute, 2014) | • Seasonal window: May to September.<br>• Programme: May to September 2026 to continue Spring/Summer 2027 as required. |

10.5.7.8 In addition to inform BNG condition assessments, the above Modular River Physical (MoRPh) survey (Modular River Survey, 2026) will be undertaken on those watercourses where there is the potential for impacts upon the 10 m riparian zone[5] for rivers and streams and 5 m for ditches. Predictive System for Multimetrics (PYSM) surveys (Freshwater Habitats Trust, 2025) may also be required if ponds are to be impacted. However, these surveys will not form part of the Onshore Biodiversity assessment and are only required for the BNG assessment.

### 10.5.8 Future Baseline Conditions

10.5.8.1 The baseline environment is not static and is expected to change over time, irrespective of the EOS. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the EOS over its operational lifetime. This future baseline will be defined for the purpose of the EIA.

10.5.8.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

10.5.8.3 As habitats within the EOS are predominantly agricultural or areas under long-term management, the future baseline is unlikely to change significantly from natural causes. Any changes that do occur are more likely to result from shifts in land management or agricultural practices, which cannot be reliably predicted.

### 10.5.9 Additional Proposed Data Sources

10.5.9.1 No additional data sources are proposed beyond baseline survey data collection (as described in Section 10.5.7) and ongoing consultation with stakeholders to identify new or updated datasets.

## 10.6 Assessment Methodology

10.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the construction, operational and decommissioning phases of the EOS. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

10.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on Onshore Biodiversity receptors arising from the construction, operational and decommissioning phases of the EOS. This approach defines:

[5] Riparian zone is a set area from the bank top of the watercourse which supports features which may influence the hydrological, geomorphological and biological functions or processes within the channel. Different watercourse habitat types have different riparian zone widths

- Sources and impacts: The origin of a potential impact;
- Pathway: The mechanism by which the impact may affect a receptor; and
- Receptor: The component of the environment that may be affected.
- More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

10.6.1.3 The Onshore Biodiversity assessment will be undertaken in accordance with the CIEEM's Guidelines for EcIA in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (2024). The aims of the assessment will be to:

- Identify IEFs (i.e. designated sites, habitats, species or ecosystems) which may be impacted by the EOS;
- Provide a scientifically rigorous and transparent assessment of the likely ecological impacts and resultant effects of the EOS (impacts and effects may be positive or negative);
- Facilitate scientifically rigorous and transparent determination of the consequences of the EOS in terms of national, regional and local policies relevant to biodiversity and biodiversity conservation, where the level of detail provided is proportionate to the scale of the development and the complexity of its potential impacts; and
- Set out what steps will be taken to adhere to legal requirements relating to the relevant ecological features concerned.

10.6.1.4 The principal steps involved in the CIEEM (2024) approach can be summarised as:

- Ecological features that are both present and might be affected by the UK Scheme (the EOS and/or the UKMS) will be identified (both those likely to be present at the time works begin and those predicted to be present at the commencement of construction) 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 will be evaluated, placing their relative biodiversity conservation importance into geographic context, which is then used to define the relevant biodiversity features that need to be considered further;
- The changes expected to result as a consequence of the UK Scheme (i.e. the potential impacts) and which could potentially affect relevant ecological features will be identified and described. Established best-practice, legislative requirements or other incorporated design measures to minimise or avoid impacts will also described and be taken into account;
- The likely effects (positive or negative) on relevant IEF's will then be assessed and where possible quantified;
- Measures to avoid or reduce any predicted significant effects, if possible, will then be developed in conjunction with other elements of the design (including mitigation for other environmental disciplines) and if necessary, measures to compensate for effects on features of biodiversity conservation importance will be included where avoidance and/or mitigation cannot occur or they have failed;

- Any residual effects of the UK Scheme (i.e. those remaining after consideration of all avoidance, mitigation and compensation proposed) will be reported; and

10.6.1.5 It is not necessary in the assessment to address all habitats and species with potential to occur in the relevant Study Area. Instead, the focus will be placed upon those that are "relevant" i.e. ecological features that are considered to be important and potentially affected by the EOS. The CIEEM guidelines (2024) makes clear that there is no need to "*carry out detailed assessment of ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable*". This does not mean that efforts should not be made to safeguard wider biodiversity and requirements for this have been considered. National and local planning policy documents emphasise the need to achieve net gains for nature and that a core principle for planning is that it should contribute to conserving and enhancing the natural environment and reducing pollution. These considerations will be applied in the ES.

10.6.1.6 Following assessment utilising the CIEEM methodology (2024), in order to enable the results of the ecological assessment to be compared with those from other chapters of the ES, the residual effects will be equated to the comparable significance criteria that are utilised within other chapters of the ES.

### 10.6.2 Determining Importance of Ecological Features

10.6.2.1 Data received through consultation, desk-based assessments and field-based investigations will be used to allow the importance of ecological features (including designated sites, ecosystems, habitat and species) of value (or potential value) to be identified and the main factors contributing to their value described and related to available guidance. Each ecological feature or resource will be subject to evaluation to assign a level of importance (or potential importance) within a defined geographical context using the following geographic scales of reference:

- International (i.e. European);
- National (i.e. England);
- Regional (i.e. South East England);
- County (i.e. Essex);
- District (i.e.Tendring);
- Local (has value at the 'Site' level); and
- Negligible (used where the value is lower than the Site level).

10.6.2.2 The value of relevant ecological features will be based on consideration of their existing and potential ecological importance and does not include consideration of social and economic values.

10.6.2.3 For the purposes of the scoping exercise only ecological features of at least Local importance are considered as IEFs that require assessment for potential significant effects. Other ecological features may also continue to be considered as deemed

necessary in order to consider potential legislative or policy implications of the UK Scheme.

### 10.6.3 Characterising Ecological Impacts and Effects

10.6.3.1 In accordance with the CIEEM guidelines (2024), 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, demolition activities leading to the removal of a building utilised as a bat roost; and
- **Effect** – Outcome resulting from an impact acting upon the conservation status or structure and function of an ecological feature. For example, killing/injury of bats and reducing the availability of breeding habitat as a result of the loss of a bat roost may lead to an adverse effect on the conservation status of the population concerned.

10.6.3.2 Potential impacts (and, where relevant, resultant effects) will be characterised as follows:

- **Beneficial/adverse** – is the impact likely to be positive or negative;
- **Magnitude** – the ‘size’ or ‘amount’ of an impact – this is determined on a quantitative basis where possible;
- **Spatial extent** – the area or distance over which the impact occurs;
- **Duration** – the time over which an impact is expected to last prior to recovery or replacement of the resource or feature. For the purposes of this assessment the following categories are utilised where relevant: short-term (up to 1 year), medium-term (1-5 years), long term (more than 5 years) and permanent. The duration of an effect may be longer than the duration of an activity or impact;
- **Reversibility** – is the impact temporary or permanent. A reversible (temporary) impact is one from which recovery is possible or for which effective mitigation is both possible and enforceable; and
- **Timing and frequency** – consideration of the point at which the impact occurs in relation to critical life-stages or seasons.

### 10.6.4 Significance Criteria

10.6.4.1 For each ecological feature, only those characteristics relevant to understanding the ecological effect of the EOS and determining the significance will be described. The determination of the significance of effects will be 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.

10.6.4.2 The CIEEM guidelines (2024) state that:

*"For the purposes of EcIA a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' (i.e. relevant ecological features) or for biodiversity in general'…….*

*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)".*

10.6.4.3 For designated sites, the assessment will consider how the EOS is likely to affect the conservation objectives for the site and/or its interest/qualifying features (i.e. the integrity of the site). For ecosystems, consideration will be given to if the proposals are likely to result in a change in ecosystem structure and/or function.

10.6.4.4 For species and habitats the effects of impacts on individual habitats and species will be considered in relation to 'conservation status' which is defined in the CIEEM guidelines as follows:

- For habitats: conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area;
- For species: conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

10.6.4.5 In considering effects on conservation status, reference will be made to relevant available guidance on the existing conservation status of the feature. Such judgements will be based, wherever possible, on quantitative evidence. However, where necessary the professional judgement of an experienced ecologist will be applied.

10.6.4.6 For those effects considered significant, the effect will be characterised as appropriate (e.g. adverse or beneficial) and qualified with reference to the geographic scale at which the effect is significant (e.g. an adverse effect significant at a national level). The output will be dependent on both the characteristics and magnitude of the impact and the value of the feature concerned. For example, an affected feature that, as a whole, is of national value may be subject to effects that only affect that feature at a local-scale and do not affect it at a national level.

10.6.4.7 In order to provide consistency of terminology in the conclusions of the assessment, the residual effects will be translated to a significance level on a scale of negligible, minor, moderate and major comparable to that to be used in the other assessments which will be reported within the ES, as outlined in Table 10-5. These conclusions will be provided in each case in brackets following the equivalent CIEEM assessment conclusion.

**Table 10-5: Relating CIEEM Assessment to Terminology Used in Other Chapters**

| Effects significance terminology used in other chapters | | Equivalent CIEEM assessment conclusion |
|---|---|---|
| Significant (Beneficial) | Major Beneficial | Beneficial effect on structure/function or conservation status at regional, national or international level. |
| | Moderate Beneficial | Beneficial effect on structure/function or conservation status at County or District level. |
| Not significant | Minor Beneficial | Beneficial effect on structure/function or conservation status at Site or local level. |
| | Negligible | No effect on structure/function or conservation status. |
| | Minor Adverse | Adverse effect on structure or conservation status at Site – local level |
| Significant (Adverse) | Moderate Adverse | Adverse effect on structure/function or conservation status at County or District level. |
| | Major Adverse | Adverse effect on structure/function or conservation status at regional, national or international level |

## 10.7 Potential Effects and Mitigation

10.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

10.7.1.2 Compliance with planning policy (Section 10.3) requires that the EOS considers and engages a mitigation hierarchy, requiring the highest level to be applied, where possible. The mitigation hierarchy is also fundamental to BNG. There are four sequential steps that must be taken throughout the lifecycle of a project where there is potential for impacts on IEFs:

- Avoidance – actions taken to avoid causing impacts to the environment prior to beginning development (for example, altering the route alignment to avoid a feature of ecological importance);
- Minimisation – measures taken to reduce the duration, intensity, extent and/or likelihood of the unavoidable environmental impacts caused by development (for example, adapting the development design to minimise impacts);
- Restoration or rehabilitation – actions taken to repair environmental degradation or damage following unavoidable impacts caused by development; and

- Offsets – measures taken to compensate for any adverse environmental impacts caused by development which cannot be avoided, minimised and/or restored (e.g., including habitat creation to offset losses).

10.7.1.3 There is the potential for the following impacts on IEF's during construction and decommissioning:

- Habitat loss: permanent and/or temporary habitat loss;
- Habitat degradation: fragmentation and habitat severance through land take with the potential to affect protected and/or notable species[6], or through changes in water quality or quantity; or through changes in air quality;
- Direct mortality, disturbance and harm to animals, including the displacement of species from the proximity of the EOS;
- Spread of invasive species either from or onto the land, or within the boundary of the EOS; and
- Disturbance or displacement as a result of Indirect impacts, such as watercourse pollution, sedimentation and dust deposition, noise and vibration, lighting of sensitive habitats and increased visual disturbance.

10.7.1.4 During the operational phase the only substantial above ground development will be at the proposed Converter Station. The assessment will consider the potential for the proposed Converter Station to result in disturbance or displacement as a result of indirect impacts such as lighting of sensitive habitat, noise and/or visual impacts.

10.7.1.5 It is noted that there are also above ground elements at the proposed UK Landfall and along the proposed EOS HVAC and HVDC Cable Routes, however these are limited to: manhole covers of approximately 2 m by 2 m and 1 m by 1 m set flush to, or just above, ground level at the Transition Joint Bay (TJB) and above the Fibre Optic Cable (at the proposed UK Landfall); and manhole covers of approximately 2 m by 2 m set flush to or just above ground level at 800 m to 1,200 m intervals along the proposed Onshore HVAC and HVDC Cable Routes (link boxes) – see Volume 01, Chapter 02: UK Project Description.

10.7.1.6 Works to above ground elements at the UK Landfall and Proposed EOS HVAC and HVDC Cable Routes during the operational could require small scale excavations. While such works are expected to be small in scale and temporary in nature, at this stage on a precautionary basis (in the absence of a detailed design), IEF's associated with these elements of the EOS will be scoped into the assessment of potential impacts (and associated effects) during the Operational phase. All potential impacts identified for construction and decommissioning in Section 10.6.2 will be considered.

### 10.7.2 Embedded Mitigation and Good Practice Measures

10.7.2.1 The EOS will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded

[6] For example, removal of hedgerow habitat leading to severance of suitable habitat for hazel dormouse moving between areas of more optimal habitat or impacting bat commuting corridors.

mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as *"mitigation measures that have been incorporated into a project's description and form an inherent part of the project's design"* (ISEP, 2024). The embedded mitigation measures which are relevant to this Chapter are presented in the table below (Table 10-6).

**Table 10-6: Embedded Mitigation Measures of Importance to Onshore Biodiversity**

| Measure Proposed | Rationale |
|---|---|
| Outline Construction Environmental Management Plan (CEMP) | To reduce the effect of potentially significant harmful effects on Onshore Biodiversity receptors in compliance with environmental legislation. The outline CEMP will detail and formalise measures that will be implemented prior to and during construction of the EOS to mitigate construction-related effects on Onshore Biodiversity.<br><br>A detailed CEMP will be produced in accordance with the outline CEMP following the Development Consent Order (DCO) to implement the measures outlined in the outline CEMP for the UK Scheme. Further details are provided in Volume 01, Chapter 02: UK Project Description. |
| Outline Landscape and Ecological Management Plan (LEMP) | To provide a framework for the long-term management, protection and enhancement of habitats and landscape features associated with the EOS, including reinstatement of temporary working areas and delivery of habitat creation at the proposed Converter Station. The outline LEMP will set out high-level mitigation, enhancement and management measures to ensure that landscaping, ecological mitigation and BNG commitments are delivered, maintained and monitored appropriately throughout construction and into operation. |
| Sensitive Timing of Construction Activities | To avoid disturbance to species during critical periods such as bird breeding, bat roosting, dormouse active season, amphibian breeding and reptile hibernation. |
| Sensitive cable routing and/or trenchless techniques | Sensitive cable routing will be used to avoid or minimise effects on habitats and Onshore Biodiversity receptors where practicable. Where this is not possible trenchless techniques will be considered. In addition, the footprint of temporary working areas will be designed to minimise the extent of habitat loss as far as is practicable. This is the preferred measure and may develop alongside the design. |
| Pollution Prevention and Surface Water Protection Measures | To prevent runoff, sedimentation, accidental spills or contamination of watercourses supporting otter, water vole, fish, aquatic macro-invertebrates and designated wetland features. |
| Invasive Species Biosecurity Protocol | To prevent spread of terrestrial and aquatic invasive non-native species during construction via plant, machinery, soils and water transfer. To align with legislative requirements. |
| Operational Environmental Management Plan (OEMP) | An outline version of the OEMP will be included within the DCO application providing details of specific commitments and how these will be secured. |

| Measure Proposed | Rationale |
|---|---|
| Decommissioning Environmental Management Plan (DEMP) | A DEMP will be prepared following appropriate environmental legislation and agreed with the relevant authorities at the time of decommissioning. |

10.7.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed EOS development and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

10.7.2.3 As the EOS advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective and compliant with regulatory standards and stakeholder input.

10.7.2.4 The EOS design will seek to avoid direct impacts on sites designated on the basis of their importance for nature conservation and minimise impact on protected and/or notable habitats and species.

10.7.2.5 Trenchless techniques and/or sensitive cable routing will be used, where practicable, to avoid or minimise impacts on main watercourses and important hedgerows. Temporary working areas will also be designed to keep habitat loss to the minimum necessary. Where trenchless methods are not feasible for engineering or technical reasons, existing gaps in hedgerows will be used wherever practicable and the working width at hedgerow crossings will be reduced to limit impacts.

10.7.2.6 Adherence to the use of artificial lighting during construction and operation is to be kept to the minimum necessary. Where lighting cannot be avoided (for example, for health and safety reasons) it will be designed to minimise light spill onto IEFs. Where practicable, motion-activated lighting will be used instead of permanent lighting, such as for security at construction compounds and at the proposed Converter Station. Cable installation working hours may also be adjusted to avoid the need for artificial lighting. Where necessary, artificial lighting will be used for safety and security in specific locations (see Volume 01, Chapter 02: UK Project Description).

10.7.2.7 Standard construction control measures will be implemented within the CEMP to minimise the potential for impacts as a consequence of pollution and dust deposition. An outline CEMP will be submitted as part of the DCO application (see Volume 01, Chapter 02: UK Project Description for further details).

10.7.2.8 The timing of specific elements of works will be sensitively timed to avoid or reduce impacts (e.g. avoiding bird breeding season for vegetation clearance) where practicable.

### 10.7.3 BNG Calculation

10.7.3.1 Currently NSIP's are not mandated to deliver BNG. However, that requirement will become mandatory from May 2026, prior to DCO application submission for the UK Scheme. The Applicant will be required to submit a BNG calculation as part of the DCO application using the SBM (Chartered Institute of Ecology and Environmental Management (CIEEM), 2016). The calculation will target achieving 10% BNG. Where necessary the DCO will consider the inclusion of land required to ensure that BNG can be achieved, or off-site BNG provision sourced.

10.7.3.2 The Applicant will review any change in the legislative BNG requirements that come forward post-scoping and update its position accordingly.

### 10.7.4 Scoping Assessment

10.7.4.1 The topics proposed to be scoped in and scoped out of the Onshore Biodiversity assessment are provided in Table 10-7.

10.7.4.2 For buried onshore cables, operational effects are scoped out for Onshore Biodiversity receptors except where permanent above ground infrastructure is present (e.g., converter station, any lit security areas), in line with recent PINS Scoping Opinions for underground linear NSIPs in East Anglia.

**Table 10-7: Elements Scoped In and Out for Onshore Biodiversity**

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction, Operational and Decommissioning | Construction and Decommissioning - All<br><br>Operational – Converter Station | Temporary or permanent loss of supporting habitats within or adjacent to designated sites.<br>Disturbance or displacement of qualifying species due to noise, vibration, human presence, plant and machinery movements and night-time lighting.<br>Risk of pollution, sedimentation or changes in hydrology affecting sensitive water-dependent habitats.<br>Habitat fragmentation or reduction in ecological connectivity leading to functional isolation of habitat patches.<br>Degradation of vegetation communities through dust deposition or soil compaction. | SPAs/Ramsar sites designated solely for features of ornithology importance located up to 20 km from the EOS Scoping Boundary | Scoped In | Potential for temporary and permanent habitat loss.<br>Potential for degradation disturbance, pollution and/or displacement of species/habitats for which the sites are designated.<br><br>These impacts will be addressed primarily within the Ornithology chapter of the ES.<br>The Onshore Biodiversity chapter of the ES will include (where necessary) an assessment of the effects upon the wider habitats which these sites support and any associated impacts upon other qualifying features/reasons for designation. |
| Operational | Onshore Cable Route | | | Scoped Out | Underground HVAC and HVDC cables cause no permanent above ground land take apart from up to 25 small link boxes (each up to 2 m by 2 m).<br>After reinstatement, the land returns to agriculture/grassland with negligible operational-phase ecological effect. |
| Construction, Operational and Decommissioning | Construction and Decommissioning - All<br><br>Operational – Converter Station | | SPA, SAC and/or Ramsar sites (excluding those designated | Scoped In | Potential for temporary and permanent habitat loss.<br>Potential for degradation disturbance, pollution and/or displacement of species/habitats for which the sites are designated. |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Operational | Onshore Cable Route | | purely for features of ornithology importance) to 20 km from the EOS Scoping Boundary | Scoped Out | Underground HVAC and HVDC cables cause no permanent above ground land take apart from up to 25 small link boxes (each up to 2 m by 2 m). After reinstatement, the land returns to agriculture/grassland with negligible operational-phase ecological effect. |
| Construction, Operational and Decommissioning | Construction and Decommissioning - All<br><br>Operational – Converter station | | Statutory Designated Sites located up to 2 km or 5 km from the EOS Scoping Boundary | Scoped In | Potential for temporary and permanent habitat loss.<br>Potential for degradation disturbance, pollution and/or displacement of species/habitats for which the sites are designated.<br><br>5 km buffer for sites designated on the basis of freshwater aquatic features; 2 km buffer in all other cases. |
| Operational | Onshore Cable Route | | | Scoped Out | Underground HVAC and HVDC cables cause no permanent above ground land take apart from up to 25 small link boxes (each up to 2 m by 2 m). After reinstatement, the land returns to agriculture/grassland with negligible operational-phase ecological effect. |
| Construction, Operational and Decommissioning | Construction and Decommissioning - All<br><br>Operational – Converter Station | Loss or modification of locally important habitats that support protected or priority species.<br>Disturbance of species using these sites for | Non-statutory Designated Sites | Scoped In | Potential for temporary and permanent habitat loss.<br>Potential for degradation disturbance, pollution and/or displacement of species/habitats for which the sites are designated. |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | foraging, commuting or shelter.<br>Reduced habitat quality through soil disturbance, dust, nutrient enrichment or invasive species introduction. | | | 5 km buffer for sites designated on the basis of freshwater aquatic features;<br>2 km buffer in all other cases. |
| Operational | Onshore Cable Route | | | Scoped Out | Underground HVAC and HVDC cables cause no permanent above-ground land take apart from small link boxes. Following reinstatement, habitats return to agriculture/grassland and no regular operational activity occurs. Therefore, there is no credible pathway for operational habitat loss, disturbance, or habitat degradation. |
| Construction and Decommissioning | Construction and Decommissioning - All<br><br>Operational – Converter Station | Destruction or modification of ponds and terrestrial refuges used for breeding, sheltering or dispersal.<br>Risk of killing or injury during vegetation clearance, ground excavation or machinery movement.<br>Fragmentation or severance of terrestrial habitats important for seasonal movement.<br>Pollution of water bodies via runoff, affecting breeding success or larval development. | Amphibians (including great crested newt) | Scoped In | Potential for temporary and permanent habitat loss (waterbodies and terrestrial habitat); direct mortality during site clearance; habitat degradation and disturbance. |
| Operational | Onshore Cable Route | | | Scoped Out | After reinstatement, no operational works occur around ponds or terrestrial habitat and no regular human presence is anticipated. With cables buried and link boxes sealed, there is no credible operational pathway for disturbance, severance, lighting or water quality change. |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction, Operational and Decommissioning | Construction and Decommissioning - All<br><br>Operational – Converter Station | Loss or disturbance of trees and structures with potential roost features.<br>Severance of hedgerows or tree lines used as commuting routes.<br>Light spill leading to changes in foraging behaviour or displacement from high-value feeding areas.<br>Disturbance of hibernation or maternity roosting areas if present along the route. | Bats | Scoped In | Potential for removal of trees containing PRFs and impacts to hedgerows acting as bat flightlines.<br>Potential for disturbance of bats during the construction operational and decommissioning phases.<br>Permanent loss of foraging/commuting habitat at proposed Converter Station Site. Temporary loss of habitat at the UK Landfall and along cable routes during the construction phase (small scale). |
| Operational | Onshore Cable Route | | | Scoped Out | Following hedgerow reinstatement and with no permanent lighting or structures along the cable route, operational severance/lighting risks to commuting/foraging bats are negligible.<br>Operational bat effects are only relevant where permanent lighting/buildings exist (e.g., Converter Station, security lighting). |
| Construction, Operational and Decommissioning | Construction and Decommissioning - All<br><br>Operational – Converter Station | Removal or fragmentation of hedgerows, scrub or woodland used for nesting, feeding or dispersal.<br>Increased risk of injury/mortality during vegetation clearance. | Hazel Dormouse | Scoped In | Potential for loss and severance of hedgerow habitat.<br>Potential for adverse impacts through introduction of artificial lighting in proximity to suitable habitat; disturbance (noise) and degradation/fragmentation of habitat. |
| Operational | Onshore Cable Route | | | Scoped Out | No operational lighting, no regular activity and reinstated hedgerows and scrub mean no credible operational |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | Habitat degradation from lighting, noise or edge effects | | | disturbance for dormouse along the reinstated buried cable. Operational effects relate only to permanent above-ground assets if located in/near suitable habitat. |
| Construction, Operational and Decommissioning | All | Disturbance, displacement or potential harm during works adjacent to watercourses.<br>Destruction or modification of bankside vegetation, burrows, holts or feeding areas.<br>Water quality deterioration (sediment, pollutants) affecting aquatic habitats.<br>Fragmentation of riparian corridors through temporary culverting or access tracks. | Otter and water vole | Scoped In | Potential for crossing of watercourses suitable for otter and water vole leading to potential for direct impacts on individuals and their habitat.<br>Potential for indirect effects due to noise and vibration, visual disturbance, habitat fragmentation and degradation; water course pollution and sedimentation. |
| Construction, Operational and Decommissioning | All | Disturbance or damage to main and subsidiary setts.<br>Severance of territories or disruption of foraging routes.<br>Increased mortality risk due to open trenches or vehicle movements. | Badger | Scoped In | Potential for direct impacts to setts and severance/disturbance of territories.<br>Potential for indirect effects due to noise and vibration, habitat fragmentation and degradation. |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction and Decommissioning | Construction and Decommissioning – All<br><br>Operational – Converter Station | Loss of basking, foraging or hibernation habitat. Killing or injury during vegetation clearance or topsoil stripping. Habitat fragmentation preventing movement between foraging patches. | Reptiles | Scoped In | Potential for temporary and permanent habitat loss<br>Potential for direct mortality and habitat fragmentation/degradation. |
| Operational | Onshore Cable Route | | | Scoped Out | Buried cables cause no permanent above-ground land take apart from small link boxes.<br>After reinstatement, the land returns to agriculture/grassland with negligible operational-phase ecological effect. |
| Construction, Operational and Decommissioning | Construction and Decommissioning – All<br><br>Operational – Converter Station | Loss of species-rich grassland, deadwood or other microhabitats of value to notable species. Disturbance or mortality during soil stripping or vegetation removal. Reduction in floral resources affecting pollinator species. | Terrestrial Invertebrates | Scoped In | Suitability of habitat will be determined during UK Hab survey. Potential for permanent loss of suitable habitat at converter station and temporary loss during the construction, operational and decommissioning phases. |
| Operational | Onshore Cable Route | | | Scoped Out | Post-reinstatement, operational disturbance is absent along the EOS cable route and no permanent habitat change occurs (beyond link boxes). Any long-term habitat change (e.g., creation/management at the converter station) is treated in the converter station assessment and may be beneficial under BNG/outline LEMP. |
| Construction and Decommissioning | All | Disturbance to spawning or nursery habitats | Fish | Scoped In | Potential for crossing of watercourses suitable for fish, leading to potential for direct impacts on individuals and their |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | during watercourse crossing works. Sediment or pollution release, reduced water quality or interruption of flow patterns. Temporary barriers to movement along watercourses. | | | habitat, as well as potentially increased risk of pollution and sedimentation. As solution for watercourse crossings is not yet determined operation scoped in to consider |
| Operational | All | | | Scoped Out | Operational phase of buried crossings entails no in-channel works, no routine access, no noise or vibration and no ongoing water quality pathway after construction controls and reinstatement, so significant operational effects are not anticipated. |
| Construction and Decommissioning | All | Direct habitat loss in ditches and streams at crossing points. Degradation of water quality affecting plant assemblages and macro-invertebrate communities. Physical disturbance of substrate, altering species composition. | Aquatic Macro-invertebrates | Scoped In | Potential for crossing of suitable watercourses leading to permanent habitat loss and risk of pollution and sedimentation |
| Construction and Decommissioning | All | | Aquatic Macrophytes | Scoped In | Potential for crossing of suitable watercourses leading to permanent habitat loss and risk of pollution and sedimentation |
| Transboundary Effects | All | No Impacts anticipated | | Scoped Out | No transboundary effects are expected resulting from the EOS as it is not in proximity to any transboundary border. Potential impacts will be limited to the Study Areas identified in Section 10.2. |

### 10.7.5 Cumulative and Transboundary Effects

10.7.5.1 Within Volume 01, Chapter 06: EIA Approach and Methodology it will be detailed how potential cumulative effects will be evaluated through a Cumulative Effects Assessment (CEA). Examples will also be given of other projects likely to be included within that assessment.

10.7.5.2 A CEA for Onshore Biodiversity will consider the MDS for each considered project, plan or activity. This will be in line with the methodology outlined within Volume 05, Chapter 32: Approach to Cumulative Effects.

10.7.5.3 As set out in Volume 01, Chapter 06: EIA Approach and Methodology, transboundary effects are defined as effects that would affect the environment in another state within the European Economic Area ('EEA'), i.e. effects which would be experienced beyond the borders of the UK.

10.7.5.4 The potential effects of the EOS will be restricted to IEF's associated with the Study Areas identified in Section 10.2. Transboundary effects are therefore scoped out of further assessment in relation to Onshore Biodiversity (excluding ornithology, see Volume 04, Chapter 23: Ornithology).

## 10.8 Assumptions, Limitations and Uncertainties

10.8.1.1 It is assumed that all of the areas of ancient woodland will be retained and measures will be put in place to seek to avoid indirect effects. Impacts on hedgerow and watercourses will be limited to small scale crossing of these features with efforts made to minimise the scale of habitat loss required.

10.8.1.2 Baseline ecological surveys commenced in June 2025 and to date only great crested newt eDNA/HSI and some UK Habitat Classification surveys have been undertaken. It is possible that as the surveys identified within this Chapter are undertaken the requirement for further follow-up surveys is identified. Where this is the case the scope of these surveys would be subject to further discussion with local authorities and/or Natural England as appropriate.

10.8.1.3 It is assumed that any temporary construction compounds associated with construction of the EOS will be located within the EOS Scoping Boundary (Figure 10-1).

10.8.1.4 As set out in Volume 01, Chapter 02: UK Project Description, the precise methodology for decommissioning is not currently known, however impacts are expected to be similar to, or of a lesser magnitude than, construction effects. Therefore, decommissioning effects will not be specifically assessed within the ES, but to represent a worst case, decommissioning effects will be considered to be the same as construction phase effects.

10.8.1.5 Impacts on ornithological features for which the SPA, Ramsar and/or SSSI are designated will be assessed within the Ornithology Chapter of the ES. Volume 04, Chapter 23: Ornithology investigates the potential effects and the proposed

approach to assessment in this regard at the Scoping stage. The assessment of Onshore Biodiversity within the ES will include (where necessary) an assessment of the effects upon the wider habitats which these sites support and any associated impacts upon other (non-ornithological) qualifying features/reasons for designation. Where relevant, cross-references between the Onshore Biodiversity and Ornithology chapters of the ES will be made.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 02, Chapter 11: Onshore Archaeology and Cultural Heritage

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00013 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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Volume 06, Annex 11-1: Gazetteer of Known Designated and Non-designated Assets.

## Acronyms

| Acronym | Definition |
|---|---|
| CIfA | Chartered Institute for Archaeologists |
| CITiZAN | Coastal and Intertidal Zone Archaeological Network |
| DCO | Development Consent Order |
| EACN | East Anglia Connection Node |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| ha | Hectare |
| HER | Historic Environment Record |
| HDD | Horizontal Directional Drilling |
| km | Kilometre |
| LiDAR | Light Detection and Ranging |
| m | Metre |
| mm | Millimetre |
| MDS | Maximum Design Scenario |
| MoRPHE | Management of Research Projects in the Historic Environment |
| NHLE | National Heritage List for England |
| NHRE | National Record for the Historic Environment |
| NMP | National Mapping Programme |
| NPPF | National Planning Policy Framework |
| NPS | National Policy Statement |
| NSIP | Nationally Significant Infrastructure Project |
| PAS | Portable Antiquities Scheme |
| PPG | Planning Practice Guidance |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| WSI | Written Scheme of Investigation |
| ZTV | Zone of Theoretical Visibility |

# 11. Onshore Archaeology and Cultural Heritage

## 11.1 Introduction

11.1.1.1 This Chapter presents the Onshore Archaeology and Cultural Heritage assessment which will consider the potential significant effects on Onshore Archaeology and Cultural Heritage receptors during the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Areas used and receptors considered in this Chapter, only the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. The UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description) is therefore not considered further for Onshore Archaeology and Cultural Heritage.

11.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Onshore Archaeology and Cultural Heritage baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated onshore archaeology and cultural heritage receptors from the proposed components of the EOS; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

11.1.1.3 Archaeology and Cultural Heritage are synonymous with the term ‘historic environment’ as used in the Overarching National Policy Statement (NPS) for Energy (Department for Energy Security and Net Zero (2026a) (NPS EN-1). This is defined at paragraph 5.9.2 as *“All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora”.* The Environmental Statement (ES) assessment will consider the effects of the EOS upon onshore archaeology and cultural heritage and the ability to appreciate and experience the significance of those assets.

11.1.1.4 This Chapter should be read alongside the following Chapters for a broader understanding of the UK Scheme and Onshore Archaeology and Cultural Heritage interactions:

- Volume 01, Chapter 02: UK Project Description;
- Volume 02, Chapter 07: Ground Conditions and Contamination;
- Volume 02, Chapter 12: Traffic and Transport;

- Volume 03, Chapter 19: Offshore Archaeology and Cultural Heritage;
- Volume 04, Chapter 21: Landscape and Visual Impact Assessment; and
- Volume 06, Annex 11-1: Gazetteer of Known Designated and Non-designated Assets.

## 11.2 Study Area

11.2.1.1 The following Study Areas are proposed to establish the baseline for the assessment of effects within the ES. A distance-based approach was undertaken to define the Study Areas to be used within the ES assessment informed by professional judgement. It should be noted that the study areas described below form the basis of the Scoping Report. For the ES, the study areas will be buffered from the Order Limits as the Order Limits will be reduced from the scoping boundary.

11.2.1.2 To assess potential effects on non-designated heritage assets, baseline conditions will be established through a desk-based review of publicly accessible primary and secondary sources relating to Archaeology and Cultural Heritage. This review will cover a Study Area defined by a 500 metres (m) buffer from the EOS boundary and will be presented within a desk-based assessment. The desk-based assessment will inform the need for and scope of further archaeological surveys such as geophysical survey and field evaluation, in consultation with Essex Place Services.

11.2.1.3 To assess potential effects on the heritage significance of designated heritage assets arising from changes to their setting, a Study Area will be defined using a 500 m buffer from the EOS boundary along the onshore cable routes, reflecting the below-ground nature of these works. For the proposed Converter Station, a 5 kilometre (km) buffer from the converter station site, once known, will be used due to the scale of the building and the predominantly flat, open landscape. This Study Area will inform the identification of potential setting impacts and will be refined using the Zone of Theoretical Visibility (ZTV) and through consultation with Essex Place Services and Historic England.

11.2.1.4 Based upon the nature of the EOS, likely significant effects to designated or non-designated heritage assets are not anticipated beyond the defined Study Areas.

## 11.3 Relevant Legislation, Planning Policy and Guidance

### 11.3.1 Legislation

11.3.1.1 The following legislation underpins the assessment of archaeology and cultural heritage within the planning process:

- Ancient Monuments and Archaeological Areas Act 1979 (HM Government, 1979);
- Protection of Military Remains Act 1986; and
- Planning (Listed Buildings and Conservation Areas) Act 1990 (HM Government, 1990).

### 11.3.2 National Policy Statements

11.3.2.1 The assessment of effects upon Archaeology and Cultural Heritage will be made with reference to the UK Government National Policy Statement(s) (NPSs). The NPSs set out policies that the UK Government considers should be taken into account in decisions on Nationally Significant Infrastructure Projects (NSIPs). The following will be relevant to the assessment:

- Overarching NPS for Energy (NPS EN-1 (Department for Energy Security and Net Zero, 2026a));
- NPS for Renewable Energy Infrastructure (specifically paragraph 1.6.3; NPS EN-3 (Department for Energy Security and Net Zero, 2026b)); and
- NPS for Electricity Networks Infrastructure (NPS EN-5 (Department for Energy, Security and Net Zero, 2026c)).

11.3.2.2 NPS EN-1 discusses the generic impacts on the historic environment associated with the construction, operation and decommissioning of energy infrastructure. Paragraphs 5.9.1-5.9.8 set out the need to consider both designated and non-designated heritage assets.

11.3.2.3 Paragraph 5.9.8 of NPS EN-1 sets out that where non-designated heritage assets of archaeological interest are of equivalent significance to scheduled monuments or Protected Wreck Sites, they are subject to policy considerations that apply to designated heritage assets (NPS-EN-1 paragraph 5.9.8). In addition, non-designated heritage assets of lesser significance should be considered within any decision making (NPS EN-1 paragraph 5.9.9).

11.3.2.4 In relation to the assessment of the setting of heritage assets, NPS EN-1 sets out the applicant should set out the significance of heritage assets and the contribution made by their setting to that significance. It also highlights that the level of detail should be proportionate to the importance of the asset (NPS EN-1 paragraph 5.9.12)

11.3.2.5 With regard to the scope of archaeological surveys NPS EN-1 sets out that the applicant should carry out appropriate desk-based assessment and where desk-based assessment is insufficient, field survey may be required to inform any assessment of significance (NPS EN-1 paragraph 5.9.13).

11.3.2.6 In relation to designated heritage assets, NPS EN-1 states that development which would give rise to substantial harm to Grade II Listed Buildings or Grade II registered park and garden should be exceptional or for heritage assets of the highest significance (Grade I and II* listed buildings, scheduled monuments, designated battlefields, world heritage sites, Grade I and II* registered parks and gardens) should be wholly exceptional (NPS EN-1 paragraph 5.9.30 and paragraph 5.9.31). It goes on to say that development giving rise to substantial harm to a designated heritage asset should only be permitted where necessary to deliver substantial public benefits which outweigh the harm occasioned (NPS EN-1 paragraph 5.9.32).

11.3.2.7 Archaeology is considered in NPS EN-5 when weighing up the use of overhead lines and underground cables. The consideration of effects to below ground archaeological remains is balanced against the visual effects of using overhead lines (NPS EN-5, paragraph 2.9.26).

### 11.3.3 National Planning Policy Framework

11.3.3.1 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2024a) was published in December 2024 and updated in 2025, however a revised version of the framework is under consultation and is expected to come into force in 2026. The NPPF sets out the government's planning policies for England and how these are expected to be applied.

11.3.3.2 Section 16 of the NPPF, titled '*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 NPPF Section 16 is to ensure that decision makers, 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.

11.3.3.3 NPPF is not directly applicable to NSIPs but may be considered as important and relevant. Paragraph 4.1.18 of NPS EN-1 confirms that the Secretary of State should consider the guidance within the NPPF where appropriate (Department for Energy Security and Net Zero, 2026a). Section 16 of NPPF relates to the historic environment and is broadly consistent with NPS EN-1. In accordance with Section 104 Planning Act 2008 (HM Government, 2008), the Secretary of State must have regard to the NPSs and so these take priority.

11.3.3.4 Further Guidance on the application of the policies set out in NPPF are contained within National Planning Practice Guidance (PPG) which contains a specific section on conserving and enhancing the historic environment (Ministry of Housing, Communities and Local Government, 2019).

### 11.3.4 Guidance

11.3.4.1 The Archaeology and Cultural Heritage chapter will follow the professional guidance set out below:

- Chartered Institute for Archaeologists (CIfA) (2020) Standard and Guidance for Historic Environment Desk-Based Assessment;
- Managing Significance in Decision-taking in the Historic Environment. Historic Environment Good Practice Advice Note in Planning 2 (Historic England, 2015a);
- The Setting of Heritage Assets, Historic Environment Good Practice Advice Note 3 (Historic England, 2017);
- Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide (Historic England, 2015b);

- Principles of Cultural Heritage Impact Assessment in the United Kingdom (CIfA, Institute of Historic Building Conservation and IEMA, 2021);
- Historic England's (2019) Statements of Heritage Significance: Analysing Significance in Heritage Assets, Advice Note 12;
- Preserving Archaeological Remains, Decision-taking for Sites under Development (Historic England, 2016); and
- Geoarchaeology, Using Earth Sciences to understand the Archaeological Record (Historic England, 2015c).

### 11.3.5 Local Planning Policy

11.3.5.1 The EOS lies within the district of Tendring (Tendring District Council, 2022). The following policies from the Tendring District Local Plan 2013-2033 and Beyond (Section 2) are relevant to Onshore Archaeology and Cultural Heritage:

- SPL3 Sustainable Design (Part A, Paragraph d);
- PPL 7 Archaeology;
- PPL 8 Conservation Areas; and
- PPL 9 Listed Buildings.

## 11.4 Consultation and Engagement

11.4.1.1 Consultation relating to Onshore Archaeology and Cultural Heritage has been undertaken with Historic England (consultation will continue with consultees following Scoping, as detailed within Volume 01, Chapter 04: Approach to Consultation).

11.4.1.2 An initial consultation meeting was held with Historic England in July 2025. Amongst other topics, Historic England highlighted the importance of the cumulative assessment within the ES with regard to the changes to the setting of heritage assets where this has the potential to harm significantly.

11.4.1.3 A second meeting was held with Historic England in January 2026 to update the consultees on the progress that had been made with the project and provide an overview of the results of an area of geophysical survey ahead of the submission of the scoping report.

11.4.1.4 Consultation with Historic England and Essex Place Services will be carried out as part of the EOS's development and assessment.

11.4.1.5 Responses on the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council, Tendring District Council and Mid Suffolk and Babergh District Councils. Comments relevant to onshore archaeology and cultural heritage were only provided by Essex County Council and these are summarised and responded to in Table 11-1 below.

Table 11-1: Non-statutory Consultation Responses: Onshore Archaeology and Cultural Heritage

| Consultee | Summary of Comment | How Matter Will be Addressed |
|---|---|---|
| Essex County Council | Essex County Council note it is unavoidable for Tarchon to result in serious, lasting negative residual impacts on the community and locality (amenity loss/reduced recreational activity, tourism, culture and heritage). Essex County Council expects robust mitigation for impacts-benefits to be secured by legal agreement(s) prior to close of DCO examination. | Where practicable, areas of high archaeological potential will be avoided to reduce or minimise impacts. Where avoidance is not practicable, an appropriate mitigation strategy will be developed in consultation with Essex Place Services and Historic England and agreed through the preparation of a Written Scheme of Investigation (WSI). |
| Essex County Council | The proposed landward cable connection and large converter station are likely to have considerable impact on the historic environment and especially the archaeological deposits. The proposed cable route(s) passes through extensive areas of known archaeological deposits many recorded from aerial photographic research. There is also a high potential of the cable route identifying previously unknown archaeological deposits. | The establishment of the archaeological baseline for the EOS will include desk-based assessment and field survey methods developed in consultation with Essex Place Services following Scoping. Where possible, areas of high archaeological potential will be avoided and where avoidance is not possible an appropriate mitigation strategy will be developed in consultation with the statutory consultees and agreed through the preparation of a WSI |
| Essex County Council | There have been no discussions on Cultural Heritage and specifically archaeology to inform the non-stat consultation. | Consultation with Essex Place Services on cultural heritage and archaeology will continue following Scoping. |
| Essex County Council | A programme of geophysical survey in targeted areas is necessary at the outset. It is necessary that geophysics should be carried out along the entire route, converter station area and area of landfall to inform of the potential of archaeological remains and to determine their significance.<br>As part of any such project we would recommend that a programme of trial trenching is used to ground truth the geophysics results.<br>The assessment of the designated heritage assets and below ground archaeology should be integrated into the decision making on the final route of the cable. | The consultee response is noted. Once the cable route, landfall location and converter station location have been decided, a staged approach for preliminary desk studies, geophysical surveys and trial trenching in any agreed locations would be undertaken to establish the baseline. |
| Essex County Council | At present little archaeological fieldwork has been proposed in this area and it will be expected that some form of evaluation will be required prior to DCO submission. The | The establishment of the archaeological baseline for the EOS will include desk-based and field survey methods developed in consultation with Essex Place Services and |

| Consultee | Summary of Comment | How Matter Will be Addressed |
|---|---|---|
| | exact nature of this should be agreed in advance and should consider the potential for deeply buried archaeological remains and palaeo-environmental remains. This would help to determine areas of least impact on which to select the temporary compound locations and underground cable route. | Historic England following Scoping. This will inform the need for and scope of further assessment and mitigation measures. |
| Essex County Council | The need to excavate a corridor with a significant width (working width of up to 60 m wide or up to 110 m where Horizontal Directional Drilling (HDD) is used) has the potential to destroy known archaeological deposits and possible unknown areas of archaeological importance. It will be important to identify the extent, complexity and significance of these archaeological deposits at the earliest opportunity and especially in advance of the submission of the DCO to allow for appropriate consideration to be given to the impact of the scheme on the historic environment. | The establishment of the archaeological baseline for the EOS will include desk-based and field survey methods developed in consultation with Essex Place Services and Historic England. This will inform the assessment of effects within the ES chapter. Effects to buried archaeological remains will be mitigated through avoidance by design where practicable or through preservation by record (archaeological excavation and recording). Mitigation measures will be agreed through provision of a Written Scheme of Investigation to be agreed with Essex Place Services and Historic England. |
| Essex County Council | The potential for minimising the impact of the cable route [on heritage] should be explored though shared areas with the Five Estuaries Windfarm. | As set out in Volume 01, Chapter 04: Approach to Consultation, engagement has been undertaken (in the form of meetings and written correspondence), and will continue with, the promoters of both Five Estuaries and North Falls projects; and also with the promoters of the East Anglia Connection Node (EACN) (Norwich to Tilbury), Sea Link and NeuConnect projects. Sharing of working areas has been/is being explored. However, as described in Volume 01, Chapter 02: UK Project Description, the EOS and these other NSIPs are only envisaged to interact (cross) in close proximity to National Grid's proposed EACN Substation. |
| Essex County Council | The site selection process aims to avoid significant impacts with cultural heritage designations. Whilst this will include the known heritage assets there is potential along the route to uncover further archaeological remains of high significance | The establishment of the archaeological baseline for the EOS will include desk-based and field survey methods developed in consultation with Essex Place Services following Scoping. This will identify previously unknown |

| Consultee | Summary of Comment | How Matter Will be Addressed |
|---|---|---|
| | and the early identification of these will allow for scheme design changes and/or mitigation in advance of an application. | archaeological remains within the EOS. Where appropriate, design changes or a mitigation strategy will be put forward in the ES to avoid, reduce or off set impacts to heritage assets. |
| Essex County Council | The proposed development is likely to have considerable indirect impacts on built heritage assets through change to their wider settings, particularly where the agricultural or marine setting contributes to the significance of the affected heritage asset and to the way this significance is perceived, appreciated and understood. | The only substantial built element of the EOS is the proposed Converter Station. The change to the setting of heritage assets where this affects significance as a result of the introduction of the Converter Station within the landscape will be considered within the ES. Temporary effects arising from construction activities for the buried cable will also be considered as effects during the construction phase. |
| Essex County Council | As the proposal is still at an early stage, it is difficult to provide a comprehensive list of heritage assets which could potentially be affected by the construction of both onshore and offshore elements. Generally, the impact on the settings of designated and non-designated heritage assets which are likely to be affected by the proposal shall be assessed as per Historic England's (2017) Guideline, The Setting of Heritage Assets - Historic Environment Good Practice Advice in Planning Note 3 (Second Edition). | The assessment of the effects of the EOS upon the significance of heritage assets through change in their setting will follow the steps outlined in Historic England's (2017) guidance, The Setting of Heritage Assets - Historic Environment Good Practice Advice in Planning Note 3 (Second Edition). |
| Essex County Council | When assessing the impact of the proposed development on the setting of the affected heritage assets, this should take into account not only of the visual impact but also of the harm caused by additional traffic, noise, vibration, light pollution at construction stage, in operation and during dismantling. These elements have the potential to permanently or temporarily alter those elements of setting which make a positive contribution to the significance of the heritage assets and a mitigation strategy shall be considered. | Effects arising during the construction phase through construction activities introducing noise, dust, plant movement, flashing lights and vibration will be assessed as part of the construction phase assessment within the ES as this is when effects of this type will be greatest. Where appropriate, a mitigation strategy will be put forward in the ES to reduce or off set impacts to heritage assets. |

| Consultee | Summary of Comment | How Matter Will be Addressed |
|---|---|---|
| Essex County Council | The proposal sits in close proximity to other NSIP proposals. Therefore the cumulative impact of the existing and proposed projects on the relevant heritage assets should be taken into account. | The only substantial built element of the EOS is the proposed Converter Station. The consideration of cumulative impacts was highlighted in the initial consultation meeting with Historic England (July 2025) and will continue to be taken into account as part of the assessment. |
| Essex County Council | The proposal should be supported by a detailed Heritage Assessment providing sufficient information regarding the significance of the heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance, a requirement set out in Paragraph 194 of the NPPF (Historic England, 2017). The impact on the settings of designated and non-designated heritage assets which are likely to be affected by the proposal shall be assessed as per Historic England's (2017) Guideline, The Setting of Heritage Assets - Historic Environment Good Practice Advice in Planning Note 3 (Second Edition). | The assessment of the change to setting as a result of the proposals upon the significance of heritage assets will follow the guidance prepared by Historic England, The Setting of Heritage Assets - Historic Environment Good Practice Advice in Planning Note 3 (Second Edition) (2017). |
| Essex County Council | It is expected that the proposed development would have a degree of less than substantial harm to some of the designated heritage assets affected by the proposal. As such, the local planning authority should weigh this harm against any public benefits of the proposal, including where appropriate, securing its optimum viable use as per Paragraph 215 (Ministry of Housing, Communities and Local Government, 2024a). | It is the Planning Inspectorate and Secretary of State rather than the Local Planning Authority who will weigh the harms of the proposals against public benefits. The ES chapter will set out the level of effect in ES terms; the supporting appendix will set out an assessment of effect and the level of harm. The concordance between the two is presented in Paragraph 11.6.3.4. |
| Essex County Council | Tarchon proposed a wide area for the onshore cable corridor connecting the landfall site to the proposed onshore converter station. As no permanent above ground building is required following the installation of the connecting cables, the proposed development is expected to have a temporary impact upon the setting of any designated heritage assets in | Temporary changes to the significance of heritage assets through change within their setting will be considered during the construction phase and assessed as appropriate. |

| Consultee | Summary of Comment | How Matter Will be Addressed |
|---|---|---|
| | close proximity to the construction works for the proposed underground cabling. | |
| Essex County Council | The area for the onshore converter station has been allocated east of the village of Ardleigh and west of Little Bromley. There are a number of designated heritage assets which are to be impacted, including but not limited to:<br>Grade II Listed Building Jennings Farm;<br>Scheduled cropmark Site south of Ardleigh;<br>Grade II* Listed Building St Marys Church; and<br>Non-designated henge (Little Bromley Hall, EHER 2460)- a cropmark site located south of St Marys Church. | The location of the onshore Converter Station for the Tarchon Project is part of an ongoing site selection process. The site selection will be based upon a number of engineering and environmental factors including archaeology and cultural heritage. The process of site selection will be captured within the ES.<br>The effects of the presence of the proposed Converter Station will be assessed as part of the ES.<br>Cumulative effects will also be included taking into account other NSIPs within the landscape including the EACN project. |
| Essex County Council | Further and more specific advice will be provided when the exact locations and layout of the onshore substation and the onshore cable corridor route have been determined, especially with regards to potential non-designated heritage assets. The council look forward to commencement of engagement on this. | Engagement with Essex Place Services heritage team regarding the EOS is welcomed and will continue throughout the assessment process. |
| Essex County Council | A mitigation strategy to minimise the visual impact of the significant onshore infrastructure on the historic environment shall also be considered. This could be in the form of landscape, green buffers, boundary treatment and the use of sympathetic materials. | Visual impacts of the EOS will be assessed within the Landscape and Visual Impact Assessment, Volume 04, Chapter 21: Landscape and Visual Impact Assessment. Where views and/or the landscape form an important part of the setting of an asset this will be considered where it affects the significance of the asset. Mitigation will be considered as appropriate. |
| Essex County Council | Assessment against the criteria set out in the Hedgerows Regulations 1997 (HM Government, 1997) for archaeology and history should be based on an assessment utilising information form National Heritage List for England (NHLE) for information on Scheduled Monuments (Historic England, | Assessment against the criteria in The Hedgerows Regulations 1997 (HM Government, 1997) for archaeology and history will use the stated data sources as well as historic mapping for the identification of potentially historic hedgerows. |

| Consultee | Summary of Comment | How Matter Will be Addressed |
|---|---|---|
| | n.d.) and the Historic Environment for non-designated heritage assets. | |

## 11.5 Baseline Environment

### 11.5.1 Baseline Conditions

11.5.1.1 The following baseline data was reviewed to inform the archaeology and cultural heritage scoping baseline presented within this Chapter.

- NHLE (Historic England, n.d.) for up to date information on designated heritage assets [accessed 20 January 2026]; and
- Essex Historic Environment Record (HER) for information on non-designated heritage assets [accessed June 2025].

11.5.1.2 Additional proposed data sources to be used to inform the ES and its baseline are set out in Section 11.5.3. Data was reviewed within a 500 m radius of the EOS Scoping Boundary for the purpose of the following section (referred to as the Scoping Study Area).

#### Designated Heritage Assets

11.5.1.3 There are three scheduled monuments, 82 listed buildings and three conservation areas in the 500 m radius buffered from the EOS Scoping Boundary. Of these 31 listed buildings (two grade II*, the rest grade II) and two scheduled monuments lie within the EOS Scoping Boundary (Figure 11-1).

11.5.1.4 The two Grade II* listed buildings within the EOS Scoping Boundary are St Mary's House (1112098) and Church of St Mary (1337175). The two scheduled monuments are a 'heavy anti-aircraft gunsite 350 m northeast of Little Oakley Hall' (1019486) and 'Henge, round barrow cemeteries and enclosure cropmarks 510 m south-west of St Mary's Church' (1489898). The remaining scheduled monument within the Scoping Study Area is 'Settlement site NNE of Lawford House' (1002157) located 370 m to the north of the EOS Scoping Boundary (Figure 11-1).

11.5.1.5 The conservation areas consist of Manningtree and Mistley Conservation Area located 170 m to the north of the EOS Scoping Boundary, Lawford Conservation Area located 415 m to the north of the EOS Scoping Boundary and Great Oakley Conservation Area 460 m to the south (Figure 11-1).

#### Non-designated Heritage Assets

11.5.1.6 The summary of the archaeological and historical baseline is informed by the Essex HER Data within a 500 m radius of the EOS Scoping Boundary. This is supplemented by National Mapping Programme information also provided by the HER. For the purposes of the baseline Portable Antiquities Scheme finds and general findspots are not included here as these represent finds that have been removed and whilst they provide information on the general archaeological potential of the area they are not 'assets' that can be affected by the proposals.

11.5.1.7 References provided in the sections below relate to numbers provided by the HER (prefix MEX) or by NHLE. The locations are shown in Figure 11-2, Figure 11-3 and Figure 11-4.

# Tarchon Interconnector Project

Scoping Report

## English Onshore Scheme Designated Heritage Assets

**Legend**

- English Onshore Scheme Scoping Boundary
- 500m Buffer from English Onshore Scheme Scoping Boundary
- Grade I Listed Building
- Grade II* Listed Building
- Grade II Listed Building
- Scheduled Monument
- Conservation Area

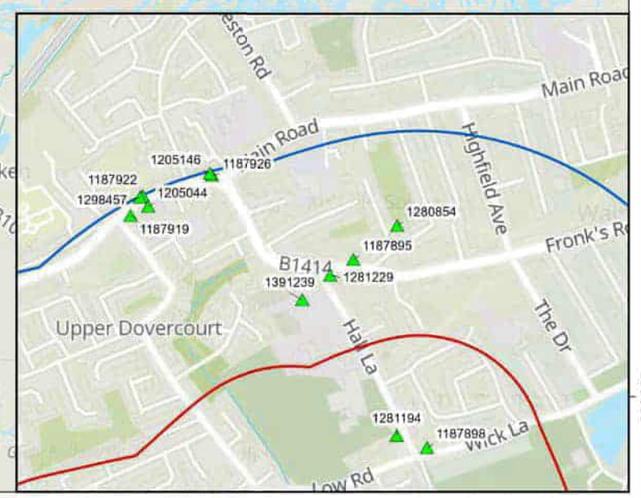
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A120, A137, A133, B1352, B1080, B1070, B1029, B1027, B1414, B1441

1002157, 1254182, 1261450, 1240273, 1254183, 1261442, 1254100, 1112091, 1147743, 1254097, 1337154, 1111419, 1308636, 1337176, 1111421, 1111459, 1337177, 1337155, 1253911, 1493299, 1111418, 1337174, 1337190, 1111420, 1489898, 1261101, 1240272, 1240227, 1254095, 1253954, 1240445, 1240503, 1240502, 1240537, 1240345, 1261062, 1240169, 1240608, 1240505, 1240452, 1240454, 1260994, 1240455, 1261150, 1261032, 1261031, 1308711, 1337189, 1111448, 1147070, 1147160, 1111451, 1111456, 1111450, 1147099, 1469631, 1322616, 1322615, 1141223, 1112102, 1112099, 1112101, 1112100, 1019486, 1112098, 1112097, 1147255, 1112134, 1147248, 1112133, 1205216, 1280904, 1205044, 1187895, 1391239, 1281229, 1281194, 1187898, 1187919, 1187922, 1187926, 1298457, 1280854, 1205146







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Coordinate System: British National Grid

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**Figure 11-1**

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# Tarchon Interconnector Project

Scoping Report

## English Onshore Scheme
## Non-Designated Heritage Assets

**Legend**

- English Onshore Scheme Scoping Boundary
- 500m Buffer from English Onshore Scheme Scoping Boundary
- Prehistoric
- Palaeolithic
- Mesolithic
- Neolithic
- Bronze Age
- Iron Age
- Romano-British
- Anglo-Saxon
- Medieval
- Post-medieval
- 19th Century
- Modern
- Undated
- Roman Road

**Notes**

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**Figure 11-2**

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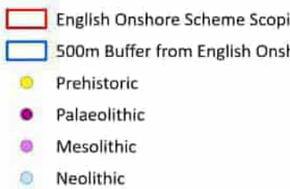
# Tarchon Interconnector Project

Scoping Report

## English Onshore Scheme
## Non-Designated Heritage Assets

**Legend**

- English Onshore Scheme Scoping Boundary
- 500m Buffer from English Onshore Scheme Scoping Boundary
- Prehistoric
- Palaeolithic
- Mesolithic
- Neolithic
- Bronze Age
- Iron Age
- Romano-British
- Anglo-Saxon
- Medieval
- Post-medieval
- 19th Century
- Modern
- Undated



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**Figure 11-3**

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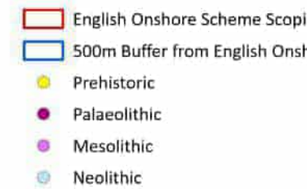
# Tarchon Interconnector Project

Scoping Report

## English Onshore Scheme
## Non-Designated Heritage Assets

### Legend

- English Onshore Scheme Scoping Boundary
- 500m Buffer from English Onshore Scheme Scoping Boundary
- Prehistoric
- Palaeolithic
- Mesolithic
- Neolithic
- Bronze Age
- Iron Age
- Romano-British
- Anglo-Saxon
- Medieval
- Post-medieval
- 19th Century
- Modern
- Undated



### Notes

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**Figure 11-4**

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### Summary of Archaeological and Historical Background

#### *Prehistoric*

11.5.1.8 The prehistoric landscape of north-east Essex particularly between Ardleigh, Little Oakley and the coastal fringe, reveals a complex sequence of human activity beginning in the Palaeolithic. Although direct finds from this period within this specific geographical region are limited, there have been notable sites and artefacts recorded within the wider area, such as the flint implements associated with the Clactonian industry. Palaeolithic evidence from within the EOS Scoping Boundary include several areas of land surfaces - since eroded by wave action - as well as spreads of artefacts and charcoal (MEX37928, MEX 379930).

11.5.1.9 In the Mesolithic, a shift to mobile foraging is evident in the broader region through dense flint scatters and microlith assemblages. This is an indication of seasonal use of riverine and coastal resources. Although formal settlement evidence within the geographical region of the EOS Scoping Boundary is sparse, small-scale finds have been identified within the wider area which suggests there was periodic visitation and continued preference for ecologically rich zones. Only one find from the Mesolithic has been identified within the Scoping Study Area; worked flints were recorded alongside Neolithic lithic scatters (MEX1051346) located at the edge of the EOS Scoping Boundary.

11.5.1.10 By the Neolithic period, the landscape was increasingly shaped by farming and construction of monuments, with evidence for land clearance, early cereal cultivation and pottery production. In the landscape that surrounds the EOS Scoping Boundary, flint scatters, pits and axe finds attest to long term occupation and developing agrarian practices. Though large-scale monuments are less apparent than in other regions, cropmarks hint at enclosures and possible ritual landscapes. There has only been one Neolithic find recorded within the EOS Scoping Boundary, consisting of a single piece sickle, tip half, bifacially pressure flaked, which is 90 millimetres (mm) long (MEX23720). Within the rest of the Scoping Study Area, two further neolithic non-designated assets have been identified; a possible occupation site (MEX12153) 150 m from the scoping boundary and a possible enclosure (MEX50), 190 m from the scoping boundary. A late Neolithic occupation site (MEX12147) was also recorded 50 m east of the EOS Scoping Boundary.

11.5.1.11 Large-scale investigation during gravel extraction within the southeast region in the mid-20$^{th}$ century, uncovered over 100 Bronze Age cremation burials many within barrows, indicating a complex funerary landscape. The area is also known from its elaborately decorated pottery vessels, known as Ardleigh Urns, which have become diagnostic of the Middle Bronze Age in the region. Surrounding evidence of Neolithic and Early Bronze Age flint scatters, pits and later rectilinear field systems illustrates long-term continuity of land use, reflecting the development of an increasingly structured agrarian landscape. Only one Bronze Age asset has been recorded within the EOS Scoping Boundary; a non-designated asset consisting of several large ditches which lie 120 m apart (MEX1051283). A possible

multiperiod site has been identified from cropmarks within the EOS Scoping Boundary, this consists of at least 25 ring ditches and linear features (MEX8587) north of Great Bromley. The ring ditches could indicate Bronze Age activity. Adjacent to this are cropmarks of former field boundaries which have been assigned a Bronze Age date by the HER (MEX1031551).

11.5.1.12 Several possible Bronze Age non-designated heritage assets have also been recorded within the rest of the Scoping Study Area. These include several cropmark features which have been interpreted as a possible henge (MEX1050014), located 15 m northeast of the EOS Scoping Boundary and the site of a ring ditches and an enclosure (MEX1051342) near Low Road in Dovercourt. A middle bronze age pit feature (MEX1051142) is recorded within the EOS Scoping Boundary at Little Oakley.

11.5.1.13 During the Iron Age, the area was characterised by settled agricultural communities living in enclosed farmsteads, with evidence of roundhouses, field systems and storage pits indicating a stable, mixed farming economy. Towards the western parts of the wider region, cropmarks and excavation findings point to increasing landscape organisation and territorial control. At Little Oakley Camp, the construction of an Iron Age promontory enclosure overlooking the Stour estuary, with defensive and possibly symbolic functions, suggests control over inland and maritime movement. There are three non-designated Iron Age assets that have been recorded from within the Scoping Study Area, both located within the EOS Scoping Boundary; a soil mark (MEX1042325) of probable late Iron Age date, a possible occupation site (MEX12095) and an Iron Age farm (MEX10834).

11.5.1.14 There are also several non-designated assets of undefined prehistoric date. Of these, five are located within the EOS Scoping Boundary. These include cropmarks of curvilinear and rectilinear features (MEX1031511) and cropmarks comprising elements of a field system with trackways, enclosures and a pit (MEX11367). Further cropmarks have identified a ring ditch to the east of Little Oakley (MEX12136), a cropmark enclosure (MEX1039932) and another possible enclosure (MEX1040177). A possible trackway identified as a cropmark has been identified and assigned a general prehistoric date (MEX1031507). A further enclosure cropmark (MEX1039856) is recorded within the Scoping Study Area 70 m to the north of the EOS Scoping Boundary.

***Romano-British***

11.5.1.15 The landscape around the EOS Scoping Boundary of the Essex coast played a strategically significant role during the Roman period, owing to its fertile soils, navigable rivers and proximity to major urban and military centres, such as Colchester (Camulodunum), just to the west. Archaeological evidence reveals a landscape rapidly transformed by the imposition of Romanised agricultural practices and infrastructure. Villa complexes and associated field systems suggest the development of a rural elite economy integrated into wider imperial networks. Smaller farmsteads and roadside settlements also appear, indicating a hierarchy of occupation and land exploitation extending toward the coast.

11.5.1.16 Roman influence extended toward the estuarine and coastal zones east of Little Oakley. Evidence indicates the use of these areas for salt production, fishing and trade, supported by finds of briquetage (a coarse pottery used in salt production), coin hoards and pottery linked to maritime activity. Overall, this region exemplifies how rural Essex was drawn into the Roman imperial system through villa agriculture, resource exploitation and economic connectivity.

11.5.1.17 There have been a number of non-designated assets recorded within the EOS Scoping Boundary dating to the Roman period. These include the location of several possible Roman roads/routes (MEX11376, MEX11472, MEX11565, MEX9249), a Roman villa site (MEX12087), two burial sites (MEX12105, MEX12908), earthwork features (MEX24127) and a possible occupation site with a double-ditched rectangular enclosure, with entrances, a curvilinear enclosure, trackways, linear features, road and field boundaries (MEX43488). Cropmarks of field boundaries and a possible roman road are recorded at Cattsgreen Farm (MEX1031552).

11.5.1.18 Within the rest of the Scoping Study Area, a number of further non-designated roman records have been identified. These include a group of ten ditches, pits, part of a co-axial field system and a ground hollow that contained finds of pottery and ceramic building material of Romano-British date (MEX1051344), recorded at the EOS Scoping Boundary. Cropmark enclosures have been identified within the Scoping Study Area (MEX1040732) 70 m north-west of the EOS Scoping Boundary. Elsewhere, a number of pottery sherds were recorded within previous excavations (MEX1036584) at the southern edge of the EOS Scoping Boundary.

#### *Early Medieval*

11.5.1.19 In the early medieval period, the local area and Essex coast reflects a landscape that was transitioning following the end of Roman rule. Archaeological evidence such as sunken featured buildings and early Anglo-Saxon pottery suggests continuity of rural occupation, possibly by communities repurposing former roman sites. Further east, coastal and estuarine activity near Little Oakley and the Walton backwaters indicates economic vitality, with evidence of salt production and imported goods. The region’s proximity to North Sea routes may have facilitated its early incorporation into the Kingdom of the East Saxons.

11.5.1.20 Within the EOS Scoping Boundary a number of non-designated early medieval assets have been recorded. These include cropmarks (MEX1031510, MEX1039915, MEX8745), a possible dwelling (MEX12122) and early medieval features identified alongside earlier features (MEX12107). Two early medieval assets have been recorded within the rest of the Scoping Study Area; the site of another sunken featured building alongside pottery and ditch features (MEX1051348) has been identified 60 m north of the EOS Scoping Boundary, and cropmarks of a possible field system (MEX11755) have been identified at the edge of the EOS Scoping Boundary.

### Medieval

11.5.1.21 During the medieval period, the region developed into a structured rural landscape shaped by manorial and ecclesiastical control. Domesday Book records confirm that settlements such as Little Oakley, were established as agrarian settlements by 1086. Archaeological evidence of strip fields, moated sites and parish churches reflect a stable and hierarchically organised rural economy. The Walton backwaters and salt marshes remained vital for grazing, salt production and fishing. Archaeological traces of fish weirs and reclaimed land, alongside proximity to Harwich, suggest the area's continued integration into maritime and regional trade networks.

11.5.1.22 Within the EOS Scoping Boundary, a number of cropmarks possibly representing medieval activity have been identified (MEX1035960, MEX1039939, MEX12985), as well as moated sites (MEX10770, MEX12135), ecclesiastical sites (MEX10775, MEX12140, MEX8281, MEX10785), field systems (MEX38217, MEX1042127, MEX1051108, MEX1050552) and several pit features (MEX1051352). There are two non-designated medieval assets recorded within the EOS Scoping Boundary; the moated site of Great Oakley (MEX12911), recorded 145 m south of the EOS Scoping Boundary and a moated site at Old Mistley Hall (MEX11012), located 280 m north of the EOS Scoping Boundary.

### Post-medieval

11.5.1.23 During the post-medieval period, the region was transformed by agricultural intensification, social restructuring and growing integration into regional and national networks. Early post-medieval enclosure and estate consolidation created a more market-driven rural economy, with large tenant farms, moated sites and investment in brick-built infrastructure. Coastal areas continued to support salt production, fishing and estuarine grazing, with maritime activity linking the region to continental trade. By the 19$^{th}$ century, improved transport, particularly the arrival of the Great Eastern Railway in 1854, enhanced connectivity and economic growth. At the same time, rural poverty, emigration and environmental pressures, such as flooding, shaped the lived experience of local communities. By 1900, this landscape reflected the wider transformation of rural England: agriculturally productive, socially stratified and increasingly embedded in modern transport, administrative and economic systems.

11.5.1.24 There are several non-designated assets dated to the post-medieval period identified within the EOS Scoping Boundary. These include field boundaries, cropmarks and ditches (MEX1051284, MEX1037442) the Wix Brick and Tile works, the timber-framed Park Hall (MEX10789), St Johns Church (MEX11448) and St Mary's House (MEX11979). In the rest of the Scoping Study Area, a number of additional post-medieval sites have been identified. These include a 19$^{th}$ century boundary post, located 135 m north of the EOS Scoping Boundary, windmill sites (MEX1040406, MEX11229), located 150 m north and 160 m south respectively, steam mills (MEX1039409, MEX1036012), a brickworks at Little Oakley (MEX1037210), situated 190 m north of the EOS Scoping Boundary and cropmarks (MEX24047) located 450 m north of the EOS Scoping Boundary.

*1900-Present*

11.5.1.25 From 1900 to the present, the region and Essex coastline have been shaped by modernisation, war and changing land use. While agriculture remained dominant into the early 20th century, mechanisation and rural depopulation gradually altered traditional patterns. The Second World War brought significant transformation. As the area's strategic coastal position led to the construction of pillboxes, anti-aircraft defences and coastal batteries as part of Britain's anti-invasion preparations. Local agriculture was also mobilised under wartime directives to maximise food production.

11.5.1.26 In the post-war era, suburban growth improved transport links and shifting economic priorities reshaped the region. Former military sites were repurposed, while parts of the coast became focused on recreation and conservation. Today, the landscape reflects a complex layering of agricultural heritage, wartime infrastructure and modern residential and environmental development.

11.5.1.27 The majority of modern assets within the EOS Scoping Boundary reflect the wartime period. A number of pillboxes are recorded within the EOS Scoping Boundary as well as several battery sites, defence lines, bomb craters, a chain home radar site, a prisoner of war camp and observation post and a road barrier.

11.5.1.28 Modern assets within the rest of the Scoping Study Area also largely comprise Second World War features, including pillboxes, ammunition shelters, a road barrier, a concrete floodlight base and several interwar houses.

11.5.1.29 The remaining non-designated assets within the EOS Scoping Boundary are unknown in date. The majority of these relate to cropmark features, however pits and ditches, kiln cottages, earthworks and red hills are also recorded. The same is reflected in the rest of the Scoping Study Area, comprising cropmark features, possible ring ditches and a linear feature.

### 11.5.2 Future Baseline Conditions

11.5.2.1 The baseline environment is not static and is expected to change over time, irrespective of the EOS. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the EOS over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

11.5.2.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

### 11.5.3 Additional Proposed Data Sources

11.5.3.1 In addition to the HER data, National Mapping Programme (NMP) data and NHLE data (Historic England, n.d.) summarised above the following data sources will be used to inform the baseline for the ES:

- National Record for the Historic Environment (NHRE) Excavation Index (Archaeology Data Service, n.d.);
- Conservation area appraisals and management documents and their mapping;
- Historic and Ordnance Survey Maps;
- Published and unpublished documentary sources;
- Light Detection and Ranging (LiDAR) data;
- Aerial Photographs;
- Geological mapping and borehole information held by the British Geological Survey;
- Data from the Portable Antiquity Scheme (PAS) (PAS, n.d.) accessed through the information held by the HER, with supplementary information accessed via the online database, which records chance finds recovered and reported to them;
- Relevant grey literature reports relating to archaeological investigations within the vicinity;
- Tendring District Council Historic Environment Characterisation Report (Tendring District Council and Essex County Council, 2008);
- Tendring Geodiversity Characterisation Report (Tendring District Council and Essex County Council, 2009);
- Essex Historic Grazing Marsh Project (Essex County Council, 2014);
- Managing the Essex Pleistocene (Essex County Council, 2015);
- Coastal and Intertidal Zone Archaeological Network (CITiZAN) Data, available online;
- The Historic Landscape Characterisation for Essex (Essex County Council, 2013); and
- Results of a walkover survey within the EOS boundary and visits to selected assets within the study area for the purposes of understanding their setting and significance.

11.5.3.2 The scope of and requirement for archaeological surveys to inform the baseline for the ES will be determined in consultation with Essex Place Services and Historic England.

## 11.6 Assessment Methodology

11.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the

construction, operational and decommissioning phases of the EOS. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

11.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on onshore archaeological and cultural receptors arising from the construction, operational and decommissioning phases of the UK Scheme. This approach defines:

- **Sources and impacts:** The origin of a potential impact;
- **Pathway:** The mechanism by which the impact may affect a receptor; and
- **Receptor:** The component of the environment that may be affected.

11.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

### 11.6.2 Value or Importance of Receptor (heritage significance)

11.6.2.1 For the purposes of this Chapter the phrase ‘heritage significance’ is used in place of value or importance of a receptor and to avoid confusion between the significance of a heritage asset in policy terms and the significance of an effect. ‘Sensitivity’ is not used to describe the value or importance of an asset to avoid confusion with descriptions of sensitivity to change of an asset.

11.6.2.2 An assessment of effects on a heritage asset involves an understanding of the heritage significance of an asset and, in some cases, the contribution of the setting to the significance of the asset. The effect being assessed is whether the asset loses heritage significance due to a reduction in the contribution that its setting makes to that significance, as a result of development within that setting.

11.6.2.3 For the purposes of assessing the significance of effects in EIA terms, heritage significance has been assigned to one of five classes with reference to their heritage interests (as set out in Planning Practice Guidance (Ministry of Housing, Communities and Local Government, 2024b)) and relying upon professional judgement as informed by policy and guidance. The hierarchy in Table 11-2 reflects the distinction between designated and non-designated heritage assets. The NPS further distinguishes between designated assets of the highest heritage significance, i.e. World Heritage Sites, scheduled monuments, protected wreck sites, Grade I and II* listed buildings and Grade I and II* registered parks and gardens) and other designated assets. This further distinction is relevant to planning policy but has less influence on the establishment of the significance of an effect in EIA terms (and listed buildings of any grade are subject to the same legal protection in any case).

11.6.2.4 Effectively, the designation of an asset is a recognition of the heritage interests and value inherent within that asset, which are deemed worthy of statutory protection. These assets are therefore typically regarded as more important than non-designated heritage assets, except where provided for in the Environmental Impact Assessment Regulations (The Infrastructure Planning (Environmental Impact

Assessment) Regulations 2017 (HM Government, 2017)) and in the NPS (e.g. where non-scheduled assets which are of demonstrably equivalent importance to a scheduled monument can be afforded the same degree of consideration).

11.6.2.5 Table 11-2 details the proposed framework for determining the heritage significance of receptors.

**Table 11-2: Definitions of heritage significance (value) for Onshore Archaeology and Cultural Heritage**

| Heritage Significance | Definition |
|---|---|
| Very High | • World Heritage Sites which are internationally important<br>• Assets of acknowledged international importance<br>• Assets that can contribute significantly to acknowledged international research agendas<br>• Historic Landscapes of international value (designated or not) |
| High | • Scheduled Monuments and undesignated assets of schedulable quality and importance<br>• Listed Buildings<br>• Archaeological assets that can contribute significantly to acknowledged national research objectives<br>• Designated and non-designated historic landscapes of high quality and importance and of demonstrable national value (including Grade I and II* registered parks and gardens) |
| Medium | • Designated or non-designated archaeological assets that contribute to regional research objectives<br>• Conservation Areas<br>• Designated and non-designated historic landscapes of special historic interest (including Grade II registered parks and gardens) |
| Low | • Non designated heritage assets, including locally listed buildings and other buildings that are considered to be of local interest<br>• Archaeological assets of limited value, but with potential to contribute to local research objectives |
| Negligible | • Assets with very little or no surviving archaeological interest or buildings with little or no value at local or other scale;<br>• Landscapes with little or no significant historic interest |

### 11.6.3 Magnitude of Impact

11.6.3.1 The magnitude of potential change will be identified through consideration of the EOS, the degree of change to the baseline conditions predicted as a result of the EOS, the duration and reversibility of an effect and professional judgement, best practice guidance and legislation.

11.6.3.2 The criteria for assessing the magnitude of an effect are presented in Table 11-3.

**Table 11-3: Definitions of magnitude for Onshore Archaeology and Cultural Heritage**

| Magnitude | Definition |
|---|---|
| Very Large | Total loss or major alteration to a site, building or other feature (e.g. destruction of archaeological feature, demolition of a building).<br>Fundamental change in setting and/or disassociation of an asset from its setting, such as by blocking or severance of key views so as to cause wholesale reduction in the contribution that setting makes to the heritage significance of that asset, and hence a significant loss of the asset's overall heritage significance. |
| Large | Major physical damage to or significant alteration to a site, building or feature.<br>Extensive change (e.g. loss of dominance, intrusion on a key view or sightline) to the setting of a scheduled monument, listed building or other feature registered as nationally important, which may lead to a major reduction in the contribution of that setting to the heritage significance of the heritage asset itself, and hence a loss of overall heritage significance for that asset. |
| Medium | Damage or alteration to a site, building or other feature.<br>Encroachment on an area considered to have high archaeological potential<br>Change in setting (e.g. intrusion on designed sightlines and vistas) to monuments or buildings and other features, which may lead to a moderate reduction in the contribution of that setting to the heritage significance of the heritage asset, and hence a reduction in the asset's overall heritage significance. |
| Small | Minor damage or alteration to a site, building or other feature.<br>Encroachment on an area where it is considered that a low archaeological potential exists.<br>Minor change in setting, (e.g. above historic skylines or in designed vista) of monuments, listed buildings, sites and other features, which may lead to a small reduction in the contribution that setting makes to the heritage significance of a heritage asset, with an appreciable loss in the asset's overall heritage significance. |
| Negligible | No or minimal physical impact.<br>Slight or no change in setting or one with no or very limited change in the contribution that setting makes to the heritage significance of the asset and no loss of overall heritage significance. |

### 11.6.4 Significance of Effect

11.6.4.1 To ensure consistency across topics, a matrix approach has been adopted to present judgements made on the significance of an effect. This terminology is outlined in Table 11-4 below.

**Table 11-4: Significance Matrix**

| Heritage Significance | Magnitude of Impact | | | | |
|---|---|---|---|---|---|
| | Very Large | Large | Medium | Small | Negligible |
| Very High | Major | Major | Moderate | Minor | Negligible |
| High | Major | Major | Moderate | Minor | Negligible |
| Medium | Moderate | Moderate | Moderate | Minor | Negligible |
| Low | Minor | Minor | Minor | Negligible | Negligible |
| Negligible | Negligible | Negligible | Negligible | Negligible | Negligible |

11.6.4.2 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

11.6.4.3 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UK Scheme design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UK Scheme.

11.6.4.4 The ES will report effects in line with the EIA regulations in terms of significant effects, however, to equate this effect to NPS EN-1, NPPF and technical guidance which refers to substantial harm and less than substantial harm to heritage significance in weighing the balance of effects against public benefits, the following equivalents should be considered to apply;

- Negligible = No harm to heritage significance;
- Minor Adverse = Less than substantial harm to heritage significance (lower end of the scale);
- Moderate Adverse = Less than substantial harm to heritage significance (upper end of the scale); and
- Major Adverse = Substantial harm to heritage significance.

11.6.4.5 The use of the scale in consideration of ‘less than substantial harm’ allows a more nuanced correlation between the levels of significance of effect in EIA terms and permits a greater degree of variance in how ‘less than substantial harm’ can be expressed. Although there is no supporting guidance, the use of this scale is based upon professional judgement and experience.

## 11.7 Potential Effects and Mitigation

11.7.1.1 To inform identification of potential effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further

details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 11.7.2 Embedded Mitigation and Good Practice Measures

11.7.2.1 The EOS will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as *"mitigation measures that have been incorporated into a project's description and form an inherent part of the project's design"* (ISEP, 2024). The embedded mitigation measures which are relevant to this Chapter are presented in the table below (Table 11-5):

**Table 11-5: Embedded Mitigation Measures of Importance to Onshore Archaeology and Cultural Heritage**

| Measure Proposed | Rationale |
|---|---|
| Developoment and adherence to Sensitive Design | Careful routing of the EOS landfall location, cable route and Converter Station location to avoid, where possible, key areas of sensitivity based upon the results of desk-based studies and geophysical surveys. Avoidance of designated heritage assets and non-designated heritage assets, where known, will be embedded into the project design, where practicable. |

11.7.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed EOS development and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

11.7.2.3 As the EOS advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective and compliant with regulatory standards and stakeholder input.

11.7.2.4 Preservation in situ and preservation by record through archaeological investigation are the two main options by which impacts to archaeological remains can be mitigated.

11.7.2.5 Preservation in situ is the conservation of an archaeological asset in its original location and is the preferred method of conservation for assets of national or international significance in accordance with good practice measures. Preservation by record through archaeological investigation is the process by which archaeological remains are excavated, recorded and published to offset the effects and to disseminate information to the public.

11.7.2.6 Where practicable, archaeological remains of high heritage significance will be avoided and preserved in situ through the development of the design (embedded mitigation). In addition, a wider cable corridor than needed will be included which

allows for micrositing and the option for trenchless techniques. This would be considered if archaeology of high significance is encountered.

### 11.7.3 Potential Effects

11.7.3.1 This Section sets out the potential effects of the EOS at each phase. Further detail and justification for scoping in or out of certain activities is provided in Table 11-6 below.

#### Construction Phase

11.7.3.2 Potential effects of the development during the construction phase may comprise;

- Permanent effects to buried archaeological remains, either through damage or removal or through changes to hydrology;
- Permanent effects to historic landscape character through the removal of sections of historic hedgerow; and
- Temporary effects upon heritage significance of assets arising from change within their setting.

#### Operational Phase

11.7.3.3 Potential effects during the operational phase may comprise:

- Permanent effects associated with the presence of the converter station within the setting of heritage assets, where this affects their heritage significance.

#### Decommissioning

11.7.3.4 Potential effects during the decommissioning phase may comprise;

- Temporary effects upon heritage significance of assets arising from change within their setting.

**Table 11-6: Elements Scoped In and Out for Archaeology and Cultural Heritage**

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction | Landfall | Direct physical impact resulting from soil stripping, excavation, trenching or installation of underground infrastructure leading to partial or total loss of archaeological features. Indirect impacts such as changes to soil hydrology, ground compaction or vibration from plant, potentially affecting preservation conditions. Risk of encountering previously unrecorded archaeological remains that may require intervention, recording or design modification. | Buried Archaeological remains | In | Construction activities associated with the EOS landfall have the potential to permanently damage or removed archaeological remains. |
| Construction | Onshore Cable Route | | Buried Archaeological Remains | In | Construction activities associated with the Onshore Cable Route have the potential to permanently damage or remove archaeological remains. |
| Construction | Proposed Converter Station | | Buried Archaeological Remains | In | Construction activities associated with the proposed Converter Station have the potential to permanently damage or remove archaeological remains. |
| Construction | Landfall | Impacts arising from construction activity (noise, vibration, dust, lighting, movement of plant) that may alter key attributes of setting | Designated Heritage Assets | In | The construction phase may involve activities causing noise, dust, plant movement and flashing lights on moving vehicles which may take place within the setting of heritage assets at landfall. This has been scoped in to assess whether these |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | contributing to heritage significance. | | | activities will affect the significance of designated heritage assets. |
| Construction | Onshore Cable Route | Potential for temporary reduction in the ability to appreciate heritage assets due to loss of tranquillity, interruption of visual coherence or intrusion into important views. | Designated Heritage Assets | In | The construction phase may involve activities causing noise, dust, plant movement and flashing lights on moving vehicles which may take place within the setting of heritage assets. This has been scoped in to assess whether these activities will affect the significance of designated heritage assets. |
| Construction | Proposed Converter Station | None anticipated | Designated Heritage Assets | Out | The effects of the construction of the proposed converter station upon designated heritage assets through change within setting has been scoped out. The effect of the proposed Converter Station will be assessed as an operational effect, as a worst case scenario, as this is where the maximum effect will take place. |
| Construction | Onshore Cable Route | Permanent loss or fragmentation of hedgerows that may meet criteria under the Hedgerows Regulations 1997 (HM Government, 1997) as ‘important’ for archaeology or history. Alteration to the legibility of historic field patterns | Historic Hedgerows | In | Construction activities have the potential to damage or remove sections of historic hedgerow (should these be identified within the EOS boundary). |
| Construction | Proposed Converter Station | | Historic Hedgerows | In | Construction activities associated with the proposed Converter Station have the potential to damage or remove sections of historic hedgerow |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | where hedgerows form part of a wider historic landscape character area. | | | (should these be identified within the EOS boundary). |
| Operational | Landfall | None anticipated | Buried Archaeological Remains | Out | No additional land take is proposed at landfall during the operational phase, as such no further physical effects to buried archaeological remains are anticipated during the operational phase. All physical effects to buried archaeological remains at landfall will have already taken place during the construction phase. |
| Operational | Onshore Cable Route | None anticipated | Buried Archaeological Remains | Out | No additional land take is proposed for the onshore cable route during the operational phase, as such no further physical effects to buried archaeological remains are anticipated during the operational phase. All physical effects to buried archaeological remains will have already taken place during the construction phase. |
| Operational | Proposed Converter Station | None anticipated | Buried Archaeological Remains | Out | No additional land take is proposed for the proposed Converter Station during the operational phase as such no further physical effects to buried archaeological remains are |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | anticipated during the operational phase. All physical effects to buried archaeological remains will have already taken place during the construction phase. |
| Operational | Landfall | None anticipated | Designated Heritage Assets | Out | The onshore cable at landfall will not be perceptible during the operational phase. The effects present during the construction phase will have ceased and no additional effects within the setting of heritage assets is anticipated during the operational phase |
| Operational | Onshore Cable Route | None anticipated | Designated Heritage Assets | Out | The onshore cable will not be perceptible during the operational phase. The effects present during the construction phase will have ceased and no additional effects within the setting of heritage assets is anticipated during the operational phase. |
| Operational | Proposed Converter Station | Long-term changes to setting resulting from the presence, massing, scale and form of the completed Converter Station, including potential interruption of important views or changes to landscape character. | Designated Heritage Assets | In | The presence of the proposed Converter Station will be assessed as an operational effect in its completed form, as a worst case scenario. The proposed Converter Station may be located within the setting of surrounding heritage assets and the effect upon their heritage significance will be assessed. |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | Potential reduction in heritage significance due to visual prominence, lighting or introduction of industrial character within previously rural or tranquil contexts. | | | |
| Operational | Onshore Cable Route | None anticipated | Historic Hedgerows | Out | No additional land take is proposed for the onshore cable route during the operational phase, as such no further physical effects to historic hedgerows are anticipated during the operational phase. All physical effects to historic hedgerows will have already taken place during the construction phase. |
| Operational | Proposed Converter Station | None anticipated | Historic Hedgerows | Out | No additional land take is proposed for the proposed Converter Station during the operational phase, as such no further physical effects to historic hedgerows are anticipated during the operational phase. All physical effects to historic hedgerows will have already taken place during the construction phase. |
| Decommissioning | Landfall | None anticipated | Buried Archaeological Remains | Out | Works associated with the decommissioning of the cable route at landfall are likely to take place within the footprint of the construction works, as such no |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | additional land take is proposed and no additional physical effects to buried archaeological remains are anticipated. |
| Decommissioning | Onshore Cable Route | None anticipated | Buried Archaeological Remains | Out | Works associated with the decommissioning of the cable route are likely to take place within the footprint of the construction works, as such no additional land take is proposed and no additional physical effects to buried archaeological remains are anticipated. |
| Decommissioning | Proposed Converter Station | None anticipated | Buried Archaeological Remains | Out | Works associated with the decommissioning of the proposed Converter Station are likely to take place within the footprint of the construction works, as such no additional land take is proposed and no additional physical effects to buried archaeological remains are anticipated. |
| Decommissioning | Landfall | Impacts similar to construction (noise, dust, movement of plant, lighting), potentially reducing the ability to experience the asset's setting.<br>Short-term disruption to tranquillity or historic | Designated Heritage Assets | In | The decommissioning works may involve activities causing noise, dust, plant movement and flashing lights on moving vehicles which may take place within the setting of heritage assets. This has been scoped in to assess whether these activities will affect the significance of designated heritage assets. |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Decommissioning | Onshore Cable Route | landscape character during removal of above-ground infrastructure and reinstatement works. | Designated Heritage Assets | In | The decommissioning works may involve activities causing noise, dust, plant movement and flashing lights on moving vehicles which may take place within the setting of heritage assets. This has been scoped in to assess whether these activities will affect the significance of designated heritage assets. |
| Decommissioning | Proposed Converter Station | | Designated Heritage Assets | In | The decommissioning works may involve activities causing noise, dust, plant movement and flashing lights on moving vehicles which may take place within the setting of heritage assets. This has been scoped in to assess whether these activities will affect the significance of designated heritage assets. |
| Decommissioning | Onshore Cable Route | None anticipated | Historic Hedgerows | Out | No additional land take is proposed for the onshore cable route during the decommissioning phase, as such no physical effects to historic hedgerows are anticipated. |
| Decommissioning | Proposed Converter Station | None anticipated | Historic Hedgerows | Out | No additional land take is proposed for the proposed Converter Station during the decommissioning phase as such no physical effects to buried archaeological remains are anticipated. |

### 11.7.4 Cumulative and Transboundary Effects

11.7.4.1 The Chapter will include an assessment of cumulative effects of the UK Scheme upon the cultural heritage and archaeological resource in conjunction with other surrounding developments (see Volume 05, Chapter 32: Approach to Cumulative Effects for the proposed approach to the assessment of cumulative effects). Presently, the list of cumulative schemes for assessment has not been prepared. Cumulative effects of the EOS and other schemes will be undertaken using the methodology outlined above for the assessment of effects.

11.7.4.2 The nature of the archaeological resource is such that the vicinity within which cumulative effects could occur is restricted to the immediate environs surrounding the EOS. In this instance a cumulative effect could occur where the assets extend beyond the boundary of the EOS or are predicted to do so. As such, cumulative schemes within a 500 m radius of the EOS will be considered for the cumulative assessment.

11.7.4.3 Cumulative effects to the heritage significance of designated heritage assets as a result of the EOS and other schemes could arise through change to the setting within which the interests of the assets are experienced and appreciated, which could lead to a reduction in their heritage significance. As such, cumulative schemes within a 5 km radius of the EOS will be considered for the cumulative assessment.

11.7.4.4 Transboundary effects are not considered to be relevant to Onshore Archaeology and Cultural Heritage and as such have been scoped out of the ES.

## 11.8 Assumptions, Limitations and Uncertainties

11.8.1.1 This Chapter includes a high-level review of available data and presents a brief overview of the historic environment baseline. Given the scale of the EOS, this Chapter is only intended to identify potential pathways to significant effects for the purpose of defining the scope of the Onshore Archaeology and Cultural Heritage Assessment as part of the EIA. It does not present all of the known or at present unknown heritage assets which will be presented in subsequent stages of the assessment.

11.8.1.2 The EOS Scoping Boundary represents the current maximum extent of land expected to be required for the full range of onshore development options which could form part of the final design of the EOS. As such the EOS Scoping Boundary will be refined as the EOS design progresses. Data supporting this report was obtained from third party sources and may include errors or omissions. All efforts were made to identify and rectify any such issues.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 02: Chapter 12: Traffic and Transport

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00015 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| AIL | Abnormal Indivisible Load |
| ATC | Automatic Traffic Count |
| BOAT | Byway Open to All Traffic |
| CEMP | Construction Environmental Management Plan |
| CoCP | Code of Construction Practice |
| CTMP | Construction Traffic Management Plan |
| DCO | Development Consent Order |
| DMRB | Design Manual for Road and Bridges |
| DfT | Department for Transport |
| EACN | East Anglia Connection Node |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| GEML | Great Eastern Main Line |
| GPS | Global Positioning System |
| HDD | Horizontal Directional Drilling |
| HGV | Heavy Goods Vehicle |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| IEMA | Institute of Environmental Management and Assessment |
| ISEP | Institute of Sustainability and Environmental Professionals |
| km | Kilometre |
| LGV | Light Goods Vehicle |
| MDS | Maximum Design Scenario |
| MHCLG | Ministry of Housing, Communities and Local Government |
| m | Metre |
| mph | Miles Per Hour |
| O&M | Operation and Maintenance |
| NESO | National Energy System Operator |
| NtT | Norwich to Tilbury |
| NPS | National Policy Statement |
| PIA | Personal Injury Accident |
| PINS | Planning Inspectorate |
| PRoW | Public Rights of Way |
| PRoW-MP | Public Rights of Way Management Plan |
| SRN | Strategic Road Network |
| TAN | Transport Assessment Note |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |

# 12. Traffic and Transport

## 12.1 Introduction

12.1.1.1 This Chapter presents the Traffic and Transport assessment which will consider the potential significant effects on Traffic and Transport receptors during the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). The UK Scheme comprises both the UK Marine Scheme (UKMS) and the English Onshore Scheme (EOS), each of which is relevant to this Chapter. This Chapter assesses Traffic and Transport effects associated with the EOS, as well as any road-based movements occurring within the Study Area as vehicles travel to or from the UKMS. Marine-based vessel movements are addressed separately in Volume 03, Chapter 18: Shipping and Navigation.

12.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Traffic and Transport baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Traffic and Transport receptors from the proposed components of the UKMS and EOS; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

12.1.1.3 This Chapter should be read alongside the following Chapters for a broader understanding of the interactions between the UK Scheme and Traffic and Transport receptors:

- Volume 01, Chapter 02: UK Project Description;
- Volume 01, Chapter 06: EIA Approach and Methodology;
- Volume 02, Chapter 10: Onshore Biodiversity - potential effects of construction traffic on sites of ecological and nature conservation value;
- Volume 04, Chapter 22: Noise and Vibration - potential effects of construction traffic on noise and vibration;
- Volume 04, Chapter 24: Socio-economics and Land Use and Volume 04, Chapter 27: Tourism and Recreation - potential effects of construction traffic on tourists, visitor attractions and other businesses; and
- Volume 04, Chapter 28: Air Quality - potential effects of construction traffic on air quality.

## 12.2 Study Area

12.2.1.1 The EOS Scoping Boundary which encompasses the EOS is shown in Figure 12-1 2-2 of Volume 01, Chapter 02: UK Project Description. The Study Area for Traffic and Transport is shown in Figure 12-1 which includes parts of the highway network which may potentially be affected by the EOS. At this stage, the Traffic and Transport Study Area has been assumed to include all road links within the EOS Scoping Boundary.

12.2.1.2 The extent of the Study Area for assessment in terms of highway impacts will be subject to discussion and agreement with Essex County Council as the local highway authority and National Highways who manage the SRN. As further details of the construction approach and access strategy develop, the Study Area may be required to amended or increased. Any changes would be consulted and agreed with the relevant authorities.

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235000 230000 225000 220000

TARCHON

# Tarchon Interconnector Project

Scoping Report

## English Onshore Scheme
## Traffic and Transport Study Area

**Legend**

- English Onshore Scheme Scoping Boundary

Study Area

- A120
- Abbott Road
- Ardleigh Road
- B1035
- B1414
- Bentley Road
- Bradfield Road
- Bromley Road
- Cansey Lane
- Chequers Road
- Church Road
- Dairyhouse Lane
- Grange Road
- Hall Lane
- Harwich Road
- Little Bromley Road
- Low Road
- Oakley Road
- Paynes Lane
- Shop Road
- Spinnels Lane
- Spratts Lane
- Steam Mill Road
- Wick Lane
- Other minor routes




**Notes**

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Coordinate System: British National Grid

0 2.5 5 km N

| Scale | Date | Drawn By | Checked By | Approved By |
|---|---|---|---|---|
| 1:75,000 @A3 | 19/03/2026 | TF | JR | ADV |

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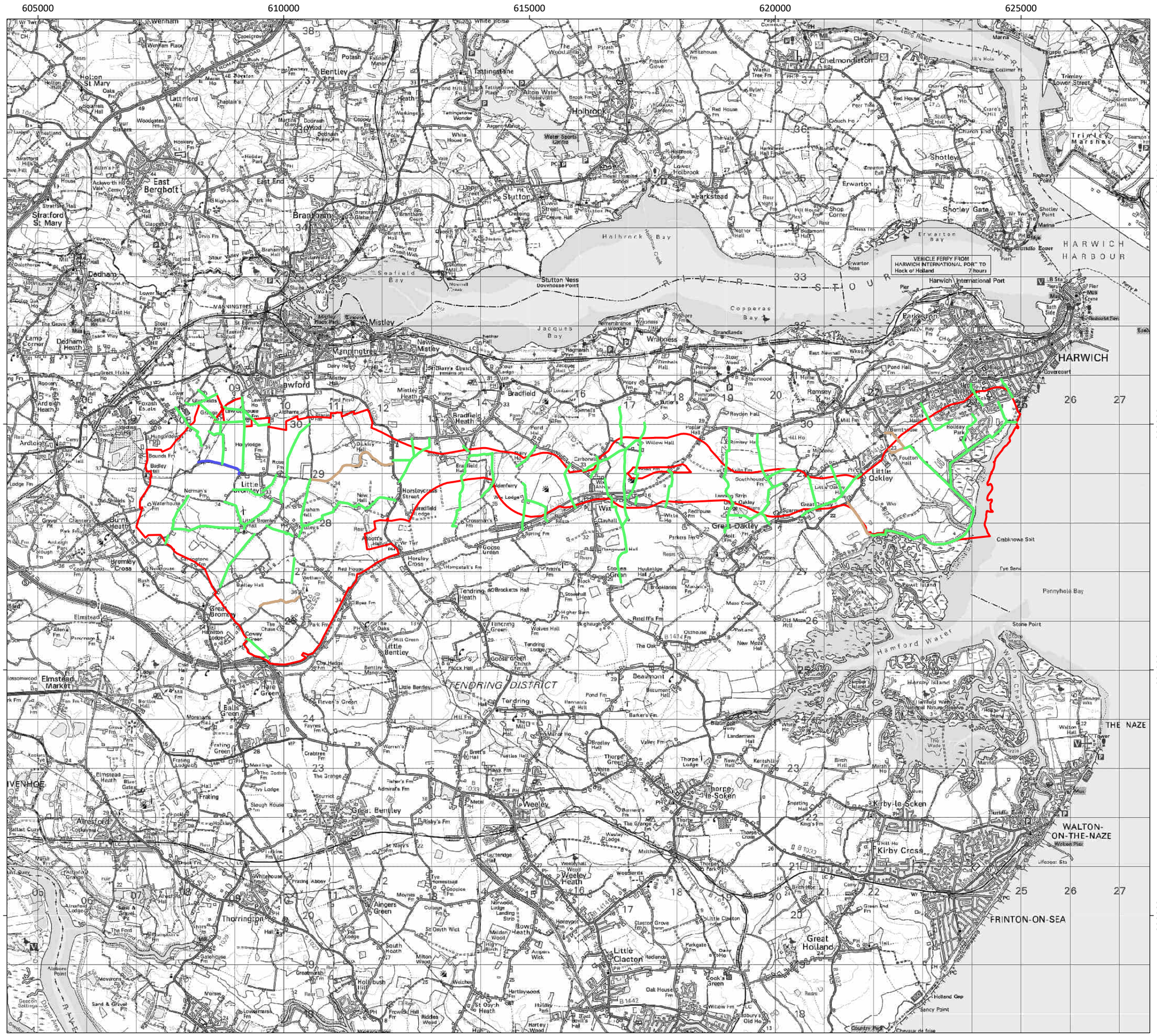
APEM

Sheet 1 of 1

**Figure 12-1**

Figure Reference: Tarchon Interconnector EIA Figures

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605000
610000
615000
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625000
235000
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225000
220000
RIVER STOUR
Holbrook Bay
Seafield Bay
Copperas Bay
Jacques Bay
Harwich International Port
VEHICLE FERRY FROM HARWICH INTERNATIONAL PORT TO Hook of Holland 7 hours
HARWICH HARBOUR
Stutton Ness
Dovenose Point
Holbrook
Stutton
Harkstead
Erwarton
Shotley
Shotley Gate
Chelmondiston
Trimley Marshes
Trimley Lower Street
Trimley St Martin
Felixstowe
Felixstowe Ferry
Landguard Point
Shotley Point
Erwarton Bay
Erwarton Ness
Shop Corner
Bentley
Tattingstone
Tattingstone Wonder
Tattingstone White Horse
Tattingstone Place
Tattingstone Park
Woolverstone
Woolverstone Park
Pond Hall
Pond Hall Fm
Broadmoor
Broadmoor Fm
Bramford
Brantham
Brantham Court
Brantham Hall
Brantham Fm
Brantham Glebe
Brantham Lodge
Brantham Industrial Estate
East Bergholt
East End
Stratford St Mary
Dedham
Dedham Heath
Dedham Hall
Dedham Vale
Dedham Vale AONB
Flatford
Flatford Mill
Stour Valley Path
Stour and Orwell Walk
Mistley
Mistley Place
Mistley Towers
Manningtree
Manningtree Station
Manningtree Industrial Estate
Lawford
Lawford Ho
Lawford Fm
Lawford Hall
Bradfield
Bradfield Heath
Bradfield Hall
Bradfield Lodge
Bradfield Fm
Wrabness
Wrabness Nature Reserve
Remembrance Wood
Strandlands
Parkeston
Parkeston Quay
Harwich
Harwich Town
Dovercourt
Ramsey
Ramsey Fm
Ramsey Hall
Little Oakley
Great Oakley
Wix
Wix Fm
Wix Hall
Wix Ho
Wix Water Treatment Works
Wix Water Reservoir
Wix Water Sports Centre
Willow Hall
Willow Fm
Carbonell Fm
Clayhall
Parkers Fm
Parkgate Fm
Southhouse Fm
Oakley Hall
Oakley Lodge
Oakley Park
Oakley Wood
Oakley Grange
Oakley Hall Fm
Oakley Ho
Oakley Park Golf Course
Great Oakley Hall
Great Oakley Hall Fm
Great Oakley Ho
Great Oakley Lodge
Great Oakley Wood
Little Oakley Ho
Little Oakley Hall
Little Oakley Fm
Little Oakley Lodge
Little Oakley Wood
Little Oakley Grange
Little Oakley Hall Fm
Little Oakley Ho

12.2.1.3 The EOS Scoping Boundary includes the following parts of the highway network:

- A120(T) running east-west through the EOS Scoping Boundary;
- B1414 south of Little Oakley;B1035 Clacton Road running north-south through Horsleycross Street;
- Local roads within the southern part of Dovercourt to the south of Harwich including Low Road, Abbott Road, Wick Lane and Hall Lane;
- The Soils (Sparrows Corner) to the west of Little Oakley;
- Local roads within Wix including Oakley Road, Harwich Road and Bradfield Road;
- Spinnel's Lane to the east of Bradfield Road;
- Dairyhouse Lane to the south of Heath Road;
- Cansey Lane to the south of Bradfield Heath;
- Steam Mill Road to the east of the B1035 Clacton Road;
- Local roads within and connected to the village of Little Bromley including Bromley Road, Shop Road, Bentley Road, Chequers Road and Ardleigh Road;
- Roads to the south of Little Bromley including Payne's Lane, Church Road and Spratts Lane;
- Grange Road and Little Bromley Road towards the west of the EOS Scoping Boundary; and
- Other minor routes such as local access roads and farm accesses.

12.2.1.4 The following local junctions also fall within the EOS Scoping Boundary:

- A120(T)/Harwich Road priority junction;
- Low Road/West End Lane/Hall Lane/Wick Lane junction within Dovercourt;
- Low Road/Abbott Road junction within Dovercourt;
- Harwich Road/Oakley Road junction within Wix;
- Bradfield Road/Harwich Road within Wix;
- Bradfield Road/Spinnel's Lane junction to the north of Wix;
- B1035/Steam Mill Road junction to the west of Bradfield;
- Chequers Road/Bromley Road priority junction within Little Bromley;
- Chequers Road/Shop Road/Ardleigh Road priority junction within Little Bromley;
- Bentley Road/Shop Road priority junction to the south of Little Bromley;
- Bentley Road/Church Road priority junction to the south of Little Bromley;
- Bentley Road/Payne's Lane priority junction to the south of Little Bromley;
- Spratts Lane/Church Road priority junction to the south of Little Bromley; and

- Little Bromley Road/Ardleigh Road/Grange Road priority junction to the west of Little Bromley.

12.2.1.5 In addition to the highway receptors identified above within the EOS Scoping Boundary, the following road junctions fall within the Study Area for Traffic and Transport:

- A12(T)/A120(T) junction (north-east of Colchester);
- A120(T)/A133 junction (south of Little Bromley);
- A133/Colchester Road roundabout (north of Great Bentley);
- A120(T)/B1035 roundabout (west of Wix);
- A120(T)/B1352 roundabout (west of Harwich);
- A120(T)/Parkeston Road roundabout (within Harwich);
- A137/B1352 roundabout (south-west of Manningtree); and
- B1352/B1035 crossroads junction (south of Manningtree).

12.2.1.6 The EOS Scoping Boundary also includes the following Public Rights of Way (PRoW) which will be considered, as summarised in Table 12-1 below and shown in Figure 12-2.

**Table 12-1: Existing Public Rights of Way**

| ProW (List) – Public Footpath Unless Otherwise Stated | | | |
|---|---|---|---|
| PRoW 160_6 | PRoW 170_19 | PRoW 172_13 | PRoW 177_30 |
| PRoW 160_8 | PRoW 170_20 | PRoW 172_14 | PRoW 177_31 |
| PRoW 160_11 | PRoW 170_21 | PRoW 172_16 | PRoW 177_36 (Bridleway) |
| PRoW 160_12 | PRoW 170_22 | PRoW 172_17 | PRoW 183_1 |
| PRoW 160_13 | PRoW 170_23 | PRoW 172_20 | PRoW 183_2 |
| PRoW 160_16 | PRoW 170_24 | PRoW 172_22 (Byway) | PRoW 183_3 |
| PRoW 168_11 | PRoW 170_25 | PRoW 174_11 | PRoW 183_4 |
| PRoW 168_13 | PRoW 170_46 | PRoW 174_13 | PRoW 183_5 |
| PRoW 168_14 | PRoW 170_51 | PRoW 174_17 (Bridleway) | PRoW 183_7 |
| PRoW 168_17 | PRoW 170_57 (Byway) | PRoW 174_19 | PRoW 183_10 |
| PRoW 168_18 | PRoW 170_58 | PRoW 176_11 | PRoW 183_11 |
| PRoW 168_29 | PRoW 172_2 | PRoW 176_12 | PRoW 183_18 |
| PRoW 169_23 | PRoW 172_3 | PRoW 176_13 (Bridleway) | PRoW 183_25 |
| PRoW 169_24 | PRoW 172_4 | PRoW 176_14 | PRoW 183_27 |
| PRoW 169_26 | PRoW 172_5 | PRoW 177_22 | PRoW 183_28 |
| PRoW 169_33 | PRoW 172_7 | PRoW 177_25 | PRoW 183_29 |

| ProW (List) – Public Footpath Unless Otherwise Stated | | | |
|---|---|---|---|
| PRoW 169_42 | PRoW 172_8 (Bridleway) | PRoW 177_26 | PRoW 183_30 |
| PRoW 169_43 | PRoW 172_11 | PRoW 177_27 | PRoW 183_34 |
| PRoW 170_17 | PRoW 172_12 | | |

12.2.1.7 Whilst there appears to be no national trails currently open within the EOS Scoping Boundary, it is understood that work to establish the Jaywick to Harwich section of the King Charles III England Coast Path is currently taking place and that this will pass through the eastern extent of the EOS Scoping Boundary in the vicinity of Little Oakley. Therefore, this section of the King Charles III England Coast Path will be considered as part of the future baseline on the basis that this will be established prior to the commencement of construction. It is also noted that the proposed routing of the King Charles III England Coast Path through the EOS Scoping Boundary and indicative UK Landfall Zone is such that it follows close to the coastline and direct construction impacts would most likely be avoided through the use of trenchless techniques for example, Horizontal Directional Drill (HDD) for the UK Landfall of the proposed Subsea HVDC Cable.

12.2.1.8 In addition to the above, part of the National Cycle Network Route 51 (the section between Harwich and Colchester) currently passes through the EOS Scoping Boundary, along Low Road and Wick Lane within Dovercourt. The Essex Way between Manningtree and Harwich also passes through the EOS Scoping Boundary to the south of Dovercourt and to the east of Little Oakley. Therefore, these walking/cycling routes, as well as any other promoted national/regional routes that are identified following consultation with Essex County Council Highways, will be considered as necessary.

## 12.3 Relevant Legislation, Planning Policy and Guidance

### 12.3.1 Legislation

12.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context provides an overview of all relevant legislation and planning policy context. This section refers to legislation, planning policy and guidance relating to the assessment of potentially significant effects on Traffic and Transport that may arise from the construction, operational and decommissioning phases of the EOS.

12.3.1.2 There is no transport-specific legislation that is considered relevant to the scope of the assessment.

### 12.3.2 National Policy Statement

12.3.2.1 Section 5.14 of the Overarching National Policy Statement (NPS) for Energy (EN-1) (NPS EN-1) (DESNZ, 2025) advises that the transport of materials, goods and personnel to and from a development during all project phases can have a variety of impacts on the surrounding transport infrastructure and potentially on connecting

transport networks, for example through increased congestion. Impacts may include economic, social and environmental effects.

12.3.2.2 Paragraph 5.14.4 of NPS EN-1 states *"The consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development…"*.

12.3.2.3 Paragraph 5.14.5 of NPS EN-1 sets out that *"If a project is likely to have significant transport implications, the applicant's ES should include a transport appraisal"*.

12.3.2.4 Paragraph 5.14.7 of NPS EN-1 sets out that *"The applicant should prepare a travel plan including demand management and monitoring measures to mitigate transport impacts"*.

12.3.2.5 Paragraph 5.14.8 of NPS EN-1 states *"The assessment should also consider any possible disruption to services and infrastructure (such as road, rail and airports)"*.

12.3.2.6 Paragraph 5.14.9 of NPS EN-1 states *"If additional transport infrastructure is needed or proposed, it should always include good quality walking, wheeling and cycle routes, and associated facilities (changing/storage etc.) needed to enhance active transport provision".*

### 12.3.3 Local Planning Policy

12.3.3.1 The relevant local policies for assessing potential impacts on Traffic and Transport are summarised below.

12.3.3.2 Within Section 1 of the Tendring District Local Plan 2013-2033 and Beyond North Essex Authorities' Shared Strategic Section 1 Plan (Tendring District Council, 2022), Policy SP6 – Infrastructure & Connectivity is relevant to Traffic and Transport matters of the UK Scheme.

12.3.3.3 Within Section 2 of the Tendring District Local Plan 2013-2033 and Beyond (Tendring District Council, 2022), the following policies are relevant to Traffic and Transport matters of the UK Scheme:

- Policy CP1 – Sustainable Transport and Accessibility;
- Policy CP2 – Improving the Transport Network; and
- Policy DI1 – Infrastructure Delivery and Impact Mitigation.

12.3.3.4 The Tendring District Council Local Plan 2025-2042 and Beyond is currently at consultation stage. The following policies from the draft document are relevant to Traffic and Transport matters of the UK Scheme:

- Policy CP1 – Sustainable Transport and Active Travel;
- Policy CP2 – Improving and Maintaining the Transport Network; and
- Policy DI1 – Infrastructure Delivery and Impact Mitigation.

12.3.3.5 Within the Ardleigh Neighbourhood Plan 2020 – 2033 (Ardleigh Parish Council, 2024), Policy TP – Transport & Parking will be relevant to Traffic and Transport matters of the UK Scheme.

12.3.3.6 Relevant guidance which has been used as part of the scoping process and which will also be taken into account as part of the assessment, are listed below:

- Institute of Sustainability and Environmental Professionals (ISEP (formerly IEMA)) Guidelines – Environmental Assessment of Traffic and Movement (2023) (hereafter referred to as the 'ISEP Guidelines') (ISEP, 2023);
- Design Manual for Road and Bridges (DMRB) LA 112 – Population and Human Health (Highways England, 2020) - sets out rights of way sensitivity thresholds for walkers, cyclist and horse-riders when crossing roads;
- Nationally Significant Infrastructure Projects: Advice on Preparing Applications for Linear Projects (2025) (PINS, 2025);
- Ministry of Housing, Communities and Local Government (MHCLG) guidance on Travel Plans, Transport Assessments, and Statements in Decision Taking (2014) (MHCLG, Ministry of Housing, Department for Levelling Up, Housing and Communities, 2014); and
- Department for Transport (DfT) Circular 01/2022, Strategic Road Network (2022) (DfT, 2022).

## 12.4 Consultation and Engagement

12.4.1.1 Consultation will be held with relevant stakeholders following the submission of the Scoping Report and the receipt of the Scoping Opinion from the Planning Inspectorate (PINS). It is currently envisaged that consultation will be held with Essex County Council's Highways and PRoW Officers, as well as National Highways with respect to the SRN. Tendring District Council, Suffolk County Council, Tendring District Council and Babergh and Mid Suffolk District Councils will also be kept informed of these discussions and consulted as necessary. If any changes to the Traffic and Transport Study Area are required as a result of further detailed planning post scoping, the relevant authorities will be consulted.

12.4.1.2 The purpose of the initial engagement will be to review feedback on the Scoping Report and to review the scope and approach of the Traffic and Transport Chapter of the ES, as well as the supporting deliverables such as the Transport Assessment Note (TAN) and management plans. As set out in Section 12.6, the majority of the information that would typically be contained within a standalone Transport Assessment will be available across the other submission documents and it is therefore proposed to prepare a TAN to signpost where this information can be found to reduce repetition between documents. This approach will be subject to agreement with Essex County Council Highways and National Highways.

12.4.1.3 No topic-specific consultation has taken place relating to Traffic and Transport to date. However, responses on the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council, Tendring District Council and Babergh and

Mid Suffolk District Councils. Where comments relevant to Traffic and Transport have been provided, these are summarised and how they will be addressed in Table 12-2.

Table 12-2: Non-Statutory Consultation Responses: Traffic and Transport

| Consultee | Summary of Comment | How Matter Will be Addressed |
|---|---|---|
| Essex County Council | Clarity on the route of the proposal, working areas and method of construction is required in order for Essex County Council (as the Highway Authority) to engage in meaningful dialogue, as these will determine requirements for access points, Heavy Goods Vehicle (HGV) traffic/volumes, temporary road/PRoW closures or mitigation works and workforce. | Cable route details (including its route, working areas and method of construction) will be presented when details are known. These will be set out in the ES and supporting documents e.g. outline Construction Traffic Management Plan (CTMP) and outline Public Rights of Way Management Plan (PRoW-MP). The submission will include details of access points, construction vehicle activity and any temporary PRoW closures/diversions and haul road crossing points relating to the cable route should they be required. |
| | Essex County Council are disappointed by lack of highways and transportation detail in consultation – no qualified or detailed comment can be made at this time. | Noted. The consultation was non-statutory in nature and intended to provide a high level overview of the project and Applicant, it was outlined at the time that details of this nature were not yet known. Further details will be provided as the design develops through consultation with Essex County Council's Highways and PRoW Officers (see paragraph 12.4.1.1). |
| | Essex County Council note that proposals will be required to demonstrate that local and strategic highway network can accommodate type and number of vehicle movements during construction. Also, site access(s) haul roads and vehicle movements to and from the site will have no adverse impact on highway safety. | The ES will consider and assess the Traffic and Transport impacts of the proposals in line with the 2023 Institute of Sustainability and Environmental Professionals (ISEP) guidance (ISEP, 2023). This will include both Driver Delay and Road Safety. |
| | Offsite mitigation may be required – Essex County Council recommend a detailed Transport Assessment and Construction Traffic Management Plan be completed. | An outline CTMP will be produced alongside the preparation of the ES, which will include details of mitigation. As typically the majority of the content usually covered in a full transport assessment is expected to feature in both/either the ES Traffic and |

| Consultee | Summary of Comment | How Matter Will be Addressed |
|---|---|---|
| | | Transport Chapter, outline CTMP and outline PRoW-MP, it is proposed to produce a Transport Assessment Note, instead of a full TA, to avoid duplication. This has been proposed as part of this Scoping Report and Essex County Council's approval is sought on this approach. |
| | Essex County Council recommend enhancements to pedestrian, cycling or public transport networks where opportunities for active and sustainable travel are available. A Travel Plan will be required for all sites to promote sustainable and active travel and initiatives. | The Applicant's approach to promoting travel by sustainable modes and the potential provision of enhancements to these transport networks will be determined as appropriate as the ES is prepared. Details of a travel plan will be included within the outline CTMP. |
| | Essex County Council set out that Nationally Significant Infrastructure Projects (NSIPs) should be accompanied by up-to-date information regarding the extent of highway boundary and any affected PRoW as affected by the development site, site accesses and any proposed offsite mitigation. | Up to date information will be used, including from Essex County Council sources (where available). The highway boundary is identified in Figure 12-1. The outline PRoW-MP submitted alongside the ES will include details of the PRoW within the Order Limits, including those which will potentially interact with the EOS and any management and mitigation necessary to reduce any impacts. |
| Suffolk County Council | Suffolk County Council would be interested to see the Construction Traffic Management Plan (CTMP), specifically HGV routes in case any Suffolk roads are included. Suffolk County Council would also be interested in worker numbers and their impact on Suffolk's road network. | An outline CTMP will be prepared alongside the ES, which will include details of HGV routes. The ES Traffic and Transport Chapter will provide details of construction worker numbers and will assess the potential impacts of construction traffic on the surrounding highway network. |
| | An Abnormal Indivisible Load (AIL) report will be required to be shared with Suffolk County Council if any Suffolk road network and ports are to be used. | This is noted and will be reviewed in due course as details of ports and AIL routing are not known at this stage. |
| | Suffolk County Council would defer to Essex County Council as Local Highway Authority for this project. | This is noted, see above for comments received from Essex County Council. |

| Consultee | Summary of Comment | How Matter Will be Addressed |
|---|---|---|
| Tendring District Council | Tendring District Council note that Tendring is a rural district with heavy reliance on travel by private vehicles from residents and tourists. The indicative UK Landfall and converter station sites will require the onshore High Voltage Direct Current (HVDC) cable route to cross the A120. The A120 is an integral part of the strategic road network in North Essex and carries high numbers of commercial vehicles to and from Harwich port. | This is noted and consultation will be held with both Essex County Council and National Highways with respect to the A120(T) and the strategic road network. The ES Traffic and Transport Chapter will assess the potential impacts of construction traffic on the surrounding highway network, including the A120(T). |
| | Tendring District Council is concerned that both the cumulative impact of construction traffic from this and three other infrastructure projects proposed in the district will be considerable and effect of the work to deliver this project will be detrimental – not just to day to day lives, but to the economy of the wider area. The Council will expect detailed mitigation proposals to be developed to ensure that these harms are minimised. | An assessment of potential cumulative effects will be carried out within the ES, based on a short list of schemes. Mitigation will be identified where necessary to reduce the potential impacts of construction traffic associated with the UK Scheme, which is expected to be secured as part of the outline CTMP. |

## 12.5 Baseline Environment

### 12.5.1 Data Sources

12.5.1.1 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 online satellite imagery;
- Publicly available information on websites for public transport operators and online resources for promoted recreational routes and PRoW; and
- Publicly available data from the rowmaps website for PRoW information, including routes and labelling for PRoW routes.

### 12.5.2 Baseline Conditions

#### Highway Network

12.5.2.1 The EOS Scoping Boundary includes a number of key roads including the A120(T), B1414 and B1035, as well as numerous local roads within Dovercourt and connecting villages such as Wix, Little Oakley, Great Oakley and Little Bromley. The Study Area also includes additional parts of the surrounding highway network including the A12(T) and A133.

12.5.2.2 The A120(T) is orientated in an east-west alignment between Harwich in the east and Colchester in the west where it joins the A12(T). In the vicinity of the EOS Scoping Boundary, the A120(T) is a single carriageway road and is subject to a 50 miles per hour (mph) speed limit.

12.5.2.3 The B1414 is a single carriageway road between Harwich in the north and Thorpe-le-Soken in the south. In the vicinity of the EOS Scoping Boundary, the B1414 is subject to the national speed limit, where it reduces to 30 mph as it approaches the village of Little Oakley.

12.5.2.4 The B1035 is a single carriageway road between Manningtree in the north and Thorpe Green in the south, with most sections subject to either a 30 mph speed limit or the national speed limit. In the vicinity of the EOS Scoping Boundary, the B1035 is subject to a 40 mph speed limit.

12.5.2.5 Local roads within the EOS Scoping Boundary include those passing through the village of Wix, including Harwich Road, Colchester Road, Clacton Road, Bradfield Road and Oakley Road. The roads within Wix are subject to a 30 mph speed limit.

12.5.2.6 There are also several local roads passing through or within the vicinity of the village of Little Bromley including Grange Road, Ardleigh Road, Bromley Road, Chequers Road, Shop Road, Church Road, Bentley Road and Spratts Lane. The roads within Little Bromley (namely Shop Road) are subject to a 30 mph speed limit.

Public Transport Network

12.5.2.7 Bus services can be accessed from bus stops on Bradfield Road and Harwich Road in the village of Wix. These are served by bus route 102/104 (First Bus) which runs between Harwich (via Great Oakley, Little Oakley and Upper Dovercourt) to the east and Colchester (via Bradfield, Manningtree and Ardleigh) to the west. The 102/104 bus service operates once per hour Monday-Saturday and once every two hours on a Sunday.

12.5.2.8 As well as the service above, bus route 2/2A (Konect Buses) serves Shop Road within Little Bromley and runs between Mistley and Clacton (via Manningtree) every two to three hours between Monday and Saturday.

12.5.2.9 The Manningtree to Harwich railway line is orientated east-west circa 2 kilometres (km) to the north of the EOS Scoping Boundary, which serves Manningtree, Mistley, Wrabness, Harwich International, Dovercourt and Harwich Town railway stations. Manningtree station is also located on the Great Eastern Main Line (GEML) which runs between Norwich (via Ipswich) to the north and London Liverpool Street (via Colchester and Chelmsford) to the south-west.

12.5.2.10 Manningtree railway station is typically served by one train service per hour (in each direction) to/from Harwich Town station (via the Manningtree to Harwich railway line) and three train services per hour (in each direction) to/from London Liverpool Street station via both the Manningtree to Harwich railway line and the GEML. There are approximately two train services per hour (in each direction) to/from Norwich station via the GEML.

12.5.2.11 The remaining railway stations to the north of the EOS Scoping Boundary are all located on just the Manningtree to Harwich railway line and are served by one train service per hour (in each direction) between Harwich Town and London Liverpool Street stations.

12.5.2.12 Bus services 102/104 travel between Wix and Harwich Town railway station to the north-east of the EOS Scoping Boundary, as well as Mistley railway station to the north-west of the EOS Scoping Boundary. Manningtree railway station can be accessed using bus route 2/2A from the bus stops within Little Bromley.

### 12.5.3 Future Baseline Conditions

12.5.3.1 The baseline environment is not static and is expected to change over time, irrespective of the UK Scheme. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UK Scheme over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

12.5.3.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are

available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

12.5.3.3 If the UK Scheme were not implemented, any changes to the Traffic and Transport conditions within the Study Area would result from changes to background traffic due to general traffic growth and from traffic changes due to nearby committed developments.

### 12.5.4 Additional Proposed Data Sources

12.5.4.1 To inform the assessment of the UK Scheme, information will be collected from a number of sources. The sources which will be used are set out below:

- Local travel and network information from various sources including rail and bus operators and Essex County Council Highways (e.g. PRoW Interactive Map);
- Personal Injury Accident (PIA) data from Essex County Council;
- Highway boundary information from Essex County Council;
- Mode share data from the 2021 Census; and
- Various traffic count and speed survey data where required (see below).

12.5.4.2 On site traffic counts will be undertaken at locations within the Study Area 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 (Essex County Council), as a statutory consultee.

12.5.4.3 To determine the impact of the UK Scheme, a number of scenarios will be assessed using the information collated above. The scenarios considered appropriate for assessment are:

- Baseline (2026 – year of on-site traffic surveys) – AM, PM and Daily; and
- Peak Construction Year (2030) With and Without Development – AM, PM and Daily.

12.5.4.4 The proposed construction period for the EOS is likely to be five years (2029 to 2034) and the peak construction year in terms of construction vehicle movements will be identified when the EIA and design-development processes advance, but is currently anticipated to be 2030, see Volume 01, Chapter 02: UK Project Description for further details. The proposed construction programme is based on the assumption that the EOS is built out within the shortest programme required to deliver the works, which is a worst case in respect of traffic generation because it compresses the trip numbers into a shorter duration resulting in higher peaks. The first year of operation will be 2034.

## 12.6 Assessment Methodology

### 12.6.1 Proposed Assessment Methodology

12.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the construction, operational and decommissioning phases of the UK Scheme. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

12.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on Traffic and Transport receptors arising from the construction, operational and decommissioning phases of the UK Scheme. This approach defines:

- **Sources and impacts**: The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

12.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

12.6.1.4 In accordance with the ISEP (formerly IEMA) Guidelines for the Environmental Assessment of Traffic and Movement (‘the ISEP Guidance’) (ISEP, 2023), the following criteria will be considered for the relevant receptors in this assessment:

- Severance of communities;
- Pedestrian delay;
- Non-motorised user amenity;
- Fear and Intimidation on and by road users;
- Road vehicle driver and passenger delay;
- Road user and pedestrian safety; and
- Hazardous/large loads.

12.6.1.5 In addition, the following criterion will be considered for the assessment of the UK Scheme:

- PRoW diversions and closures (both temporary and permanent effects).

12.6.1.6 The ISEP guidance (ISEP, 2023) sets out two rules to identify 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 where traffic flows have increased by 10% or more.

12.6.1.7 Based on this, it is proposed to assess receptors where traffic flows are expected to increase by 30% or more. However, it is not proposed to assess receptors where

there is expected to be less than a 30% increase in traffic flows as a result of the UK Scheme, unless any specifically sensitive areas, as defined by Rule 2 above, are identified including following consultation with the Highway Authority (Essex County Council and National Highways).

12.6.1.8 Moreover, it is proposed to assign a very low magnitude of change where 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 UK Scheme, irrespective of the proportional increase in traffic flows. This threshold is typically adopted as the starting point for determining whether further appraisal may be required and the approach is designed to avoid potentially over-estimating impacts for any receptors with very low baseline flows (e.g. narrow rural lanes) where caution should be observed in accordance with the ISEP guidance (ISEP, 2023).

12.6.1.9 In addition to the above, potential traffic-related effects will also be considered by other topics, including (but not limited to) the following examples:

- Potential effects of construction traffic on sites of ecological and nature conservation value are considered in Volume 02, Chapter 10: Onshore Biodiversity;
- Potential effects of construction traffic on noise and vibration are considered in Volume 04, Chapter 22: Noise and Vibration;
- Potential effects of construction traffic on tourists, visitor attractions and other businesses are considered in Volume 04, Chapter 24: Socio-economics and Land Use and Volume 04, Chapter 27: Tourism and Recreation; and
- Potential effects of construction traffic on air quality are considered in Volume 04, Chapter 28: Air Quality.

12.6.1.10 The type of traffic which is anticipated to be generated by the UK Scheme will be categorised as follows; construction worker vehicles (cars), LGVs, HGVs and AILs. The vehicle routing and movements associated with the construction of the UK Scheme will be considered in detail and will be discussed through consultation with the relevant Highway Authority (Essex County Council).

12.6.1.11 Once the volumes and likely routes of construction traffic have been identified, it will be necessary to identify those receptors that may be impacted, 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. Automatic Traffic Counts (ATCs) will be used to derive baseline daily and peak hour traffic flows for HGVs and total vehicles.

12.6.1.12 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.

12.6.1.13 These are outlined in the ISEP guidance (ISEP, 2023) as ‘Affected Parties’, as follows:

- People at home;

- People at work;
- Sensitive and/or vulnerable groups (e.g. due to age, income, health status, social disadvantage, access or geographic factors);
- Locations with concentrations of vulnerable users (e.g. hospitals, places of worship and schools);
- Retail areas;
- Recreational areas;
- Tourist attractions;
- Collision clusters and routes with road safety concerns; and
- Junctions and highway links at (or over) capacity.

12.6.1.14 The ISEP guidance (ISEP, 2023) states that this list of affected parties is not exhaustive e.g. ‘other road users’ is another affected party which will be considered. All of the affected parties could potentially be affected by changes in traffic volumes when in close proximity to a construction traffic route.

12.6.1.15 It is important to note that the methodology set out in the ISEP guidance does not consider the duration of effect, especially whether it is temporary (construction and decommissioning traffic) or permanent (operational traffic). As such, effects that, using this methodology, appear to be significant, may be considered not significant if the effect is temporary or infrequent (occurring only occasionally during construction for example).

12.6.1.16 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 2021 Census data. Construction traffic associated with the UK Scheme will be distributed onto the local highway network to calculate the resultant percentage increase on each link. This dataset will only be used to identify the likely districts where construction workers could originate from to inform the trip distribution i.e. this will not be used to estimate other travel patterns such as trip generation or mode share (given that the data was collected during the COVID-19 pandemic when travel would have been restricted).

12.6.1.17 Assessments will be undertaken at the peak of construction which may cover more than one year if the peak year for traffic volumes varies along different routes based on the section(s) of the UK Scheme which need to be served.

12.6.1.18 Currently, it is anticipated that construction of the EOS will commence in 2029 at the earliest and be completed by the end of 2034 (five years maximum) , and an indicative programme based upon current information is presented in Volume 01, Chapter 02: UK Project Description, with 2030 currently identified as the peak year of construction - noting that this is subject to change as the design evolves. Base traffic flows will be factored-up to the identified peak year of construction. Growth factors will be derived from TEMPro v8.1 for the relevant areas impacted by the UK Scheme. Meanwhile, the peak construction traffic flows will be derived by analysing forecasts of construction traffic volumes and construction programmes.

12.6.1.19 The following information will be included as part of the DCO submission, with the majority forming part of the ES Traffic and Transport Chapter or the outline CTMP:

- 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 within the Study Area for the most recent five-year period;
- Description of the Traffic and Transport-related elements of the EOS, 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);
- Predicted traffic generation volumes for the construction 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-class road network;
- The methodology for assessing potential Traffic and Transport impacts, followed by the assessment of likely potential significant effects based on this methodology;
- Mitigation measures and monitoring; and
- Summary and conclusions.

### 12.6.2 Transport Assessment Note

12.6.2.1 The majority of the information that would typically be contained within a standalone Transport Assessment will be contained within the ES Traffic and Transport Chapter, with remaining information contained within other documents such as the management plans i.e. the outline CTMP and the PRoW-MP. Therefore, it is proposed to prepare a TAN to identify where the information that would typically form part of a standalone Transport Assessment can be found in the various chapters and reports prepared for the UK Scheme. This approach will reduce repetition between documents and is subject to agreement with Essex County Council Highways and National Highways. Further information will be included within the TAN where necessary following these discussions.

### 12.6.3 Determining Significance

12.6.3.1 The significance of effect is determined through consideration of two elements: the sensitivity of the receptor and the magnitude of the impact. The following sections outline the approach that would be used to determine these factors and the overall significance of effect.

### 12.6.4 Sensitivity of Receptor

12.6.4.1 The general criteria for defining the importance or sensitivity of receptors (formed using ISEP guidance (Institute of Sustainability and Environmental Professionals (ISEP), 2023) and professional judgement) are set out in Table 12-3. 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 resource's 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 resource to absorb change.

**Table 12-3: Definitions of Sensitivity**

| Receptor Sensitivity | Receptor Examples |
|---|---|
| High | *Road links and junctions*: More than two sensitive uses present (e.g. schools, play areas, care/retirement homes, hospitals, places of worship, historic buildings) and/or a primarily residential street with properties on both sides of the carriageway.<br>*Walk/cycle links including PRoW*: Heavily-trafficked highway (e.g. dual carriageway or busy urban route) with on-road pedestrian/cycle route. |
| Medium | *Road links and junctions*: Two sensitive uses present (e.g. schools, play areas, care/retirement homes, hospitals, places of worship, historic buildings) and/or a large number of residential properties present.<br>*Walk/cycle links including PRoW*: Lightly-trafficked highway (e.g. quiet rural lane or private access track) with on-road pedestrian/cycle route. |
| Low | *Road links and junctions*: One/several of the following:<br>• One sensitive use present (e.g. school, play area, care/retirement home, hospital, place of worship, historic building).<br>• Many residential properties with direct frontage to highway link being used as construction route.<br>• Pedestrians using footways, PRoW and/or crossings on highway link.<br>• Cyclists using on-road designated cycle routes along highway link.<br>*Walk/cycle links including PRoW*: Heavily-trafficked highway with off-road pedestrian/cycle route OR a national pedestrian/cycle route running alongside a lightly-trafficked highway. |
| Negligible | *Road links and junctions*: No receptors along link, or one/several of the following:<br>• Few residential properties with direct frontage to the highway link being used as a construction traffic route. |

| Receptor Sensitivity | Receptor Examples |
|---|---|
| | • Workplaces with direct frontage to highway link being used as construction route.<br>• Cyclists using off-road designated cycle routes along highway link.<br>*Walk/cycle links including PRoW*: Pedestrian/cycle route not running alongside highway or lightly-trafficked highway with a regional/local off-road pedestrian/cycle route. |

12.6.4.2 Whilst the accessibility of the EOS by rail will be considered as a potential travel mode for construction workers, no railway lines pass through or within 1 km of the EOS Scoping Boundary. An assessment of the railway network is therefore proposed to be scoped out from the Traffic and Transport assessment, as there are not expected to be any direct interactions with, or potential impacts on, the railway network as a result of the EOS. Details relating to the usage and management of any railway level crossings will be set out within the outline CTMP, if necessary.

### 12.6.5 Magnitude of Impact

12.6.5.1 The ISEP guidance (ISEP, 2023) states that the magnitude of each impact should be determined as the forecast change to the baseline.

12.6.5.2 The assessment will consider a range of potential effects that could be experienced during the construction and decommissioning phases of the EOS and this section identifies how magnitude will be considered for each.

12.6.5.3 **Severance** is defined in the ISEP guidance (ISEP, 2023) as *the "perceived division that can occur with a community when it becomes separated by major transport infrastructure. 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 infrastructure."* The guidelines state that changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively. However, caution should be observed when applying these thresholds to very low baseline flows which are unlikely to experience severance impacts, even with high percentage changes in traffic.

12.6.5.4 **Pedestrian Delay** (incorporating delay to all non-motorised users) 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 crossroads. The assessment of pedestrian delay serves as a proxy for the delay that other modes of non-motorised users may experience when crossing roads. In general, increases in traffic volumes and/or traffic speeds are likely to lead to greater increases in pedestrian delay.

12.6.5.5 **Non-Motorised User 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 non-motorised user amenity would be where the traffic flow (or HGV component) is halved or doubled.

12.6.5.6 **Fear and Intimidation** occur through a combination of traffic volume 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 ISEP guidance (ISEP, 2023) which are presented in Table 12-4.

12.6.5.7 **Driver Delay** is an effect cited in the ISEP guidance (ISEP, 2023) and relates to incremental increases in traffic volume (as outlined in Table 12-4). However, traffic delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system. As a further consideration, where any temporary road closures or traffic management is likely to be in place to enable the construction of the UK Scheme, any additional potential delay caused by these resultant diversion routes has been reported.

12.6.5.8 **Road Safety** considers PIA data obtained for the most recent five-year period available at junctions and links along the proposed construction traffic routes. The sensitivity of discrete areas of the highway network can then be determined following a detailed review of the baseline characteristics including the collision rate and any collision clusters. These will be used to assess whether the additional traffic during construction of the UK Scheme would be likely to have a detrimental effect on road safety.

12.6.5.9 **PRoW Diversions and Closures** will be considered on the basis of the type of impact i.e. whether a temporary or permanent 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 which have been derived based on professional judgement.

12.6.5.10 With regard to **Hazardous/Large Loads**, the ISEP guidance states that the transportation of dangerous or hazardous loads by road should be recognised, including specialist loads that might be involved in the construction or decommissioning phases of the development. Where the number of movements is considered to be significant, risk or catastrophe analysis should be carried out to illustrate the potential for an accident and the likely effect of such an event. Appropriate routes for abnormal load movements should be considered, with mitigation strategies to secure safe passage. Vehicles transporting gas and oil to the UK Scheme would be categorised as Hazardous Loads. Abnormal indivisible loads (AILs), including transformers being delivered to the Converter Station site and potentially the delivery of cable drums, would be categorised as Large Loads. The assessment of HGVs will be informed by the equivalent assessment of Road Safety based on the forecast increase in HGVs.

12.6.5.11 Table 12-4, Table 12-5 and Table 12-8 summarise the criteria that are currently proposed to be used to assess the magnitude of change (based on increases i.e. 'adverse' effects), along with the thresholds that will be used to determine whether effects are considered high, medium, low or very low. 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).

12.6.5.12 Within these tables, neither the sensitivity of receptors, nor the duration of effects, is taken into consideration. These tables are formed using ISEP guidance (ISEP, 2023) and professional judgement.

**Table 12-4: Definitions of Magnitude of Change**

| Impact | Negligible | Small | Medium | Large |
|---|---|---|---|---|
| Severance | Increase in total traffic flows of 29 % or below (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 of between 40-89%). | Increase in total traffic flows or HGV flows of 90% and above. |
| Pedestrian Delay | The severity of the impact will be determined based on the thresholds identified above for severance. | | | |
| Non-motorised user amenity | Increase in total traffic flows of less than 50%. | Increase in total traffic flows of between 50-69%. | Increase in total traffic flows of between 70 - 99%. | Increase in total traffic flows of 100% or more. |
| Fear and Intimidation | No change in overall level based on the degree of hazard scores for daily traffic flows, HGV flows and vehicle speeds (see Table 12-5 below). | One step change in overall level (see Table 12-5 below), but with <400 daily vehicle increase or <500 daily HGV increase. | One step change in overall level (see Table 12-5 below), but with >400 daily vehicle increase or >500 daily HGV increase. | Two step change in overall level based on the degree of hazard scores for daily traffic flows, HGV flows and vehicle speeds (see Table 12-5 below). |
| Driver Delay | Increase in total traffic flow of less than 30%. | Increase in total traffic flow of between 30 59%. | Increase in total traffic flow of between 60 89%. | Increase in traffic flow of 90% or more. |
| Road Safety | Increase in total traffic flows of less than 30% (or increase in HGV flows of less than 10%). | All links estimated to experience increases in total traffic flows of at least 30%, or increases in HGV flows of at least 10%, are analysed further on a case-by-case basis. | | |

| Impact | Negligible | Small | Medium | Large |
|---|---|---|---|---|
| Hazardous/Large Loads | Based on the probability of a personal injury collision, categorised as fatal or serious, involving a hazardous or large load occurring | | | |

12.6.5.13 Further details relating to fear and intimidation, in terms of calculating magnitude of impact based on the ISEP guidance (ISEP, 2023), are provided in Table 12-5 below (which is based on Table 3.1 of the ISEP guidance (ISEP, 2023)).

**Table 12-5: Categorising the Degree of Hazard Change for Fear and Intimidation**

| Criteria | Degree of Hazard (Score) | | | |
|---|---|---|---|---|
| | Small | Moderate | Great | Extreme |
| A) Average Hourly Traffic Flow | Less than 600 (0) | 600 to 1,200 (10) | 1,200 to 1,800 (20) | Greater than 1,800 (30) |
| B) Daily HGV Flow | Less than 1,000 (0) | 1,000 to 2,000 (10) | 2,000 to 3,000 (20) | Greater than 3,000 (30) |
| C) Average Speed | Less than 20 mph (0) | 20 to 30 mph (10) | 30 to 40 mph (20) | Greater than 40 mph (30) |
| Total Score (A+B+C) | 0 to 20 | 21 to 40 | 41 to 70 | 71+ |

12.6.5.14 Magnitude of change with respect to Severance and Pedestrian Delay across PRoW receptors and national/regional walking and cycling routes is proposed to be categorised as provided in Table 12-6, based on professional judgement and experience:

**Table 12-6: Categorising Magnitude of Change for Severance and Pedestrian Delay across Public Rights of Way**

| Magnitude of Change | Description |
|---|---|
| Negligible | Closures/diversions: None required, or temporary (short-term, one to five days) closures are only required to install safety measures to retain PRoW access throughout construction; and/or<br><br>Haul road management/crossing points: No interactions with proposed haul road/construction vehicles or management only required for a temporary (short-term) duration of up to four weeks. Up to one haul road crossing point required to retain PRoW access. |
| Small | Closures/diversions: Temporary (short-term, one to four weeks) localised closures/diversions are required; and/or<br><br>Haul road management/crossing points: Proposed haul road/construction vehicles or management required for a temporary |

| Magnitude of Change | Description |
|---|---|
| | (long-term, more than four weeks in any 12-month period) duration. Several haul road crossing points required to retain PRoW access. |
| Medium | Closures/diversions: Temporary (long-term, more than four weeks in any 12-month period) or permanent closures/diversions are required, with an increase in journey length of less than 400 m. |
| Large | Closures/diversions: A closure without a diversion route for more than five days, or temporary (long-term, more than four weeks in any 12-month period) or permanent closures/diversions are required, with an increase in journey length of more than 400 metres (m). |

12.6.5.15 Magnitude of change with respect to Non-Motorised User Amenity and Fear and Intimidation across PRoW receptors and national/regional walking and cycling routes is proposed to be categorised as provided in Table 12-7: based on professional judgement and experience:

**Table 12-7: Categorising Magnitude of Change for Non-motorised User Amenity and Fear and Intimidation across Public Rights of Way**

| Magnitude of Change | Description |
|---|---|
| Negligible | No interactions with proposed haul road/construction vehicles or management only required for an already trafficked PRoW e.g. a Byway Open to All Traffic (BOAT) for a temporary (short-term) duration of up to four weeks. |
| Small | Non-trafficked PRoW (e.g. public footway or bridleway) to be used by limited construction vehicles with management/banksmen to avoid any interactions for a temporary period, although not required throughout the entire construction period. |
| Medium | PRoW to interact with construction vehicles at haul road crossing points only (to be managed), otherwise to be physically separated. Trafficked PRoW (e.g. BOAT) to be used by limited construction vehicles with management/banksmen to avoid any interactions for a temporary (long-term) period of more than four weeks in any 12-month period (however, not required throughout the entire construction periods). |
| Large | PRoW to be used by construction vehicles throughout the construction period with management/banksmen. |

12.6.5.16 PRoW Diversions and Closures will be considered on the basis of the type of impact i.e. whether a temporary or permanent PRoW closure or diversion is proposed and how long any potential disruption to an existing route would therefore occur. The assessment considers the indicative thresholds presented in Table 12-8 below, which have been derived based on professional judgement and experience.

**Table 12-8: Categorising the Overall Magnitude of Change of a Public Rights of Way Diversion**

| Impact | Negligible | Small | Medium | Large |
|---|---|---|---|---|
| PRoW Diversions and/or Closures | No closures/diversions required, or temporary (short-term, one to five days) closures are only required to install safety measures to retain PRoW access throughout construction. | Temporary (short-term, one to four weeks) localised closures /diversions are only required. | Temporary (long-term, more than four weeks in any 12-month period) or permanent closures/diversions are required, with an increase in journey length of less than 400 m. | A closure without a diversion route for more than five days, or temporary (long-term, more than four weeks in any 12-month period) or permanent closures/diversions are required, with an increase in journey length of more than 400 m. |

12.6.5.17 Table 12-4, Table 12-5 and Table 12-8 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 potential environmental effects have a proposed magnitude that does not, initially, consider the duration over which an effect is likely to be experienced.

12.6.5.18 Duration should be 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."*

12.6.5.19 Following the quantified assessment, the magnitude of change will be reported, taking into account professional judgement on the duration over which this change and any associated effects are likely to be experienced.

### 12.6.6 Significance of Effect

12.6.6.1 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 12-9 below shows the matrix that has been used, based on professional judgement, to determine the effect category.

**Table 12-9: Significance of Effect Matrix**

| Sensitivity of Receptor | Magnitude of Change | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Negligible |
| High | Major | Major | Moderate | Minor |
| Medium | Major | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

12.6.6.2 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

12.6.6.3 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UK Scheme design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UK Scheme.

## 12.7 Potential Effects and Mitigation

12.7.1.1 To inform identification of potential effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

12.7.1.2 The Traffic and Transport assessment will consider the construction, operational and decommissioning phases of the UK Scheme. This includes both the EOS and any road traffic movements that may also pass through the Study Area when travelling to/from the UKMS. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

### 12.7.2 Embedded Mitigation and Good Practice Measures

12.7.2.1 The UK Scheme will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as *“mitigation measures that have been incorporated into a project’s description and form an inherent part of the project’s design”* (ISEP, 2024). The embedded mitigation measures which are relevant to this Chapter are presented in the table below (Table 12-10).

**Table 12-10: Embedded Mitigation and Good Practice Measures**

| Measure Proposed | Rationale |
|---|---|
| Location of the EOS | The approach to identifying and assessing site options for the EOS has embedded high-level consideration of potential impacts on the environment and local communities in the decision-making process (including with respect to Traffic and Transport) and balanced these with technical and engineering feasibility to identify sites and routes. |
| Sensitive cable routing and/or trenchless techniques | Sensitive cable routing will be used to avoid or minimise effects on habitat and biodiversity receptors, PRoWs, flood defences etc where practicable. Where this is not possible trenchless techniques will be considered. In addition, the footprint of temporary working areas will be designed to minimise the extent of habitat loss as far as is practicable. This is the preferred measure and may develop alongside the design. |
| Outline Construction Environmental Management Plan (CEMP) | The outline CEMP provides the overarching framework for managing and monitoring the environmental impact of construction activities, including roles and responsibilities, compliance checks and corrective actions. |

12.7.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UK Scheme development and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

12.7.2.3 As the UK Scheme advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective and compliant with regulatory standards and stakeholder input.

### Embedded Measures

12.7.2.4 The location of the EOS has been initially led by National Energy System Operator (NESO)'s decision to assign its East Anglia Connection Node (EACN) Substation as the point of connection for the Tarchon Interconnector Project (see Volume 01, Chapter 02: UK Project Description). The approach to identifying and assessing alternative site options for the proposed UK Landfall, proposed Converter Station and proposed EOS HVDC and High Voltage Alternating Current (HVAC) Cable route corridor options has embedded high level consideration of potential impacts on the environment and local communities in the decision-making process (including with respect to Traffic and Transport) and balanced these with technical and engineering feasibility to identify sites and routes.

12.7.2.5 The proposed EOS HVAC and HVDC Cables is anticipated to typically be installed within a 30 m to 40 m wide working width (maximum). The exception to this is where environmental or engineering constraints mean additional temporary 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, a larger working width may be required in order to accommodate the larger construction equipment required to undertake installation works. Details of cable route crossing points of the existing highway and PRoW networks and how these will be managed will be set out within the outline CTMP and the outline PRoW-MP.

12.7.2.6 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 these obstacles.

12.7.2.7 The proposed UK Landfall will be crossed using trenchless techniques such as HDD, pipe pushing or similar. Whilst the specific length of trenchless technique at landfall is yet to be determined, the technique should help to reduce disruption and impacts to Traffic and Transport receptors which are present between the chosen UK Landfall and the sea, such as any PRoW or walking/cycling routes.

### Additional Mitigation Measures

12.7.2.8 Measures relevant to the control and management of impacts relating to the Traffic and Transport assessment are:

- A Code of Construction Practice (CoCP) and an outline CTMP will be produced prior to construction, allowing the measures set out below to be secured;
- Appropriate site layout and housekeeping measures will be implemented by the contractor(s) at all construction sites. This will include but not 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;
- In accordance with the outline CTMP, vehicles will be correctly maintained and operated in accordance with the 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. In addition, plant and vehicles will conform to relevant applicable standards for the vehicle type;
- The outline CTMP will set out measures to reduce route and journey mileage to and from, as well as around the site and to 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 and set out measures to reduce safety risks through construction vehicle and driver quality standards;
- The contractor(s) will implement a monitoring and reporting system to check compliance with the measures set out within the outline CTMP. This will include the need for a Global Positioning System (GPS) tracking system to

be fitted to HGVs to check compliance with authorised construction routes. The contractor(s) will also be expected to monitor the number of construction vehicles between the EOS and the surrounding road network. Deviations from the authorised routes or changes to traffic levels that are higher than the outline CTMP assumptions will require discussion of the need for any additional mitigation measures with highways authorities; and

- All designated PRoW will be identified and any potential temporary closures applied for/detailed in the DCO, which will be secured as part of the outline PRoW-MP. At all designated PRoW crossings, the working area will be managed with access closed for short periods (where practicable) 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.

12.7.2.9 In addition to the above, construction vehicles will be managed at road, pedestrian and cycle crossing points such as by implementing manned controls (e.g. marshals or 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 outline CTMP.

### 12.7.3 Potential Effects

#### Sources and Impacts

12.7.3.1 This section identifies the sources and impacts that would occur as a result of the construction, operational and decommissioning phases of the EOS.

12.7.3.2 The potential for the EOS to result in the potentially significant effects considers the embedded and control and management measures described above.

#### Sources of Construction Impacts

12.7.3.3 Potential sources of construction impacts are as follows:

- Construction works/infrastructure i.e. 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 i.e. where these interact with the existing transport networks (road/pedestrian/cycle) such as at vehicle crossing points; and
- Construction vehicles:
  - Heavy Goods Vehicles (HGVs);
  - Light Goods Vehicles (LGVs);
  - Construction staff vehicles; and
  - Abnormal indivisible loads.

12.7.3.4 The nature of the EOS is such that the greatest impact is likely to occur during the construction phase, given that there will be considerably fewer traffic movements during the operational phase and that the decommissioning phase is assumed to be less or no worse than construction (see further below). Therefore, the

construction phase will be the focus of the assessment of Traffic and Transport effects presented in the ES.

### Sources of Operational Impacts

- Potential sources of operational impacts are as follows (see also Volume 01, Chapter 02: UK Project Description):
- Operational staff vehicles e.g. for general checks of the Converter Station and occasional deliveries;
- Maintenance vehicles (mainly staff) relating to monthly visual inspections and general maintenance within the proposed Converter Station when required;
- Maintenance vehicles (including staff, LGVs and HGVs for the transportation of equipment and materials) relating to maintenance of the proposed Converter Station and onshore HVDC Cables. Converter Station maintenance will take place infrequently (once every one to three years) and for a short duration (assumed to be up to three weeks), maintenance of the proposed onshore HVDC and HVAC Cables/external cable protection will also be infrequent and short term; and
- Infrastructure/buildings such as the Converter Station may result in permanent PRoW closures and diversions.

12.7.3.5 During the operational phase, the proposed Converter Station is expected to be remotely monitored and operated. There will be no staff permanently based at the Converter Station, however there may be times during normal operations when there will be visitors to site (for example, to undertake general maintenance/inspection works) and ad hoc deliveries via LGVs. The only exception to this will be during periods of scheduled Converter Station maintenance which will take place infrequently (once every one to three years) and for a short duration (assumed to be up to three weeks). Staff vehicles and those used for maintenance of the proposed Converter Station and those connected with the maintenance works for the proposed onshore HVDC/HVAC Cables, are primarily expected to be LGVs including pickup trucks and vans, with some HGVs delivering equipment and materials.

12.7.3.6 Therefore, given the low level of operational trips likely to be generated and the infrequent and short duration of maintenance trips, it is proposed to exclude operational phase transport effects from the ES, except for the consideration of permanent PRoW closures and diversions, if required, as a result of the proposed Converter Station. Further detail of the operational phase transport arrangements will be set out in the ES and TAN to support this approach.

### Sources of Decommissioning Impacts

12.7.3.7 The potential sources of decommissioning impacts (Traffic and Transport) are considered to be largely the same as those set out above for the construction phase (e.g. for the proposed Converter Station), although certain works relating to the cables may not be required during decommissioning if these are to be left in-situ (see also Volume 01, Chapter 02: UK Project Description).

12.7.3.8 In the event that the EOS is decommissioned, there are expected to be fewer HGV, LGV and construction worker arrivals and departures associated with the decommissioning phase than during the construction phase. It is therefore considered reasonable to assume that the impacts will be less or no worse 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 potential impacts of the UK Scheme during its decommissioning phase as a reasonable worst case. Further detail of the decommissioning stage transport arrangements will be set out in the ES and TAN to support this approach.

### Additional Considerations

12.7.3.9 It is recognised that a potential source of impacts arises from hazardous and large loads. Should there be a requirement for vehicles to transport gas and oil to the EOS for example, then these would be categorised as hazardous loads. There will also be the requirement for Abnormal Indivisible Loads (AIL) to deliver transformers to the proposed Converter Station Site and potentially for the delivery of cable drums, which are categorised as large loads. These inputs are expected to be predominantly required during the construction and decommissioning phases, and the transport of hazardous/large loads will be considered accordingly within the ES. The outline CTMP will also provide further details on the likely routes to be used by abnormal loads and any associated management and mitigation.

12.7.3.10 Although the EOS Scoping Boundary is located near to a number of settlements including Harwich, Little Oakley, Great Oakley, Wix, Bradfield and Manningtree, 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, for example due to travel distance or the requirement to carry equipment. Nonetheless, these travel modes will be reviewed within the ES to understand potential opportunities for construction workers to walk, cycle and use public transport.

12.7.3.11 At this stage, the proposals for vehicular access are unknown, although it is expected that construction vehicles will use the A12(T) and A120(T) to travel to/from the EOS. Further details on proposed access to the EOS will be included within the ES and the outline CTMP which will be submitted with the DCO application.

12.7.3.12 Further information regarding the EOS will be obtained as the EIA and design-development processes advance, to identify the peak construction period(s) for assessment. To provide a robust assessment, the ES will assess the peak construction period in terms of daily and peak hour construction vehicle activity, which will include HGV movements, LGV movements and vehicle movements associated with construction worker arrivals and departures. Construction traffic forecasts will be identified and confirmed in the ES and the outline CTMP.

12.7.3.13 Table 12-11 identifies the EOS activities proposed to be scoped in and out of the assessment.

### Table 12-11: Elements Scoped In or Out for Traffic & Transport

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction | Construction works | Additional severance to pedestrians and cyclists;<br>Additional delay to drivers;<br>Additional delay to pedestrians;<br>Decline in pedestrian and cyclist amenity;<br>Additional fear and intimidation to pedestrians and cyclists;<br>Decline in road safety; and<br>Additional hazardous/large loads. | Road links | Scoped In | Potential for Significant Effects. |
| Construction | Construction works | Additional severance to pedestrians and cyclists;<br>Additional delay to drivers;<br>Additional delay to pedestrians;<br>Decline in pedestrian and cyclist amenity;<br>Additional fear and intimidation to pedestrians and cyclists;<br>Decline in road safety; and<br>Additional hazardous/large loads. | Road Junctions | Scoped In | Potential for Significant Effects. |
| Construction | Construction works | Additional severance to pedestrians and cyclists;<br>Additional delay to pedestrians;<br>Decline in pedestrian and cyclist amenity; and<br>Additional fear and intimidation to pedestrians and cyclists. | PRoW | Scoped In | Potential for Significant Effects. |
| Construction | Construction works | Additional severance to pedestrians and cyclists; | National/regional walking | Scoped In | Potential for Significant Effects. |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | Additional delay to pedestrians;<br>Decline in pedestrian and cyclist amenity; and<br>Additional fear and intimidation to pedestrians and cyclists. | and cycling routes | | |
| Operational | Operation and maintenance (O&M) vehicles | Minor, infrequent and short-term changes in vehicle movements associated with O&M activities. | Road links | Scoped Out | Typically limited traffic movements, scheduled maintenance to be infrequent and short in duration(once every one to three years for up to three weeks). No operational/ permanent effects are expected. |
| Operational | O&M vehicles | Minor, infrequent and short-term changes in vehicle movements associated with O&M activities. | Road Junctions | Scoped Out | Typically limited traffic movements, scheduled maintenance to be infrequent and short in duration (once every one to three years for up to three weeks). No operational/ permanent effects are expected. |
| Operational | O&M vehicles | Minor, infrequent and short-term changes in vehicle movements associated with O&M activities. | PRoW | Scoped Out | Typically limited traffic movements, scheduled maintenance to be infrequent and short in duration (once every one to three years for up to three weeks) No operational/ |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | permanent effects are expected. |
| Operational | O&M vehicles | Minor, infrequent and short-term changes in vehicle movements associated with O&M activities. | National/regional walking and cycling routes | Scoped Out | Typically limited traffic movements, scheduled maintenance to be infrequent and short in duration (once every one to three years for up to three weeks). No operational/ permanent effects are expected. |
| Operational | Converter Station | Additional severance to pedestrians and cyclists;<br>Additional delay to pedestrians;<br>Decline in pedestrian and cyclist amenity; and<br>Additional fear and intimidation to pedestrians and cyclists. | PRoW | Scoped In | Results in permanent PRoW diversions and/or closures. |
| Decommissioning | Decommissioning works | Additional severance to pedestrians and cyclists;<br>Additional delay to drivers;<br>Additional delay to pedestrians;<br>Decline in pedestrian and cyclist amenity<br>Additional fear and intimidation to pedestrians and cyclists;<br>Decline in road safety; and<br>Additional hazardous/large loads. | Road links | Scoped In | Potential for significant effects (to be captured by assessment of construction). |
| Decommissioning | Decommissioning works | Additional severance to pedestrians and cyclists;<br>Additional delay to drivers; | Road Junctions | Scoped In | Potential for significant effects (to be captured by |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | Additional delay to pedestrians;<br>Decline in pedestrian and cyclist amenity;<br>Additional fear and intimidation to pedestrians and cyclists;<br>Decline in road safety; and<br>Additional hazardous/large loads. | | | assessment of construction). |
| Decommissioning | Decommissioning works | Additional severance to pedestrians and cyclists;<br>Additional delay to pedestrians;<br>Decline in pedestrian and cyclist amenity; and<br>Additional fear and intimidation to pedestrians and cyclists. | PRoW | Scoped In | Potential for significant effects (to be captured by assessment of construction). |
| Decommissioning | Decommissioning works | Additional severance to pedestrians and cyclists;<br>Additional delay to pedestrians;<br>Decline in pedestrian and cyclist amenity; and<br>Additional fear and intimidation to pedestrians and cyclists. | National/regional walking and cycling routes | Scoped In | Potential for significant effects (to be captured by assessment of construction). |

12.7.3.14 Further details of the road links, junctions, PRoW and national/regional walking and cycling routes relevant to the EOS Scoping Boundary are set out within Section 12.2.

### 12.7.4 Cumulative and Transboundary Effects

#### Cumulative Effects

12.7.4.1 Cumulative Traffic and Transport inputs to the Cumulative Effects assessment of the ES will follow the approach and methodology set out within Volume 01, Chapter 06: EIA Approach and Methodology, as well as within Volume 05, Chapter 32: Approach to Cumulative Effects. This will consider the potential cumulative effects of construction traffic associated with the UK Scheme with any traffic associated with other developments or schemes which are considered as having the potential to impact the same receptor(s) as the UK Scheme, such as (but not limited to):

- The Norwich to Tilbury (NtT) Project;
- North Falls Offshore Wind Farm; and
- Five Estuaries Offshore Wind Farm.

#### Transboundary Effects

12.7.4.2 As set out in Volume 05, Chapter 32: Approach to Cumulative Effects, transboundary effects are defined as effects that would affect the environment in another state within the European Economic Area (EEA), i.e. effects which would be experienced beyond the borders of the United Kingdom (UK). Potential impacts to Traffic and Transport receptors as a result of the UK Scheme are not expected to be experienced beyond the Study Area for Traffic and Transport (as shown in Figure 12-1). Therefore, Traffic and Transport impacts in the UK are not relevant to other European States and transboundary effects are scoped out of further assessment in relation to Traffic and Transport.

## 12.8 Assumptions, Limitations and Uncertainties

12.8.1.1 The assessment will consider the peak construction period of the UK Scheme, including both the EOS and any road traffic movements that may also pass through the Study Area when travelling to/from the UKMS. The proposed construction period for the UK Scheme is 2029 to 2034. The peak construction year in terms of construction vehicle movements is currently anticipated to be 2030, however this will be confirmed as the EIA and design-development processes advance.

12.8.1.2 The assessment will focus on the main access points which will be used during the construction phase of the EOS. At this stage, the proposed access points are unknown and this will be confirmed as the EIA and design-development processes advance.

12.8.1.3 It is assumed that the majority of construction workers would travel by vehicle and it is proposed to develop a simple gravity model (based on 2021 Census data) to derive a forecast trip distribution for construction staff vehicles.

12.8.1.4 The EOS is typically expected to generate a low level of trips during the operational phase and whilst it is acknowledged that additional trips will be generated during periods of scheduled maintenance mainly in relation to the proposed Converter Station, these periods will take place infrequently (once every one to three years) and for a short duration (assumed to be up to three weeks). Therefore, an assessment of operational phase transport effects is proposed to be scoped out of the assessment.

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TARCHON



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# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

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|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00019 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Internal |
| **Release Code** | Issued for Information |

| Role | Name |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| µm | Micrometres |
| AL1 | Action Level 1 |
| AL2 | Action Level 2 |
| AWB | Artificial Waterbody |
| BEIS | Department for Business, Energy and Industrial Strategy |
| BERR | Department for Business, Enterprise and Regulatory Reform |
| BGS | British Geological Survey |
| BODC | British Oceanographic Data Centre |
| CaP | Cable Plan |
| CBRA | Cable Burial Risk Assessment |
| CD | Chart Datum |
| CEFAS | Centre for Environment, Fisheries and Aquaculture Science |
| CEMP | Construction Environmental Management Plan |
| CFBD | Coastal Flood Boundaries Dataset |
| DEMP | Decommissioning Environmental Management Plan |
| DESNZ | Department for Energy Security and Net Zero |
| DO | Dissolved Oxygen |
| E. coli | Escherichia coli |
| EA | Environment Agency |
| ECC | Export Cable Corridor |
| EIA | Environmental Impact Assessment |
| EIAR | Environmental Impact Assessment Report |
| EMODNet | European Marine Observation and Data Network |
| EQS | Environmental Quality Standards |
| ES | Environmental Statement |
| FSA | Food Standards Agency |
| HAT | Highest Astronomical Tide |
| HDD | Horizontal Directional Drilling |
| HHA | Harwich Haven Harbour Authority |
| HMWB | Heavily Modified Waterbody |
| IE | Intestinal Enterococci |
| IPCC | Intergovernmental Panel on Climate Change |
| JNCC | Joint Nature Conservation Committee |
| LAT | Lowest Astronomical Tide |
| MAGIC | Multi-Agency Geographic Information for the Countryside |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| MCCIP | Marine Climate Change Impacts Partnership |
| MHWN | Mean High Water Neaps |
| MHWS | Mean High Water Springs |
| MLWN | Mean Low Water Neaps |

| Acronym | Definition |
|---|---|
| MLWS | Mean Low Water Springs |
| MMO | Marine Management Organisation |
| MCA | Maritime and Coastguard Agency |
| MSL | Mean Sea Level |
| NASA | National Aeronautics and Space Administration |
| NM | Nautical Miles |
| NPS | National Policy Statement |
| NRW | Natural Resources Wales |
| NTSLF | National Tide and Sea Level Facility |
| ODN | Ordnance Datum Newlyn |
| OEMP | Operational Environmental Management Plan |
| OWF | Offshore Windfarm |
| PEIR | Preliminary Environmental Information Report |
| PLA | Port of London Authority |
| rBWD | Revised Bathing Water Directive |
| RCP | Representative Concentration Pathway |
| SAC | Special Area of Conservation |
| SMP | Shoreline Management Plan |
| SNSSTS | Southern North Sea Sediment Transport Study |
| SPM | Suspended Particulate Matter |
| SSC | Suspended Sediment Concentration |
| SST | Sea Surface Temperature |
| SWPA | Shellfish Water Protected Area |
| UKCP18 | UK Climate Projections 2018 |
| UKHO | United Kingdom Hydrographic Office |
| UKMS | United Kingdom Marine Scheme |
| UWWTD | Urban Wastewater Treatment Directive |
| WFD | Water Framework Directive |
| ZoI | Zone of Influence |

# 13. Marine Physical Environment

## 13.1 Introduction

13.1.1.1 This Chapter presents the Marine Physical Environment which will consider the potential significant effects on Marine Physical Environment receptors during the construction, operational, and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Areas used and receptors considered in this Chapter, only the UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. The English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is therefore not considered further. This Chapter of the Scoping Report:

- Provides a summary of the current Marine Physical Environment baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Marine Physical Environment receptors from the proposed components of the UKMS (as described in Volume 01, Chapter 02: UK Project Description); and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

13.1.1.2 For the purposes of this Scoping Report, the Marine Physical Environment includes the following elements:

- Morphology, including bathymetry, geology, surficial sediments, seabed features and coastal form;
- Sediment transport, including bedload and suspended sediment;
- Hydrodynamics, including tidal and non-tidal influences and waves;
- Water quality, including temperature and salinity, Protected Areas, Bathing Waters, Shellfish Water Protected Areas (SWPAs), Nutrient Sensitive Areas; and
- Sediment quality (including surficial sediment characterisation and contamination).

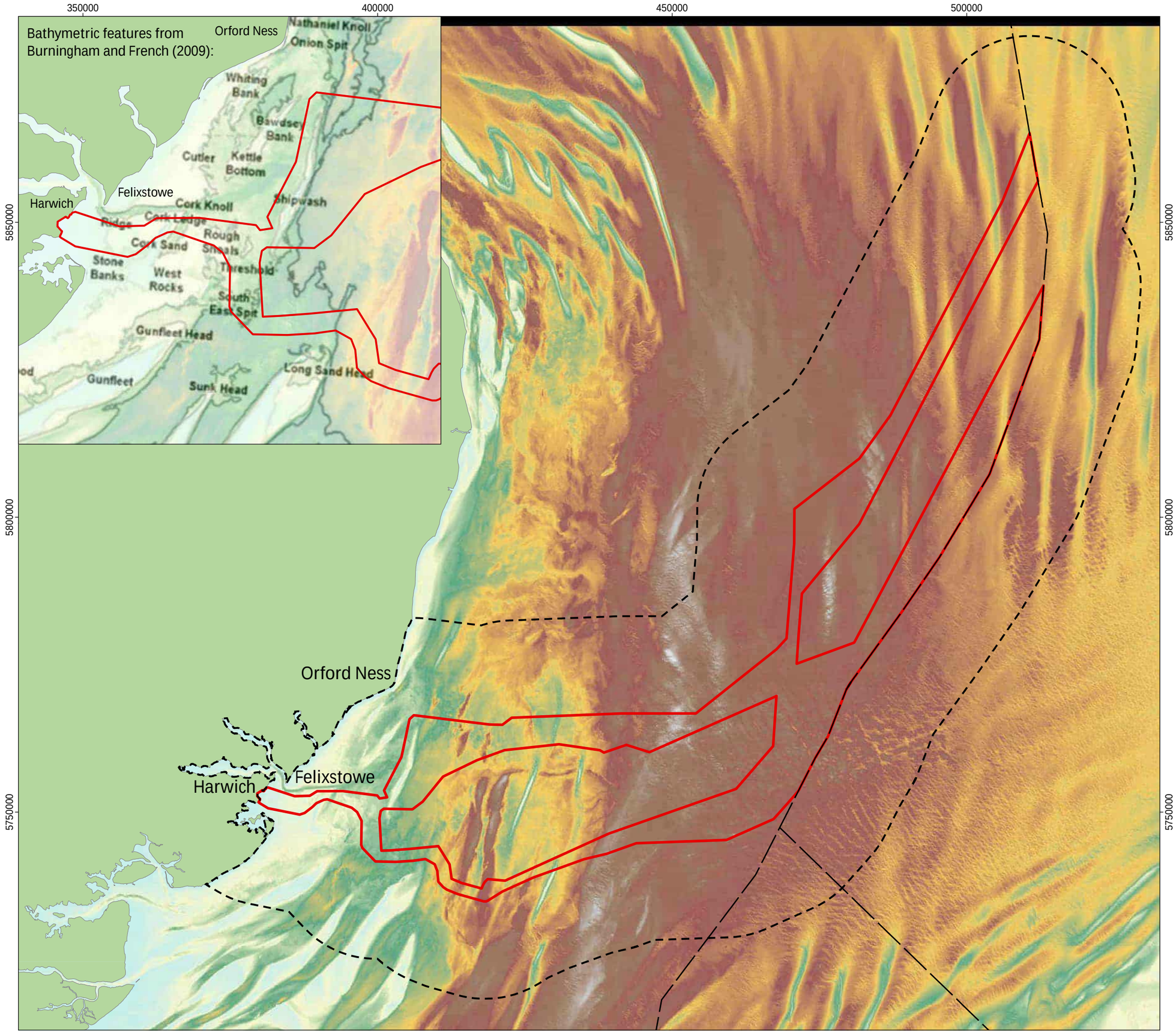
13.1.1.3 This Chapter should be read alongside the following Chapters for a broader understanding of the UKMS and Marine Physical Environment interactions:

- Volume 01, Chapter 02: UK Project Description.

## 13.2 Study Area

13.2.1.1 The Marine Physical Environment Study Area extends up to 16.5 km from the UKMS Scoping Boundary which represents the wider Zone of Influence (ZoI) to

physical environment receptors (Figure 13-1). This is based on the maximum tidal excursion distance of water particles for a peak spring tide and encompasses the area over which suspended sediment might travel following disturbance as a result of activities associated with the UKMS.




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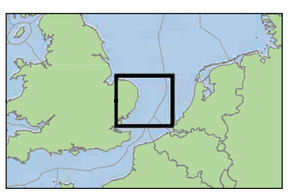
## Marine Physical Environment Study Area

**Legend**

- UK Marine Scheme Scoping Boundary
- Zone of Influence - 16.5km
- Exclusive Economic Zones (EEZ) Boundaries

Depth (m)

0
10
20
30
40
50
60
70



0 10 20 km

**Notes**

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:625,000 @A3 | 02/03/2026 | BPHB | EH | MB |

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Figure 13-1

Figure Reference: Tarchon_Scoping_MPE_Fig13-1_StudyArea_v1

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## 13.3 Relevant Legislation, Planning Policy and Guidance

13.3.1.1 The assessment of potential impacts on the Marine Physical Environment will be made with specific reference to the relevant legislation, planning policy and guidance. Full details are provided in Volume 01, Chapter 05: Legislative and Planning Policy Context.

### 13.3.2 Legislation

13.3.2.1 In undertaking the assessment, the following legislation will be considered:

#### International Legislation

- Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention)

#### European Union Legislation (retained in UK law)

- Environmental Quality Standards Directive (European Union, 2008);
- The Nitrates Directive (European Union, 1991); and
- European Union (EU) Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna (the 'Habitats Directive'); (European Union, 1992).

#### UK Legislation

- The Marine and Coastal Access Act (HM Government, 2009);
- The Conservation of Habitats and Species Regulations (HM Government, 2017);
- The Conservation of Offshore Marine Habitats and Species Regulations (HM Government, 2017);
- The Infrastructure Planning (Environmental Impact Assessment) Regulations (HM Government, 2017);
- Water Environment (Water Framework Directive (England and Wales) Regulations (HM Government, 2017);
- The Bathing Water Regulations 2013 (HM Government, 2013);
- The Shellfish Water Protected Areas (England and Wales) Directions 2016 (HM Government, 2016);
- The Urban Waste Water Treatment (England and Wales) Regulations 1994; (HM Government, 1994); and
- The Marine Strategy Regulations (HM Government , 2010).

### 13.3.3 Marine Policy Statements

13.3.3.1 The UK Marine Policy Statement was adopted in 2011 and provides the policy framework for the preparation of marine plans, establishing how decisions in affecting the marine area should be made. The following marine plans are considered relevant:

- East Inshore and East Offshore Marine Plan (Marine Management Organisation, 2014); and
- South East Inshore Marine Plan (Marine Management Organisation, 2016).

### 13.3.4 National Planning Policy Framework

13.3.4.1 Guidance on the issues to be assessed as part of the Marine Physical Environment assessment have been obtained through reference to the following National Policy Statements (NPS) (the NPS are outlined in more detail in Volume 01, Chapter 05: Legislative and Planning Policy Context):

- The Overarching National Policy Statement (NPS) for Energy (NPS EN-1; ( Department for Energy Security and Net Zero, 2024));
- The NPS for Renewable Energy Infrastructure[1] (NPS EN-3; (Department for Energy Security and Net Zero, 2024));
- The NPS for Electricity Networks Infrastructure (NPS EN-5; (Department for Energy Security and Net Zero, 2024); and
- The UK Marine Policy Statement (HM Government, 2011).

### 13.3.5 Guidance

13.3.5.1 In addition to the general guidance outlined in Volume 01, Chapter 05: Legislative and Planning Policy Context, the assessment of Marine Physical Environment receptors will also comply with the following guidance documents where they are specific to this topic:

- Marine Physical Processes Guidance to inform EIA (National Resources Wales, 2018);
- Nature conservation considerations and environmental best practice for subsea cables in English Inshore and UK offshore waters ( (Natural England and Joint Nature Conservation Committee, 2022);
- Guidance on Best Practice for Marine and Coastal Physical Processes Baseline Survey and Monitoring Requirements to inform EIA of Major Development Projects (NRW Evidence Report No: 243, (Brooks, Whitehead, & Lambkin, 2018);
- Offshore wind cabling: ten years' experience and recommendations (Natural England, 2018);
- Review of Cabling Techniques and Environmental Effects applicable to the Offshore Windfarm Industry (Department for Business, 2008);
- Water Framework Directive assessment: estuarine and coastal waters. Clearing the Waters for All ( (Environment Agency, 2023)); and
- Marine licensing: Sediment Analysis Marine Management Organisation (MMO) (2014).

[1] Although policies within NPS EN-3 are not specific to interconnector projects, offshore wind policies where they relate to transmission are considered relevant to the UKMS and have therefore been considered as part of the scoping exercise.

### 13.3.6 Local Planning Policy

13.3.6.1 The following local policies are considered relevant:

- National Flood and Coastal Erosion Risk Management Strategy for England ( (Environment Agency, 2020));
- Essex and South Suffolk Shoreline Management Plan (SMP 8) (Royal Haskoning, 2010);
- Tendring District Local Plan 2013 – 2033 and Beyond (Section 2) (Tendring District Council, 2022); and
- Local Plan Colchester Borough (2017 – 2033) (Colchester City Council, 2022).

## 13.4 Consultation and Engagement

13.4.1.1 Consultation relating to the Marine Physical Environment has been undertaken with the following consultees (consultation will continue with consultees following Scoping, as detailed within Volume 01, Chapter 04: Approach to Consultation):

- Natural England;
- Joint Nature Conservation Committee;
- Marine Management Organisation.

13.4.1.2 The only feedback specific to Marine Physical Environment was received from Natural England. Their feedback included:

- Outlining the need to consider a suitable ZoI for changes to marine physical processes;
- Noting the importance of considering coastal change and climate change impacts at the coast (in relation to nearby managed realignment policies); and
- The need to consider the potential impacts to saltmarsh areas and other sensitive coastal habitats.

## 13.5 Baseline Environment

13.5.1.1 The data sources that have been used to inform this Chapter are presented within Table 13-1. These data sources will be taken forward and used to inform the baseline characterisation of the UKMS, alongside any additional site-specific data that is to be collected.

Table 13-1: Key Sources of Marine Physical Environment Data

| Source | Summary | Coverage of the Marine Physical Environment Study Area |
|---|---|---|
| **General** | | |
| Environmental Statements (ESs) from OWF developments within the Southern North Sea:<br>• Five Estuaries OWF ES: Volume 6, Volume 2, Chapter 2, Marine Geology, Oceanography and Physical Processes and Volume 6, Volume 2, Chapter 3 Marine Water and Sediment Quality (RWE, 2023);<br>• North Falls OWF ES: Chapter 8 Marine Geology Oceanography and Physical Processes and Chapter 9, Marine Water and Sediment Quality (SSE and RWE, 2024); (RWE and SSE, 2024);<br>• East Anglia ONE North OWF ES: Volume 1, Chapter 7, Marine Geology, Oceanography and Physical Processes and Chapter 8 Marine Water and Sediment Quality (ScottishPower Renewables, 2019);<br>• East Anglia TWO OWF ES: Volume 1, Chapter 7, Marine Geology, Oceanography and Physical Processes and Chapter 8 Marine Water and Sediment Quality (ScottishPower Renewables, 2019b);<br>• Norfolk Vanguard OWF ES: Volume 1, Chapter 8 Marine Geology, Oceanography and Physical Processes and Chapter 9 Marine and Sediment Quality (RWE, 2018); | Characterisation of the existing Marine Physical Environment baseline within the Study Area and wider region. Information presented in the relevant ESs has been used to inform the baseline for this Chapter. | Partial coverage |

| Source | Summary | Coverage of the Marine Physical Environment Study Area |
|---|---|---|
| • Galloper OWF ES: Chapter 9 Marine Physical Processes and Chapter 10 Marine Water and Sediment Quality (RWE, 2011); and<br>• Gunfleet Sands Offshore Wind Farm Environmental Statemen (GE Wind Energy, 2002). | | |
| Offshore Energy Strategic Assessment 4 (OESEA4) (Department for Business, Energy and Industrial Strategy (BEIS), 2022) | Regional characterisation of geology, morphology, surficial sediments, coastal processes and hydrodynamics. | Partial coverage |
| Outer Thames Estuary Regional Environmental Characterisation (Marine Aggregate Levy Sustainability Fund, 2009) | Regional characterisation of geology, morphology (including bathymetry data), surficial sediments, coastal processes and hydrodynamics. | Partial coverage |
| **Hydrodynamics** | | |
| Atlas of UK Marine Renewables Energy Resources (ABPmer, 2008) | Provides a high-level resource of marine renewable energy data, including hydrodynamic conditions and tidal energy. | Full coverage |
| SEASTATES Metocean Data and Statistics Map (ABPmer, 2018) | Modelled metocean data, including wave and wind data, for offshore areas. | Full coverage |
| MetOceanAtlas (MetOceanWorks Ltd, 2025) | Modelled metocean data, including hydrodynamic and wave data, for offshore areas. | Full coverage |
| National Network of Regional Coastal Monitoring Programme (Channel Coastal Observatory) Wave site reports | Annual wave reports from point locations within the Study Area. | Partial coverage |
| British Oceanography Data Centre (BODC) (National Oceanography Centre, 2026) | Oceanographic datasets, including tide, wave and current data. | Partial coverage |

| Source | Summary | Coverage of the Marine Physical Environment Study Area |
|---|---|---|
| National Tide and Sea Level Facility (NTSLF) data (NTSLF) (National Oceanography Centre , 2025) | Tidal water levels from point locations within the Study Area. | Partial coverage |
| **Morphology** | | |
| European Marine Observation and Data Network (EMODnet) Data Portal (EMODnet, 2020) | Bathymetry, geology and sediment data for European seas. | Full coverage |
| Offshore GeoIndex Map (British Geological Survey, 2024) | Geological mapping of seabed conditions, including sediment distribution and subsurface geology. | Full coverage |
| Anglian Regional Coastal Monitoring Programme and associated reports | Monitoring data to inform coastal characteristics and change including topographic survey data, aerial imagery and oceanographic data. | Partial coverage |
| Shoreline Management Plan (SMP) 8: Essex and South Suffolk (Royal Haskoning, 2010) | Information on coastal characteristics and behaviour, as well as proposed future management strategies. | Partial coverage |
| Southern North Sea Sediment Transport Study (SNSSTS) (HR Wallingford, 2002) | Information on observed and modelled littoral and seabed sediment transport. | Partial coverage |
| United Kingdom Hydrographic Office (UKHO) Hydrographic survey reports | Hydrographic survey reports from key shipping areas. | Partial coverage |
| **Water Quality** | | |
| Suspended Sediment Climatologies around the UK (Cefas, 2016) | Monthly and annual average non-algal Suspended Particulate Matter (SPM) maps. | Full coverage |
| Shellfish classification and microbiological monitoring (Cefas, 2025) | Information on shellfish classification and microbiological monitoring with classification zone maps are available to view or download for each type of shellfish classified. | Partial Coverage |
| Bathing Water Data (Environment Agency, 2025) | Data collected by the EA to quantify the performance of the local bathing waters. | Partial Coverage |

| Source | Summary | Coverage of the Marine Physical Environment Study Area |
|---|---|---|
| Shellfish Water Protected Areas (Environment Agency, 2025) (Environment Agency, 2022) | Data collected by the EA to quantify the performance of the local shellfish waters. | Partial Coverage |
| Anglian River Basin District (Department for Environment Food & Rural Affairs, 2025) | The River Basin Management Plan provides information on the current status, pressures, objectives and programme of measures of the water environment. | Partial Coverage |
| Multi-Agency Geographic Information for the Countryside (MAGIC) Map (Department for Environment Food & Rural Affairs, 2026) | MAGIC Map geographic information about the natural environment covering rural, urban, coastal and marine environments across Great Britain. | Full Coverage |
| **Future Changes** | | |
| UK Climate Projections 2018 (UKCP18) Marine Report (Palmer, et al., 2018) | Provides projections of climate related marine conditions, including wave climate and sea-level rise. | Partial coverage |
| Sea Level Projection Tool – National Aeronautics and Space Administration (NASA) Sea Level Change Portal (National Aeronautics and Space Administration, 2021) | Predictive tool for sea-level changes, offering localised projections under different climate scenarios. | Full coverage |
| Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report: Impacts, Adaption and Vulnerability (Intergovernmental Panel on Climate Change, 2021) | Climate change impacts, including sea-level rise, erosion and associated risks to coastal infrastructure. | Partial coverage |

### 13.5.2 Baseline Conditions

13.5.2.1 An understanding of the baseline Marine Physical Environment which control the features, pathways and receptors within the Study Area has been derived from the available data sources and literature presented in Table 13-1. Regional context is provided where appropriate and dependent on the scale of the processes discussed. This baseline understanding, as presented below, will be further developed following completion of EOS specific surveys and updated in following phases of the EIA process.

#### Morphology

13.5.2.2 This Section provides an overview of the bathymetry, geology, surficial sediments and seabed features of relevance to the UKMS and wider Study Area.

##### *Bathymetry*

13.5.2.3 The bathymetry offshore of the Essex and Suffolk coastline is shown in Figure 13-1. A shallow plateau extends 14 km offshore from the Stour and Orwell Estuary, with water depths that are generally less than 10 metres (m) (Royal Haskoning, 2010). Water depths across the UKMS generally range between, approximately, 0 m and 70 m (Lowest Astronomical Tide (LAT)), dependent on bathymetric features.

##### *Seabed Features*

13.5.2.4 The Outer Thames Estuary, which overlaps with the southern extents of the Study Area, is characterised by large subtidal sandbanks and channels extending up to 80 km in length and 7.5 km wide, aligned with the tidal streams (northeast – southwest) (Burningham & French, 2011) (Figure 13-1). Locally, there is great complexity in the multiple channels and banks within the Greater Thames Estuary, which is due to lateral migration of the sandbanks and associated vertical change along the bank and channel boundaries (Burningham & French, 2011)

13.5.2.5 The most notable bathymetric feature is the Harwich Deep Water Channel that provides a navigable channel to the major ports of Harwich and Felixstowe north of the Proposed Landfall Site. This channel is currently dredged to a depth of 16.0 m below Chart Datum (CD) (Royal Haskoning, 2010) (Harwich Haven Authority, 2025). The Cork Spit, Cork Knoll and Cork Ledge are reefs and shoals that border the Harwich Deep Water Channel forming weakly defined bathymetric highs (Figure 13-2) (Burningham & French, 2008).

13.5.2.6 Within the UKMS Scoping Boundary the Cork Sands sandbank becomes exposed during low tide. Adjacent to Cork Sand is the deep Cork Hole and to the south, within the Study Area is a shoal rocky area called West Rocks, with depths as low as 0.5 m (UK Hydrographic Office, 2016). The Rough Shoals is a wide reef formed in the London Clay bed situated to the West of Cork Sands containing patches of sand and as shallow as 4.4 m. The Rough Shoals features two bathymetric highs known as the Lower Rough and Upper Rough (UK Hydrographic Office, 2016).

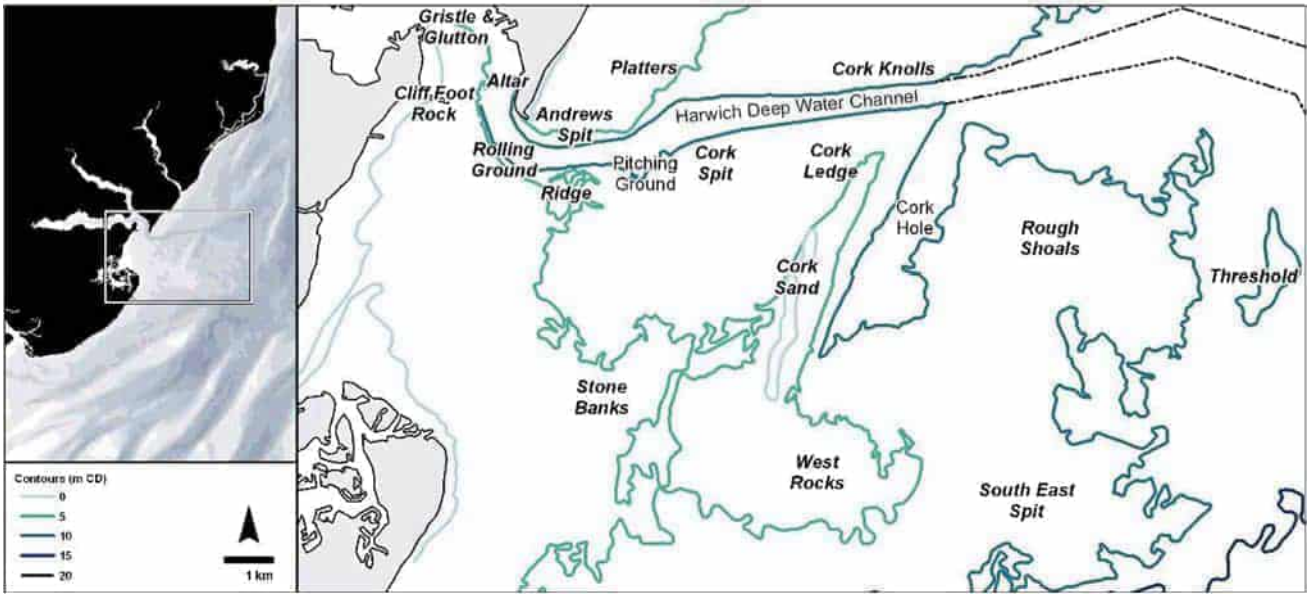


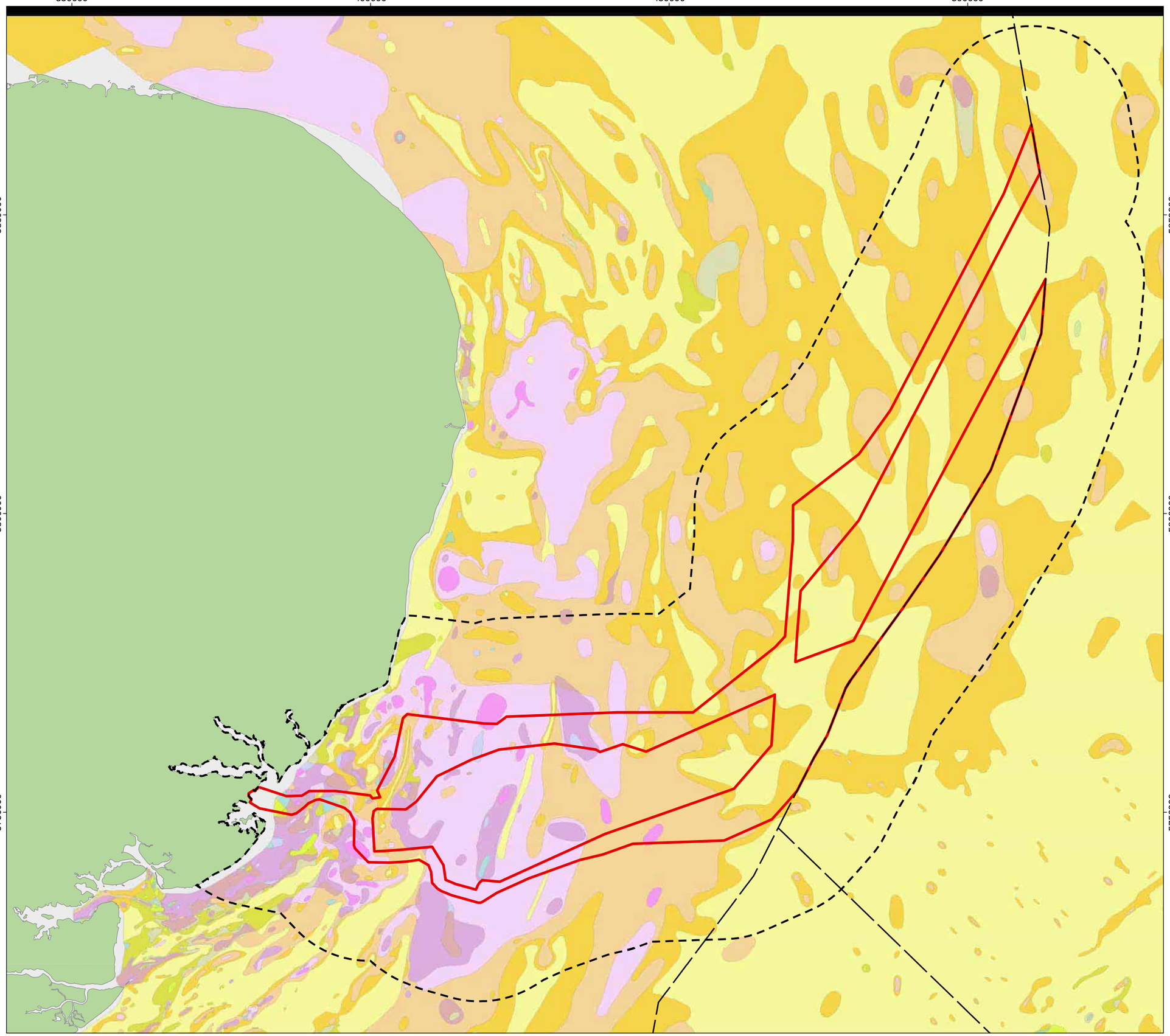

**Figure 13-2: Bathymetric features in the vicinity of Harwich Haven (Figure extracted from Burningham & French, 2008)**

### *Geology*

13.5.2.7 The Outer Thames Estuary lies within the Cenozoic London Basin and is underlain by Upper Cretaceous chalk, which outcrops locally, approximately, 6 km offshore of Harwich (Marine Aggregate Levy Sustainability Fund, 2009); (British Geological Survey, 2024). Subsequent Cretaceous, Paleogene and Neogene sequences have subsequently been either eroded and exposed at seabed, or are covered by sediments deposited during the Quaternary (Marine Aggregate Levy Sustainability Fund, 2009); (RWE, 2023). These include the London Clay Formation in the southern part of the Study Area and Red Crag Formation further north. Overlying Quaternary deposits are generally thin (less than 5 m), increasing in thickness to the northeast, north of Orford and reaching over 50 m in thickness in the offshore parts of the cable route (British Geological Survey, 2024)

### *Surficial Sediments*

13.5.2.8 Surficial sediments within the Study Area typically comprise sands and gravels, with higher mud content towards the south and west (Figure 13-3), (British Geological Survey, 2024).




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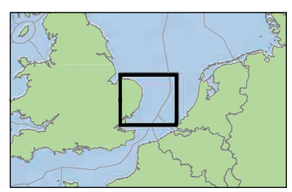
## Surficial Seabed Sediments

Legend

- UK Marine Scheme Scoping Boundary
- Zone of Influence - 16.5km
- Exclusive Economic Zones (EEZ) Boundaries

Sediment Types - Folk (1954) (BGS)

- Mud M
- Slightly gravelly mud (g)M
- Slightly gravelly sandy mud (g)sM
- Gravelly mud gM
- Slightly gravelly muddy sand (g)mS
- Sandy mud sM
- Muddy sand mS
- Sand S
- Gravelly sand gS
- Slightly gravelly sand (g)S
- Gravelly muddy sand gmS
- Muddy gravel mG
- Muddy sandy gravel msG
- Gravel G
- Sandy gravel sG
- Clay and sand



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:625,000 @A3 | 17/03/2026 | BPHB | EH | MB |

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Figure 13-3

Figure Reference: Tarchon_Scoping_MPE_Fig13-3_SurficialSeabedSediments_v1

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### Coastal Form

13.5.2.9 The proposed Landfall area and the town of Harwich are located on the estuary into which the River Stour and River Orwell converge as they enter the North Sea. Middle Beach is a rare example of an emerging dune system in Essex, which comprises a low-lying frontage that is set back behind the protruding Naze Peninsula and the Hamford Water National Nature Reserve tidal inlet to the south and Landguard Point to the north.

13.5.2.10 The Stour and Orwell Estuary and Hamford Water are intertidal areas characterised by mudflats and saltmarshes. Dovercourt Bay, situated just north of the Proposed Landfall area, is characterised by cliffs made of London Clay that reach 15 m in height and are fronted by muddy foreshore (Royal Haskoning, 2010) (Figure 13-4).

13.5.2.11 The proposed landfall area sits within the Essex and South Suffolk SMP 8, within the sub-section ‘Hamford Water B’, which is also split into 13 areas. These areas have a range of management policies currently identified, including ‘hold the line’ and managed realignment. There are beaches backed by numerous groynes between Harwich and Dovercourt. At Dovercourt the sandy beach is also backed by defences.

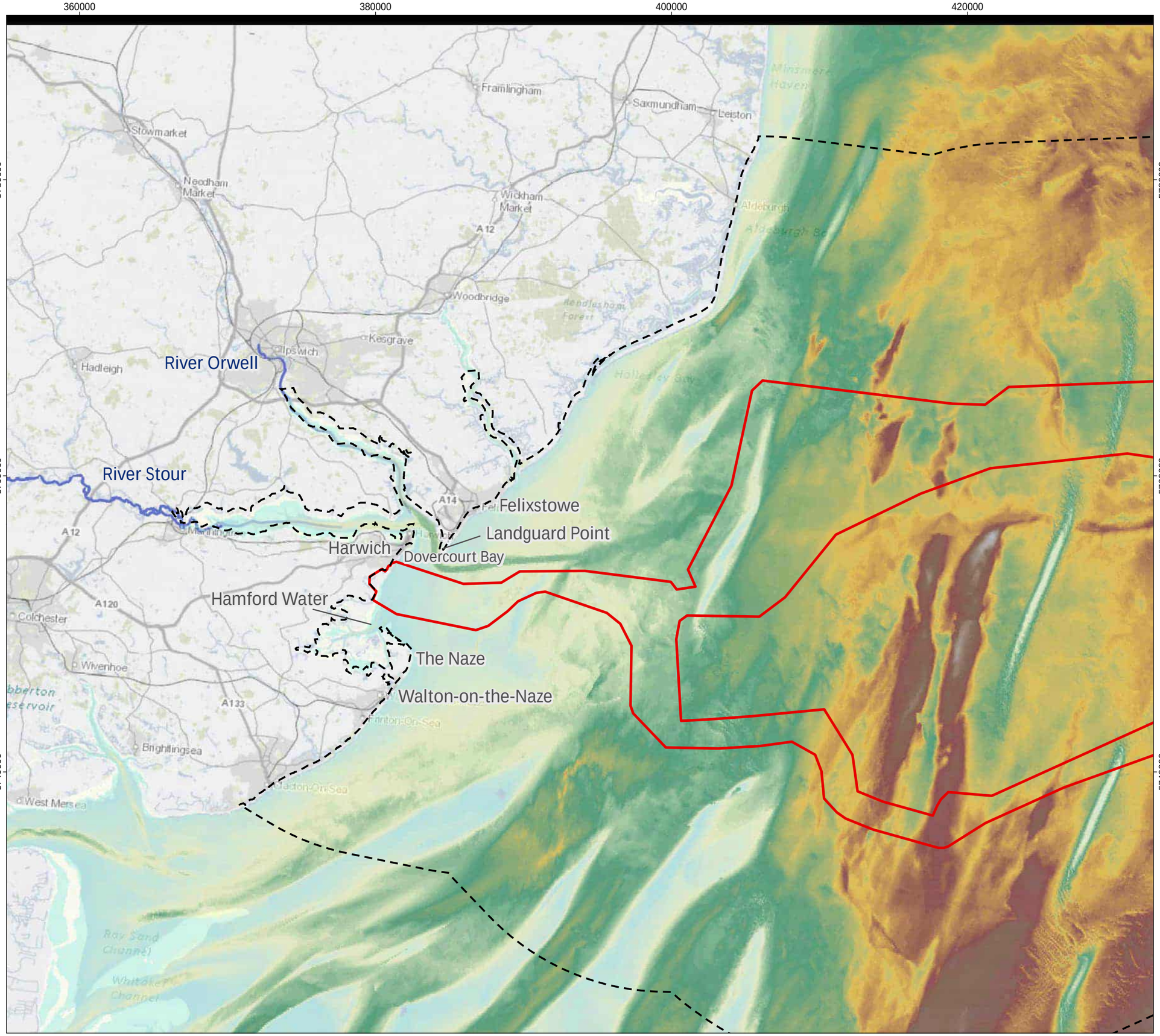
13.5.2.12 The Environment Agency’s Anglian Coastal Monitoring Programme (ACMP) (Environment Agency, 2008) has surveyed the Anglian coastline between Grimsby and Canvey Island since the early 1990s. Figure 13-5 shows the Essex profile lines monitored for the ACMP. The profiles associated with the Proposed Landfall area include E003, E004 (Middle Beach-Proposed Landfall Site), E005, E006 and E007 (Environment Agency, 2008). Profile E004 is an undefended grassy clay embankment. Since 1992, there has been dune rollback of 32 m resulting in a reduction of saltmarsh habitat behind the dunes (Figure 13-) (Environment Agency, 2008).

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# Tarchon Interconnector Project

Scoping Report

## Water Depth at Approach to Landfall

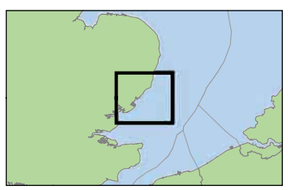



Legend

- UK Marine Scheme Scoping Boundary
- Zone of Influence - 16.5km

**Depth (m)**

0
10
20
30
40
50
60
70



Notes

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Coordinate System:
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0 5 10 km

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Figure 13-4

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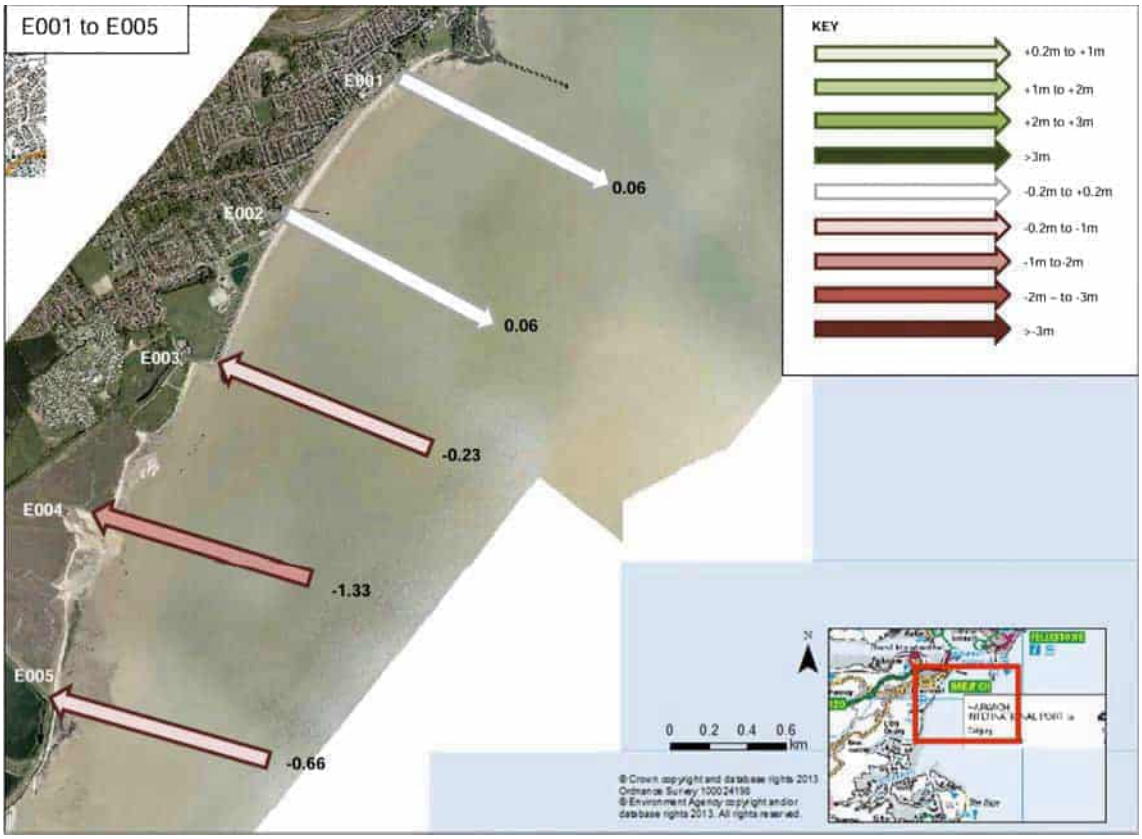



**Figure 13-5: Annual rates of erosion for coastal transects (Figure extracted from Environment Agency, 2008)**

### Sediment Transport

13.5.2.13 Regional-scale studies show that sediment transport pathways across the Greater Thames Estuary are predominantly from north-east to south-west and become more southerly beyond the North Foreland (Kenyon & Cooper, 2005) (Figure 13-6). Bedload sediments in the Outer Thames Estuary are derived from fluvio-glacial outwash comprising of sands and gravels that have now been reworked by wave and tidal action to form present-day beaches and sandbanks. There is little fine sediment present in the seabed of the Outer Thames Estuary as clays have been winnowed from the coarser seabed sediment fractions and deposited in lower energy environments, such as sheltered estuaries and calm sections of open coast (Royal Haskoning, 2010).

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## Regional Sediment Transport Pathways

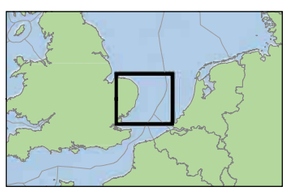
Legend

- UK Marine Scheme Scoping Boundary
- Zone of Influence - 16.5km
- Exclusive Economic Zones (EEZ) Boundaries

Depth (m)

0
10
20
30
40
50
60
70

- Bed Load Transport (Kenyon & Cooper, 2005)



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Coordinate System:
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Figure 13-6

Figure Reference: Tarchon_Scoping_MPE_Fig13-6_RegionalSedimentTransportPathways_v3

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13.5.2.14 Modelled bedload sediment transport demonstrates that, along most of the coastline, longshore transport is generally southwards (Figure 13-) (Royal Haskoning, 2010). However, between Landguard Point and Felixstowe Pier, net sediment bedload transport is to the north, making the Pier a convergence point for sediment transport from the north and the south (Royal Haskoning, 2010).

13.5.2.15 At the Proposed Landfall area near Harwich, sediment transport moves from Landguard Point to the Cork Sands sandbank, where it is temporarily stored until storm events (of a one-year or higher return period) mobilise the sediment onshore towards The Naze where it may be stored for decades (Royal Haskoning, 2010). The majority of bedload sediment in this area derives from Cork Sands with a small portion coming from cliff erosion at The Naze (HR Wallingford, 2002). The Felixstowe and Harwich deep water channels act as a barrier to the transport of beach-grade material moving north to south (Burningham & French, 2016). The Naze (to the south of the proposed landfall area) is described as a transport divide where net sediment transport is to the south (Royal Haskoning, 2010). Between The Naze and Jaywick, net sediment transport is towards the south-west.

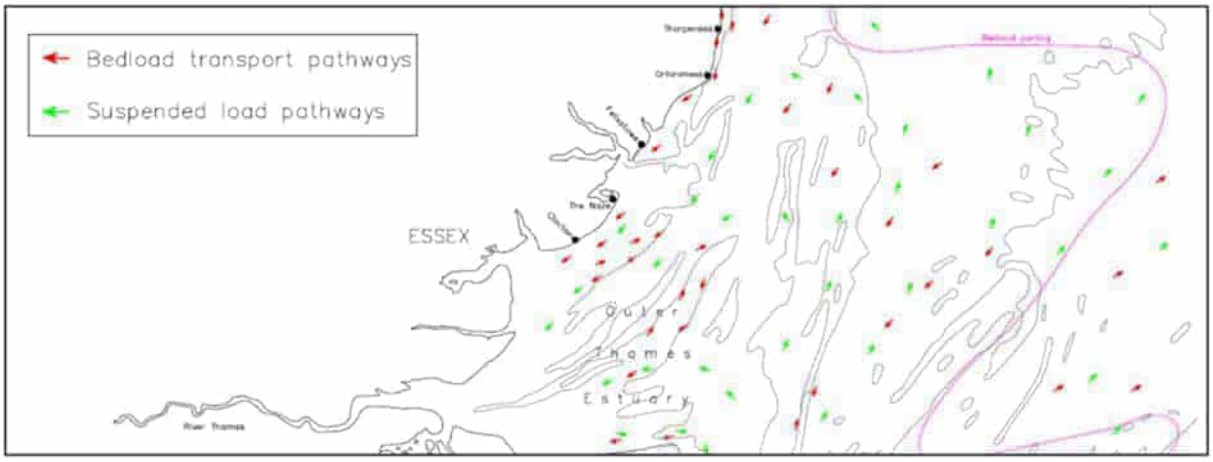



**Figure 13-7: Conceptual bedload and suspended sediment transport in Essex (Figure extracted from HR Wallingford, 2002)**

### Hydrodynamics

13.5.2.16 This Section provides an overview of the influences of tidal, non-tidal and wave processes on the UKMS.

#### *Tides*

13.5.2.17 Tides within the North Sea basin are generated by the tidal wave travelling from the north of Scotland coming from the Atlantic. The tidal wave travels down the Suffolk coast in a southerly direction generating a (usually) macro-tidal range[2]. At Harwich near the proposed landfall area, the mean spring tide range is 3.6 m, increasing to 5.9 m in the Outer Thames Estuary region. Tidal range decreases with distance from the coast, but it remains more than 4 m up to the 20 m bathymetric contour (Royal Haskoning, 2010) and (Mouchel and Partners Ltd., 1997).

[2] A macrotidal range refers to a tidal range that is greater than four metres classifying areas where significant tidal fluctuations occur.

13.5.2.18 Tidal water levels are presented in Table 13-2 from the UK Hydrographic Office (UKHO) Admiralty Tide Tables (UK Hydrographic Office, 2021) for Harwich, Felixstowe Pier, and Walton-on-the-Naze, located approximately 2 km, 5.2 km, and 4 km, respectively, from the UKMS Boundary.

**Table 13-2: Tidal water levels (UK Hydrographic Office, 2021)**

| Tide | Tidal Level (m above Chart Datum (CD)) | | |
|---|---|---|---|
| | Harwich | Felixstowe Pier | Walton-on-the-Naze |
| Highest Astronomical Tide (HAT) | 4.4 | 4.2 | 4.8 |
| Mean High Water Springs (MHWS) | 4.0 | 3.8 | 4.2 |
| Mean High Water Neaps (MHWN) | 3.4 | 3.1 | 3.4 |
| Mean Sea Level (MSL) | 2.14 | 2.08 | 2.25 |
| Mean Low Water Neaps (MLWN) | 1.1 | 1.0 | 1.1 |
| Mean Low Water Springs (MLWS) | 0.4 | 0.4 | 0.4 |
| Lowest Astronomical Tide (LAT) | -0.1 | -0.1 | -0.1 |

13.5.2.19 Regional tidal ellipses provide an indication of current flow direction across the Study Area showing that the strongest flows are oriented generally north-northwest to south-southeast in the offshore regions, becoming parallel to the coast closer to the shore (Figure 13-8) (ABPmer, 2008).

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# Tarchon Interconnector Project

Scoping Report

## Peak Spring Tidal Current Speed and Tidal Excursion Ellipses (ABPmer, 2008)

Legend

- UK Marine Scheme Scoping Boundary
- Zone of Influence - 16.5km
- Exclusive Economic Zones (EEZ) Boundaries
- Extreme Water Level Measurement
- Tidal Excursion Ellipses

Peak Spring Tidal Current Speed (m/s)

- <0.11
- 0.12 - 0.25
- 0.26 - 0.50
- 0.51 - 0.75
- 0.76 - 1.00
- 1.01 - 1.25
- 1.26 - 1.50
- 1.51 - 1.75
- 1.76 - 2.00



Notes

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Coordinate System: WGS 1984 UTM Zone 31N

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Figure 13-8

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### Non-tidal Influences

13.5.2.20 Superimposed upon regular tidal behaviours are various non-tidal influences, which mainly originate from meteorological effects. An example is surges, formed by rapid changes in atmospheric pressure causing the water levels to fluctuate considerably above or below the tidal level. This effect can be further impacted by the wind strength and direction. Moving low pressure systems and associated strong and persistent wind fields may generate strong positive surges, often referred to as a 'storm surge'. The height of the surge typically increases as the weather system travels south and the North Sea becomes narrower and shallower causing a funnelling effect. Extensive flood defences have been constructed to protect Harwich from tidal flood events of this nature.

13.5.2.21 Estimated, present-day extreme water levels (with return periods ranging from 1 year to 10,000) from the 2018 Coastal Flood Boundaries Dataset (CFBD) are presented in Table 13-3 (Environment Agency, 2018) with the location associated with this dataset is shown in Figure 13-8 near Harwich.

**Table 13-3: Extreme Water Levels for 2018 at Harwich (Environment Agency, 2018)**

| Return period (years) | Level (m Ordnance Datum Newlyn (ODN)) | Level (m Chart Datum (CD) |
|---|---|---|
| 1 | 2.72 | 0.38 |
| 5 | 3.01 | 0.90 |
| 10 | 3.15 | 1.06 |
| 25 | 3.33 | 1.33 |
| 50 | 3.48 | 1.38 |
| 75 | 3.56 | 1.53 |
| 100 | 3.63 | 1.61 |
| 250 | 3.83 | 1.88 |
| 500 | 3.99 | 2.04 |
| 1,000 | 4.16 | 2.21 |
| 10,000 | 4.81 | 2.86 |

### Waves

13.5.2.22 A summary of previous wave studies carried out along the Suffolk coast show that Suffolk has a moderate wave climate (Mott MacDonald, 2014). Offshore waves from the northeast and south-southwest are dominant; waves from the north-northeast sector tend to be larger, but less frequent.

13.5.2.23 The wave climate near Harwich has been analysed based on offshore data recorded by the West Gabbard buoy, located about 40 km east of the Proposed Landfall area and less than 5 km from the UKMS Scoping Boundary. Figure 13- below show the wave roses for all waves and waves of Hs (significant wave height[3]) higher than 2.5 m, showing the percentage of waves of different heights approaching from different directions. Between June 2006 and March 2018, there

[3] Defined as the mean of the highest one third (33%) of waves (measured from trough to crest) occurring within a defined period.

was a strong bi-modality in the direction of offshore waves, with the two dominant directions being from the north-northeast and south-southeast (Atkinson & Esteves, 2019). In most years (8 out of 11), waves from the south were more frequent than those originating from the north.

13.5.2.24 Higher waves (with significant wave heights of more than 2.5 m) approached mainly from the south-southwest (Atkinson & Esteves, 2019) and north-northeast. While mean significant wave heights are higher during the Winter months, the highest waves (maximum significant wave heights (Hmax)[4]) generally occur during the Autumn period. At Lowestoft the significant wave height (Hs) storm alert threshold for a 0.25-year return period is 3.11 m (NNRCMP, 2021).

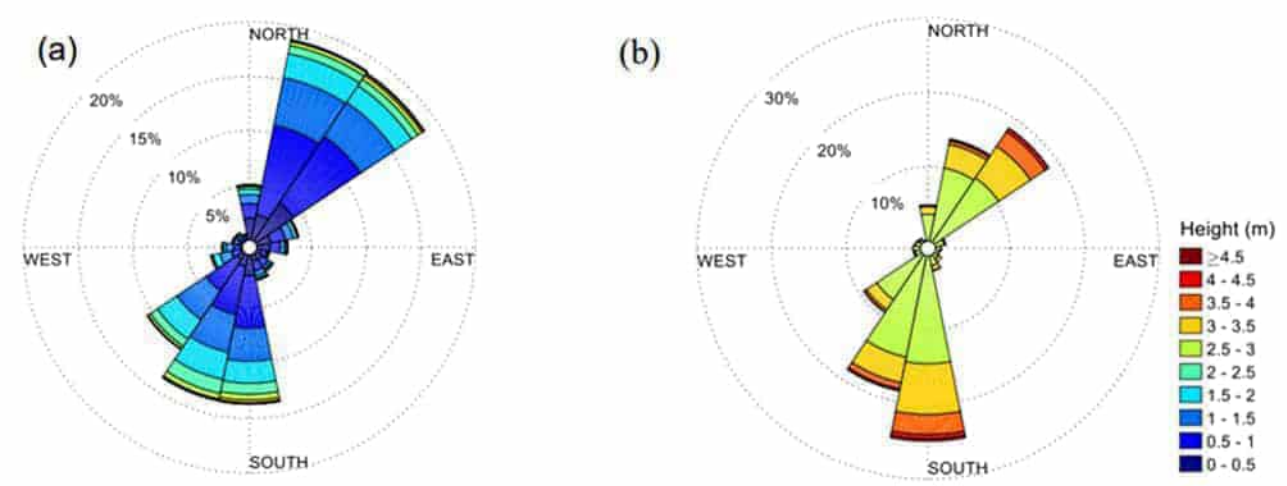



**Figure 13-9: Wave roses from West Gabbard wave buoy for (a) all waves and (b) waves of Hs greater than 2.5 from June 2006 to March 2018 (98% data coverage)**

## Water Quality

### *Temperature and Salinity*

13.5.2.25 Annual mean surface temperature and salinity within selected grid cells comparing the landfall location with a central point along the UKMS and at the EEZ border with the Netherlands are presented in Table 13-4 (Berx & Hughes, 2009).

13.5.2.26 The surface temperature across the UKMS averages 11.68°C annually and displays a distinct seasonal pattern, with peak temperatures of 17.83°C in August near the Landfall option and lows of 5.59°C in February at the EEZ border.

13.5.2.27 The annual mean surface salinity within the UKMS is reported to remain marine with influence from freshwater sources having limited influence upon the average salinity. Across the UKMS an average concentration of 34.63 parts per thousand (‰) with minimal fluctuations throughout the year (ranging from 34.35‰ in July to 34.86‰ in November at the landfall area) as presented in Table 13-4.

[4] Maximum wave heights are the single largest waves measured by the measurement device.

Table 13-4: Monthly mean sea surface and salinity across the UKMS (Berx & Hughes, 2009)

| Month | Mean surface temperature (°C) | | | Mean Surface Salinity (‰) | | |
|---|---|---|---|---|---|---|
| | Landfall | Midpoint | Dutch EEZ Boundary | Landfall | Midpoint | Dutch EEZ Boundary |
| January | 6.94 | 7.38 | 6.74 | 34.66 | 34.83 | 34.63 |
| February | 6.75 | 6.31 | 5.59 | 34.69 | 34.80 | 34.75 |
| March | 7.13 | 6.98 | 6.55 | 34.69 | 34.69 | 34.73 |
| April | 8.37 | 8.08 | 7.63 | 34.50 | 34.36 | 34.59 |
| May | 11.01 | 10.61 | 10.40 | 34.45 | 34.43 | 34.57 |
| June | 14.00 | 13.32 | 12.89 | 34.40 | 34.54 | 34.63 |
| July | 16.63 | 16.31 | 15.83 | 34.35 | 34.44 | 34.62 |
| August | 17.83 | 17.53 | 17.25 | 34.74 | 34.62 | 34.47 |
| September | 17.27 | 17.35 | 16.90 | 34.82 | 34.65 | 34.56 |
| October | 15.23 | 15.18 | 14.75 | 34.81 | 34.76 | 34.68 |
| November | 12.19 | 12.70 | 11.42 | 34.86 | 34.78 | 34.72 |
| December | 9.36 | 10.05 | 9.87 | 34.52 | 34.70 | 34.62 |
| *Annual Mean* | *11.90* | *11.82* | *11.32* | *34.62* | *34.63* | *34.63* |

### *Suspended Sediments*

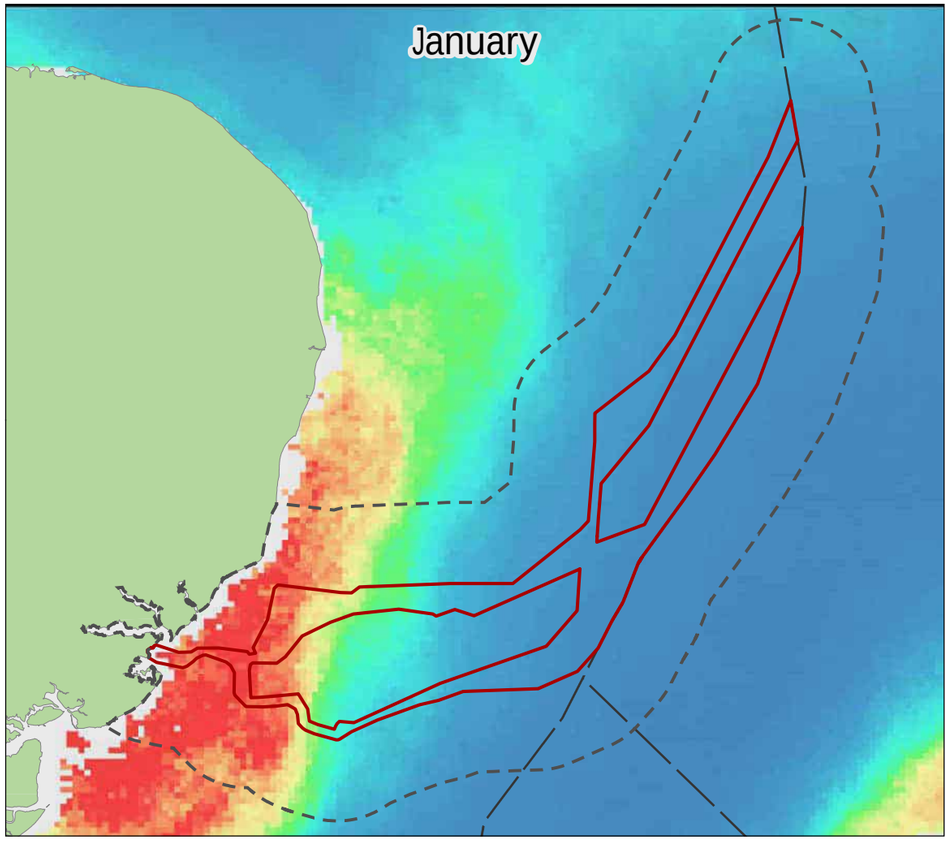
13.5.2.28 The southern North Sea is characterised by a high degree of spatial and temporal (both annual and inter-annual) variability in Suspended Sediment Concentration (SSC). In general, there exists an inshore to offshore gradient in SSC, with the highest concentrations observed close to and especially at the mouths of, large estuaries such as the Thames (Cefas, 2016).

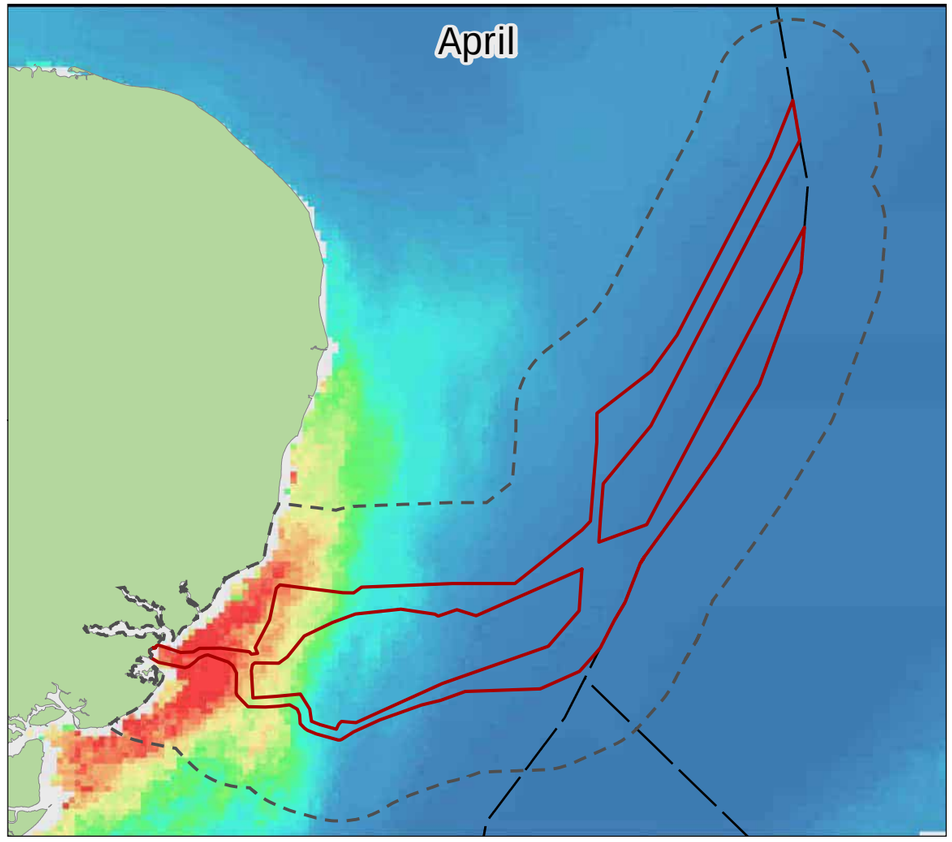
13.5.2.29 The Outer Thames Estuary is characterised by high levels of turbidity with inputs predominantly from fluvial sources, erosion of soft cliff coasts and the frequent resuspension of mobile material from shallow seabed settings. The UKMS Scoping Boundary is partially within the East Anglian Plume extending from the East coast of the UK across the southern North Sea towards the Danish coastline (Cefas, 2016).

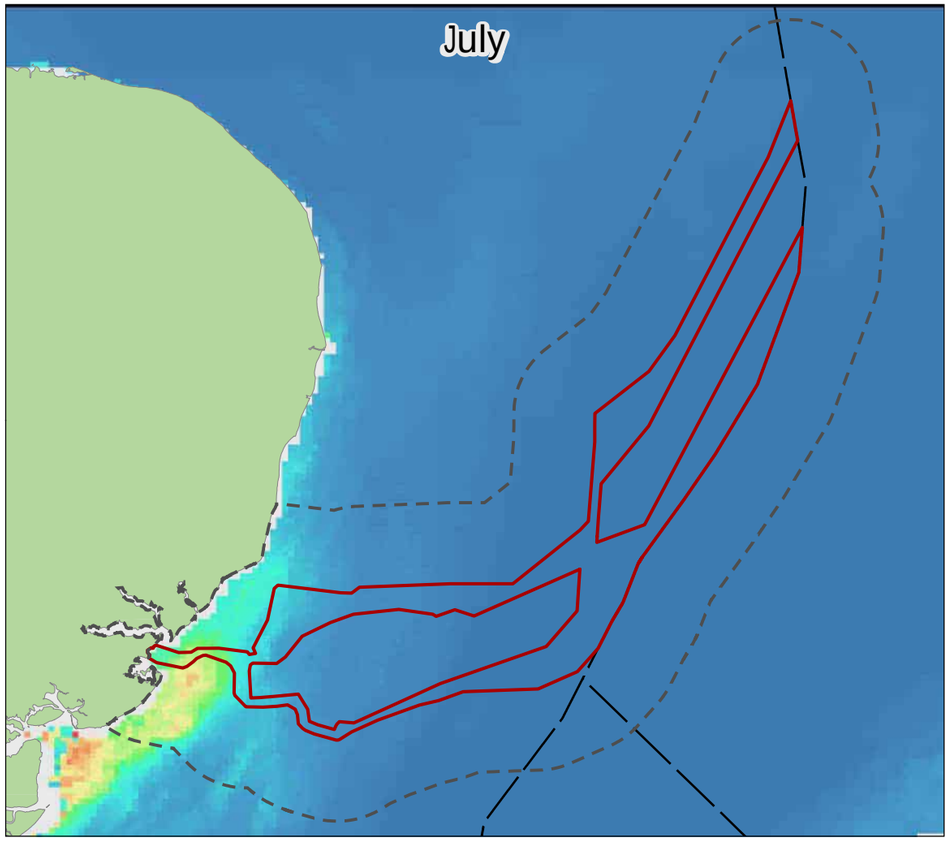
13.5.2.30 Data from Cefas show that background levels of SSC in the Southern North Sea are between 0 mg/l and 10 mg/l in June and from 0 mg/l to more than 30 mg/l in January (based on data from 1998-2015) (Cefas, 2016). The average Suspended Particulate Matter (SPM) for the period 1998 to 2015 around the UK is presented below (Figure 13-10).

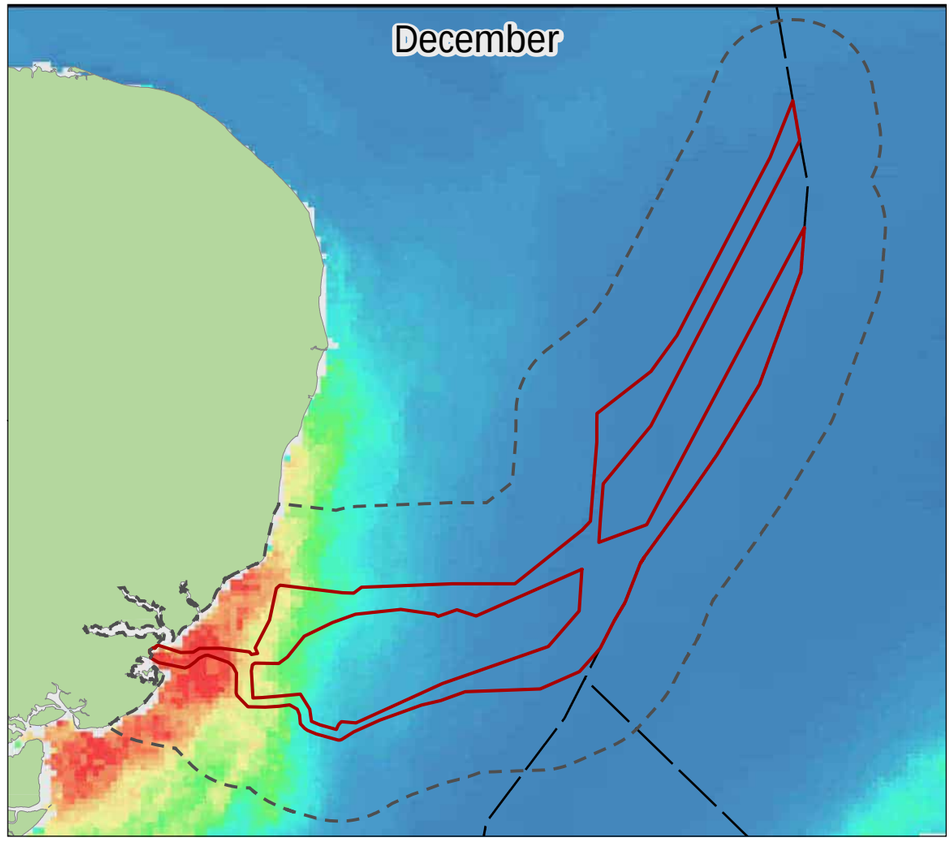
13.5.2.31 In the Outer Thames Estuary region and nearer shore, the SSC[5] is relatively high at more than 30 mg/l (Cefas, 2016). Sediment sources of fine sediment include the erosion of The Naze and the various rivers that discharge along the Essex coast into the Outer Thames Estuary region (Royal Haskoning, 2010).

[5] SPM and SSC are both measures of material held in the water column, however SSC represents the sediment fraction (e.g. silt, clay and sand), whereas SPM may encompass a broader range of particulate material, including inorganic sediments and organic matter such as detritus or plankton.




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Scoping Report

## Average Suspended Particulate Matter within the Marine Physical Environment Study Area and Wider Marine Area

Legend

- UK Marine Scheme Scoping Boundary
- Zone of Influence - 16.5km
- Exclusive Economic Zones (EEZ) Boundaries

SPM Concentrations (mg/l) (CEFAS, 1998-2015)

- High : 100
- Low : 0



Notes

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Figure 13-10

Figure Reference: Tarchon_Scoping_MPE_Fig13-10_SPM_v1

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### Sediment Quality

13.5.2.32 Marine sediment quality can be affected by the deposition and accumulation of substances on the seabed and is heavily linked to the existing surficial sediments. Sediments with a finer particle size, such as clays and muds (<63 µm), can act as adsorption surfaces for contaminants that may be released back into the water column if the sediment is disturbed (Cefas, 2001). In comparison sediments with larger particle sizes (e.g., sands and gravel; >63 µm) are not typically associated with anthropogenic contaminants. The UKMS Scoping Boundary covers a wide variety of surficial sediments progressing to predominantly gravelly sand and then sand with increasing distance from the coast.

13.5.2.33 The UKMS 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, such as dredging which has resulted in significant chemical pollution (Cefas, 2016). Additionally, the River Thames is a major input into the Outer Thames Estuary and the Southern North Sea, contributing industrial effluents and urban run-off for a large catchment (Cefas, 2016).

13.5.2.34 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 Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc and metal contaminants are most prone to various environmental interactions and transformations (physical, chemical and biological), potentially increasing their biological availability. Historically, within the Outer Thames Estuary, there have been increased sediment concentrations of Copper, Mercury, Lead and Zinc, while in the North Sea increased concentrations of Nickel, Copper, Zinc, Cadmium and Mercury have been common (Logemann, et al., 2022).

13.5.2.35 There are no formal quantitative Environmental Quality Standards (EQS) for the concentration of contaminants in sediments, although the Water Framework Directive (WFD) has introduced optional standards for a small number of priority (hazardous) substances. Cefas has prepared a series of Guideline Action Levels to assist in the assessment of dredged material (and its suitability for disposal to sea) (Marine Management Organisation, 2014).

13.5.2.36 In general, contaminant levels in material below Cefas Guideline Action Level 1 (AL1) are widely considered to be acceptable for disposal at sea. However, material with contaminant levels above Cefas Guideline Action Level 2 (AL2) is generally considered unsuitable for disposal at sea. Material with contaminant levels between AL1 and AL2 may require further consideration before a decision can be made on the material's suitability to be disposed of at sea. The Cefas Guideline

Action Levels provide a useful context for sediment quality and potential for effects due to seabed disturbance from proposed activities within the Study Area.

13.5.2.37 Site specific sediment sampling for Five Estuaries Offshore Windfarm (OWF) Ltd found no exceedances of Cefas ALs across their Array Area in comparison to exceedances of AL1 for Nickel, Chromium, Cadmium and Arsenic within their Export Cable Corridor (ECC). No exceedances of AL2 were recorded at any station. This supports the literature indicating a declining trend of contaminants with increasing distance offshore (RWE, 2023).

13.5.2.38 The majority of countries have stopped monitoring organotin concentrations in sediment, especially at offshore locations, as concentrations are now often so low that they are below the limit of detection. Therefore, it is expected that organotin concentrations in sediment are unlikely to be at levels that could cause ecotoxicological effects (Parmentier, Näslund, & Fryer, 2023).

13.5.2.39 Site-specific sampling is being undertaken to further refine the understanding of contamination in the UKMS Scoping Boundary to inform the later stages of the EIA process.

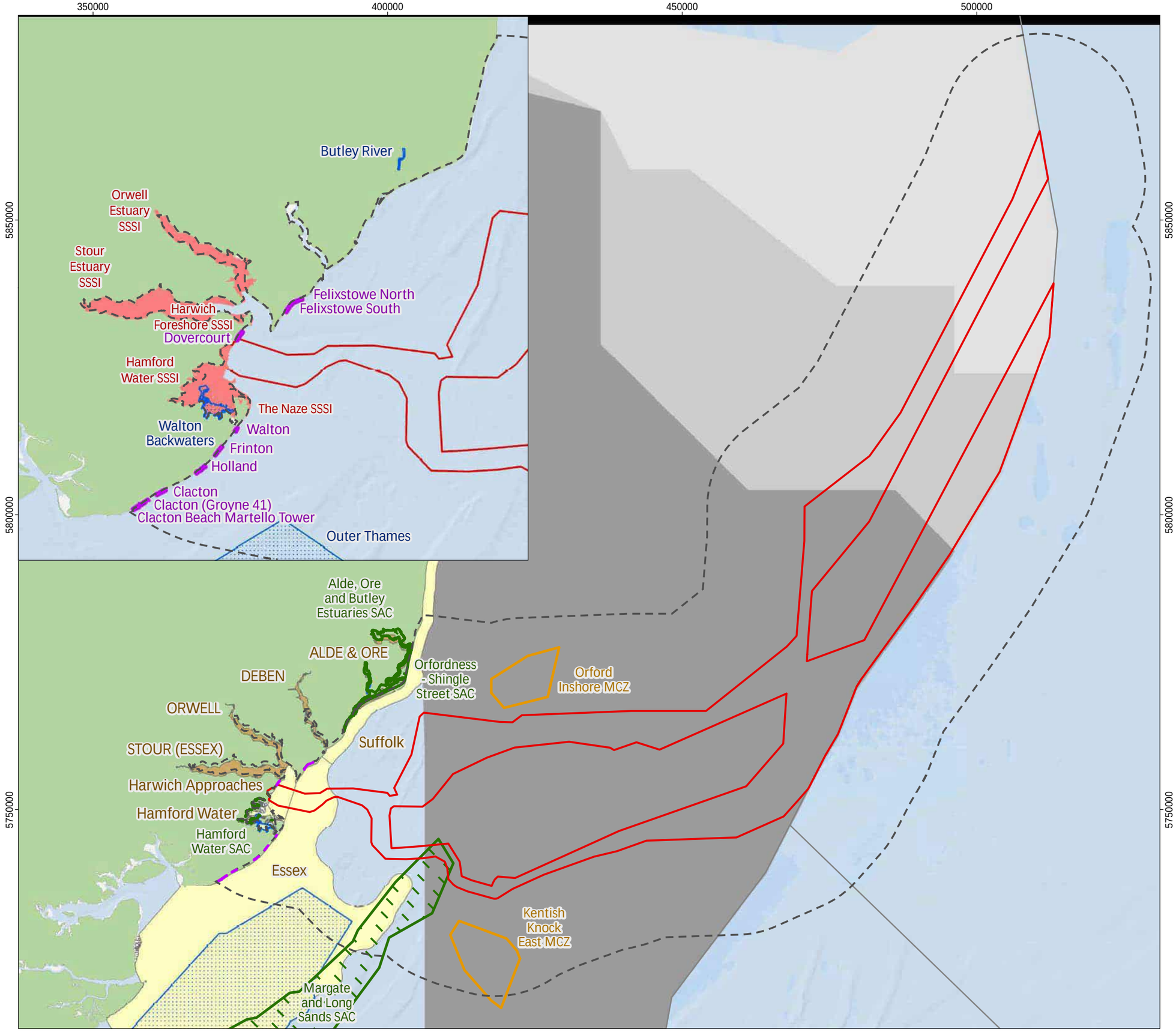
### Designated Sites

13.5.2.40 Designated sites in the vicinity of the Study Area, which are designated for the protection and conservation of marine habitats of relevance to the Marine Physical Environment are shown in Figure 13-11. A comprehensive list, with detail of the relevant (Marine Physical Environment) protected features, is provided in Table 13-5.

**Table 13-5: Designated Sites of Relevance to the Marine Physical Environment**

| Site | Qualifying features/interests | Distance from UKMS Scoping Boundary |
|---|---|---|
| **Designations** | | |
| Margate and Long Sands Special Area of Conservation (SAC) | Annex I habitat:<br>• Sandbanks which are slightly covered by sea water all the time | 0.0 km |
| Orford Inshore Marine Conservation Zone (MCZ) | • Subtidal mixed sediments | 1.95 km |
| Alde, Ore and Butley Estuaries SAC | Annex I habitats:<br>• Estuaries<br>• Mudflats and sandflats not covered by seawater at low tide | 6.58 km |
| Kentish Knock East MCZ | • Subtidal sand<br>• Subtidal coarse sediment<br>• Subtidal mixed sediments | 5.2 km |
| **Sites of Special Scientific Interests (SSSIs)** | | |

| Site | Qualifying features/interests | Distance from UKMS Scoping Boundary |
|---|---|---|
| Hamford Water SSSI | An estuarine basin with an extensive network of tidal creeks, islands, intertidal sandflats, mudflats and saltmarsh. | 0.0 km |
| Harwich Foreshore SSSI | Contains designated exposures of Eocene deposits and fossils | 1.51 km |
| Stour Estuary SSSI | Estuarine site containing mud and saltmarsh habitats, as well as geologically significant exposures of early Eocene sediments. | 1.45 km |
| The Naze SSSI | Geologically important site containing designated Pleistocene cliff exposures | 2.19 km |
| Orwell Estuary SSSI | Designated for estuarine and littoral sediment | 3.39 km |
| **WFD Protected Areas** | | |
| Essex | Coastal Waterbody | 0.00 |
| Hamford Water | Coastal Waterbody | 0.32 |
| Harwich Approaches | Coastal Waterbody | 0.00 |
| Suffolk | Coastal Waterbody | 4.33 |
| Alde & Ore | Transitional Waterbody | 6.62 |
| Deben | Transitional Waterbody | 6.76 |
| Orwell | Transitional Waterbody | 3.59 |
| Stour (Essex) | Transitional Waterbody | 1.48 |
| Clacton | Bathing Water | 12.87 |
| Dovercourt | Bathing Water | 0.00 |
| Felixstowe North | Bathing Water | 4.78 |
| Felixstowe South | Bathing Water | 3.81 |
| Frinton | Bathing Water | 6.91 |
| Holland | Bathing Water | 9.15 |
| Walton | Bathing Water | 4.87 |
| Outer Thames | Shellfish Water | 11.71 |
| Butley River | Shellfish Water | 9.99 |
| Walton Backwaters | Shellfish Water | 2.47 |




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## Tarchon Interconnector Project
Scoping Report

## Designated Sites in the Marine Physical Environment Study Area

**Legend**

- UK Marine Scheme Scoping Boundary
- Secondary ZoI
- Exclusive Economic Zones (EEZ) Boundaries
- WFD Coastal Waterbodies
- WFD Transitional Waterbodies
- Bathing Waters
- Shellfish Water Protected Areas
- Sites of Special Scientific Interest (SSSI)
- Marine Conservation Zone (MCZ)
- Special Areas of Conservation (SAC)

Southern North Sea SAC:

- Summer Area
- Summer and Winter Area
- Winter Area



**Notes**

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Figure 13-11

Figure Reference: Tarchon_Scoping_MPE_Fig13-11_Designations_v2

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13.5.2.41 The WFD (2000/60/EC) established a framework for the management and protection of Europe's water resources. Implemented in the England through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. The WFD works by dividing various interconnected waterbodies into discrete surface waterbodies for assessment (between Mean Low Water Springs (MLWS) and one nautical mile (nm)). These discrete surface waters are assessed on the basis of their ecological and chemical health, with objectives set for each. The over-arching goal is for each inland and coastal waterbody to achieve 'Good' overall status, which is only possible when 'Good Ecological Status' and 'Good Chemical Status' are both attained.

13.5.2.42 Each discrete waterbody assigned under the WFD is also assigned a hydromorphological designation, describing how altered the waterbody is from its natural state (e.g., without anthropogenic interference). This hydromorphological designation is assessed as:

- Undesignated (e.g., unaltered by anthropogenic factors/in its natural state);
- Heavily Modified Waterbody (HMWB) (e.g., a waterbody substantially changed in character due to physical alterations from anthropogenic interference); or
- Artificial Waterbody (AWB) (e.g., a surface waterbody which was created by human activity).

13.5.2.43 A summary of the latest classification status of the coastal and transitional waterbodies of relevance to the UKMS is presented in Table 13-6. There is a total of four coastal and transitional waterbodies that overlap with the UKMS Study Area, as presented on Figure 13-11.

**Table 13-6: Summary of latest classification status (2022) for WFD coastal and transitional waterbodies in the vicinity of the UKMS**

| Waterbody Name | Waterbody ID | Type | Waterbody Size ($km^2$) | Overall Status | Overall Ecology | Physico-Chemical | Hydromorphological designation |
|---|---|---|---|---|---|---|---|
| Essex | GB650503520001 | Coastal | 1195.93 | Moderate | Good | Moderate | Heavily Modified |
| Hamford Water | GB680503713700 | Coastal | 11.72 | Moderate | Moderate | Moderate | Undesignated |
| Harwich Approaches | GB650503190000 | Coastal | 23.99 | Moderate | Good | Moderate | Heavily Modified |
| Suffolk | GB650503520002 | Coastal | 147.39 | Moderate | Good | Moderate | Heavily Modified |
| Alde & Ore | GB520503503800 | Transitional | 11.45 | Moderate | Moderate | Moderate | Heavily Modified |
| Deben | GB520503503900 | Transitional | 7.93 | Moderate | Good | Moderate | Heavily Modified |
| Orwell | GB520503613601 | Transitional | 12.03 | Moderate | Moderate | Moderate | Heavily Modified |
| Stour (Essex) | GB520503613602 | Transitional | 25.32 | Moderate | Moderate | Moderate | Heavily Modified |
| Essex | GB650503520001 | Transitional | 1195.93 | Moderate | Good | Moderate | Heavily Modified |

### *Bathing Waters*

13.5.2.44 The Bathing Water Regulations 2013 (England) transpose the EU's Revised Bathing Water Directive (rBWD) (2006/7/EC) into English law and remain in force as retained EU law sitting alongside the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.

13.5.2.45 The rBWD focuses on fewer microbiological indicators, whilst setting higher standards, compared to those of the original directive. Bathing Waters under the rBWD are classified according to the levels of certain types of bacteria (intestinal enterococci (IE) and Escherichia coli) in samples obtained during the bathing season.

13.5.2.46 The classification system considers all samples obtained during the previous four years and, therefore, data has been collected for rBWD indicators since 2012. The rBWD has four different Bathing Waters classifications of performance, as follows:

- Excellent – the highest, cleanest class;
- Good – generally good water quality;
- Sufficient – water quality meets minimum required standards; and
- Poor – water quality does not meet the minimum required standards.

13.5.2.47 Seven Bathing Waters are located within the Study Area as presented in Table 13-7 and Figure 13-11. Only the Dovercourt Bathing Water is located within the UKMS and has a consistent designation of Excellent over the past four years indicating high water quality in this nearshore region.

**Table 13-7: Designated Bathing Water Classifications in the vicinity of the UKMS**

| **Bathing Water** | **Annual Designation** | | | |
|---|---|---|---|---|
| | 2025 | 2024 | 2023 | 2022 |
| Clacton | Excellent | Excellent | Good | Excellent |
| Dovercourt | Excellent | Excellent | Excellent | Excellent |
| Felixstowe North | Excellent | Excellent | Excellent | Excellent |
| Felixstowe South | Excellent | Excellent | Excellent | Excellent |
| Frinton | Excellent | Excellent | Excellent | Excellent |
| Holland | Excellent | Good | Excellent | Excellent |
| Walton | Excellent | Excellent | Good | Excellent |

### *Shellfish Waters*

13.5.2.48 The Shellfish Waters Directive (2006/113/EC) was repealed in December 2013 and subsumed within the WFD. However, the Shellfish Water Protected Areas (England and Wales) Directions 2016 require the EA (in England) to endeavour to observe a microbial standard in all 'Shellfish Water Protected Areas'. The microbial standard defined as 300 or fewer colony forming units of *E. coli* per 100 ml of shellfish flesh and intravalvular liquid. The Directions also requires the EA, in England, to assess compliance against this standard to monitor microbial pollution (75% of samples taken within any period of 12 months must be below the microbial standard and sampling/ analysis must be in accordance with the Directions).

13.5.2.49 The Food Standards Agency (FSA) sets out the overall policy for the monitoring and classification of shellfish harvesting areas and makes all final classification decisions. There are two classification systems in England and Wales:

- Annual classification system
  - Class A (80% of samples ≤ 230 E. coli/100g; no sample may exceed 700 E. coli/100g)
  - Class B (90% of samples must be ≤ 4600 E. coli/100g; no sample may exceed 46000 E. coli/100g.)
  - Class C (≤ 46000 E. coli/100g)
- Long-term classification system (only applies to eligible class B areas).

13.5.2.50 New class B areas are initially given annual classifications until they meet the criteria for a long-term classification. Harvesting sites that do not meet long-term classification criteria are automatically classified under the annual classification system.

13.5.2.51 Three active SWPAs overlap with the Study Area as presented in Table 13-8 and Figure 13-11. The latest 2025 classification (Cefas, 2025) indicates varying quality for a number of different shellfish species especially in the Outer Thames Estuary.

Table 13-8: Shellfish Water Classifications in the vicinity of the UKMS (Cefas, 2025)

| Shellfish Water | Recent Classification (Cefas, 2025) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Species | *Ostrea edulis* | *Mytilus spp.* | *Crassostrea gigas* | *Mactra stultorum* | *Tapes spp.* | *Ensis spp.* | *Cerastoderma edule* | *Mercenaria. mercenaria* |
| Thames Estuary | A | Outside Study Area | Outside Study Area | A | Seasonal A | A | Seasonal A | N/A |
| Butley River | Long-term Class B | B | Long-term Class B | N/A | N/A | N/A | N/A | N/A |
| Walton Backwaters | B | N/A | B | N/A | N/A | N/A | N/A | B |
| Deben | Not currently classified | | | | | | | |

#### *Nutrient Sensitive Areas*

13.5.2.52 The Urban Waste Water Treatment Directive (UWWTD) (91/271/EEC) aims to protect the environment from the adverse effects of the collection, treatment and discharge of urban wastewater. The Directive sets treatment levels on the basis of size of sewage discharges and the sensitivity of waters receiving the discharges.

13.5.2.53 In general, the Directive requires that collected wastewater is treated to a secondary treatment standard as a minimum for significant discharges. Secondary treatment is a biological treatment process where bacteria are used to break down remaining biodegradable matter in wastewater following primary treatment. Sensitive areas under the UWWTD are waterbodies affected by eutrophication or elevated nitrate concentrations, and act as an indication that action is required to prevent further pollution caused by nutrients. There are two UWWTD Bathing Water Sensitive areas within the Study Area. Further information on Walton and Frinton Bathing Waters and their historic classification can be found in Table 13-7.

### 13.5.3 Future Baseline Conditions

13.5.3.1 The baseline environment is not static and is expected to change over time, irrespective of the UKMS. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UKMS over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

13.5.3.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

13.5.3.3 A consideration of the future baseline, including the associated variation, is provided in the context of the operating lifetime of the UKMS. For the current purposes of this Scoping Report, the Representative Concentration Pathway (RCP) 8.5 (high-emissions) climate change scenario (Palmer, et al., 2018) has been presented.

13.5.3.4 For the assessment of the impact of climate change on the Marine Physical Environment, the UK guidance and projection of sea level rise and changing storm conditions are applied to the current baseline. Guidance on changes in future wind and wave conditions are provided by the Environment Agency (Environment Agency, 2022). 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.

13.5.3.5 The UKCP18 provides the most up-to-date assessment of climate change for the period up to 2100 and then beyond 2100. Sea level rise data have been sourced from the Met Office UKCP18 website. By 2085, sea level rise may rise by 0.67 m

above 2025 levels at the landfall location. This is estimated for a high emissions scenario (RCP 8.5) in the 95th percentile (Palmer, et al., 2018).

13.5.3.6 The UK Marine Climate Change Impacts Partnership (MCCIP), supported by the Centre for Environment, Fisheries and Aquaculture Science (Cefas) indicate a continuing warming trend of mean sea surface temperature (SST) around the UK over the coming century. Model simulations project an increase of between 0.25°C and 0.4°C per decade in the future (Environment Agency, 2022) (Cornes, et al., 2023) (Cefas, 2025).

13.5.3.7 Seawater chemistry is a major component of Marine Physical Environment impacts and climate models predict continued changes to pH, salinity and Dissolved Oxygen (DO) to occur in the future.

13.5.3.8 Contaminant levels within the sediments and biota of the North Sea have generally been shown as reducing (OSPAR Commision , 2022). Contaminant release into the North Sea from both land-based sources and the Oil and Gas Industry has been observed to reduce since 2010. This is anticipated to improve due to implementation of stricter legislation and pollution control initiatives ( (OSPAR Commission, 2017)

### 13.5.4 Additional Proposed Data Sources

13.5.4.1 A more detailed literature review will be developed for the EIA, building upon the high-level outline provided within this Scoping Report. UKMS-specific survey outputs will be used to enhance the understanding of the baseline conditions. These will include input from the following:

- Geophysical surveys; and.
- Benthic surveys.

## 13.6 Assessment Methodology

13.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the construction, operational and decommissioning phases of the UKMS. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

13.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on Marine Physical Environment receptors arising from the construction, operational, and decommissioning phases of the UKMS. This approach defines:

- **Sources and impacts**: The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

13.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06, EIA Approach and Methodology.

13.6.1.4 Receptors will be assessed against relevant effect pathways, with receptor sensitivity and magnitude of impacts being defined.

13.6.1.5 The scope of the Marine Physical Environment assessment is to characterise and understand the Marine Physical Environment present within the UKMS area, particularly with respect to the metocean regime and associated sediment transport processes. These will be used to inform other topic-specific assessments, for example benthic and intertidal ecology and fish and shellfish ecology.

13.6.1.6 The Marine Physical Environment assessment will consider the magnitude and duration of the impact, the reversibility of the impact and the timing and frequency of the activity. The approach for determining the significance of effects is a two-stage process that involves defining the sensitivity of the receptors and the magnitude of the impacts against set criteria. An assessment of the potential impacts of the UKMS will be undertaken through application of the evidence base. The significance of any changes will be evaluated against the likely naturally occurring variability in, or long-term changes to, the Marine Physical Environment within the UKMS lifetime due to natural cycles, for example storm events and/or climate change.

13.6.1.7 Due to the high density of offshore infrastructure (including OWFs) found within the area, it is considered that an empirical assessment and analysis of the evidence base will likely be sufficient, without the need for standalone numerical modelling. This will be further consulted with stakeholders prior to ES submission.

13.6.1.8 A WFD Screening Assessment will also be undertaken as part of this assessment, with an accompanying screening and scoping assessment to be carried out at the Preliminary Environmental Information Report (PEIR) stage (see Volume 02, Chapter 08: Water Environment for more details).

### 13.6.2 Sensitivity of Receptor

13.6.2.1 The sensitivity criteria for Marine Physical Environment receptors are provided in Table 13-9. The sensitivity of a receptor is a function of its capacity to accommodate change and reflects its ability to recover from impacts to Marine Physical Environment resulting from the UKMS, in addition to its socioeconomic importance. As such sensitivity is defined based on adaptability, tolerance, recoverability and value considerations.

**Table 13-9: Definitions of sensitivity for Marine Physical Environment**

| Sensitivity | Definition |
|---|---|
| Very High | Receptor has no capacity to accommodate the proposed form of change; and receptor designated and/or of international level importance. Receptor is rare with no potential for substitution. The receptor may also support or contributes towards the designation of an internationally or nationally important feature or be of very high socioeconomic importance |
| High | Receptor has very low capacity to accommodate the proposed form of change; and/or receptor designated and/or of international level |

| Sensitivity | Definition |
|---|---|
| | importance. Likely to be rare with minimal potential for substitution. The receptor may also support or contributes towards the designation of an internationally or nationally important feature or be of high socioeconomic importance |
| Medium | Receptor has moderate to low capacity to accommodate the proposed form of change; and/or receptor designated and/or of regional level importance. Likely to be relatively rare. The receptor may also support or contributes towards the designation of an internationally or nationally important feature or be of moderate socioeconomic importance. |
| Low | Receptor has moderate to high capacity to accommodate the proposed form of change; and/or receptor not designated but of district level importance. |
| Negligible | Receptor has high capacity to accommodate the proposed form of change with very little or no detectable impact upon the baseline conditions and/or receptor not designated and only of local level importance. |

### 13.6.3 Magnitude of Impact

13.6.3.1 The magnitude of impact described the extent or degree of change that is predicted to occur to a receptor. Magnitude criteria for Marine Physical Environment are provided in Table 13-10 and are based upon the technical expert's experience and judgement. In determining magnitude, each assessment will consider the spatial extent, duration, frequency and reversibility of impact.

**Table 13-10: Definitions of magnitude for Marine Physical Environment**

| Magnitude | Definition |
|---|---|
| Large | Permanent changes in a long-term duration (i.e. several decades corresponding to the total life of the UK Scheme) across the near-field and large parts of the far-field to key characteristics, features or designations of the particular environmental aspect's character or distinctiveness. |
| Medium | Permanent changes in a medium-term duration (i.e. decades of years, e.g. operational period). The change is observable over the near-field and parts of the far-field, to key characteristics, features or designations of the particular environmental aspect's character or distinctiveness. |
| Small | Noticeable changes in a short- to medium-term duration (i.e. weeks to several years, e.g. construction works), or barely discernible changes for medium-term duration (i.e. decades of years, e.g. operational period). The changes are restricted to the near-field and immediately adjacent far-field areas, to key characteristics, features or designations of the particular environmental aspect's character or distinctiveness. |
| Negligible | Changes which are not discernible from background conditions or impact is of short-term duration (i.e. hours or days, e.g. duration of individual construction works). |

### 13.6.4 Significance of Effect

13.6.4.1 To ensure consistency across topics, a matrix approach has been adopted to present judgements made on the significance of an effect. This terminology is outlined in Table 13-11 below.

**Table 13-11: Significance Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Negligible |
| Very High | Major | Major | Moderate | Minor |
| High | Major | Moderate | Moderate | Minor |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

13.6.4.2 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

13.6.4.3 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UKMS design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UKMS.

## 13.7 Potential Effects and Mitigation

### 13.7.1 Section Summary

13.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 13.7.2 Embedded Mitigation and Good Practice Measures

13.7.2.1 The UKMS will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment.

13.7.2.2 Embedded mitigation is defined as *“mitigation measures that have been incorporated into a project’s description and form an inherent part of the project’s design”* (ISEP, 2024). The embedded mitigation measures which are relevant to this Chapter are presented in the table below (Table 13-12).

**Table 13-12: Embedded Mitigation Measures of Importance to the Marine Physical Environment**

| Measure Proposal | Rationale |
|---|---|
| Development of and adherence to, a Cable Plan (CaP). | A CaP would be prepared to set out the proposed cable routing, target burial depths and any additional cable protection measures, together with the approach to post-installation cable monitoring. The CaP is likely to be informed by a Cable Burial Risk Assessment (CBRA). |
| Cable burial and development of and adherence to, a Cable Burial Risk Assessment (CBRA) | Where practicable, cable burial will be the preferred means of cable protection. This will be informed by the CBRA and detailed within the CaP.<br>The CBRA would consider where external cable protection may be required and how its use could be minimised where target cable burial is achievable. |
| Establishment of Environmental Management Plans | Environment Management Plans will be produced and implemented to cover the construction and operational phases of the Project. An outline Construction Environmental Management Plan (CEMP) will be produced to cover the construction phase. An outline Operational Environmental Management Plan (OEMP) will be produced to cover the operational phase. A Decommissioning Environmental Management Plan (DEMP) will be produced closer to the time of decommissioning and will be based on technologies available at the time. These plans will cover items such as accidental spills, potential contaminant release and will include key emergency contact details (e.g. MMO, Maritime and Coastguard Agency (MCA) and the UK Scheme site co-ordinator). |
| Micrositing | The proposed UKMS has been designed in order to avoid environmentally sensitive areas where possible. As the route design is progressed, the proposed UKMS will aim to minimise impacts by micrositing around sensitive features where possible. |
| Vessel Compliance with International Regulations | All Tarchon Project vessels associated with the UKMS must comply with the International Regulations for Preventing Collisions at Sea (IMO, 1972), regulations relating to the International Convention for the Prevention of Pollution from Ships (IMO, 1983) with the aim of preventing and minimising pollution from ships and the International Convention for the Safety of Life at Sea (IMO, 1974). |
| Implementation of a Vessel Management Plan (VMP) | • Development and implementation of a Vessel Management Plan (VMP). The VMP will:<br>– Set out the types and numbers of vessels engaged in the works;<br>– Define project vessel coordination measures and interactions with SUNK VTS/HHA Harbour Control;<br>– Include indicative transit routes;<br>– Give detail on concurrent working procedures which will set out details of the project vessels and their movements during the survey, seabed preparation, construction and O&M phases in sensitive area; and |

| Measure Proposal | Rationale |
|---|---|
| | – Detail specific navigational safety hazards such as the DWRs and how they will be managed. |

13.7.2.3 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UKMS development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

13.7.2.4 As the UKMS advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective, and compliant with regulatory standards and stakeholder input.

### 13.7.3 Scoping Assessment

13.7.3.1 An initial assessment of the likelihood of effects on the Marine Physical Environment due to the UKMS for the Scoping stage of the EIA process is presented in Table 13-13. The assessment is based on a combination of the following: the definition of the UKMS at the Scoping stage; embedded commitments (as set out in Section 13.7.2, together with the means by which they will be secured); the level of understanding of the baseline at the Scoping stage; the existing evidence base for Marine Physical Environment effects due to UKMS activities; relevant policy; and the professional judgment of qualified Marine Physical Environment specialists.

**Table 13-13: Elements Scoped In and Out for Marine Physical Environment**

| Scheme Phase | Source | Potential Impact | Receptor | Scoping In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction, O&M and decommissioning | • Seabed preparation and cable installation<br>• Maintenance (cable repair and reburial)<br>• Removal of cable protection | Potential temporary increases in Suspended Sediment Concentration (SSCs) and resulting changes to seabed levels | Important navigation channels (including Harwich Deep Water Channel) | Scoped In | Potential temporary elevations in SSC due to construction (i.e. seabed preparation and cable installation), maintenance (cable repair and reburial, if required) and decommissioning (removal of cable protection) activities. These activities will result in a temporary increase in SSC, followed by the subsequent deposition of sediment back onto the seabed after having been carried in suspension. These effects are impact pathways that have potential to alter the natural turbidity of the water column and impact habitats and species as sediment is transported and re-deposited onto the seabed (see Volume 03, Chapter 14: Benthic and Intertidal Ecology and Volume 03, Chapter 15: Fish and Shellfish Ecology).<br><br>Navigation channels, including the Harwich Deep Water Channel and the outer end of the Trinity Deep Water Channel may be at risk of sediment becoming deposited within the channel, potentially reducing its navigational depth. However, mitigations will be proposed to ensure this does not impact access. Shipping and Navigation receptors are considered in greater detail in Volume 03, Chapter 18: Shipping and Navigation. |

| | | | | | |
|---|---|---|---|---|---|
| Construction and decommissioning | • Seabed preparation and cable installation<br>• HDD<br>• Maintenance (cable repair and reburial)<br>• Removal of cable protection | Deterioration of water quality due to the suspension of sediments and release of drilling fluids (such as bentonite) | Bathing Waters, WFD Coastal and Transitional Waterbodies, Shellfish Waters, Nutrient Sensitive Zones and the Wider Marine Environment | Scoped In | Temporary elevations in SSCs arising from construction activities (such as seabed preparation or cable installation) may result in adverse effects on marine water quality. This reduction in water quality may be indicated by changes in levels of nutrients and dissolved oxygen, a reduction in water clarity and changes in primary production levels.<br><br>If there is a requirement to use drilling mud, such as bentonite (or another inert mud), in order to undertake trenchless techniques (Horizontal Directional Drilling (HDD) or similar) at the landfall zone, this could result in the release of drilling mud at the break out point. The principal issue, for Marine Physical Environment receptors, is the potential for an increase in SSC (and so turbidity) within the water column and subsequent reduction in bacterial mortality, as opposed to contamination. The disposal of drilling fluids will be actioned via a licensed courier to a licensed waste facility if reuse is not possible. |
| Construction and decommissioning | • Seabed preparation and cable installation<br>• HDD | Release of sediment-bound contaminants from disturbance of sediments | Bathing Waters, WFD Coastal and Transitional Waterbodies, Shellfish Waters, Nutrient Sensitive Zones and the Wider Marine Environment | Scoped In | Temporary elevations in SSC from construction and decommissioning activities may lead to release of sediment-bound contaminants into the water column. This temporary re-suspension and redistribution of existing contaminants may have adverse effects on water quality once re-suspended in the water column. |

| | | | | | |
|---|---|---|---|---|---|
| Construction, O&M and decommissioning | • Seabed preparation and cable installation | Potential impacts to seabed morphology | Margate and Long Sands Special Area of Conservation (SAC), offshore sandbanks, important navigation channels (including Harwich Deep Water Channel) | Scoped In | Construction activities such as dredging and cable installation have the potential to directly disturb seabed morphology, resulting in changes to seabed bathymetry and potential associated changes to local hydrodynamic, wave and sediment transport patterns. This disturbance may have adverse impacts on other receptor groups including Volume 03, Chapter 14: Benthic and Intertidal Ecology and Volume 03, Chapter 15: Fish and Shellfish Ecology).<br><br>The seabed morphology may also be directly disturbed during maintenance activities such as cable repair and reburial (if required), as well as decommissioning activities relating to the removal of infrastructure such as cable protection. |
| Construction and decommissioning | • Cable installation<br>• HDD | Modifications to littoral transport and coastal behaviour (erosion), including at landfall | The coast at Landfall, Hamford Water Site of Special Scientific Interest (SSSI) | Scoped In | Where the UKMS makes landfall, it must transition through the intertidal and coastal zones. The methods available for installing cables in such environments may physically disturb or disrupt the coastal morphology to differing degrees depending on the construction methods employed and any structures installed. At the time of construction, any disturbance is likely to be localised to the landfall site. This disturbance may have adverse impacts on other receptor groups including Volume 03, Chapter 14: Benthic and Intertidal Ecology. There is also the potential to impact the form of coastal SSSIs in the vicinity of the Landfall zone, although this will be mitigated |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | by the use of trenchless techniques, such as HDD or similar, that will minimise impacts on designated ecological sites and features. |
| Construction O&M and decommissioning | • Pollution incident from UKMS vessels | Accidental release or spills of materials/chemicals | All receptors | Scoped Out | There is potential for some substances (such as grease, oil, fuel, etc.) to be accidentally released/spilt into the marine environment. There are no discharges (either continuous or intermittent) of construction materials or chemicals which may be toxic or persistent in the environment proposed during the construction phase of the UKMS. Still, impacts are likely to be localised and short-lived. In the event of an accidental chemical or oil spill, hydrocarbons released would be rapidly dispersed or diluted. All vessels working on the UKMS will be required to adhere to strict environmental controls set out in the CEMP which will minimise the risks and set out provisions for responding to spills. Due to the implementation of control measures and small quantities of chemical and hydrocarbons, it is proposed to scope this impact out of further consideration within the EIA. |
| O&M | • Cable protection | Seabed scouring | Margate and Long Sands Special Area of Conservation (SAC), offshore sandbanks, important navigation channels (including Harwich Deep Water Channel) | Scoped Out | Cable protection measures used where the cable is unable to be buried may act as an obstacle to hydrodynamic flows, resulting in localised scouring of the seabed. As a result, some sediment may be eroded from the seabed, resulting in bathymetric changes and localised alterations to sediment transport patterns. Given the relatively small scale of proposed cable |

protection measures, these processes are anticipated to be small-scale and localised and are therefore proposed to be scoped out of the EIA.

### 13.7.4 Cumulative and Transboundary Effects

13.7.4.1 There is the potential for cumulative and transboundary effects to arise as a result of the UKMS and other nearby offshore developments. Cumulative interaction may also occur with the whole Tarchon Project in combination with the UKMS. The methodology assessing these effects is described in Volume 01, Chapter 06: EIA Approach and Methodology and Volume 05, Chapter 32: Approach to Cumulative and Transboundary Effects. Impacts that are scoped into the assessment for the UKMS alone are generally spatially restricted to being within the UKMS Scoping Boundary. However, certain potential impacts, such as an increase in SSC, have the potential to be observed over a wider area. This will be particularly relevant for the UKMS given the high density of other offshore infrastructure within the Study Area, as well as the potential for deposited sediment to infill navigational channels.

13.7.4.2 Potential transboundary effects associated with the UKMS include:

- Increases in SSCs and resulting changes to seabed levels;
- Deterioration of water quality due to the suspension of sediments and release of drilling fluids; and
- Release of sediment-bound contaminants from disturbance of sediments.

13.7.4.3 A full detailed assessment of cumulative and transboundary effects will be provided as part of the ES, once UKMS information is refined.

## 13.8 Assumptions, Limitations and Uncertainties

13.8.1.1 At this stage, the understanding of the Marine Physical Environment is informed by a review of existing desk-based information and regional datasets, rather than site-specific survey data. Overall, the seabed in the region is well studied and the available evidence base is considered sufficient to identify potential impact pathways and inform scoping decisions. Site-specific survey data will be used to refine the baseline and inform the assessment of effects in the ES at the next stage of the EIA process.

13.8.1.2 Professional judgement that is based on experience of similar projects has been used to inform the scope of the assessment. Standalone numerical modelling is not currently proposed as part of the assessment, as outlined in paragraph 13.6.1.7, as due to the high density of offshore infrastructure (including OWFs) found within the area an empirical assessment and analysis of the evidence base will likely be sufficient.

13.8.1.3 It is assumed that the dredged material associated with the usage of a Trailer Suction Hopper Dredger (TSHD) (i.e. for sandwave clearance) will be deposited locally offshore (i.e. a suitable distance from the cable installation trench) and not transported to land or disposed of at a licensed disposal ground.

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# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 03, Chapter 14: Benthic and Intertidal Ecology

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00020 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| BGS | British Geological Survey |
| CaP | Cable Plan |
| CBRA | Cable Burial Risk Assessment |
| CEA | Cumulative Effects Assessment |
| CEMP | Construction Environmental Management Plan |
| CIEEM | Chartered Institute of Ecology and Environmental Management |
| CPA | Coast Protection Act 1949 |
| DDV | Drop-Down Video |
| Defra | Department for Environment, Food and Rural Affairs |
| DESNZ | Department of Energy Security and Net Zero |
| DP | Decommissioning Environmental Management Plan |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| EMF | Electromagnetic Field |
| EMODnet | European Marine Observation and Data Network |
| ES | Environmental Statement |
| EU | European Union |
| EUNIS | European Nature Information System |
| FEPA | Food and Environment Protection Act |
| GES | Good Environmental Status |
| HDD | Horizontal Directional Drilling |
| HRA | Habitats Regulations Assessment |
| INNS | Invasive Non-Native Species |
| JNCC | Joint Nature Conservation Committee |
| JUV | Jack-Up Vessel |
| km | Kilometre |
| MarESA | Marine Evidence based Sensitivity Assessment |
| MarLIN | Marine Life Information Network |
| MCAA 2009 | Marine and Coastal Access Act 2009 |
| MCZ | Marine Conservation Zone |
| MDS | Maximum Design Scenario |
| MHWS | Mean High Water Springs |
| MMO | Marine Management Organisation |
| MPA | Marine Protected Area |
| MPS | Marine Policy Statement |
| MSFD | Marine Strategy Framework Directive |
| NERC Act 2006 | Natural Environment and Rural Communities Act 2006 |
| NPPF | National Planning Policy Framework |
| NSIP | Nationally Significant Infrastructure Project |

| Acronym | Definition |
|---|---|
| O&M | Operation and Maintenance |
| OEMP | Operational Environmental Management Plan |
| OSPAR | Convention for the Protection of the Marine Environment of the North-East Atlantic |
| OWF | Offshore Wind Farm |
| PA 2008 | Planning Act 2008 |
| PAH | Polycyclic Aromatic Hydrocarbon |
| PBDE | Polybrominated Diphenyl Ether |
| PCB | Polychlorinated Biphenyl |
| PEIR | Preliminary Environmental Information Report |
| PSA | Particle Size Analysis |
| SAC | Special Area of Conservation |
| SPA | Special Protection Area |
| SSC | Suspended Sediment Concentration |
| SSSI | Site of Special Scientific Interest |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| WFD | Water Framework Directive |
| ZoI | Zone of Influence |

# 14. Benthic and Intertidal Ecology

## 14.1 Introduction

14.1.1.1 This Chapter presents the Benthic and Intertidal Ecology assessment which will consider the potential significant effects on Benthic and Intertidal Ecology receptors during the construction, operational, and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Areas used and receptors considered in this Chapter, only the UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. The English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is therefore not considered further for Benthic and Intertidal Ecology.

14.1.1.2 Benthic ecology refers to the diversity, abundance and ecological function of organisms living on the seabed surface (epifauna) or within the seabed sediments (infauna). Benthic communities occur across all marine habitats, including both subtidal and intertidal environments. The intertidal zone, also known as the littoral zone, is the coastal area that is exposed to air at low tide and submerged at high tide, and is therefore subject to regular fluctuation in water levels and environmental conditions. The subtidal zone lies below the intertidal zone and remains permanently submerged. The distribution and composition of benthic communities are strongly influenced by physical factors such as water depth, sediment type, hydrodynamic conditions and the availability of organic matter, which together determine habitat characteristics and the species present.

14.1.1.3 This Chapter of the Scoping Report:

- Provides a summary of the current Benthic and Intertidal Ecology baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Benthic and Intertidal Ecology receptors from the proposed components of the UKMS and EOS (as described in Volume 01, Chapter 02: UK Project Description); and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

14.1.1.4 This Chapter should be read alongside the following other Chapters:

- Volume 01, Chapter 02: UK Project Description;
- Volume 01, Chapter 06: EIA Approach and Methodology;
- Volume 03, Chapter 13: Marine Physical Environment;
- Volume 03, Chapter 15: Fish and Shellfish Ecology; and
- Volume 04, Chapter 23: Ornithology.

## 14.2 Study Area

14.2.1.1 This Chapter considers the potential effects of the UKMS on benthic and intertidal receptors within a defined Study Area extending up to the Mean High-Water Springs (MHWS) mark.

14.2.1.2 The Benthic and Intertidal Ecology Study Area is presented in Figure 14-1 and is defined by the footprint of the UKMS Scoping Boundary, plus an appropriate buffer which represents a Zone of Influence (ZoI). The ZoI reflected the area over which potential indirect or secondary impacts associated with the UKMS could occur beyond the immediate footprint of physical disturbance.

14.2.1.3 For the purposes of Scoping, a ZoI of 16.5 kilometres (km) has been applied to form the Benthic and Intertidal Ecology Study Area. This buffer reflects the maximum tidal excursion distance of water particles during a large spring tide (approximately 16.5 km) and represents a worst-case extent over which suspended sediments could be transported from the UKMS Scoping Boundary following seabed disturbance associated with UKMS activities (see Volume 03, Chapter 13: Marine Physical Environment).

14.2.1.4 The Benthic and Intertidal Ecology Study Area may be refined as required at post-Scoping stages to reflect any site-specific modelling outputs that may be undertaken as part of the Environmental Impact Assessment (EIA), as well as stakeholder consultation as refinements to the UKMS design. This will result in an adapted and refined Study Area for the ES which will be based on all activities carried out throughout the UKMS stages.

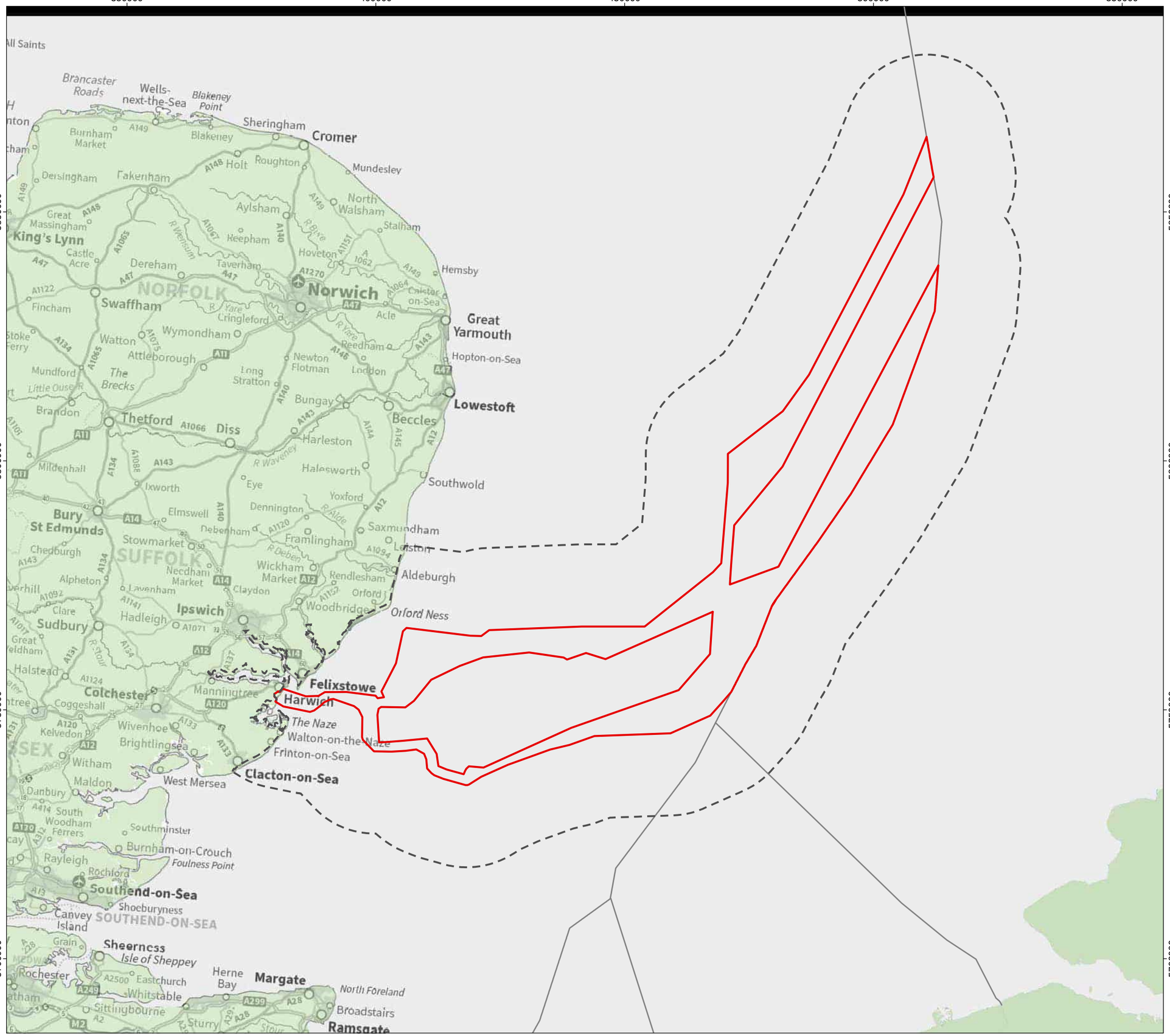



Figure Reference: Tarchon_Scoping_BNE_Fig14-1_StudyArea_v2

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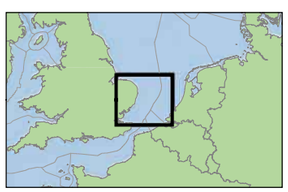
# Tarchon Interconnector Project

Scoping Report

## Benthic and Intertidal Ecology Study Area

Legend

- UK Marine Scheme Scoping Boundary
- Benthic and Intertidal Ecology Study Area
- Exclusive Economic Zones (EEZ) Boundaries



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:750,000 @A3 | 02/03/2026 | BPHB | EH | MB |

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Sheet 1 of 1

Figure 14-1

## 14.3 Relevant Legislation, Panning Policy and Guidance

### Introduction

14.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context describes the overall regulatory planning and policy context for the entire UK Scheme (which consists of the UKMS and the English Onshore Scheme (EOS) together). Key legislation, policy and guidance relevant to the assessment of potential effects on Benthic and Intertidal Ecology associated with the construction, O&M and decommissioning of the UKMS is presented below.

### 14.3.2 Legislation

14.3.2.1 The following legislation is relevant to Benthic and Intertidal Ecology. These frameworks establish statutory requirements for the protection of marine habitats and species, assessment of environmental effects and sustainable management of the marine environment.

#### International legislation

- Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention); and
- Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) (1971).

#### European Union legislation (retained in UK law)

- Council Directive 92/43/ EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive);
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Birds Directive);
- 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);
- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a frameworks for community action in the field of water policy (Water Framework Directive); and
- Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (EIA Directive).

#### UK legislation

- Marine and Coastal Access Act 2009 (MCAA 2009);
- The Conservation of Habitats and Species Regulation 2017 (as amended) and The Conservation of Offshore Marine Habitats and Species Regulations 2017 (the Habitats Regulations);
- Wildlife and Countryside Act 1981 (as amended);
- Marine Strategy Regulations 2010 (as amended);

- Water Environment (Water Framework Directive (England and Wales) Regulations 2017 (as amended);
- Natural Environment and Rural Communities (NERC) Act 2006; and
- Environment Act 2021.

### 14.3.3 Marine Policy Statements

#### Marine Policy Statement

14.3.3.1 The UK Marine Policy Statement (MPS), originally published in 2011 and last updated September 2020 by Department for Environment, Food and Rural Affairs (Defra, UK Marine Policy Statement, 2020) provides the overarching policy framework for marine planning and decision-making. Section 2.6.1 discusses marine ecology and biodiversity, and Section 3.1 on marine protected areas (MPAs). Sections 2.5.1 and 3.3 provide information on environmental decision-making principles. The MPS also sets out high level marine objectives, including that:

- The marine environment and its resources are used to maximise sustainable activity, prosperity and opportunities for all, now and in the future;
- Marine businesses are acting in a way which respects environmental limits and is socially responsible;
- Biodiversity is protected, conserved and where appropriate recovered and loss has been halted; and
- Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.

#### National Policy Statements

14.3.3.2 National Policy Statements are produced by government and set out government policy on different types of national infrastructure development. The updated Energy National Policy Statements (EN-1, EN-3 and EN-5), which came into force on 6 January 2026 were prepared by the Department for Energy Security and Net Zero (DESNZ).

14.3.3.3 The Overarching National Policy Statement for energy (EN-1) sets out the national policy for energy infrastructure and has effect for the decisions by the Secretary of State on applications for energy developments that are nationally significant under the PA 2008. For such applications, EN-1, combined with the relevant technology specific energy NPSs, provides the primary policy for decisions by the Secretary of State.

14.3.3.4 Section 5.4.43 of EN-1 states that, as a general principle, and subject to the specific policies, development should be in line with the mitigation hierarchy, aim to avoid significant harm to biodiversity and geological conservation interests, including though consideration of reasonable alternatives, and that where significant harm cannot be avoided, impacts should be mitigated and as a last resort, appropriate

compensation measures should be sought. Section 5.4.44 further states that if significant harm to biodiversity resulting from a development cannot be avoided (for example through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then the Secretary of State will give significant weight to any residual harm.

14.3.3.5 NPS for renewable energy infrastructure (EN-3), taken together with EN-1, provides the primary policy for decisions by the Secretary of State on applications they receive for nationally significant renewable energy infrastructure, which includes offshore transmission infrastructure projects in English waters, including electricity transmission connections between offshore electricity generation projects and the onshore transmission system and interconnectors.

14.3.3.6 NPS for electricity networks infrastructure (EN-5), taken together with EN-1, provides the primary policy for decisions taken by the Secretary of State on applications it receives for electricity networks infrastructure.

#### Marine Plans

14.3.3.7 The MCAA 2009 established the legal basis for marine planning. The MPS provides the policy framework for the marine planning system. Marine plans put into practice the objectives for the marine environment that are identified in the MPS alongside the NPPF and the Localism Act 2011.

14.3.3.8 Marine Plans provide spatial and policy guidance to ensure sustainable use of England's marine areas and to support consistent, evidence-based decision-making for activities that may affect the marine environment. The following Marine Management Organisation (MMO) Marine Plans have been considered in the development of this Scoping Report:

- South East Inshore Marine Plan (Defra, South East Inshore Marine Plan, 2021); and
- East Inshore and East Offshore Marine Plan (Defra, East Inshore and East Offshore Marine Plans, 2014).

14.3.3.9 These plans provide spatial and policy guidance to support sustainable development while safeguarding marine habitats, including benthic and intertidal ecosystems.

### 14.3.4 National Planning Policy Framework

14.3.4.1 The National Planning Policy Framework (NPPF) (published December 2024, as amended February 2025) sets out Government policy for sustainable development in England. Relevant provisions include requirements to consider the UK MPS and Marine Plans in coastal areas, promote integrated coastal zone management, protect designated biodiversity sites, and secure biodiversity net gains where possible.

### 14.3.5 Guidance

14.3.5.1 The assessment of Benthic and Intertidal Ecology will have regard to relevant guidance, including:

- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Chartered Institute of Ecology and Environmental Management (CIEEM) (CIEEM, 2018);
- Guidance document on wind energy developments and European Union (EU) nature legislation (European Commission, 2020);
- Guidance Note for Environmental Impact Assessment in respect of Food and Environment Protection Act (FEPA) 1985 and Coast Protection Act (CPA) 1949 requirements (Centre for Environment, Fisheries and Aquaculture Science (Cefas, Offshore Wind Farms: Guidance Note for Environmental Impact Assessment in Respect of Food and Environment Protection Act 1985 and Coastal Protection Act 1949 requirements – Version 2- June 2004, 2004);
- Strategic Review of Offshore Wind Farm Monitoring Data Associated with FEPA Licence Conditions (Cefas, Strategic Review of Offshore Wind Farm Monitoring Data Associated with FEPA Licence Conditions., 2010);
- Cumulative Impact Assessment Guidelines: Guiding Principles for Cumulative Impacts Assessment in Offshore Wind Farms (RenewableUK, Cumulative Impact Assessment Guidelines: Guiding Principles for Cumulative Impacts Assessment in Offshore Wind Farms, 2013);
- Guidelines for data acquisition to support marine environmental assessments of offshore renewable energy projects (Judd, 2012);
- OSPAR Guidance on Environmental Considerations for Offshore Wind Farm Development (OSPAR, 2008);
- Sensitivity of features based on the Marine Life Information Network (MarLIN) Marine Evidence based Sensitivity Assessment (MarESA) framework where possible (MarLIN, 2022);
- JNCC Report No. 464: Reviewing and Recommending Methods for Determining Reference Condition for Marine Benthic Habitats in the North-East Atlantic Region (Hill, 2012);
- JNCC Report No. 499: Monitoring, assessment and reporting of UK benthic habitats: A rationalised list (Robson, 2014);
- JNCC Report No. 546: Guidance on Assigning Benthic Biotopes using EUNIS or the Marine Habitat Classification of Britain and Ireland (Parry, 2019); and
- JNCC Report No. 598: Monitoring guidance for marine benthic habitats (Noble James, 2018).

### 14.3.6 Local Planning Policy

14.3.6.1 Local planning policy has been considered as it is relevant to Benthic and Intertidal Ecology at the land-sea interface. This includes:

- Tendring District Local Plan 2013-2023 and Beyond (Section 2) (Tendring District Council, 2022):
  - Policy PPL4 (Biodiversity and Geodiversity) requires protection of designated sites and priority habitats and, where relevant, the provision of mitigation through Habitats Regulations Assessment (HRA). The policy is relevant where coastal and intertidal habitats may be affected.
- Essex County Council, whose strategic environmental and coastal policies are relevant to the management and protection of coastal and estuarine environments within the study area.

## 14.4 Consultation and Engagement

14.4.1.1 Consultation relating to Benthic and Intertidal Ecology has been undertaken with the following consultees (consultation will continue with consultees following Scoping, as detailed within Volume 01, Chapter 04: Approach to Consultation):

- Natural England;
- Marine Management Organisation (MMO); and
- Joint Nature Conservation Committee (JNCC).

14.4.1.2 Consultation with these bodies involved introductory consultations to outline the UKMS and the site selection process that led to the development of the UKMS Scoping Boundary.

14.4.1.3 Prior to the production of the Environmental Statement (ES), consultation will be undertaken with the MMO and Cefas regarding the potential effects on Benthic and Intertidal Ecology as a result of the proposed UKMS. Consultation will also be undertaken with Natural England and the Joint Nature Conservation Committee (JNCC) regarding nature conservation areas and policy advice. To date, introductory consultations have been held with the MMO, Natural England and the JNCC, and further meetings are planned to provide updates on site selection ahead of submission of the Scoping Report.

14.4.1.4 No specific queries or comments relating to Benthic and Intertidal Ecology were raised by the MMO and JNCC. However, the following comments were received by Natural England:

- Natural England raised the need to avoid the use of additional cable protection in MPAs designated for seabed features (e.g. Margate and Longsands SAC); and
- Natural England confirmed the need to undertake a survey of the mussel bed near the Southern potential landfall zone.

14.4.1.5 Responses on the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council and Tendring District Council. No relevant comments to Benthic and Intertidal Ecology have been received.

## 14.5 Baseline Environment

### 14.5.1 Introduction

14.5.1.1 The data sources and literature that have been used to inform this Benthic and Intertidal Ecology Chapter are presented within Table 14-1. These data sources will be taken forward and used to inform the ES baseline characterisation, alongside any additional site-specific data that will be collected.

Table 14-1: Key Sources of Benthic and Intertidal Ecology Data

| Source | Summary | Coverage of the Benthic and Intertidal Ecology Study Area |
|---|---|---|
| **Offshore Wind Farm (OWF) Developments** | | |
| ESs from OWF developments within the Southern North Sea:<br>• Five Estuaries OWF ES: Volume 6, Part 2, Chapter 5: Benthic and Intertidal Ecology (GoBe, 2024);<br>• North Falls OWF ES: Volume 3.1, Chapter 10: Benthic and Intertidal Ecology (Royal HaskoningDHV, North Falls Offshore Wind Farm Environmental Statement: Volume 3.1, Chapter 10: Benthic and Intertidal Ecology., 2024);<br>• East Anglia ONE North OWF ES: Volume 1, Chapter 9: Benthic Ecology (Royal HaskoningDHV, East Anglia One North Offshore Windfarm Volume 1, Chapter 9 Benthic Ecology, 2019);<br>• East Anglia TWO OWF ES: Volume 1, Chapter 9: Benthic Ecology (Royal HaskoningDHV, East Anglia Two Offshore Windfarm Volume 1, Chapter 9 Benthic Ecology., 2019);<br>• East Anglia THREE OWF ES: Volume 1, Chapter 10: Benthic Ecology (Royal HaskoningDHV, East Anglia Three Volume 1, Chapter 10 Benthic Ecology Environmental Statement., 2015);<br>• Norfolk Vanguard OWF ES: Volume 1, Chapter 10: Benthic and Intertidal Ecology (Royal HaskoningDHV, Norfolk Vanguard Offshore Wind Farm Volume 1, Chapter 11 Benthic Ecology Environmental Statement., 2018); and | Characterisation of the existing benthic and intertidal ecological baseline within the Study Area and wider region. Information presented in the relevant ESs has been used to inform the baseline for this Chapter and to identify benthic species and habitats likely to occur within the Benthic and Intertidal Ecology Study Area. | Overlap directly with the UKMS Scoping Boundary. |

| Source | Summary | Coverage of the Benthic and Intertidal Ecology Study Area |
|---|---|---|
| • Galloper OWF ES: Volume 2, Chapter 12: Marine and Intertidal Ecology (Royal HaskoningDHV, Galloper Offshore Wind Farm Chapter 12 Marine and Intertidal Ecology Environmental Statement., 2011). | | |
| **Publicly Available Datasets** | | |
| The following European Marine Observation and Data Network (EMODnet) datasets:<br>• EMODnet EUSeaMap broad-scale seabed habitat map for Europe (EMODnet, EUSeaMap 2021: EMODnet broad-scale seabed habitat map for Europe, 2021); and<br>• European Nature Information System (EUNIS) habitat classification applied within EUSeaMap (EMODnet, EUSeaMap 2023: Broad-Scale Seabed Habitat Map – EUNIS 2019 classification. European Marine Observation and Data Network., 2023). | Broad-scale predictive seabed habitat map for Europe. | Full coverage of the Benthic and Intertidal Ecology Study Area. |
| OneBenthic benthic macrofauna data (MEDIN, 2024). | Benthic data (macrofaunal abundance, sediment particle size - % weight by sieve size) from grab and core samples collected by government, industry and academia for purposes of characterisation, monitoring and research from UK waters. | Full coverage of the Benthic and Intertidal Ecology Study Area. |
| British Geological Survey (BGS) – Intertidal Substrate Foreshore: England and Scotland (BGS, 2004) | Beach composition classification collated as a desk study. Data created as part of FutureCoast. | Full coverage of the Benthic and Intertidal Ecology Study Area. |
| **Literature** | | |
| MarESA – guidance manual (Tyler-Walters et al., 2023). | MarESA assessment guidance. | N/A |

### 14.5.2 Baseline Conditions

14.5.2.1 An initial desk-based review of literature and available data sources (see Table 14-1) has been undertaken to support this Scoping Report. The findings of this research are presented below in order to provide an understanding of the baseline environment and inform the Scoping process.

14.5.2.2 The key Benthic and Intertidal Ecology receptors which will inform this Scoping Report and the subsequent Preliminary Environmental Information Report (PEIR) and ES include:

- Subtidal sediments – seabed materials such as sand, gravel, mud and mixed sediments located below the low water mark and permanently submerged;
- Subtidal benthic ecology – communities of organisms living on and within permanently submerged seabed habitats;
- Intertidal sediments – sand, mud, shingle and mixed sediments within the littoral zone that are exposed at low tide and submerged at high tide; and
- Intertidal benthic ecology – organisms and habitats associated with intertidal substrates, adapted to regular tidal exposure.

#### Subtidal Sediments

14.5.2.3 The EUSeaMap (2023) data (Figure 14-2) indicate that the offshore area of the UKMS Scoping Boundary is predominantly characterised by sand, with patches of coarse substrate. The mid-section is mainly composed of coarse substrate with areas of mixed sediment. In the inshore area, sediment types include sand, coarse substrate and mixed sediment, along with areas of *Sabellaria spinulosa* reef, sandy mud and seabed. Within the ZoI, localised patches of muddy sand and worm reefs are also present.

14.5.2.4 Limited EUNIS habitat survey point data are available within the UKMS Scoping Boundary, with a single record of Sublittoral mud (EUNIS code: A5.3) in the inshore section and records of Sublittoral sand (EUNIS code: A5.2) in the inshore and mid-sections. In contrast, a greater density of EUNIS point data is present within the ZoI. To the north of the mid-section of the UKMS Scoping Boundary, habitats recorded include Sublittoral coarse sediment (EUNIS code: A5.1), Sublittoral sand (EUNIS code: A5.2) and Sublittoral mixed sediments (EUNIS code: A5.4). Similar habitats are present to the south of the mid-section, together with records of Sublittoral biogenic reefs (EUNIS code: A5.6). These habitats are also identified within the inshore part of the ZoI, alongside littoral habitats including Littoral coarse sediment (EUNIS code: A2.1), Littoral sand and muddy sand (EUNIS code: A2.2), Littoral mud (EUNIS code: A2.3), Littoral mixed sediments (EUNIS code: A2.4) and Littoral biogenic reefs (EUNIS code: A2.7). Additional records within the ZoI include Low energy littoral rock (EUNIS code: A1.3), Atlantic and Mediterranean low energy infralittoral rock (EUNIS code: A3.2) and Atlantic and Mediterranean high energy circalittoral rock (EUNIS code: A4.1).

14.5.2.5 In the absence of site-specific benthic survey data for the UKMS at this Scoping stage, relevant regional datasets from OWF developments which overlap with the UKMS Scoping Boundary have been reviewed to provide contextual information on sediment characteristics and chemistry. These datasets offer a robust regional baseline against which the likely benthic environment of the UKMS Scoping Boundary can be considered.

### *Sediment Characteristics*

14.5.2.6 Sediment characterisation from nearby OWF developments, informed by site specific benthic survey data including Particle Size Analysis (PSA), grab sampling and geophysical surveys, indicated that seabed sediments across the southern North Sea are spatially variable but predominantly sand-dominated, with localised occurrences of gravel, sandy gravel and muddy sand. At Five Estuaries OWF, sediment composition varied across the array areas, with more heterogeneous sediments containing increased gravel and fines in the northern array and more homogeneous coarse sand in the southern array, reflecting the influence of underlying geological formations. Similar variability has been reported at North Falls OWF, where a range of sediment classes were identified, although sand consistently comprised the dominant sediment fraction, with gravel and fines present in more localised distributions.

14.5.2.7 Comparable sediment characteristics derived from site-specific surveys are reported across the Norfolk Vanguard and East Anglia ONE North, TWO and THREE OWFs, where sediments are largely composed of medium-grained sand with varying proportions of gravel and, in some cases, muddy sand, particularly in nearshore or deeper areas. Fines are generally absent or present at low proportions, and sediment distributions are consistent with BGS mapping and the presence of characteristic seabed features of the southern North Sea, including sandbanks, sand waves, mega-ripples and rippled sandforms.

### *Sediment Chemistry*

14.5.2.8 Sediment quality monitoring from Five Estuaries OWF indicates generally low levels of contamination, with hydrocarbons, Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs), Polybrominated Diphenyl Ethers (PBDEs), organotins and organochlorine pesticides returned concentrations below the relevant laboratory limits of detection, indicating that these contaminants were not detected in the sampled sediments. Metal concentrations were below Cefas Action Level 1, with the exception of arsenic, which exceeded the Canadian Threshold Effects Level but remained below Cefas Action Level 2 and within background ranges reported for the southern North Sea. PBDE concentrations were also generally low, with BDE-209 exceeding background assessment concentrations but remaining below environmental guideline values, consistent with regional background levels. Overall, these findings indicate that sediment contamination is not expected to represent a key constraint or driver of effects at a regional scale and provide contextual evidence to inform the scope of the subsequent assessment.

14.5.2.9 These findings are supported by sediment quality data from North Falls OWF which also indicate generally low levels of contamination. PAH concentrations were predominantly below detection limits or marine sediment quality guidelines, while metal concentrations were largely below guideline values, with occasional exceedances for arsenic and nickel identified as representative of regional background conditions in the southern North Sea.

### Subtidal Benthic Ecology

14.5.2.10 Figure 14-2 is based on OneBenthic benthic macrofauna data (MEDIN, 2024) and indicates that the following faunal clusters are present in the UKMS Scoping Boundary:

- A1 – characterised by polychaetes (Spionidae, Terebellidae, Syllidae, Polynoidae, Capitellidae, Serpulidae, Cirratulidae, Pyhllodocidae, Pholoidae and Sabellariidae), crustaceans (Balanidae, Porcellanidae and Galatheidae), molluscs (Mytilidae), bryozoans (Alcyonidiidae, Electridae and Romancheinidae), echinoderms (Amphiuridae), ascidians (Styelidae), Nemertea and Nematoda. A1 is found in areas with high gravel content and strong currents.
- A2a – characterised by polychaetes (Sabellariidae, Spionidae, Polynoidae, Terebellidae, Phyllodocidae, Lumbrineridae, Pholoidae, Cirratulidae, Capitellidae and Syllidae), crustaceans (Porcellanidae), molluscs (Semelidae) and Nemertea. A2a is found in areas of more mixed sediment.
- A2b – characterised by polychaetes (Syllidae, Serpulidae, Terebellidae, Spionidae, Sabellariidae, Polynoidae, Capitellidae, Lumbrineridae, Cirratulidae, Maldanidae, Phyllodocidae and Sabellidae), crustaceans (Porcellanidae), bryozoans (Romancheinidae), echinoderms (Amphiuridae), ascidians (Styelidae) and Nemertea. A2b is found in areas with high gravel content and strong currents.
- C1a – characterised by polychaetes (Spionidae, Terebellidae, Serpulidae, Syllidae, Capitellidae, Cirratulidae, Lumbrineridae, Sabellariidae and Glyceridae) and Nemertea. C1a is found in areas with high gravel content and strong currents.
- C1b – characterised by polychaetes (Spionidae, Capitellidae, Terebellidae, Lumbrineridae, Cirratulidae, Glyceridae, Phyllodocidae, Polynoidae, Scalibregmatidae, Pholoidae and Serpulidae), crustaceans (Ampeliscidae) and Nemertea. C1b is found in areas of more mixed sediment.
- D2a – characterised by polychaetes (Spionidae, Glyceridae, Terebellidae, Capitellidae and Phyllodocidae) and Nemertea. D2a is found in areas of more mixed sediment.
- D2b – characterised by polychaetes (Spionidae, Nephtyidae, Lumbrineridae, Oweniidae, Cirratulidae, Capitellidae and Ampharetidae), molluscs (Semelidae), echinoderms (Amphiuridae) and Nemertea. D2b is found in areas of high mud content with weaker currents.
- D2c – characterised by polychaetes (Nephtyidae, Spionidae and Opheliidae). D2c dominates in areas of high sand content.

- D2d – characterised by polychaetes (Spionidae, Nephtyidae and Magelonidae), crustaceans (Bathyporeiidae), and molluscs (Tellinidae). D2d dominates in areas of high sand content.

14.5.2.11 The following faunal clusters are present in the ZoI:

- B1a – characterised by polychaetes (Spionidae, Serpulidae, Syllidae, Glyceridae, Phyllodocidae, Terebellidae, Polynoidae, Capitellidae, Scalibregmatidae, Eunicidae and Cirratulidae), crustaceans (Galatheidae), bryozoans (Romancheinidae, Bitectiporidae, Phidoloporidae, Chorizoporidae, Microporellidae and Adeonidae), echinoderms (Amphiuridae) and Nemertea. B1a is found in areas with high gravel content and strong currents.
- D1 – characterised by polychaetes (Spionidae, Nephtyidae, Capitellidae, Cirratulidae, Oweniidae and Pholoidae), molluscs (Montacutidae, Semelidae and Nuculidae), echinoderms (Amphiuridae) and Nemertea. D1 is found in areas of high mud content with weaker currents.

14.5.2.12 OneBenthic faunal data and associated cluster classifications (Cooper, et al., 2019) indicate that benthic communities within the UKMS Scoping Boundary and ZoI are likely to be dominated by polychaete assemblages, with community composition primarily driven by sediment type and hydrodynamic conditions. Coarser, high-energy environments support polychaete-dominated communities with additional epifaunal taxa such as crustaceans, bryozoans and echinoderms, while mixed sediments support transitional assemblages. Finer, low-energy sediments are characterised by polychaete and mollusc communities adapted to muddy conditions, whereas sand-dominated areas support mobile polychaete assemblages typical of well-sorted sands. At the Scoping stage, the faunal clusters provide a regional indication of the types of benthic communities that may be present.

14.5.2.13 To inform the Scoping of potential effects on subtidal benthic habitats and communities, existing subtidal benthic ecology data from OWF developments within the southern North Sea which overlap with the UKMS Scoping Boundary have been reviewed. These datasets provide regional context on the types and distribution of benthic biotopes across comparable subtidal sediments.

14.5.2.14 Benthic characterisation surveys undertaken across the Five Estuaries OWF, drawing on macrofaunal, drop-down video (DDV) and particle size analysis (PSA) data, identified a range of biotopes typical of sandy, gravelly and mixed sediment environments. These included ‘Sparse fauna in Atlantic infralittoral mobile clean sand’ (EUNIS code: MB5231), ‘Polychaete-rich deep *Venus* community in offshore circalittoral mixed sediment’ (EUNIS code: MD4211), and ‘*Glycera lapidum* in impoverished Atlantic infralittoral mobile gravel and sand’ (EUNIS code: MB3235). More localised biotopes associated with firmer or more stable substrates were also recorded, including ‘Piddocks with a sparse associated fauna in Atlantic circalittoral very soft chalk or clay’ (EUNIS code: MC1251) and ‘*Sabellaria spinulosa* on stable Atlantic circalittoral mixed sediment’ (EUNIS code: MC221).

14.5.2.15 Comparable biotopes have been recorded at adjacent OWF developments, including North Falls, Norfolk Vanguard and Galloper. Across these sites, benthic communities are consistently characterised by sparse or polychaete-dominated assemblage associated with infralittoral sands, circalittoral mixed sediments and coarse sand or gravel, including biotopes such as 'Sparse fauna in Atlantic infralittoral mobile clean sand' (EUNIS code: MB5231), 'Polychaete-rich deep *Venus* community in offshore circalittoral mixed sediment' (EUNIS code: MD4211), and '*Mediomastus fragilis*, *Lumbrineris* spp. and venerid bivalves in Atlantic circalittoral coarse sand or gravel' (EUNIS code: MC3212). Additional biotopes reflecting localised sediment variability include infralittoral muddy sand communities (e.g. '*Spisula subtruncata* and *Nephtys hombergii* in Atlantic infralittoral muddy sand' (EUNIS code: MB5238), '*Mysella bidentata* and *Abra* spp. in Atlantic infralittoral sandy mud' (EUNIS code: MB6243) and '*Abra alba* and *Nucula nitidosa* in circalittoral muddy sand or slightly mixed sediment' (EUNIS code: MC5214)), impoverished circalittoral mixed gravelly sand (e.g. '*Protodorvillea kefersteini* and other polychaetes in impoverished Atlantic circalittoral mixed gravelly sand' (EUNIS code: MC3213)) and epifaunal assemblages associated with unstable cobbles and pebbles (e.g. '*Spirobranchus triqueter* with barnacle and bryozoan crusts on Atlantic circalittoral unstable cobbles and pebbles' (EUNIS code: MC3211)). Notably, *S. spinulosa* reef biotopes (MC2211) were recorded across multiple OWF developments, indicating present of regionally recurring biogenic habitats within areas of stable mixed sediment.

### *Habitats and Species of Conservation Interest*

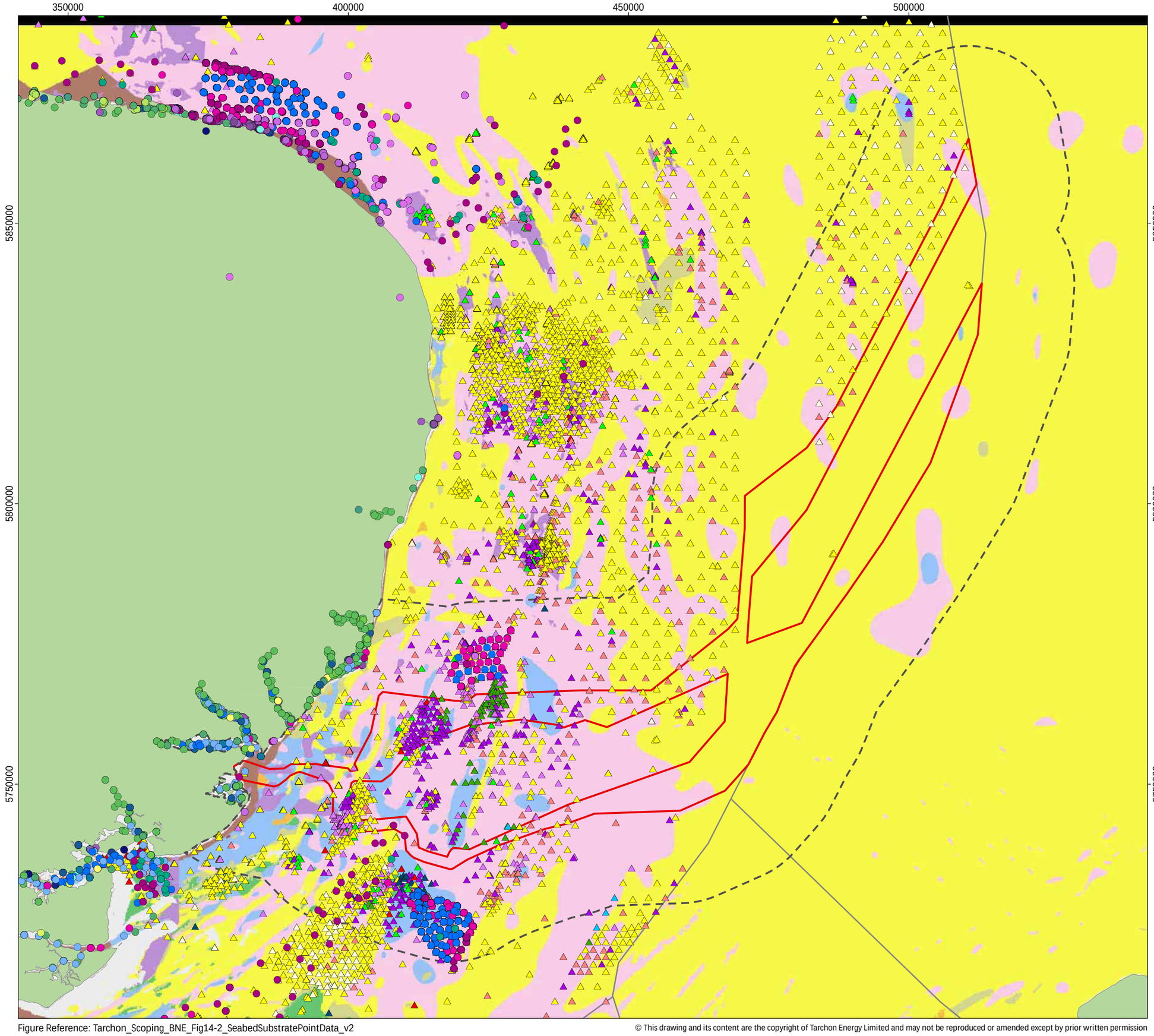
14.5.2.16 For the purposes of this Scoping Report, habitats and species of conservation interest are defined as those that are recognised in legislation, policy or guidance as having elevated ecological value, sensitivity or importance. This includes habitats and species that are protected or listed under relevant legislation (e.g. Habitats Regulations, Marine and Coastal Access Act 2009), identified as Priority Habitats or Species under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, recognised as threatened or declining, or identified as sensitive through published evidence bases such as the MarLIN and MarESA sensitivity assessments.

14.5.2.17 Review of the OneBenthic faunal point data and regional offshore wind farm datasets indicates that, while benthic communities within the UKMS Scoping Boundary and ZoI are largely characteristic of widespread regional assemblages, a small number of habitats and taxa of conservation interest may occur. In particular, the repeated presence of Sabellariidae within several faunal clusters, together with records of the biogenic reef habitat *S. spinulosa* (EUNIS code: MC2211) at adjacent OWF developments, indicates the potential for biogenic reef features to be present within areas of stable mixed sediment. Such habitats are recognised as being of elevated ecological value and sensitivity due to their structural complexity and biodiversity.

14.5.2.18 Habitats of conservation relevance are used here to describe benthic habitats that, while not necessarily designated as rare at a regional scale, contribute to ecological

function and may be important in supporting protected features or ecosystem processes. These habitats of conservation relevance include epifaunal assemblages associated with coarse and mixed sediments, which support bryozoans, barnacles and other reef-forming or structure-providing taxa, and muddy sediment habitats supporting bivalve and polychaete communities that contribute to benthic productivity and wider ecosystem function. While these habitats are not uncommon at a regional scale, their presence can be locally important and may influence sensitivity where seabed disturbance occurs.

14.5.2.19 Designated sites within the wider region include areas protected for benthic and intertidal habitats and species that are linked to the habitats described above. The qualifying features and conservation objectives of these designated sites are described separately in paragraph 14.5.2.23 *et seq*. Consideration of these features will be undertaken where relevant impact pathways are identified during the EIA.




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# Tarchon Interconnector Project

Scoping Report

## Seabed Substrate Data, Overlayed Habitat Survey Point Data and OneBenthic Faunal Point Data Across the Study Area (EMODnet, 2023, 2021; Cefas, 2019)

### Legend

- UK Marine Scheme Scoping Boundary
- Benthic and Intertidal Ecology Study Area
- Exclusive Economic Zones (EEZ) Boundaries

EUSeaMap 2023 (EMODnet, 2023)

- Sand
- Sandy mud
- Fine mud
- Muddy sand
- Seabed
- Coarse substrate
- Mixed sediment
- Worm reefs
- Mytilus edulis beds
- Sabellaria spinulosa reefs

OneBenthic Faunal Data Points (Cefas, 2019)

| | | | | |
|---|---|---|---|---|
| A1 | B1a | C1b | D2b |
| A2a | B1b | D1 | D2c |
| A2b | C1a | D2a | D2d |

Habitat Survey Point Data (EUNIS) (EMODnet, 2021)

| | | | |
|---|---|---|---|
| A1 | A2.2 | A3.1 | A5.2 |
| A1.1 | A2.3 | A3.2 | A5.3 |
| A1.2 | A2.4 | A3.7 | A5.4 |
| A1.3 | A2.5 | A4.1 | A5.5 |
| A1.4 | A2.6 | A4.2 | A5.6 |
| A2 | A2.7 | A4.7 | B3.1 |
| A2.1 | A2.8 | A5.1 | |



### Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:650,000 @A3 | 02/03/2026 | BPHB | EH | MB |

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APEM

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Figure 14-2

Figure Reference: Tarchon_Scoping_BNE_Fig14-2_SeabedSubstratePointData_v2

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### Intertidal Sediments

14.5.2.20 The BGS dataset (2004) represents a national-scale dataset and is used to provide a broad overview on intertidal substrate distribution. The data show that the intertidal coastline within the UKMS Scoping Boundary is predominantly characterised by mud, with a central band of mud and gravel (Figure 14-3). Within the ZoI, sediment types are more varied, comprising extensive areas of gravel, gravel and sand, sand and mud, along with discrete areas of boulders/loose rock, mud and gravel, and an area of man-made ground.

### Intertidal Benthic Ecology

14.5.2.21 To support the Scoping of potential effects on intertidal benthic habitats and communities, available intertidal benthic ecology data from OWF developments within the southern North Sea have been reviewed. These sources provide a broader regional context for the range, distribution and characteristics of intertidal benthic habitats associated with comparable shoreline and sediment conditions.

14.5.2.22 The landfall location closest to the UKMS for which intertidal survey data is available is Five Estuaries OWF approximately 13 km to the south. Intertidal biotope habitat mapping was undertaken at this location, with eight intertidal biotopes identified, comprising a range of rock, shingle and sand associated communities. These were:

- *Lanice conchilega* on littoral sand (EUNIS code: MA5255);
- Barren littoral shingle (EUNIS code: MA3211);
- *Poryphyra purpurea* or *Enteromorpha* spp. on sand-scoured mid or lower eulittoral rock (EUNIS code: MA123H);
- *Enteromorpha* spp. on freshwater-influenced and/or unstable upper eulittoral rock (EUNIS code: MA123G);
- *Semibalanus balanoides* on exposed to moderately exposed or vertical sheltered eulittoral rock (EUNIS code: MA1223);
- *Fucus spiralis* on exposed to moderately exposed upper eulittoral rock (EUNIS code: MA1242);
- *Fucus vesiculosus* and barnacle mosaics on moderately exposed mid eulittoral rock (EUNIS code: MA1243); and
- Fucus serratus on moderately exposed lower eulittoral rock (EUNIS code: MA1244).

360000 370000 380000 390000 400000 410000

5780000 5770000 5760000 5750000 5740000

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## Intertidal Seabed Substrate Data (BGS, 2004)

Legend

- UK Marine Scheme Scoping Boundary
- Benthic and Intertidal Ecology Study Area

Intertidal Substrate Foreshore (BGS)

- Sand
- Sand and Gravel
- Mud
- Mud and Gravel
- Gravel
- Boulders / Loose Rock
- Made Ground (Man Made)
- Not Present



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 5 10 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
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Figure 14-3

Figure Reference: Tarchon_Scoping_BNE_Fig14-3_IntertidalSeabedSubstrate_v2

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### Designated Sites

14.5.2.23 Designated sites that overlap with the Benthic and Intertidal Ecology Study Area, and which are designated for benthic and intertidal ecological interests, or for habitats and species that are dependent on, or associated with, Benthic and Intertidal Ecology are provided in Table 14-2 and presented in Figure 14-4.

14.5.2.24 Three MCZs, which are national designations established to protect nationally important, rare or threatened marine habitats and species, overlap with the Benthic and Intertidal Ecology Study Area. Orford Inshore MCZ and Kentish Knock East MCZ are designated for a range of subtidal sediment habitats, including sand, coarse sediment and mixed sediments, which support characteristic benthic and epibenthic communities of the southern North Sea. Blackwater, Crouch, Roach and Colne MCZ is designated for extensive intertidal and subtidal mud, sand and coarse sediment habitats, as well as native oyster beds, a biogenic benthic feature of particular ecological importance.

14.5.2.25 A number of Sites of Special Scientific Interest (SSSIs), which are nationally designated sites established to protect nationally important habitats and species, overlap with the Benthic and Intertidal Ecology Study Area. Several SSSIs, including Hamford Water SSSI, Stour Estuary SSSI, Orwell Estuary SSSI, Alde-Ore Estuary SSSI and Deben Estuary SSSI, are designated for extensive estuarine habitats such as intertidal mudflats and sandflats, saltmarsh and associated benthic invertebrate communities that support wider estuarine ecological function. Additional coastal and intertidal interests are present at Harwich Foreshore SSSI, The Naze SSSI and Clacton Cliffs and Foreshore SSSI, which are designated for intertidal foreshore habitats and coastal sediments supporting characteristic benthic and epifaunal communities. Holland Haven Marshes SSSI is designated for saltmarsh and intertidal mudflat habitats that are functionally linked to benthic processes and coastal sediment dynamics.

14.5.2.26 Four SACs, which are legally protected sites designated under the EU Habitats Directive (92/43/EEC) and retained in UK law following EU exit, overlap with the Benthic and Intertidal Ecology Study Area.

14.5.2.27 Margate and Long Sands SAC is designated for the Annex I habitat ‘sandbanks which are slightly covered by seawater all the time’, which supports benthic and epibenthic communities characteristic of mobile sandy sediment environments.

14.5.2.28 Hamford Water SAC is not designated for Annex I habitats but for the Annex II species Fisher’s estuarine moth (*Gortyna borelii lunata*). The site supports the majority of the Essex population and represents the most important UK location for this species encompassing areas where its food plant, hog’s fennel (*Peucedanum officinale*) occurs alongside suitable egg-laying habitat.

14.5.2.29 Alde, Ore and Butley Estuaries SAC is designated for the Annex I habitat ‘estuaries’. Additional Annex I habitats present as qualifying features, though not

the primary reason for site selection, include 'mudflats and sandflats not covered by seawater at low tide' and 'Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)', all of which support benthic invertebrate communities and associated ecological functions.

14.5.2.30 Orfordness – Shingle Street SAC is designated for the Annex I habitats 'coastal lagoons' (a priority feature), 'annual vegetation of drift lines' and 'perennial vegetation of stony banks', with the lagoon habitats supporting characteristic benthic faunal communities.

14.5.2.31 Several SPAs, which are internationally designated sites classified under the Birds Directive (2009/147/EC) and retained in UK law, overlap with the Benthic and Intertidal Ecology Study Area. SPAs are designed to protect rare, vulnerable and migratory bird species and assemblages of international importance. While SPAs are not designated specifically for benthic habitats, many qualifying bird species of SPAs are functionally dependent on benthic and intertidal habitats for foraging and many SPAs have a concurrent designation as an SAC or SSSI within the Benthic and Intertidal Ecology Study Area. Offshore SPAs, including Outer Thames Estuary SPA and Bruine Bank SPA (which lies immediately adjacent to the UKMS Scoping Boundary), are designated for seabird species that rely on benthic and epibenthic prey resources within shallow marine environments. Estuarine SPAs, including Hamford Water SPA, Stour and Orwell Estuaries SPA, Alde-Ore Estuary SPA and Deben Estuary SPA, are designated for international important assemblages of overwintering and migratory waterbirds that are closely associated with intertidal mudflats, sandflats and saltmarsh. These habitats support rich benthic invertebrate communities that form a key food resource for qualifying bird species.

14.5.2.32 Several Ramsar sites also overlap with the Benthic and Intertidal Ecology Study Area. Ramsar sites are designated under the Convention on Wetlands of International Importance (1971) to protect wetlands of international importance, particularly for waterbirds. In this region, Ramsar designations are largely spatially coincident with SPAs and/or SSSIs (e.g. Hamford Water, Stour and Orwell Estuaries, Alde-Ore Estuary and Deben Estuary). As such, their benthic and intertidal ecological interests are captured through the corresponding European and national statutory designations described above, and Ramsar sites are not listed separately to avoid duplication.

**Table 14-2: Designated Sites Relevant to Benthic and Intertidal Ecology**

| Site | Designated features/interests[1] | Distance from UKMS Scoping Boundary |
|---|---|---|
| **National Sites** | | |
| Orford Inshore MCZ | • Subtidal mixed sediments | 1.95 km |
| Kentish Knock East MCZ | • Subtidal sand<br>• Subtidal coarse sediment | 5.20 km |

[1] Note: For MCZs these are protected features; for SSSIs these are notified features of special interest; and for SACs and SPAs these are qualifying features.

| Site | Designated features/interests[1] | Distance from UKMS Scoping Boundary |
|---|---|---|
| | • Subtidal mixed sediments | |
| Blackwater, Crouch, Roach and Colne MCZ | • Intertidal mixed sediments<br>• Native oyster beds<br>• Native oyster<br>• Clacton Cliffs and Foreshore | 14.57 km |
| Hamford Water SSSI | • Intertidal mudflats and sandflats<br>• Saltmarsh and transitional coastal habitats<br>• Estuarine benthic communities supporting invertebrates and birds | Direct overlap with the UKMS Scoping Boundary |
| Stour Estuary SSSI | • Intertidal mudflats and sandflats<br>• Saltmarsh and estuarine benthic habitats | 1.45 km |
| Harwich Foreshore SSSI | • Intertidal foreshore habitats<br>• Invertebrate-rich intertidal sediments | 1.51 km |
| The Naze SSSI | • Intertidal foreshore habitats<br>• Coastal sediment and associated invertebrate communities | 2.19 km |
| Orwell Estuary SSSI | • Intertidal mudflats and sandflats<br>• Saltmarsh<br>• Estuarine benthic invertebrate community | 3.39 km |
| Alde-Ore Estuary SSSI | • Intertidal mudflats and sandflats<br>• Saltmarsh and shingle features<br>• Estuarine benthic habitats | 6.12 km |
| Deben Estuary SSSI | • Intertidal mudflats and sandflats<br>• Saltmarsh<br>• Estuarine benthic communities | 7.55 km |
| Holland Haven Marshes SSSI | • Saltmarsh<br>• Intertidal mudflats | 8.25 km |
| Clacton Cliffs and Foreshore SSSI | • Intertidal foreshore habitats<br>• Invertebrate-rich coastal sediments | 14.56 km |
| **European Sites** | | |
| Margate and Long Sands SAC | Annex I habitat:<br>• Sandbanks which are slightly covered by sea water all the time | Direct overlap with the UKMS Scoping Boundary |
| Hamford Water SAC | Annex II species:<br>• Fisher’s estuarine moth | Direct overlap with the UKMS Scoping Boundary |

| Site | Designated features/interests[1] | Distance from UKMS Scoping Boundary |
|---|---|---|
| | Supporting coastal habitat, including saltmarsh | |
| Orfordness – Shingle Street SAC | Annex I habitats:<br>• Coastal lagoons<br>• Annual vegetation of drift lines<br>• Perennial vegetation of stony banks | 6.12 km |
| Alde, Ore and Butley Estuaries SAC | Annex I habitats:<br>• Estuaries<br>• Mudflats and sandflats not covered by seawater at low tide<br>• Atlantic salt meadow | 6.58 km |
| Outer Thames Estuary SPA | Annex I bird species:<br>• Red-throated diver<br>• Common tern<br>• Little tern<br>• Supporting habitat for prey species | Direct overlap with the UKMS Scoping Boundary |
| Hamford Water SPA | • Internationally important assemblages of migratory and overwintering waterbirds<br>• Supporting habitat for prey species | Direct overlap with the UKMS Scoping Boundary |
| Bruine Bank SPA | • Razorbill<br>• Great black-backed gull<br>• Little gull<br>• Gannet<br>• Great skua<br>• Guillemot<br>• Supporting habitat for prey species | Immediately adjacent to the UKMS Scoping Boundary |
| Stour and Orwell Estuaries SPA | • Internationally important assemblages of overwintering waterbirds<br>• Supporting habitat for prey species | 1.45 km |
| Alde-Ore Estuary SPA | • Internationally important assemblages of overwintering waterbirds<br>• Supporting habitat for prey species | 6.12 km |
| Deben Estuary SPA | • Internationally important assemblages of overwintering waterbirds<br>• Supporting habitat for prey species | 7.55 km |

350000
400000
450000
500000
5850000
5800000
5750000
Bruine Bank SPA
Outer Thames Estuary SPA
Outer Thames Estuary SPA
Alde, Ore and Butley Estuaries SAC
Alde-Ore Estuaries SPA
Alde-Ore Estuary SSSI
Deben Estuary SPA
Deben Estuary SSSI
Ramsholt Cliff SSSI
Orfordness - Shingle Street SAC
Orford Inshore MCZ
Orwell Estuary SSSI
Bawdsey Cliff SSSI
Stour and Orwell Estuaries SPA
Harwich Foreshore SSSI
Stour Estuary SSSI
Landguard Common SSSI
Hamford Water SSSI
The Naze SSSI
Hamford Water SAC
Holland Haven Marshes SSSI
Clacton Cliffs & Foreshore SSSI
Holland On Sea Cliff SSSI
Blackwater, Crouch, Roach and Colne Estuaries MCZ
Kentish Knock East MCZ
Outer Thames Estuary SPA
Margate and Long Sands SAC

# TARCHON

## Tarchon Interconnector Project
Scoping Report

## Designated Sites in Relation to the Benthic and Intertidal Ecology Study Area

Legend

- UK Marine Scheme Scoping Boundary
- Benthic and Intertidal Ecology Study Area
- Exclusive Economic Zones (EEZ) Boundaries
- Sites of Special Scientific Interest (SSSI)
- Marine Conservation Zone (MCZ)
- Special Areas of Conservation (SAC)
- Special Protection Areas (SPA)

Southern North Sea SAC:

- Summer Area
- Summer and Winter Area
- Winter Area



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:650,000 @A3 | 02/03/2026 | BPHB | EH | MB |

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Sheet 1 of 1

Figure 14-4

Figure Reference: Tarchon_Scoping_BNE_Fig14-4_Designations_v2

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### 14.5.3 Future Baseline Conditions

14.5.3.1 The baseline environment is not static and is expected to change over time, irrespective of the UKMS. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UKMS over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

14.5.3.2 Subtidal and intertidal environments are dynamic and subject to change over time. Natural processes such as climate-driven variability, coastal and seabed sediment transport and longer-term changes in hydrodynamic conditions may influence habitat extent, sediment characteristics and the distribution of benthic communities, independent of the construction, O&M, or decommissioning activities associated with the UKMS.

14.5.3.3 The assessment will therefore consider potential effects in the context of the anticipated future baseline at the time that construction, operation and decommissioning would occur, to ensure a realistic and proportionate understanding of potential impacts on benthic and intertidal habitats and associated communities.

### 14.5.4 Additional Proposed Data Sources

14.5.4.1 In addition to those data sources outline in Table 14-1, site-specific survey data is planned to inform the EIA and enhance the understanding of the baseline conditions. These include:

- Geophysical surveys in the UKMS Scoping Boundary to determine the bathymetry, seabed infrastructure, classification and morphology; and
- Benthic surveys comprising DDV and sediment grab sampling to identify the benthic macrofaunal communities present across the UKMS Scoping Boundary, as well as classify the sediment types present and monitor sediment bound contaminants.

## 14.6 Assessment Methodology

### 14.6.1 Introduction

14.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the construction, operational and decommissioning phases of the UKMS. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

14.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on Benthic and Intertidal Ecology receptors arising from the construction, operational, and decommissioning phases of the UKMS. This approach defines:

- **Sources and impacts**: The origin of a potential impact;

- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

14.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

14.6.1.4 Receptors will be assessed against relevant effect pathways, with receptor sensitivity and magnitude of impacts being defined. This section describes the criteria that will be applied to assign values to the sensitivity of receptors and the magnitude of potential impacts.

### 14.6.2 Sensitivity of Receptor

14.6.2.1 In line with the CIEEM guidance (CIEEM, 2018), the sensitivity of benthic and intertidal habitats and species will be informed by the MarLIN MarESA framework, which classifies sensitivity using a four-point scale (High, Medium, Low and Not Sensitive) (MarLIN, 2019). For the purposes of this assessment, the MarESA framework has been expanded to include an additional Very High sensitivity category, where receptors are of particularly high ecological importance and exhibit extremely limited resistance and recovery potential. This approach allows for clear differentiation of receptors of exceptional vulnerability and conservation importance within the assessment.

14.6.2.2 The CIEEM guidance also recognises the importance of ecological features, which may relate to the quality, rarity or extent of habitats or species, their conservation status, degree of threat, rate of decline or functional importance within the ecosystem.

14.6.2.3 For the purposes of the assessment, five sensitivity categories have been defined, drawing on the MarLIN MarESA framework and the importance of the receptor, as set out in Table 14-3.

**Table 14-3: Definitions of Sensitivity for Benthic and Intertidal Ecology**

| Sensitivity | Definition |
|---|---|
| Very High | Greater than MarLIN MarESA sensitivity category ‘High’, whereby:<br>• The habitat or species is of very high ecological or conservation importance (e.g. designated features, irreplaceable habitats, or habitats supporting key ecosystem functions); and<br>• The habitat or species is noted as exhibiting ‘None’ resistance (tolerance) to an external factor, whether arising from natural events or human activities; and<br>• Recovery is expected to occur only over very extended timelines (i.e. greater than 25 years) or is not expected to recover within a meaningful ecological timeframe (resilience is ‘Very Low’); and/or<br>• Even small-scale or short-duration impacts could result in long-term or permanent change to the habitat or population. |
| High | Equivalent to MarLIN MarESA sensitivity category ‘High’, whereby:<br>• The habitat or species is noted as exhibiting ‘None’ or ‘Low’ resistance (tolerance) to an external factor, whether that arises from natural events |

| Sensitivity | Definition |
|---|---|
| | or human activities, and is expected to recover only over very extended timescales, i.e., greater than 25 years or not at all (resilience is 'Very Low'); or<br>• The habitat or species is noted as exhibiting 'None' or 'Low' resistance (tolerance to an external factor, whether that arises from natural events or human activities, and is expected to recover only over very extended timescales, i.e., greater than ten or up to 25 years (resilience is 'Low'). |
| Medium | Equivalent to MarLIN MarESA sensitivity category 'Medium', whereby:<br>• The habitat or species is noted as exhibiting 'None' or 'Low' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over medium timescales, i.e., greater than two or up to ten years (resilience is 'Medium'); or<br>• The habitat or species is noted as exhibiting 'None' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over less than two years (resilience is 'High'); or<br>• The habitat or species is noted as exhibiting 'Medium' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over medium to very long timescales, i.e., greater than two years or up to 25 years or not at all (resilience is 'Medium', 'Low' or 'Very Low'). |
| Low | Equivalent to MarLIN MarESA sensitivity category 'Low', whereby:<br>• The habitat or species is noted as exhibiting 'Low' or 'Medium' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over less than two years (resilience is 'High'); or<br>• The habitat or species is noted as exhibiting 'High' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over medium to very long timescales, i.e. greater than two years or up to 25 years or not at all (resilience is 'Medium', 'Low' or 'Very Low'). |
| Negligible | Equivalent to MarLIN MarESA sensitivity category 'Not Sensitive', whereby:<br>• The habitat or species is noted as exhibiting 'High' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over short timescales, i.e., less than two years (resilience is 'High'). |

### 14.6.3 Magnitude of Impact

14.6.3.1 The magnitude of potential impacts will be determined by a series of factors, including the spatial extent of any interaction and the likelihood, frequency and duration of the impact. Magnitude definitions to be applied in the assessment are set out in Table 14-4. Potential impacts will be assessed in terms of whether they are permanent or temporary, and adverse or beneficial. Where an effect could reasonably be assigned to more than one magnitude category, professional judgement will be applied by suitably qualified and experienced benthic ecology

specialists, taking account of the available evidence and guidance, to determine the most appropriate rating.

**Table 14-4: Definitions of Magnitude of Impact for Benthic and Intertidal Ecology**

| Magnitude | Definition |
|---|---|
| Large | Fundamental, permanent/irreversible changes, over the whole receptor, and/or fundamental alteration to key characteristic or features of the receptors character or distinctiveness. |
| Medium | Considerable, permanent/irreversible changes, over the majority of the receptor, and/or discernible alteration to key characteristics or features of the receptors character or distinctiveness. |
| Small | Discernible, temporary change, over a minority of the receptor, and/or limited but discernible alteration to key characteristics or features of the receptors character or distinctiveness. |
| Negligible | Discernible, temporary change (for part of the project's duration), or barely discernible change for any length of time, over a small area of the receptor, and/or slight alteration to key characteristics or features of the receptors character or distinctiveness. |

### 14.6.4 Significance of Effect

14.6.4.1 To ensure consistency across topics, a matrix approach has been adopted to present judgements made on the significance of an effect. This terminology is outlined in Table 14-5 below. The combination of the magnitude of the impact with the sensitivity of the receptor will determine the assessment of significance of effect.

**Table 14-5: Significance Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Negligible |
| Very High | Major | Major | Moderate | Minor |
| High | Major | Moderate | Moderate | Minor |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

14.6.4.2 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

14.6.4.3 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UKMS design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UKMS.

## 14.7 Potential Effects and Mitigation

### 14.7.1 Introduction

14.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 14.7.2 Embedded Mitigation and Good Practice Measures

14.7.2.1 The UKMS will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as "*mitigation measures that have been incorporated into a project's description and form an inherent part of the project's design"* (ISEP, 2024). The embedded mitigation measures which are relevant to this Chapter are presented below. These measures represent standard industry practice and are indicative at this stage, with further refinement expected as the UKMS develops:

- Where practicable, cable burial is the preferred method of cable protection, informed by the Cable Burial Risk Assessment (CBRA) and detailed within the Cable Plan (CaP);
- Development of, and adherence to a CaP. A CaP would be prepared to set out the proposed cable routing, installation methods, cable burial depths, cable specifications and any additional cable protection measures, together with the approach to post-installation cable monitoring. The CaP is likely to be informed by a CBRA, which would consider where external cable protection may be required and how its use could be minimised where target cable burial is achievable;
- Development, and adherence to, an outline Construction Environmental Management Plan (CEMP) and an outline Operational Environmental Management Plan (OEMP). The outline CEMP and outline OEMP would be prepared to describe environmental management measures and procedures relevant to the project, including (but not limited to) chemical use, Invasive Non-Native Species (INNS) management, pollution prevention and waste management;
- Micro-siting of infrastructure, where practicable, to avoid sensitive benthic features. Where feasible, infrastructure could be micro-sited to avoid sensitive benthic habitat or features identified through a review of available benthic data, with sensitivity informed by the MarLIN MarESA sensitivity assessment; and
- A Decommissioning Environmental Management Plan (DEMP) will be developed and adhered to. A DEMP would be prepared to describe environmental management measures and procedures relevant to decommissioning and will consider the potential effects on Benthic and Intertidal Ecology. At this stage, the specific details of decommissioning are

not yet defined and will be developed closer to the end of the operational life of the asset, when further information on infrastructure condition and available techniques are known.

14.7.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UKMS development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

14.7.2.3 As the UKMS advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective, and compliant with regulatory standards and stakeholder input. The need for species-specific mitigation will be determined following completion of marine surveys, and dependent on the potential for effects on species.

### 14.7.3 Scoping Assessment

14.7.3.1 An initial assessment of the potential impacts on Benthic and Intertidal Ecology receptors arising from activities associated with the UKMS is presented in Table 14-6. This assessment has been undertaken for the Scoping stage of the EIA process and is informed by the following:

- The definition of the UKMS at the Scoping stage;
- Embedded mitigation (as presented in Section 14.7.2);
- The level of understanding of the baseline at the present Scoping stage;
- The existing evidence base for Benthic and Intertidal Ecology effects associated with UKMS activities;
- Relevant law and policy; and
- The professional judgement of qualified Benthic and Intertidal Ecology specialists.

**Table 14-6: Elements Scoped In and Out for Benthic and Intertidal Ecology**

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction and decommissioning | • Seabed preparation for offshore cable installation:<br>– Boulder clearance;<br>– Pre-sweeping; and<br>– Seabed levelling.<br>• Installation/removal of:<br>– Offshore cable;<br>– Cable protection;<br>– Landfall activities marine impacts (trenchless techniques); and<br>– Cable laying vessels that interact with the seabed, e.g. Jack Up Vessels (JUVs). | Temporary increase in suspended sediment and sediment deposition | All subtidal and intertidal receptors | In | Sediment disturbance arising from construction activities such as cable laying may result in adverse effects on benthic communities as a result of temporary increase in Suspended Sediment Concentration (SSC) and associated sediment deposition and smothering. |
| | | Direct and indirect seabed disturbance leading to the release of sediment contaminants | All subtidal and intertidal receptors | In | Seabed disturbance during construction could lead to the mobilisation of existing sediment contaminants that could have an impact on the benthos. |
| Construction, operational and decommissioning | • Seabed preparation for offshore cable installation: | Temporary habitat disturbance | All subtidal receptors | In | There is potential for temporary habitat disturbance due to seabed preparation, cable laying and the use of cable laying vessels, e.g. JUVs or |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | – Boulder clearance;<br>– Pre-sweeping; and<br>– Seabed levelling.<br>• Installation/removal of:<br>– Offshore cable; and<br>– Cable protection;<br>• Use of cable laying vessels, e.g. JUVs during all phases; and<br>• Maintenance of offshore cable. | | | | vessel anchoring during construction and decommissioning, as well as during planned and unplanned maintenance through the use of cable laying vessels, e.g. JUVs. |
| Construction, operational and decommissioning | • Presence of:<br>– Offshore cable; and<br>– Cable protection.<br>• Increased vessel movements. | Increased risk of introduction and/or spread of INNS | All subtidal receptors | In | There is potential for the increased risk of introduction and/or spread of INNS through increased vessel movements (e.g. ballast water, hull fouling) and an increase in colonisable substrate. |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Operational | • Presence of:<br>– Offshore cable; and<br>– Cable protection. | Long-term habitat loss or alteration due to the addition of infrastructure | All subtidal receptors | In | There is the potential for long-term habitat loss or alteration directly associated with the presence of infrastructure. |
| | | Colonisation of hard substrates | All subtidal receptors | In | Man-made substructures are expected to be colonised by a variety of marine organisms. This can result in an increase in local biodiversity and alterations to the near field benthic ecology |
| | | Changes in marine physical processes | All subtidal receptors | In | The presence of subsea infrastructure can result in potential effects on benthic communities arising from changes in sediment transport and wave regimes. |
| | | Electromagnetic field (EMF) effects | All subtidal receptors | In | EMFs are likely to be generated by the offshore cable and may be detectable above background levels in the immediate vicinity of the cable. |
| Decommissioning | Removal of offshore cable and cable protection. | Long-term habitat loss or alteration due to the removal of infrastructure | All subtidal receptors | In | Following the decommissioning of the UKMS, there is potential for long-term habitat loss or alteration directly associated with the removal of infrastructure. |
| Construction, Operational and Decommissioning | All activities | Accidental pollution events during construction, | All subtidal and | Out | Chemical and oil inventories on vessels will be small. |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | operational or decommissioning activities | intertidal receptors | | If there is a requirement to use drilling mud, such as bentonite (or another inert mud), in order to undertake trenchless techniques (Horizontal Directional Drilling (HDD) or similar) at the landfall zone, this could result in the release of drilling mud at the break out point. To mitigate this, the use of biodegradable drilling fluids (PLONOR substances) will be used where practicable. Drilling fluids will be tested for contamination to determine their potential for reuse or disposal. The disposal of drilling fluids will be actioned via a licensed courier to a licensed waste facility if reuse is not possible.<br>In the event of an accidental chemical or oil spill, hydrocarbons would rapidly be dispersed or diluted. Further, all vessels will be required to comply with strict environmental controls set out in the outline CEMP and outline OEMP which will minimise the risk and set out provisions for responding to spills. Due to the implementation of control measures and small quantities on oil and chemicals, it is proposed to scope this impact out of further consideration within the EIA. |

### 14.7.4 Cumulative and Transboundary Effects

#### Cumulative Effects

14.7.4.1 Volume 05, Chapter 32: Approach to Cumulative Effects details how potential cumulative effects will be assessed through the Cumulative Effects Assessment (CEA) and gives examples of those projects likely to be assessed. For Benthic and Intertidal Ecology, cumulative interactions may occur with the whole Tarchon Project in combination with the UKMS, planned OWFs, interconnectors and subsea cable routes, as well as other seabed-disturbing activities within the Benthic and Intertidal Ecology Study Area.

14.7.4.2 Potential impacts that are scoped into the assessment for the UKMS alone are generally spatially restricted to being within close proximity to the UKMS. However, certain potential impacts have the potential to affect the benthic communities over a more significant area. It is proposed that impacts with limited spatial extent, which do not have an effect on a designated species, site or feature, are scoped out of any further assessment within the CEA.

14.7.4.3 As a result, only one impact on Benthic and Intertidal Ecology receptors is proposed for further consideration within the CEA, subject to Study Area refinement:

- Cumulative temporary increase in suspended sediment and sediment deposition.

14.7.4.4 The CEA for Benthic and Intertidal Ecology will consider the Maximum Design Scenario (MDS) for each adjacent project and any associated activities in line with the methodology outlined in Volume 05, Chapter 32: Approach to Cumulative Effects.

#### Transboundary Effects

14.7.4.5 Potential transboundary effects on Benthic and Intertidal Ecology may arise during the construction, operational and decommissioning phases as the Benthic and Intertidal Ecology Study Area is located at, and intersects, the boundaries of multiple Exclusive Economic Zones (EEZs), including those of Belgium, The Netherlands and Germany. In particular, impact pathways associated with the following may extend into the ZoI which crosses international maritime boundaries:

- Temporary increase is suspended sediments and sediment deposition; and
- Direct and indirect seabed disturbance leading to the release of sediment contaminants.

14.7.4.6 Given the proximity of the UKMS to adjacent EEZs, the potential for effects extending beyond UK waters cannot be discounted at this stage. The likelihood and spatial extent of any such effects will therefore be assessed as part of the EIA, with the relevant impact pathways that have been scoped in considered further (see Table 14-6). The approach to identifying potential transboundary effects in

relation to the UKMS is summarised in Volume 06, Annex 32-1: Transboundary Screening Matrix.

14.7.4.7 While benthic and intertidal habitats themselves are spatially fixed, potential transboundary effects could arise through processes that result in the transport and dispersion of suspended sediment, patterns of sediment deposition and changes in seabed condition extending across EEZ boundaries. Where seabed disturbance results in the release of sediment-associated contaminants, these effects may also propagate into transboundary waters within the ZoI. As such, impacts on Benthic and Intertidal Ecology that are scoped into the main EIA process will also be considered in a transboundary context and are not scoped out at this stage.

14.7.4.8 Further detail on the methodology for identifying and assessing potential transboundary effect is provided in Volume 05, Chapter 32: Approach to Cumulative Effects. Potential transboundary effects on benthic and intertidal habitats, species and designated sites located outside UK waters will be considered, where relevant, within the ES.

## 14.8 Assumptions, Limitations and Uncertainties

14.8.1.1 At this Scoping stage, the understanding of Benthic and Intertidal Ecology is informed by a review of existing desk-based information and regional datasets, rather than site-specific survey data. These sources provide a broad overview of sediment types, benthic habitats and communities within the Benthic and Intertidal Ecology Study Area, but do not offer full spatial resolution and are subject to inherent limitations, including uncertainty in the precise extent and distribution of individual biotopes. In addition, benthic habitats typically occur along environmental gradients, meaning that transitions between biotopes are often gradual rather than defined by clear boundaries.

14.8.1.2 Historical and regional datasets have been used to characterise the Benthic and Intertidal Ecology Study Area, providing appropriate contextual information at this stage. While reliance on non-site-specific and historical data introduces some uncertainty, this approach is considered proportionate for Scoping purposes, particularly as potential effects on Benthic and Intertidal Ecology are generally localised and most likely to occur within the UKMS Scoping Boundary.

14.8.1.3 The sensitivity assessments in the EIA will draw on the MarLIN MarESA framework, which is not site-specific and may not capture all local variation in habitat sensitivity. However, the framework incorporates confidence ratings that reflect these uncertainties.

14.8.1.4 Overall, the seabed in the region is well studied and the available evidence base is considered sufficient to identify potential impact pathways and inform Scoping decisions. Site-specific survey data will be used to refine the baseline and inform the assessment of effects in the ES at the next stage of the EIA process.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 03, Chapter 15: Fish and Shellfish Ecology

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00021 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| BGS | British Geographical Society |
| BNG | Biodiversity Net Gain |
| BTS | Beam Trawl Survey |
| BNG | Biodiversity Net Gain |
| CaP | Cable Plan |
| CBRA | Cable Burial Risk Assessment |
| CEA | Cumulative Effects Assessment |
| Cefas | Centre for Environment Fisheries and Aquaculture Science |
| CEMP | Construction Environmental Management Plan |
| CIEEM | Chartered Institute of Ecology and Environmental Management |
| CO | Conservation Objective |
| CPA | Coast Protection Act 1949 |
| DDV | Drop-Down Video |
| Defra | Department for Environment, Food & Rural Affairs |
| DEMP | Decommissioning Environmental Management Plan |
| DESNZ | Department for Energy Security and Net Zero |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| EMF | Electromagnetic Field |
| EPS | European Protected Species |
| ES | Environmental Statement |
| EU | European Union |
| FEPA | Food and Environment Protection Act 1985 |
| GES | Good Environmental Status |
| HDD | Horizontal Directional Drilling |
| HRA | Habitats Regulation Assessment |
| IBTS | International Bottom Trawl Survey |
| ICES | International Council for the Exploration of the Sea |
| ICZM | Integrated Coastal Zone Management |
| IHLS | International Herring Larval Surveys |
| INNS | Invasive Non-Native Species |
| JNCC | Joint Nature Conservation Committee |
| JUV | Jack-Up Vessel |
| km | Kilometre |
| m | Metre |
| $m^2$ | Metre Squared |
| MarESA | Marine Evidence based Sensitivity Assessment |
| MCZ | Marine Conservation Zone |
| MDS | Maximum Design Scenario |
| MHCLG | Ministry of Housing, Communities and Local Government |

| Acronym | Definition |
|---|---|
| MHWS | Mean High Water Springs |
| MMO | Marine Management Organisation |
| MPS | Marine Policy Statement |
| MSFD | Marine Strategy Framework Directive |
| NERC Act 2006 | Natural Environment and Rural Communities Act 2006 |
| NFPD | National Fish Populations Database |
| NPPF | National Planning Policy Framework |
| NSIP | Nationally Significant Infrastructure Project |
| O&M | Operational and Maintenance |
| OSPAR | Convention for the Protection of the Marine Environment of the North-East Atlantic |
| OEMP | Operational Environmental Management Plan |
| OWF | Offshore Wind Farm |
| PEIR | Preliminary Environmental Impact Report |
| PSA | Particle Size Analysis |
| RAMS | Recreational Disturbance Avoidance and Mitigation Strategies |
| ROV | Remote Operated Vehicle |
| SAC | Special Area of Conservation |
| SNCB | Statutory Nature Conservation Bodies |
| SPA | Special Protection Area |
| SSC | Suspended Sediment Concentrations |
| SSSI | Site of Special Scientific Interest |
| TRaC | Transitional and Coastal |
| TSHD | Trailing Suction Hopper Dredger |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| UWN | Underwater Noise |
| UXO | Unexploded Ordnance |
| VMS | Vessel Monitoring System |
| WFD | Water Framework Directive |
| ZoI | Zone of Influence |

# 15. Fish and Shellfish Ecology

## 15.1 Introduction

15.1.1.1 This Chapter presents the Fish and Shellfish Ecology assessment which will consider the potential significant effects on Fish and Shellfish Ecology receptors during the construction, operational, and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Areas used and receptors considered in this Chapter, only the UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. The English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is therefore not considered further for Fish and Shellfish Ecology.

15.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Fish and Shellfish Ecology baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Fish and Shellfish Ecology receptors from the proposed components of the UKMS; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

15.1.1.3 It should be noted that licensing for unexploded ordnance (UXO) works (including clearance) will be subject to separate, standalone licence applications (e.g. standard marine licence application(s)). The impact pathways and associated effects in relation to UXO works (including clearance) are therefore not considered further in this EIA scoping report but will be included in the environmental assessments that accompany these separate, standalone licence applications.

15.1.1.4 This Chapter should be read alongside the following Chapters and annexes:

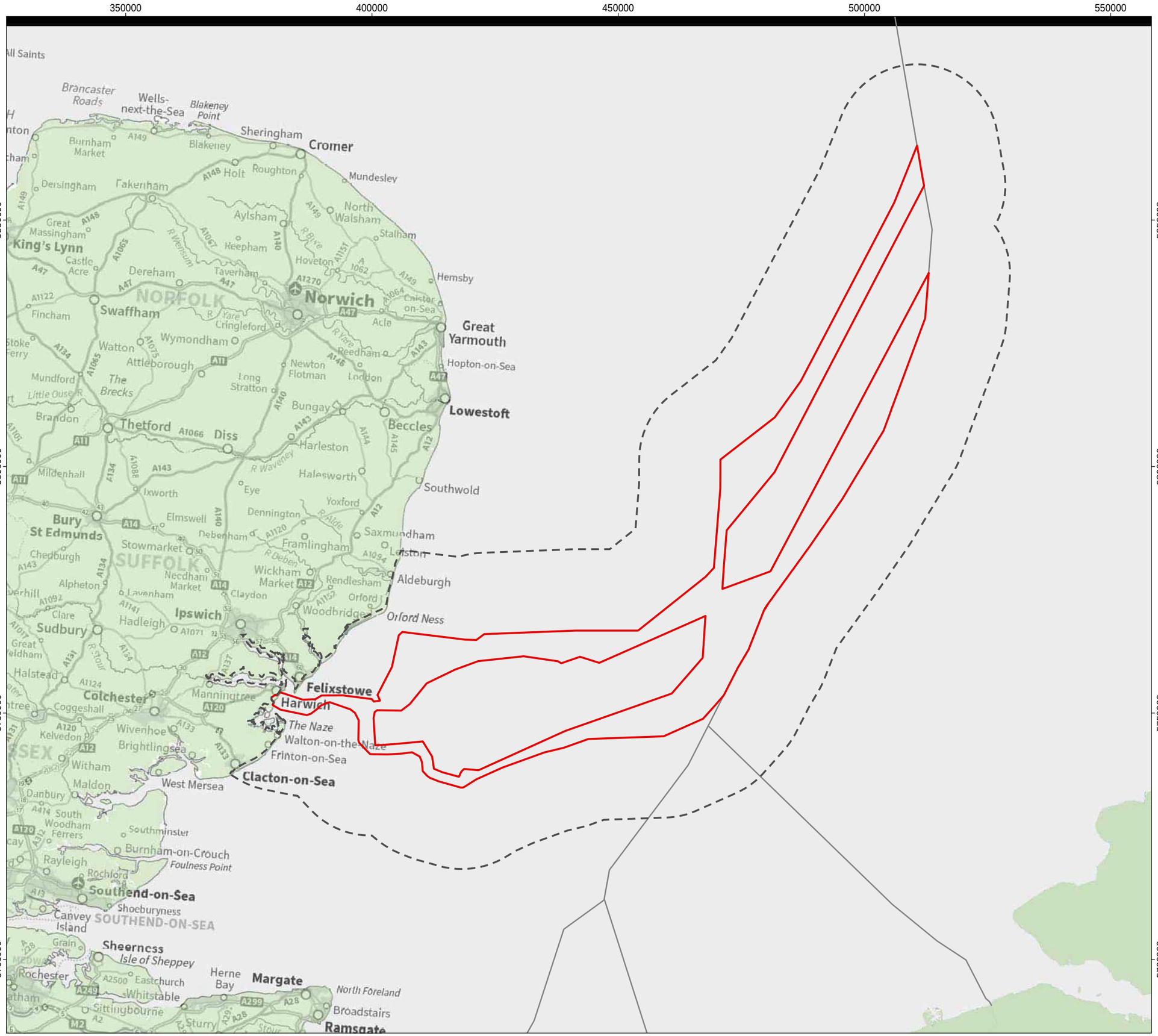
- Volume 01, Chapter 02: UK Project Description;
- Volume 03, Chapter 13: Marine Physical Environment;
- Volume 03, Chapter 14: Benthic and Intertidal Ecology;
- Volume 03, Chapter 16: Marine Mammal Ecology;
- Volume 03, Chapter 17: Commercial Fisheries;
- Volume 04, Chapter 23: Ornithology;
- Volume 04, Chapter 29: Carbon and Climate Change; and
- Annex 22-2: Underwater Noise Assessment Methodology.

## 15.2 Study Area

15.2.1.1 The proposed UKMS extends from the Tendring peninsula near Harwich in the UK to the edge of the UK Exclusive Economic Zone (EEZ) (Figure 15-1). The Fish and Shellfish Ecology Study Area (hereafter referred to as the “Study Area”) is presented in Figure 15-1 and comprises the area within which the UKMS is located, with a precautionary 16.5 km sedimentary Zone of Influence (ZoI).

15.2.1.2 The sedimentary ZoI has been delineated to include the maximum distance suspended sediment may disperse as a result of disturbance caused by the construction, O&M and decommissioning activities of the UKMS (see Volume 03, Chapter 13: Marine Physical Environment). For the purposes of Scoping, the sedimentary ZoI is defined by the spring tidal excursion ellipse distance which is conservatively scaled as 16.5 km from the UKMS Scoping Boundary. The sedimentary ZoI therefore represents the distance from the UKMS over which suspended sediment plumes may be advected.

15.2.1.3 The Study Area will be refined post-Scoping to take account of site-specific sediment plume modelling carried out as part of the Marine Physical Environment assessment (see Volume 03, Chapter 13: Marine Physical Environment). In addition, consultation with key stakeholders, as well as refinements of the UKMS activities, will be taken into account when finalising the extent of the Study Area.



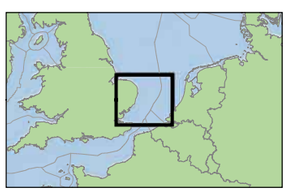

# TARCHON

## Tarchon Interconnector Project
Scoping Report

## Fish and Shellfish Ecology Study Area

**Legend**

- UK Marine Scheme Scoping Boundary
- Fish and Shellfish Study Area
- Exclusive Economic Zones (EEZ) Boundaries



**Notes**

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 — 20 — 40 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:750,000 @A3 | 02/03/2026 | BPHB | EH | MB |


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Figure 15-1

Figure Reference: Tarchon_Scoping_FS_Fig15-1_StudyArea_v1

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## 15.3 Relevant Legislation, Planning Policy and Guidance

15.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context describes the overall regulatory and planning policy context for the UKMS. Key legislation, policy and guidance relevant to the assessment of potential effects on fish and shellfish associated with the construction, O&M and decommissioning of the UKMS is presented below.

### 15.3.2 Legislation

15.3.2.1 The following legislation and conventions are relevant to Fish and Shellfish Ecology with further detail on each provided in Volume 01, Chapter 05: Legislative and Planning Policy Context:

#### International Legislation

- Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) (OSPAR Commission, 1992);
- Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 1979 (Council of Europe, 1979); and
- Convention on Wetlands of International Importance (Ramsar Convention) 1971 (Ramsar Convention Secertariat, 1971);

#### European Union Legislation (retained in UK law)

- Council Directive 92/43/ EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive)
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Birds Directive);
- 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);
- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a frameworks for community action in the field of water policy (Water Framework Directive); and
- Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (EIA Directive).

#### UK Legislation

- The Conservation of Habitats and Species Regulations 2017 (as amended) (HM Government, 2017a) and The Conservation of Offshore Marine Habitats and Species Regulations 2017 (HM Government, 2017b) (the Habitats Regulations);
- The Wildlife and Countryside Act 1981 (as amended) (HM Government, 1981);
- Marine and Coastal Access Act 2009 (HM Government, 2009a);
- The Marine Strategy Regulations 2010 (as amended) (HM Government, 2010);

- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended) (HM Government, 2017c);
- Natural Environment and Rural Communities (NERC) Act 2006 (HM Government, 2006);
- The Eels (England and Wales) Regulations 2009 (HM Government, 2009b);
- The Salmon and Freshwater Fisheries Act 1975 (HM Government, 1975);
- Environment Act 2021 (HM Government, 2021);
- The Marine Works (Environmental Impact Assessment (EIA)) Regulations 2007 (as amended) (HM Government, 2007);
- Invasive Alien Species (Enforcement and Permitting) Order 2019 (HM Government, 2019).

### 15.3.3 Marine Policy Statement (MPS)

15.3.3.1 The UK MPS, originally published in 2011 and last updated September 2020 by Defra (Defra, 2020) provides the overarching policy framework for marine planning and decision-making. Section 2.6.1, discusses marine ecology and biodiversity, and section 3.1 on marine protected areas (MPAs). Sections 2.5.1 and 3.3 provide information on environmental decision-making principles. The MPS also sets out high level marine objectives, including that:

- The marine environment and its resources are used to maximise sustainable activity, prosperity and opportunities for all, now and in the future;
- Marine businesses are acting in a way which respects environmental limits and is socially responsible;
- Biodiversity is protected, conserved and where appropriate recovered and loss has been halted; and
- Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems

### 15.3.4 National Planning Policy Framework (NPPF)

15.3.4.1 The NPPF (published December 2024, as amended February 2025) (Department for Levelling Up, Housing and Communities, 2024) sets out Government policy for sustainable development in England. Relevant provisions include requirements to consider the UK MPS and Marine Plans in coastal areas, promote integrated coastal zone management, protect designated biodiversity sites, and secure biodiversity net gains where possible.

15.3.4.2 Under Section 104 (3) of the Planning Act 2008, the Secretary of State (SoS) is required to decide applications for development consent in accordance with the relevant National Policy Statements (NPS). The relevant NPSs have therefore been considered in preparing this Chapter and include:

- Overarching National Policy Statement for Energy (EN-1) (2025, designated 2026) (DESNZ, 2026);

- National Policy Statement for Renewable Energy Infrastructure (EN-3) (updated 2025, designated 2026) (DESNZ, 2026); and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (updated 2025, designated 2026) (DESNZ, 2026).

### 15.3.5 Guidance

15.3.5.1 The assessment of Fish and Shellfish Ecology has been undertaken in accordance with the following guidance:

- Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Chartered Institute of Ecology and Environmental Management (CIEEM, 2024);
- Guidance note for EIA in respect of Food and Environment Protection Act (FEPA) 1985 and Coast Protection Act (CPA) 1949 requirements (Centre for Environment, Fisheries and Aquaculture Science (Cefas, 2004);
- Strategic review of Offshore Wind Farm (OWF) monitoring data associated with FEPA licence conditions (Cefas, 2010);
- Guidelines for data acquisition to support marine environmental assessments of offshore renewable energy projects (Judd, 2012);
- Cumulative impact assessment guidelines, guiding principles for cumulative impacts assessments in OWF (RenewableUK, 2013);
- Sound exposure guidelines for fishes and sea turtles: a technical report (Popper, et al., 2014);
- A sound approach to assessing the impact of underwater noise on marine fishes and invertebrates (Hawkins & Popper, A sound approach to assessing the impact of underwater noise on marine fishes and invertebrates, 2017);
- Information gaps in understanding the effects of noise on fishes and invertebrates (Hawkins, Pembroke, & Popper, 2015);
- Monitoring guidance for underwater noise in European Seas, Part II monitoring guidance specifications (Dekeling, Mark, van der Graff, Ainslie, & Andersson, 2014);
- Options and opportunities for marine fisheries mitigation associated with wind farms (Blyth-Skyrme, 2010);
- Offshore wind marine environmental assessments, best practice advice for evidence and data standards – Phase I (Natural England, 2021a);
- Offshore wind marine environmental assessments, best practice advice for evidence and data standards – Phase III (Natural England, 2021b);
- The protection of marine European Protected Species (EPS) from injury and disturbance: guidance for inshore waters (Marine Scotland, 2020); and
- JNCC Report 768: cumulative effects assessments to support marine plan development (Willsteed, Collin, & Koehler, 2024).

### 15.3.6 Local Planning Policy

15.3.6.1 Local policy is applied alongside the MPS, Marine Plans and national policy when determining effects on marine receptors. The following local planning policy has been considered in the development of this Scoping Report:

- Essex Climate Action Plan (2021 – 2028) (Essex County Council, 2026):
  - The Scoping Report has considered the Essex Climate Action Plan by ensuring that the proposed scope and mitigation approach support local objectives for reducing environmental impacts and promoting climate-resilient practice.
- Essex Local Nature Recovery Strategy (Essex County Council, 2025):
  - The Essex Local Nature Recovery Strategy is relevant to Fish and Shellfish Ecology because it identified coastal and marine habitats as a priority area for restoration, connectivity and water quality improvement. These strategic priorities have been considered when identifying the receptors and potential impact pathways relevant to Fish and Shellfish Ecology.
- Tendring District Local Plan 2013-2033 and Beyond (Section 2) (Tendring District Council, 2022):
  - Policy PPL4 (Biodiversity and Geodiversity) is relevant to Fish and Shellfish Ecology, particularly where development may affect coastal or estuarine designated sites and intertidal/subtidal priority habitats that support spawning, nursery and feeding functions. Where proposals are likely to significantly affect International and European Sites, applications must be supported by a Habitats Regulations Assessment (HRA). Proposals should also have regard to any published Recreational Disturbance Avoidance and Mitigation Strategies (RAMS) and include measures necessary to mitigate likely recreational impacts.

15.3.6.2 Tendring District Council is in the process of reviewing the Local Plan and has published a Preferred Options Consultation Document (Tendring District Council, 2026), which is not yet adopted, however its progress will be monitored during the preparation of PEIR and ES.

## 15.4 Consultation and Engagement

15.4.1.1 Consultation relating to Fish and Shellfish Ecology has been undertaken with the following consultees in advance of the submission of the Scoping Report to provide an introduction into the UKMS (consultation will continue with consultees following Scoping, as detailed within Volume 01, Chapter 04: Approach to Consultation):

- Natural England;
- JNCC; and
- MMO.

15.4.1.2 Consultation has also been undertaken with Commercial Fisheries stakeholders (see Volume 03, Chapter 17: Commercial Fisheries).

15.4.1.3 Comments received from this initial consultation includes:

- Natural England advise that a robust up-to-date evidence base will be required to assess impacts to fish species designated as protected features of the MPA network where these occur in significant numbers within the ZoI. A desk-based assessment should be undertaken to establish the evidence base and identify the potential need for baseline surveys; and
- Natural England advise that the focus of the desk-based assessment should be on impacts to designated fish features of the MPA network; however, fish that are a food source for other designated features such as birds and marine mammals should also be considered.

15.4.1.4 Prior to the Environmental Statement (ES), consultation will continue with the MMO and Cefas regarding the potential effects on fish and shellfish as a result of the proposed UKMS. Consultation will also continue with Natural England and the JNCC regarding nature conservation areas and policy advice.

15.4.1.5 Responses on the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council and Tendring District Council. However, no relevant comments to Fish and Shellfish Ecology have been received.

## 15.5 Baseline Environment

### 15.5.1 Baseline Conditions

#### Data Sources

15.5.1.1 The data sources and literature that have been used to inform this Chapter of the Scoping Report are presented within Table 15-1. These data sources will be taken forward and used to inform the EIA, alongside any additional site-specific data that will be collected for the UKMS.

15.5.1.2 Due to the high mobility of fish, datasets with extensive spatial coverage are particularly important for characterising fish and shellfish populations. The data available from existing literature and relevant surveys provide an appropriate evidence base for fish and shellfish populations within the Study Area, and across the wider region, sufficient for the purposes of EIA, and it is intended that these are utilised to identify the fish and shellfish receptors in the vicinity of the UKMS.

#### Site-Specific Surveys

15.5.1.3 In addition to those data sources outlined in Table 15-1, site-specific benthic survey data will be used to inform the EIA and enhance the understanding of the baseline conditions. These will include the following surveys proposed within the UKMS Scoping Boundary:

- Geophysical surveys to characterise the bathymetry, seabed infrastructure, classification and morphology;
- Subtidal benthic sampling, comprising grab samples and Drop-Down Video (DDV) to classify the sediment types present across the Study Area; and

- Sediment sampling for physicochemical analysis, which will provide sediment contaminant data, to inform the fish and shellfish EIA.

Table 15-1: Key Sources of Fish and Shellfish Data

| Source | Summary | Coverage of the Study Area | Reference |
|---|---|---|---|
| **Existing offshore development data** | | | |
| ESs and other EIA documentation from offshore developments within the Southern North Sea:<br>• Five Estuaries OWF ES: Volume 6, Part 2, Chapter 6: Fish and Shellfish Ecology;<br>• North Falls OWF ES: Volume 3.1, Chapter 11, Fish and Shellfish Ecology;<br>• East Anglia One North OWF ES: Volume 1, Chapter 10, Fish and Shellfish Ecology;<br>• East Anglia Two OWF ES: Volume 1, Chapter 10, Fish and Shellfish Ecology;<br>• East Anglia Three OWF ES: Volume 1, Chapter 11, Fish and Shellfish Ecology;<br>• Norfolk Vanguard West and Norfolk Vanguard East ES: Volume 1, Chapter 11, Fish and Shellfish Ecology;<br>• Norfolk Boreas OWF ES: Volume 1, Chapter 11, Fish and Shellfish Ecology;<br>• Sea Link ES: Volume 6, Chapter 3, Fish and Shellfish; | Characterisation of the existing baseline of Fish and Shellfish Ecology across the defined Study Area and wider region. The information captured in these ESs and other EIA documentation has been used to help establish the baseline for this Chapter, identifying the fish and shellfish species likely to be present within the Study Area. | Site-specific survey data for offshore developments off the coast of East Anglia, overlapping with a large proportion of the Study Area. | Royal HaskoningDHV (2015; 2018); Royal HaskoningDHV (2019b; 2019c; 2019a); AECOM (2020); Gobe (2024); RWE (2024); National Grid (2024; 2025) |

| Source | Summary | Coverage of the Study Area | Reference |
|---|---|---|---|
| • NeuConnect ES; Fish and Shellfish Ecology Chapter; and<br>• LionLink PEIR: Fish and Shellfish Ecology Chapter. | | | |
| **Publicly Available Datasets** | | | |
| International Council for the Exploration of the Sea (ICES) North Sea International Bottom Trawl Survey (IBTS) (2016 to 2025) | Long-term time series data set of species distribution from bottom trawl surveys. This information has been used to help establish the baseline for this Chapter, identifying the fish and shellfish species likely to be present within the Study Area. | Regional dataset that covers areas within the North Sea (including offshore waters of the UK, The Netherlands and Belgium) and wider ICES regions. Partial coverage of the Study Area. | ICES (2025a) |
| ICES Offshore Beam Trawl Surveys (BTS) (2016 to 2025) | Long-term time series data set of species distribution from BTS. This information has been used to help establish the baseline for this Chapter, identifying the fish and shellfish species likely to be present within the Study Area. | Regional dataset that covers areas within the North Sea (including offshore waters of the UK, The Netherlands and Belgium) and wider ICES regions. Partial coverage of the Study Area. | ICES (2025b) |
| UK sea fisheries annual statistics report 2024 | Information on landings of the UK fishing fleet, and the status of commercial fish stocks. This information has been used to help establish the baseline for this Chapter, identifying commercial fish and shellfish species likely to be present within the Study Area. | National dataset which shows landings from active fisheries in the southern North Sea. | MMO (2025) |

| Source | Summary | Coverage of the Study Area | Reference |
|---|---|---|---|
| EMODnet broad-scale seabed habitat map for Europe (EUSeaMap) | EUSeaMap is a predictive habitat map. Seabed substrates are described in the EUNIS 2019 classification system. This dataset is used to inform habitat suitability for demersal spawning species (such as herring and sandeel). | Regional dataset covering the North Sea (including offshore waters of the UK, The Netherlands and Belgium) and broader European marine areas. Full coverage of the Study Area. | EMODnet (2022) |
| British Geographical Society (BGS) Marine Sediment Particle Size dataset sourced from the BGS GeoIndex Offshore portal | Particle Size Analysis (PSA) dataset to help inform habitat suitability mapping for demersal spawning species (herring and sandeel). | National dataset. Partial overlap with the Study Area. | BGS (2015) |
| International Herring Larval Survey (IHLS) data (2013-14 to 2024-25[1]) | Herring larvae surveys conducted across the North Sea and adjacent areas to provide quantitative estimates of herring larval abundance used as a relative index of changes of herring spawning stock biomass. IHLS data are used to identify areas of actively spawning herring. | Regional dataset that covers the North Sea (including offshore waters of the UK, The Netherlands and Belgium) and adjacent areas. IHLS surveys target areas known to be of importance to spawning herring. Partial overlap with the Study Area. | ICES (2024a) |
| National Fish Populations Database (NFPD) (2021 to 2025) | A centralised repository managed by the Environment Agency that stores data from fish surveys conducted in freshwater and Transitional and Coastal (TRaC) waters across England to support ecological monitoring, fisheries management, | National dataset. No coverage of the Study Area but used for broad baseline characterisation. | Environment Agency (2025) |

[1] No survey data was collected within the Study Area during the 2017-18 and 2018-19 season.

| Source | Summary | Coverage of the Study Area | Reference |
|---|---|---|---|
| | and environmental assessments. Freshwater surveys primarily use electrofishing and TraC surveys employ a multi-method netting and trawl approach. This dataset is used to determine the migratory fish species that are likely present within the Study Area. | | |
| **Scientific Publications and Reports** | | | |
| Spawning and nursery grounds of selected fish species in UK waters (Ellis J. R., Milligan, Readdy, Taylor, & Brown, 2012) and Mapping spawning and nursery areas of species to be considered in Marine Protected Areas (Marine Conservation Zones) (Ellis J. R., et al., 2010) | Cefas Science Series Technical Reports that compile and maps evidence on the spawning and nursery grounds of selected fish species in UK waters to support marine spatial planning and conservation management. This report has been used to determine the spawning and nursery grounds of fish within the Study Area. | National dataset and adjacent areas (including offshore waters of the UK, The Netherlands and Belgium). Partial coverage of the Study Area. | Ellis *et al.*, (2010; 2012); |
| Fisheries Sensitivity Maps in British Waters | A booklet produced by the Fisheries Agencies which provides mapped information on spawning and nursery areas of key commercial fish species. This report has been used to determine the spawning and nursery grounds of fish within the Study Area. | National dataset and adjacent areas (including offshore waters of the UK, The Netherlands and Belgium). Partial coverage of the Study Area. | Coull *et al.* (1988) |
| North Sea Ecoregion | A comprehensive, risk-based assessment that evaluates key human pressures, such as fishing, shipping, aquaculture, and energy production, | Regional data summary that covers areas within the North Sea (including offshore waters of the UK, | ICES (2024c) |

| Source | Summary | Coverage of the Study Area | Reference |
|---|---|---|---|
| | and their impacts on ecosystem components like seabed habitats, fish, seabirds, and marine mammals across the northern European continental shelf. This report has been used to determine the key fish species likely to be present within the Study Area. | The Netherlands and Belgium) and wider ICES regions. Full coverage of Study Area. | |
| ICES advice and stock assessments for commercially important species | ICES advice on fishing opportunities, catch, and effort in the Greater North Sea ecoregion. These reports support the evaluation of the health and resilience of key commercially important fish stocks. | Regional data summary that covers areas within the North Sea (including offshore waters of the UK, The Netherlands and Belgium). Full coverage of the Study Area. | ICES (2025c) |
| Principle Salmon Rivers of England and Wales | Principal Salmon Rivers in England and Wales including rivers designated as Special Areas of Conservation, those which have a Salmon Action Plan and those with neither a, SAC or SPA but do have Atlantic salmon populations. This dataset has been used to determine if Atlantic salmon are likely to be present within the Study Area. | National dataset for England and Wales. No coverage of the Study Area but used for broad baseline characterisation. | The Rivers Trust (2025) |
| Cefas shellfish classification zone maps | Maps of shellfish classification zones in England and Wales. These maps have been used to identify the key shellfish species likely to be within the Study Area. | National dataset for England and Wales. Partial overlap with the Study Area. | Cefas (2025) |

| Source | Summary | Coverage of the Study Area | Reference |
|---|---|---|---|
| Kent and Essex Inshore Fisheries and Conservation Authority | Monitoring of native oyster populations in the Blackwater, Crouch, Roach and Colne Estuaries MCZ. | Blackwater, Crouch, Roach and Colne Estuaries MCZ. | KEIFCA (2025) |

### 15.5.2 Species Overview

15.5.2.1 The following section integrates multiple data sources to characterise the anticipated fish and shellfish assemblages likely to be present in the Study Area. These data sources include work undertaken in support of the construction and operation and maintenance of various OWF projects in the vicinity of the proposed UKMS, as well as wider information from publicly available sources (summarised in Table 15-1). The distribution of fish and shellfish in the North Sea is variable and seasonal, with many species using the North Sea for spawning, feeding, and nursery purposes. The fish and shellfish species likely to be present within the Study Area are detailed below and summarised in Table 15-7.

#### Pelagic and demersal fish species

15.5.2.2 The Study Area supports a diverse array of pelagic fish species including anchovy (*Engraulis encrasicolus*), blue whiting (*Micromesistius poutassou*), haddock (*Melanogrammus aeglefinus*), herring (*Clupea harengus*), horse mackerel (*Trachurus trachurus*), mackerel (*Scomber scombrus*), Norway pout (Trisopterus esmarkii), sandeel (Ammodytidae spp.) (including great sandeel (*Hyperoplus lanceolatus;* small sandeel (*Ammodytes tobianus*) and lesser sandeel (*Ammodytes marinus*)) and smooth sandeel (*Gymnammodytes semisquamatus*)), sardine (*Sardina pilchardus*), seabass (*Dicentrarchus labrax*), and sprat (*Sprattus sprattus*). The presence of these species within the Study Area is supported by ICES IBTS and BTS survey data collected over the past 10 years (2016 to 2025) (ICES, 2024c; ICES, 2025a; ICES, 2025b). While sandeel species and herring are typically considered pelagic, they may also exhibit demersal behaviour depending on life stage and environmental conditions.

15.5.2.3 The Study Area also supports numerous demersal species including gobies (Gobiidae spp.), common dab (*Limanda limanda*), cod (*Gadus morhua*), common dragonet (*Callionymus lyra*), sole (*Solea solea*), European flounder (*Platichthys flesus*), grey gurnard (Eutrigla gurnardus), hake (*Merluccius merluccius*), lesser weaver (*Echiichthys vipera*), lemon sole (*Microstomus kitt*), monkfish (*Lophius piscatorius*), plaice (*Pleuronectes platessa*), pogge (*Agonus cataphractus*), pouting (*Trisopterus luscus*), poor cod (*Trisopterus minutus*), red mullet (*Mullus surmuletus*), saithe (*Pollachius virens*), scaldfish (*Arnoglossus laterna*), solonette (*Buglossidium luteum*), tub gurnard (*Chelidonichthys lucerna*) and whiting (*Merlangius merlangus*) (ICES, 2024c; ICES, 2025a; ICES, 2025b) .

#### Elasmobranchs

15.5.2.4 Elasmobranchs, which include sharks, skates and rays, are particularly vulnerable receptors due to their slow growth and low reproductive rates. Several species that occur in the Greater North Sea are recognised as being threatened and/or declining and so are protected by the OSPAR Convention (OSPAR, 2026). These species include angel shark (*Squatina squatina*), basking shark (*Cetorhinus maximus*), blue skate (*Dipturus batis*), leafscale gulper shark (*Centrophorus squamosus*), porbeagle (*Lamna nasus*), Portuguese dogfish (*Centroscymnus coelolepis*), spotted ray (*Raja*

*montagui*), spurdog (*Squalus acanthias*), thornback ray (*Raja clavata*) and white skate (*Rostroraja alba*) (OSPAR, 2026). Presence of spotted ray, spurdog and thornback ray were confirmed by the ICES IBTS and BTS surveys (ICES, 2025a; ICES, 2025b).

15.5.2.5 Other elasmobranch species that have the potential to occur within the Study Area include demersal species such as blonde ray (*Raja brachyura*), cuckoo ray (*Leucoraja naevus*) and nursehound (*Scyliorhinus stellaris*) as detected by ICES IBTS and BTS surveys (ICES, 2025a; ICES, 2025b). Similarly, benthopelagic and pelagic shark species, including lesser spotted dogfish (*Scyliorhinus canicula*), smooth-hound (*Mustelus mustelus*), starry smooth-hound (*Mustelus asterias*) and tope (*Galeorhinus galeus*) were detected by the ICES IBTS and BTS surveys (ICES, 2025a; ICES, 2025b). Most of the benthopelagic and pelagic shark species are likely to pass through the area rather than being resident, given their extensive ranges (Coull, Johnstone, & Rogers, 1988; Ellis J. R., Milligan, Readdy, Taylor, & Brown, 2012).

15.5.2.6 As detailed in Section 15.5.4, nursery grounds for thornback ray and tope interact with the Study Area (Ellis J. R., Milligan, Readdy, Taylor, & Brown, 2012) (Figure 15-12).

15.5.2.7 Orford Inshore MCZ overlaps with the Study Area and is 1.95 km to the north of the UKMS Scoping Boundary. Nationally important shark species such as the lesser spotted dogfish are reported to be present within this protected area (Natural England, 2024).

#### Diadromous Fish

15.5.2.8 Migratory fish are species that spend part of their life cycle in freshwater and part in seawater; such species are termed diadromous (migrate between freshwater and saltwater) and can be anadromous (migrating up rivers from the sea to spawn) or catadromous (migrating from rivers to the sea to spawn).

15.5.2.9 Several migratory fish species have the potential to occur in the Study Area, migrating to and from rivers and other freshwater bodies with connectivity to the Study Area, or transiting the Study Area as part of their foraging activity. Migratory fish species that have the potential to traverse the Study Area and exist in the nearby rivers and estuaries include Atlantic salmon (*Salmo salar*), sea trout (*Salmo trutta*), European eel (*Anguilla Anguilla*), twaite shad (*Alosa fallax*), allis shad (*Alosa alosa*), river lamprey (*Lampetra fluviatilis*), sea lamprey (*Petromyzon marinus*) and smelt (*Osmerus eperlanus*) (ICES, 2025a; ICES, 2025b; The Rivers Trust, 2025; Environment Agency, 2025).

15.5.2.10 Atlantic salmon, sea trout, sea lamprey, smelt, allis shad and twaite shad are anadromous species, meaning they breed in freshwater and migrate to the sea to grow and mature. Migration from freshwater generally occurs in spring or summer, while return migration for spawning typically occurs in late autumn to early spring, depending on species and location. Conversely, European eel are catadromous,

breeding in the sea and migrating to freshwater to grow and mature. Eel migration to the sea typically occurs in autumn, with juvenile eels (glass eels) returning to freshwater in Spring and Summer (White & Knights, 1997; ZSL, 2022). All of these species are Species of Principle Importance in the UK (listed under Section 41 of the NERC Act 2006). The Salmon and Freshwater Fisheries Act (1975) (amended) also protects Atlantic salmon, sea trout and European eel.

#### *Atlantic Salmon*

15.5.2.11 There is a high potential for Atlantic salmon to be within or transiting through the Study Area during migration. Atlantic salmon are listed under Annex II of the Habitats Directive, which provides protection for species requiring strict conservation measures across Europe. In the UK, freshwater populations of Atlantic salmon are protected under the Conservation of Habitats and Species Regulations 2017, where they are recognised as a species of interest, particularly in SACs designated for salmon. Although no SACs designated for Atlantic salmon were identified within the Study Area or its wider vicinity (areas through which salmon might transit) the River Thames (approximately 70 km south of the UKMS Scoping Boundary) is known to support salmon populations (The Rivers Trust, 2025). However, evidence of salmon presence or migration within this region is generally lacking (Potter & Dare, 2003).

#### *Sea Trout*

15.5.2.12 Sea trout are the anadromous form of brown trout and are known to occur within East Anglian rivers and coastal waters (Potter & Dare, 2003). There is, therefore, a high potential for sea trout to be within, or transiting the Study Area. A collaborative study found sea trout migrations in the Glaven, Stiffkey, Burn, Nar (Norfolk) and Great Eau (Lincolnshire) rivers, with patterns of near-migration and occasional sea exit confirmed through telemetry, isotopic and genetic tracing (Pawson M. , 2008). Sea trout have also been confirmed to be present in East Anglian waters via NFPD freshwater surveys conducted within the last five years (2021 to 2025) (Environment Agency, 2025). The coastal waters of East Anglia are substantial sea trout fisheries and provide important feeding ground for post-smolts (Cefas, 2010), providing evidence that sea trout may interact with the Study Area during migration.

#### *Sea Lamprey and River Lamprey*

15.5.2.13 Sea lampreys and river lampreys have the potential to be present in East Anglian waters (OSPAR, 2022; JNCC, 2019a; JNCC, 2019b), as supported by freshwater survey records (Environment Agency, 2025). Although the East Anglia region eastern England is not considered to be a key area of importance for either lamprey species (JNCC, 2019a; JNCC, 2019b), there remains the potential for both sea and river lamprey to transit through the Study Area during migration.

#### *European Eel*

15.5.2.14 European eel have been confirmed to be present in East Anglian waters (freshwater rivers and TraC waters) via NFPD freshwater fish surveys conducted within the last five years (2021 to 2025) (Environment Agency, 2025). Furthermore, a study commissioned by the Sustainable Eel Group found European eel throughout

the River Glaven catchment in Norkfolk, with highest densities in coastal marshes and lower densities in riverine and still-water habitats (Harwood, et al., 2024).

#### *Smelt*

15.5.2.15 Smelt are also known to be present within the rivers of East Anglia and so have the potential to transit the Study Area during their migration from marine waters to rivers to spawn (Natural England, 2021c). Indeed, they have been confirmed as present within TraC waters via NFPD fish surveys conducted within the last five years (2021 to 2025) (Environment Agency, 2025).

#### *Allis Shad and Twaite Shad*

15.5.2.16 Both allis shad and twaite shad have been detected within the Study Area by ICES IBTS surveys (ICES, 2025a; ICES, 2025b) although twaite shad in much higher numbers (391 individuals vs 1 individual). Evidence of the presence of both species in East Anglian waters is generally lacking (Maitland & Hatton-Ellis, 2003).

#### Shellfish and Cephalopods

15.5.2.17 Several shellfish and cephalopod species have been detected within the Study Area by ICES IBTS and BTS surveys, including Allmann's shrimp (*Crangon allmanni*), blue mussel (*Mytilus edulis*), brown shrimp (*Crangon crangon*), common cuttlefish (*Sepia officinalis*), common spider crab (*Macropodia rostrata*), common whelk (*Buccinum undatum*), edible crab (*Cancer pagurus*), European spider crab (*Maja brachydactyla*), King scallop (*Pecten maximus*), Montagu's prawn (*Pandalus montagui*), Prideaux's hermit crab (*Pagurus prideaux*), Scorpion spider crab (*Inachus dorsettensis*) and squid (*Alloteuthis* spp.) (ICES, 2025a; ICES, 2025b) .

15.5.2.18 Shellfish beds are present along much of the inshore section of the Study Area. The Blackwater, Crouch, Roach and Colne Estuary MCZ partially overlaps the southern inshore section, where extensive native oyster (*Ostrea edulis*) beds (a protected feature of the MCZ) occur (Defra, 2013). Shellfish classification zones within these estuaries support a variety of species:

- Blackwater and Colne: native oyster, Pacific oyster (*Crassostrea gigas*) (non-native but of commercial importance to the region), common cockle (*Cerastoderma edule*), hard-shell clam (*Mercenaria mercenaria*), and *Tapes* clam species (non-native but of commercial importance to the region);
- Crouch: native oyster, Pacific oyster, blue mussel, hard-shell clam, and *Tapes* clam species; and
- Roach: native oyster, hard-shell clam and Pacific oyster.

15.5.2.19 Walton Backwater, which also overlaps with the Study Area in the southern inshore section, also includes shellfish classification zones for native oyster, hard-shell clam and Pacific oyster.

15.5.2.20 Additionally, the Orfordness–Shingle Street SAC lies entirely within the northern landward section of the Study Area along the coast, where coastal lagoons support lagoon cockle (*Cerastoderma glaucum*) (JNCC, 2025c).

15.5.2.21 Furthermore, Alde, Ore and Butley Estuaries SAC overlaps with the Study Area, located approximately 6.58 km northwest of the UKMS Scoping Boundary. Its protected features are Atlantic salt meadows and mudflats and sandflats which provide key habitats for a variety of shellfish including the Baltic tellin (*Macoma baltica*).

### 15.5.3 Spawning Grounds

15.5.3.1 Spawning grounds for several fish species are known to overlap with or in close proximity to the Study Area (Coull, Johnstone, & Rogers, 1988; Ellis J. R., et al., 2010; Ellis J. R., Milligan, Readdy, Taylor, & Brown, 2012). Their respective spawning periods are provided in Table 15-2.

15.5.3.2 The Study Area and UKMS Scoping Boundary interacts with high intensity spawning ground for plaice and sole (Ellis J. R., Milligan, Readdy, Taylor, & Brown, 2012), low intensity spawning ground for cod, whiting, sandeel, mackerel, plaice and sole (Coull, Johnstone, & Rogers, 1988; Ellis J. R., Milligan, Readdy, Taylor, & Brown, 2012) and undetermined intensity spawning grounds for herring and sprat (Figure 15-2, Figure 15-3 and Figure 15-4).

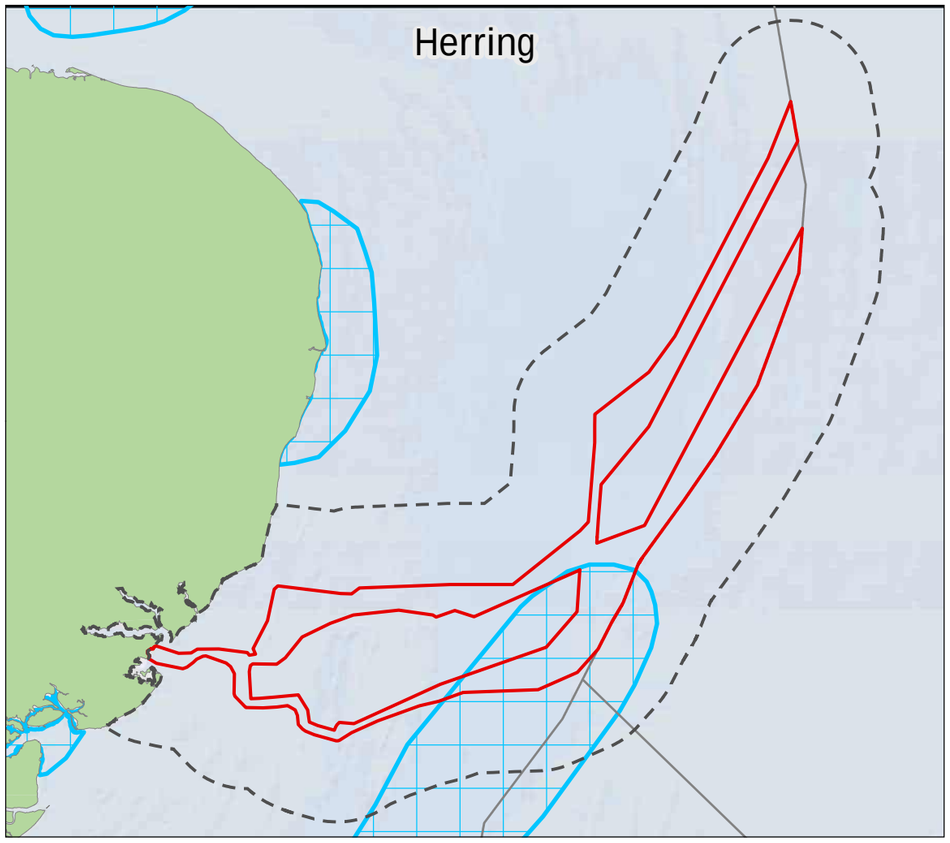
15.5.3.3 Additional consideration and assessment have been given to herring and sandeel due to their reliance on specific sediment types associated to their demersal spawning behaviour, and subsequent sensitivity to habitat disturbance, see paragraph 15.5.3.5 below for further detail on herring spawning.

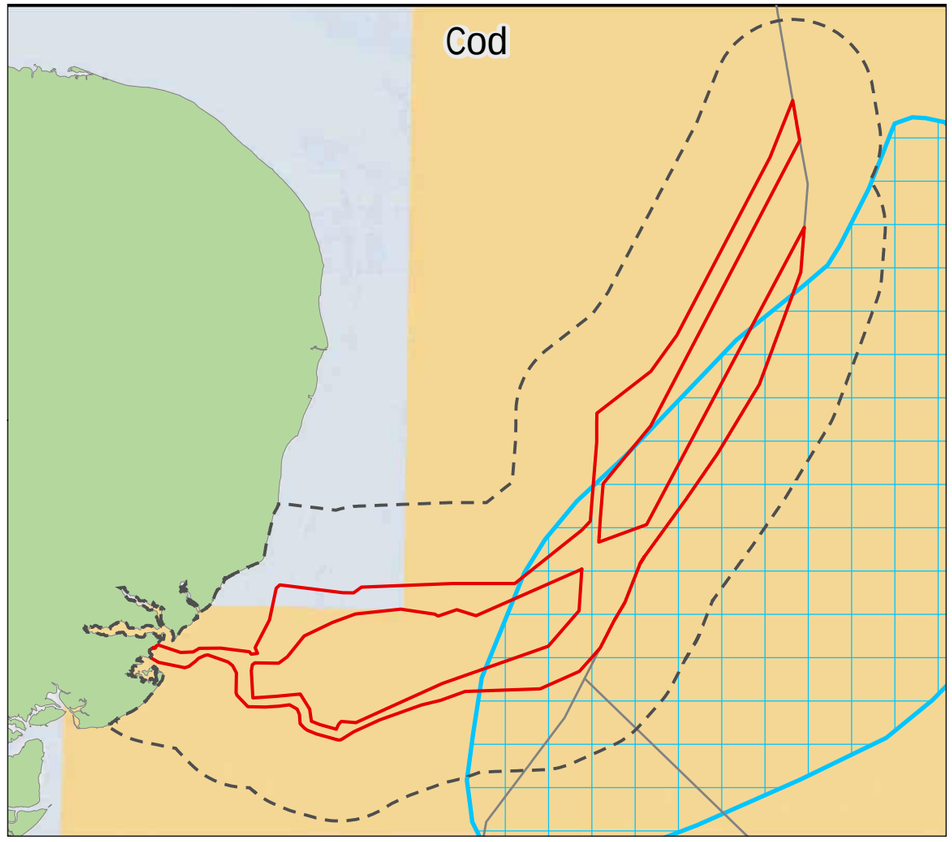
15.5.3.4 Orford Inshore MCZ overlaps with the Study Area, 1.95 km north of the UKMS Scoping Boundary. Its protected feature is subtidal mixed sediments which are important nursery and spawning grounds for many fish species, such as sole, lemon sole and sandeels (JNCC, 2025d). The presence of spawning grounds for these fish species within the Study Area are confirmed by Figure 15-2 and Figure 15-3.

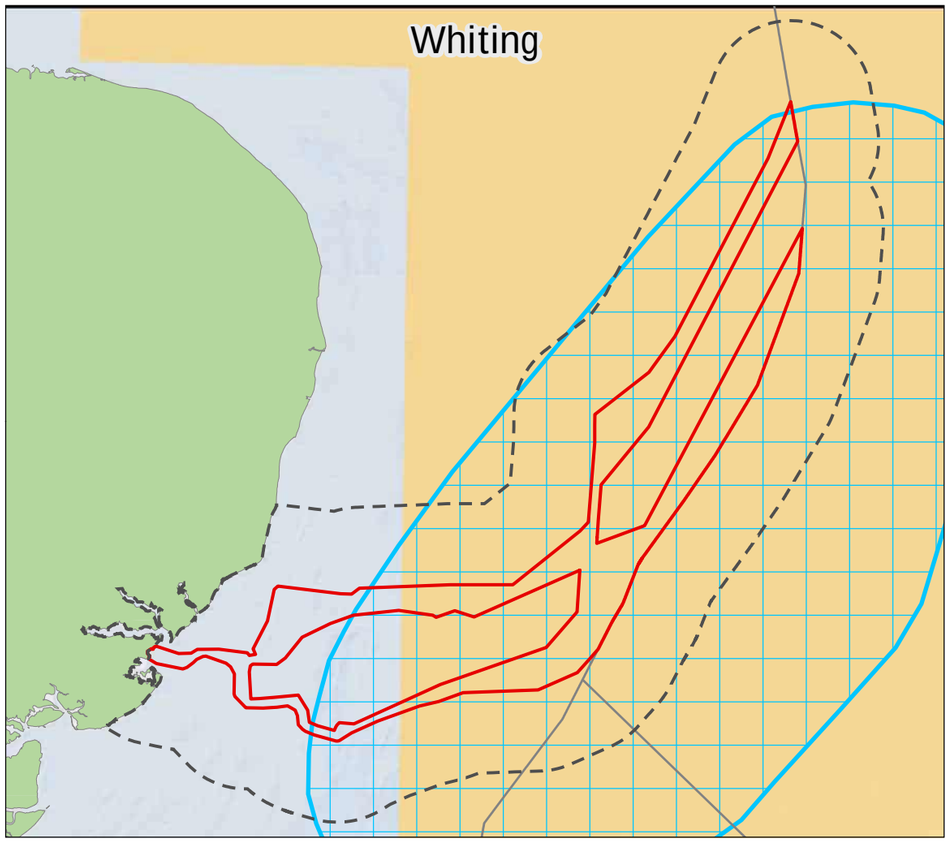
**Table 15-2: Summary of fish spawning timings (Coull, Johnstone, & Rogers, 1988) in the Northern North Sea**

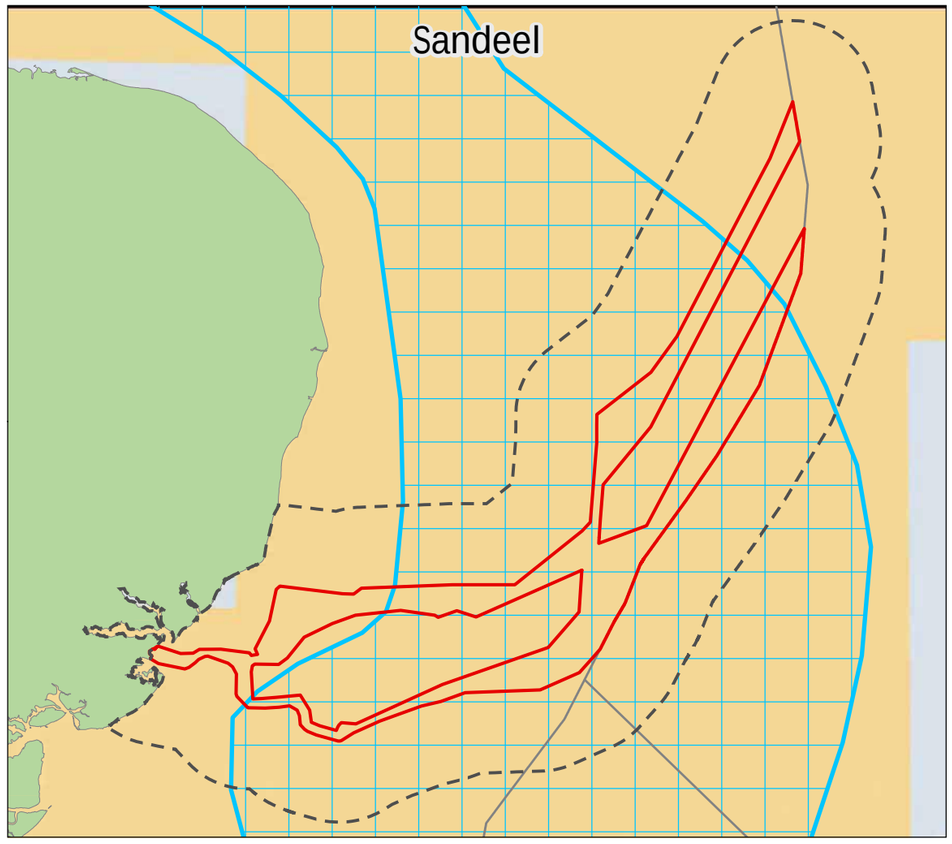
| Species | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Herring | | | | | | | | | | | | |
| Mackerel | | | | | | | | | | | | |
| Cod | | | | | | | | | | | | |
| Plaice | | | | | | | | | | | | |
| Sole | | | | | | | | | | | | |
| Whiting | | | | | | | | | | | | |
| Sprat | | | | | | | | | | | | |
| Sandeel | | | | | | | | | | | | |
| Lemon sole | | | | | | | | | | | | |

*(grey cells indicate spawning period with black indicating peak spawning period)*




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Spawning Grounds that Intersect with the Study Area (Herring, Cod, Whiting, Sandeel) (Coull *et al.*, 1998; Ellis *et al.*, 2010; 2012)

Legend

- UK Marine Scheme Scoping Boundary
- Fish and Shellfish Study Area
- Exclusive Economic Zones (EEZ) Boundaries

Spawning Grounds (Coull *et al.*, 1998) - Intensity

- Higher
- Lower
- Undetermined

Spawning Grounds (Ellis *et al.*, 2010; 2012) - Intensity

- Higher
- Lower



Notes

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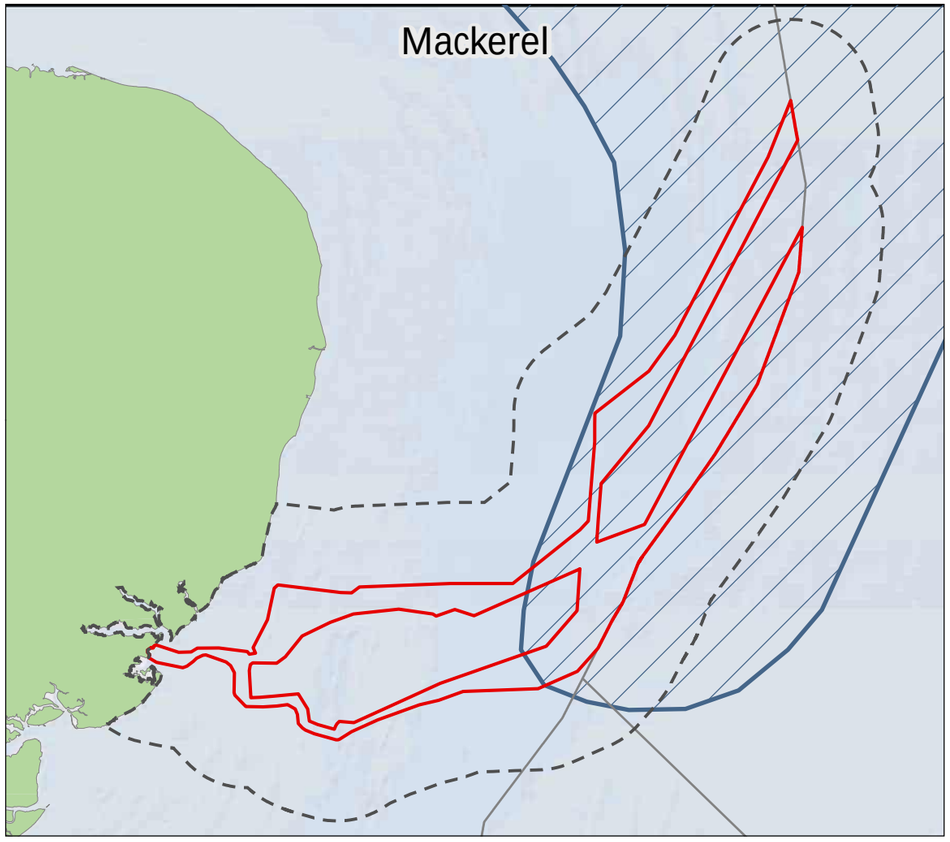
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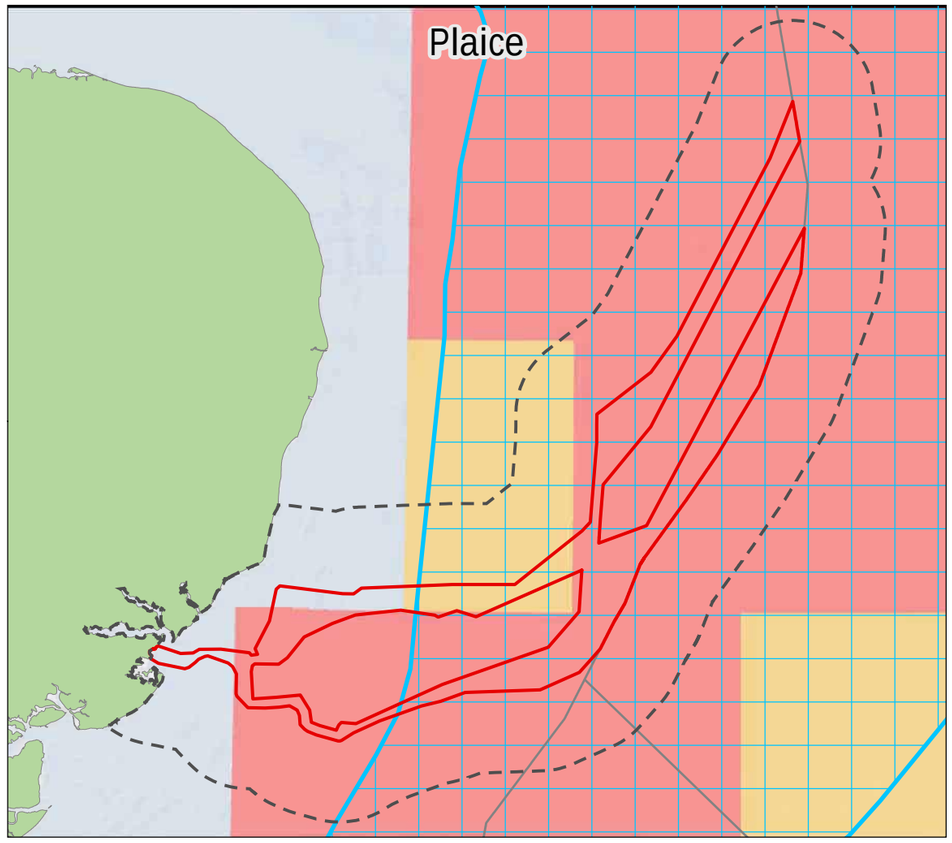
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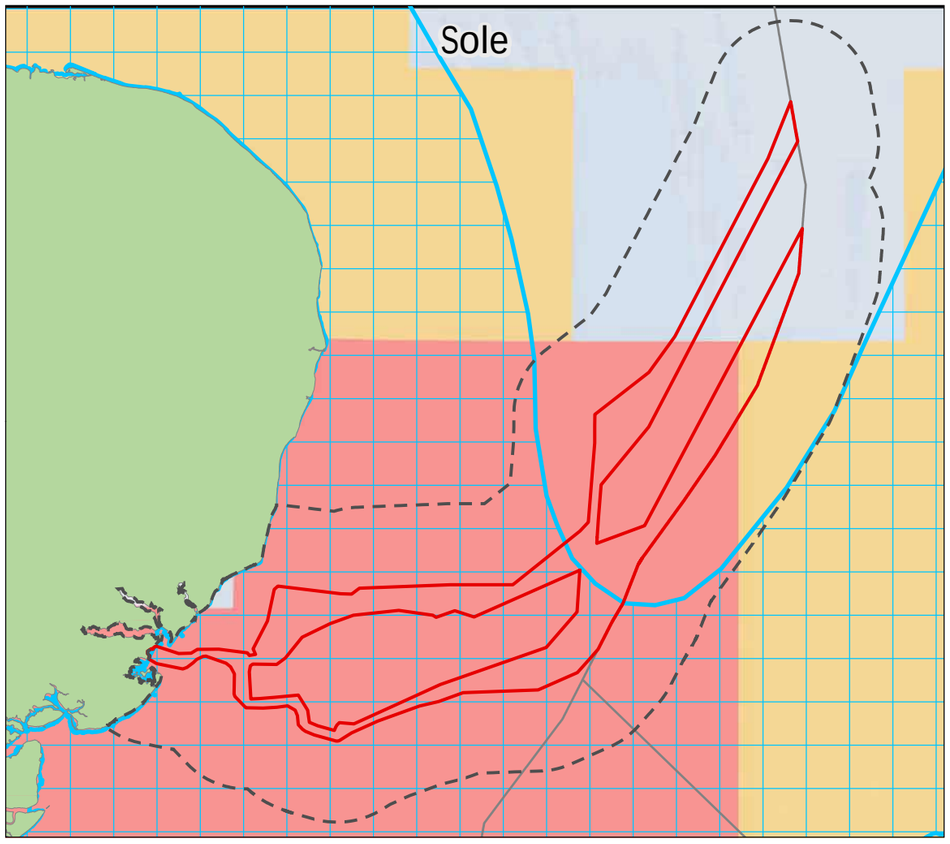
Figure 15-2

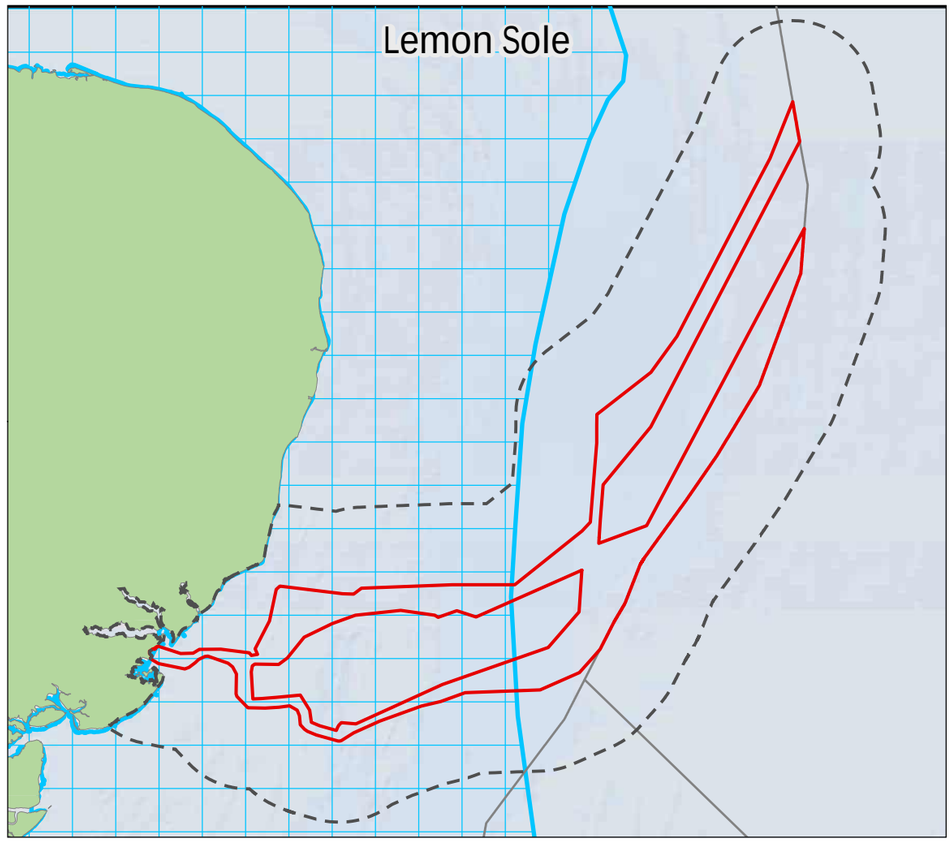
Figure Reference: Tarchon_Scoping_FS_Fig15-2_SpawningGrounds1_v1

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## Spawning Grounds that Intersect with the Study Area (Mackerel, Plaice, Sole, Lemon Sole) (Coull *et al*., 1998; Ellis *et al*., 2010; 2012)

Legend

- UK Marine Scheme Scoping Boundary
- Fish and Shellfish Study Area
- Exclusive Economic Zones (EEZ) Boundaries

Spawning Grounds (Coull *et al*., 1998) - Intensity

- Higher
- Lower
- Undetermined

Spawning Grounds (Ellis *et al*., 2010; 2012) - Intensity

- Higher
- Lower



Notes

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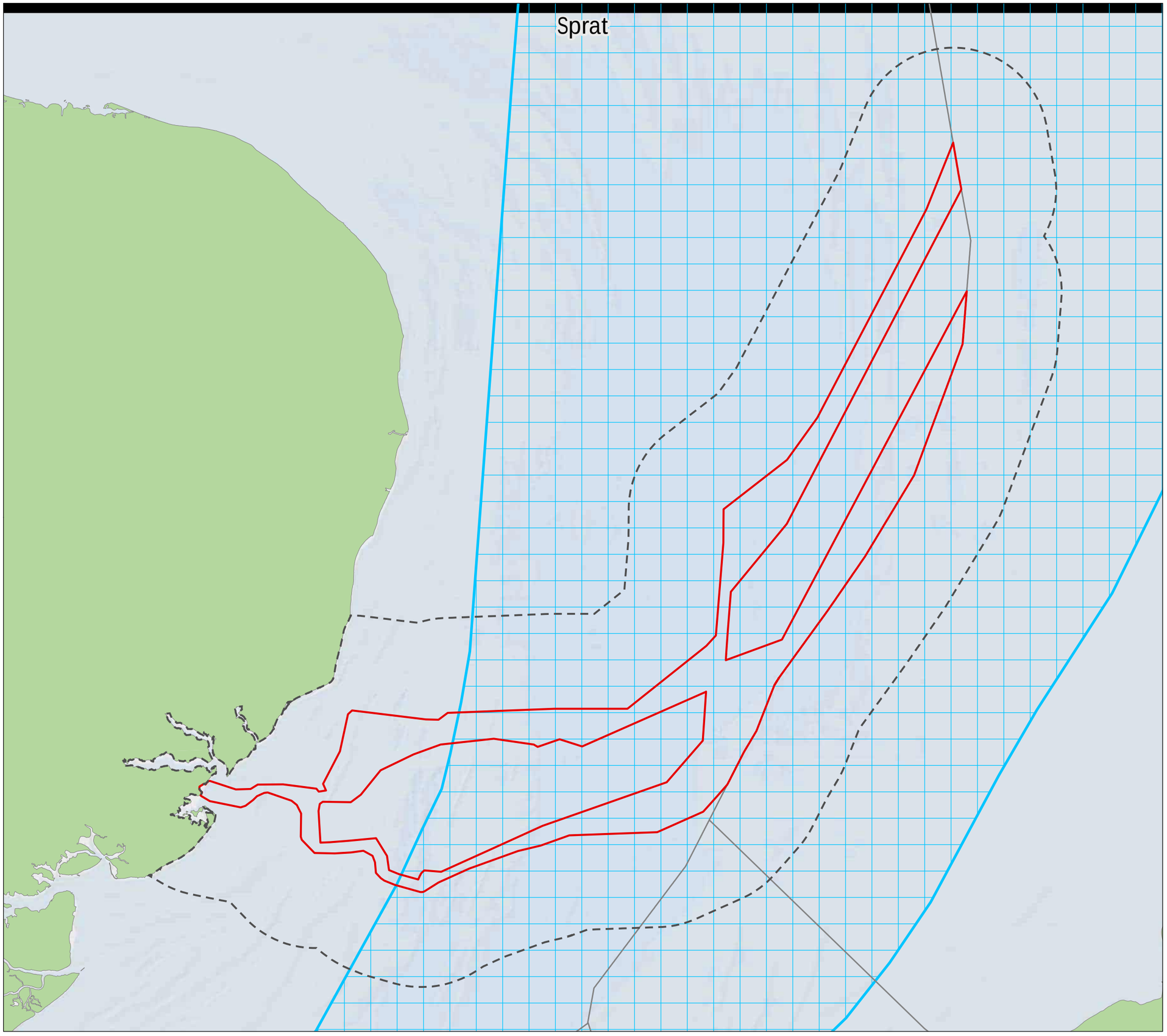
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Figure 15-3

Figure Reference: Tarchon_Scoping_FS_Fig15-3_SpawningGrounds2_v1

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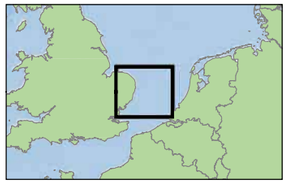
## Spawning Grounds that Intersect with the Study Area (Sprat) (Coull *et al.*, 1998)

Legend

- UK Marine Scheme Scoping Boundary
- Fish and Shellfish Study Area
- Exclusive Economic Zones (EEZ) Boundaries

Spawning Grounds (Coull *et al.*, 1998) - Intensity

- Higher
- Lower
- Undetermined



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Figure 15-4

Figure Reference: Tarchon_Scoping_FS_Fig15-4_SpawningGrounds3_v1

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### Herring Spawning Grounds

15.5.3.5 Herring are demersal spawners, laying their eggs directly onto or within seabed sediments. They exhibit substrate dependence during spawning, showing a marked preference for coarse sediment types and high-energy environments when selecting spawning habitats (Blaxter, 1985; De Groot, 1980; Parrish, Saville, Craig, Baxter, & Priestley, 1959; Maucorps, 1969; Lacoste, Munro, Castonguay, Saucier, & Gagné, 2001; Keltz & Bailey, 2010). Females release adhesive eggs in a single spawning event, typically onto substrates composed of coarse sand, gravel, small stones, or rocks (Hodgson, 1957; Munro, Gauthier, & Gagné, 2008; Keltz & Bailey, 2010). Herring play a key ecological role as a forage species for a wide range of predators, including commercially important fish, marine mammals, and seabirds, forming a vital component of the North Sea food web. This importance is reflected in the Conservation Objectives (COs) for the Southern North Sea SAC (which overlaps the Study Area) which include maintaining the availability of prey for the harbour porpoise, the site's qualifying feature (JNCC, 2023). As a key forage species for harbour porpoise, the presence and condition of herring stocks are therefore directly relevant to the conservation status of the SAC.

15.5.3.6 Herring are particularly sensitive to noise impacts as they have swim bladders that are involved in hearing (Popper, et al., 2014). Additionally, their demersal spawning behaviours and dependence on specific seabed substrates, make them vulnerable to sediment-related impacts (Greene, Bailey, & Holliday, 2014).

15.5.3.7 The Study Area interacts with an area of the Downs stock herring spawning ground (Coull, Johnstone and Rogers (1988); Figure 15-2; Figure 15-5), the presence of which is supported by an area of low-medium larval abundance (1,500-5,500 per $m^2$) in the southeast portion of the Study Area, overlapping with the UKMS Scoping Boundary. The area of low-medium larval abundance extends to the northeast, before reducing to low larval abundance (0-1,500 per $m^2$) along the same trajectory. Across much of the rest of the Study Area herring larval abundance is low. On a broader scale, it is important to note that the main spawning area utilised by the Downs herring stock is located in the Eastern Channel (as informed by relative larval abundances), with spawning activity in the Study Area comparatively much less intense; long time series data confirm this has been the case since the 1970's (Dickey-Collas, Bolle, van Beek, & Erftemeijer, 2009; Pawson M. G., 1995). Spawning activity in this region typically occurs between November and January (Coull, Johnstone, & Rogers, 1988).

15.5.3.8 There is no IHLS data available for the inshore section of the Study Area or for the area within the UKMS Scoping Boundary. This absence of IHLS records indicates that the area does not represent a key herring spawning ground, since IHLS sampling is targeted to core spawning areas (ICES, 2024a).

15.5.3.9 Recent ICES advice for herring (ICES, 2025d), recommends that to maintain sustainable stock levels in the North Sea, no activities on spawning habitats should be allowed unless the effects of these activities have been assessed and shown not

to be detrimental. Areas of suitable spawning habitat for herring have been identified through the interpretation of broadscale seabed sediment data (EMODnet, 2022) classified as “marginal” or “preferred” spawning habitat based on the Reach *et al*. (2013) classifications (Table 15-2). As evident in Figure 15-5, there are respectively large areas of marginal and preferred spawning habitat within the southwest portion of the Study Area, overlapping the UKMS Scoping Boundary. More discrete areas of marginal sediment and sparse areas of preferred sediment lie within the northeast section of the Study Area overlapping the UKMS Scoping Boundary to a limited extent.

15.5.3.10 Figure 15-6 shows a more detailed breakdown of spawning habitat, with areas of spawning habitat classified as “unsuitable”, “sub-prime”, “suitable” and “prime” (as defined using the Kyle-Henney *et al.* (2024) sediment classifications and originally described in Reach *et al.* (2013)). These categories relate to the “marginal” and “preferred” spawning habitat categories as denoted in Table 15-3. BGS (2015) PSA data have been categorised to ground truth the EMODnet (2022) data (which is partly derived from interpolation and modelling of multiple sources) to facilitate data interpretation at a more refined scale. The EMODnet (2022) data depicts large areas of suitable and sub-prime spawning habitat for herring in the southwest section of the Study Area (i.e., the lower half), overlapping with the UKMS Scoping Boundary, with discrete areas of prime spawning habitat sparsely distributed within this area. Similarly, the BGS (2015) data shows areas of suitable, sub-prime and prime spawning habitat scattered throughout this area. The EMODnet (2022) and BGS (2015) data area relatively consistent in denoting areas of unsuitable habitat throughout the Study Area, although they show some discrepancies in the higher suitability categories. According to both datasets, there is mostly unsuitable spawning habitat in the northeast section of the Study Area (i.e., the upper half), including in areas overlapping the UKMS Scoping Boundary.

15.5.3.11 Additionally, suitable areas for spawning have been identified using a heatmapping methodology outlined by Kyle-Henney *et al.* (2024) (as adapted from Reach *et al.* (2013)). The heatmap is informed by broadscale seabed sediment data (EMODnet, 2022) fishing activity data / vessel monitoring system (VMS) data (2007-2020) (MMO, 2020), identified spawning grounds (Coull, Johnstone, & Rogers, 1988), and IHLS data (ICES, 2024a) (Figure 15-7). The greater the number of overlapping data layers the greater the ‘heat’ mapped. Areas of higher ‘heat’ therefore indicate a higher confidence that the seabed may be suitable for herring spawning. As evident in Figure 15-7, areas of medium (0.05-0.2) to high (0.03-0.05) confidence spawning habitat lie within the southwest section of the Study Area (i.e., the lower half), including in areas overlapping the UKMS Scoping Boundary. Confidence within this lower section of the Study Area is particularly high in the northwest and southeast. The majority of the northeast section of the Study Area shows areas of medium confidence.

**Table 15-3: Herring spawning habitat categories as defined by Kyle-Henney *et al.* (2024) (originally defined by (Reach, et al., 2013)).**

| Habitat description | Equivalent categorisation | Sediment type (Folk Classification, as per Folk (1954)) | Spawning habitat suitability confidence |
|---|---|---|---|
| Prime | Preferred Habitat | Gravel and part sandy gravel (≥50% gravel, <5% mud) | Higher confidence: most suitable for spawning |
| Sub-prime | | Part sandy gravel and part gravelly sand (>10% gravel, <5% mud) | Moderate confidence: suitable for spawning but less optimal than Prime habitat |
| Suitable | Marginal Habitat | Part gravelly sand (>25% gravel, <5% mud) | Moderate confidence: suitable for spawning but less optimal than Sub-prime habitat |
| Unsuitable | | All other sediment types (>5% mud or <10% gravel) | Lower confidence: not suitable for spawning |

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## Indicative Herring Spawning Data

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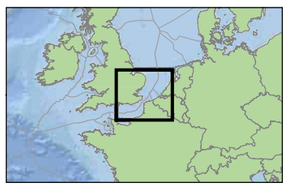
- UK Marine Scheme Scoping Boundary
- Fish and Shellfish Study Area
- Exclusive Economic Zones (EEZ) Boundaries
- Herring Spawning Grounds (Coull *et al.*, 1998)

Herring Habitat Suitability
(Reach *et al.*, 2013) based on EMODnet (2022)

- Marginal Sediment
- Preferred Sediment

IHLS Season 2013-14 to Season 2024-25
Larval abundance per $m^2$

- 0 - 1,500
- 1,500.1 - 3,500
- 3,500.1 - 5,500
- 5,500.1 - 9,500
- 9,500.1 - 14,500
- 14,500.1 - 20,000
- 20,000.1 - 26,000
- 26,000.1 - 35,000
- 35,000.1 - 45,000
- 45,000.1 - 62,500
- Sample Location (2013 - 2025)



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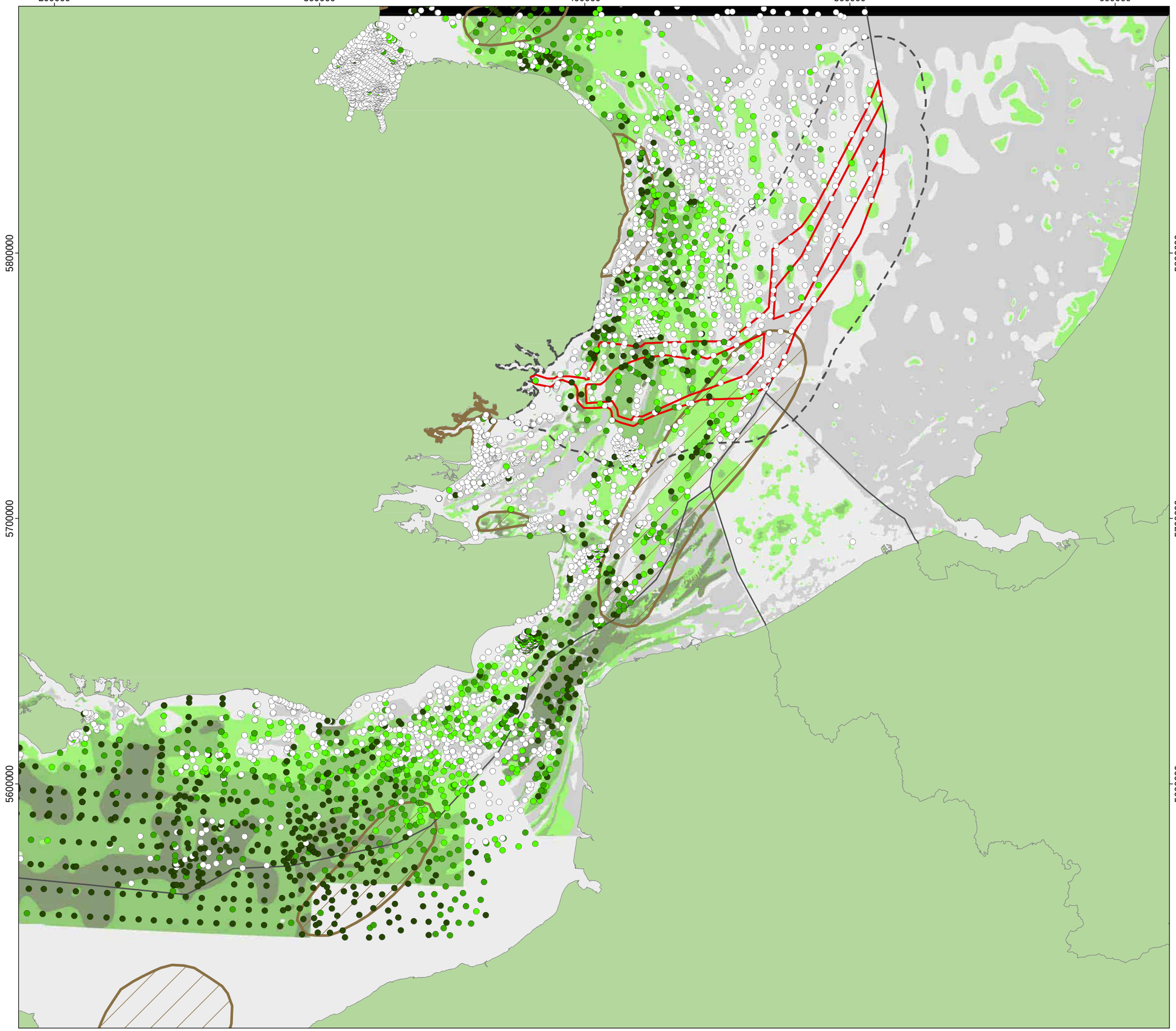
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Figure 15-5

Figure Reference: Tarchon_Scoping_FS_Fig15-5_HerringSpawningData2013to2025_v2

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## Herring Substrate Suitability Relative to the Study Area

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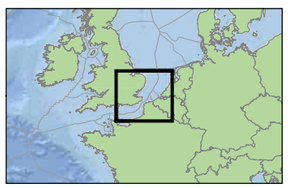
- UK Marine Scheme Scoping Boundary
- Fish and Shellfish Study Area
- Exclusive Economic Zones (EEZ) Boundaries
- Herring Spawning Grounds (Coull *et al.*, 1998)

Herring Habitat Suitability
(Reach *et al.*, 2013) based on BGS (2015)

- Prime
- Sub-Prime
- Suitable
- Unsuitable

Herring Habitat Suitability
(Reach *et al.*, 2013) based on EMODnet (2022)

- Prime
- Sub-Prime
- Suitable
- Unsuitable



**Notes**

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Figure 15-6

Figure Reference: Tarchon_Scoping_FS_Fig15-6_HerringSubstrateSuitability_v1

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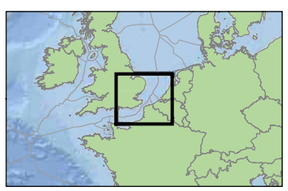
## Herring Spawning Potential Heat Map Within the Study Area

Legend

- UK Marine Scheme Scoping Boundary
- Fish and Shellfish Study Area
- Exclusive Economic Zones (EEZ) Boundaries

Potential Supporting Herring Habitat Confidence

- 0.021 - 0.03 (Higher)
- 0.03 - 0.04
- 0.04 - 0.05
- 0.05 - 0.075
- 0.075 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.75 (Lower)



Notes

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Figure 15-7

Figure Reference: Tarchon_Scoping_FS_Fig15-7_HerringSpawningPotential_v1

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### Sandeel Spawning Grounds

15.5.3.13 Sandeel play a key ecological role as a forage species for a wide range of predators, including commercially important fish, marine mammals, and seabirds, forming a vital component of the North Sea food web. Their ecological significance has led to their listing as a Species of Principal Importance under the UK Post-2010 Biodiversity Framework (Defra, 2022). This importance is also reflected in the COs for the Southern North Sea SAC (which overlaps the Study Area) which include maintaining the availability of prey for the harbour porpoise, the site's qualifying feature (JNCC, 2023). As a key forage species for harbour porpoise, the presence and condition of sandeel stocks are therefore directly relevant to the conservation status of the SAC.

15.5.3.14 As shown in Figure 15-2, there is a large sandeel spawning ground which interacts with the Study Area, including the UKMS Scoping Boundary (Coull, Johnstone, & Rogers, 1988; Ellis J. R., Milligan, Readdy, Taylor, & Brown, 2012). Sandeel species exhibit substrate dependency, with a preference for sandy substrates on which to spawn. Optimal sediment contains a fines component of ≤2%, while areas with more than 4% fines become largely unsuitable for sandeel habitation (Holland, Greenstreet, Gibb, Fraser, & Robertson, 2005). Females lay demersal eggs and after several weeks, planktonic larvae hatch (Macer, 1965; Langham, 1971) . After spawning (from May to August (Table 15-2)), sandeel remain buried in the sand (Winslade, 1974). Their reliance on specific sediment characteristics, combined with their benthic spawning behaviour, makes sandeel particularly vulnerable to habitat disturbance impacts, especially during the spawning period (Milligan, 2011; Hawkins, Pembroke, & Popper, 2015).

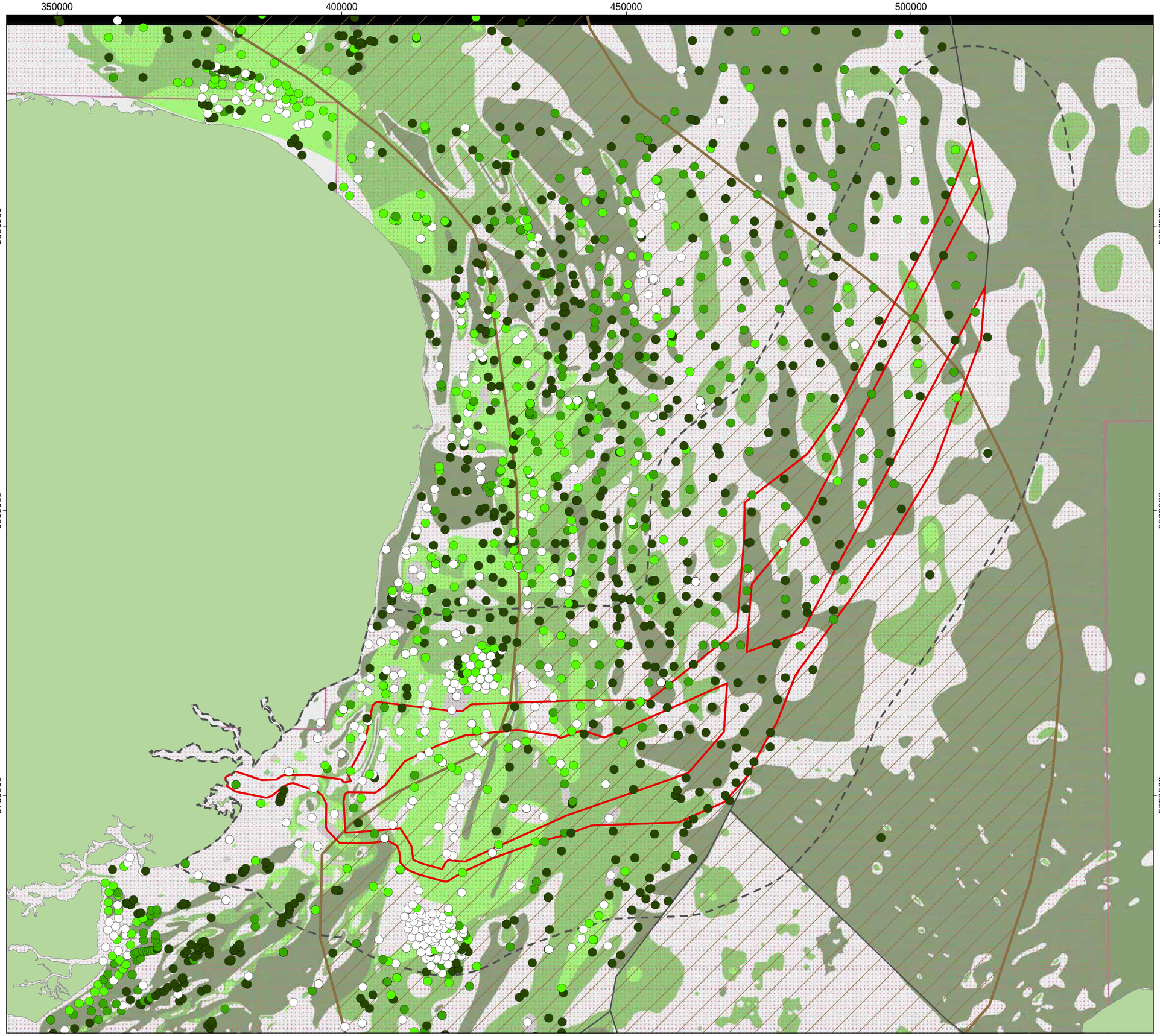
15.5.3.15 Recent ICES advice for sandeel (ICES, 2025e), recommends that to maintain sustainable stock levels, in the central and southern North Sea, any activity leading to the degradation of sandeel habitat should be avoided. Figure 15-8 shows areas of spawning habitat classified as "unsuitable", "sub-prime", "suitable" and "prime" (as defined using the Reach *et al.* (2024) classifications, originally described in Latto *et al.* (2013)) (Table 15-4). Contrary to the herring substrate suitability map (Figure 15-6), the EMODnet (2022) data depicts large areas of prime spawning habitat within the northeast section of the Study Area, overlapping the UKMS Scoping Boundary. Although this is interspersed with areas of unsuitable spawning habitat. In the southeast section of the Study Area, there are large areas of suitable and sub-prime habitat, also interspersed with areas of unsuitable spawning habitat.

15.5.3.16 Areas of suitable habitat for sandeel have been further identified using a heatmapping methodology outlined by Reach *et al.* (2024) (as adapted from Latto *et al.*, (2013)) through the interpretation of broadscale habitat mapping (EMODnet, 2022), fishing activity data / VMS data (2007-2020) (MMO, 2020), identified spawning grounds (Coull, Johnstone, & Rogers, 1988), the OneBenthic sandeel presence layer (Cefas, 2026) and (Wright, Christensen, Regnier, Rindorf, & van Deurs, 2019) (Figure 15-9). The greater the number of overlapping data layers the greater the 'heat' mapped. Areas of higher 'heat' therefore indicate a higher

confidence that the seabed may be suitable for sandeel. As evident in Figure 15-9, the vast majority of the Study Area consist of low (0.3-0.75) to medium (0.05-0.2) confidence sandeel spawning habitat. In contrast, areas of high confidence (0.013–0.04) are concentrated in the southwestern part of the Study Area, positioned both north and south of the UKMS Scoping Boundary, and also in the northeastern region, where the high-confidence habitat extends further north.

**Table 15-4: Sandeel spawning habitat categories as defined by Reach *et al.* (2024) (originally defined by Latto *et al.* (2013)).**

| Habitat description | Sediment type (Folk Classification, as per Folk (1954)) | Spawning habitat suitability confidence |
|---|---|---|
| Prime | Sand, slightly gravelly sand, gravelly sand (subset with <30% gravel, <10% mud) | Higher confidence: most suitable for spawning |
| Sub-prime | Gravelly sand and sandy gravel (30–50% gravel, <10% mud) | Moderate confidence: suitable for spawning but less optimal than Prime habitat |
| Suitable | Entire sand, slightly gravelly sand, gravelly sand divisions (<50% gravel, <10% mud) | Moderate confidence: suitable for spawning but less optimal than Sub-prime habitat |
| Unsuitable | Muddy sands, gravels, silts, clays (>10% mud or >80% gravel) | Lower confidence: not suitable for spawning |




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Scoping Report

## Sandeel Substrate Suitability Relative to the Study Area

Legend

- UK Marine Scheme Scoping Boundary
- Fish and Shellfish Study Area
- Exclusive Economic Zones (EEZ) Boundaries
- Sandeel Spawning Grounds (Coull *et al.*, 1998)
- Sandeel Spawning Grounds (Ellis *et al.*, 2012)

Sandeel Habitat Suitability (Latto *et al.*, 2013) based on BGS (2015)

- Prime
- Sub-Prime
- Suitable
- Unsuitable

Sandeel Habitat Suitability (Latto *et al.*, 2013) based on EMODnet (2022)

- Prime
- Sub-Prime
- Suitable
- Unsuitable



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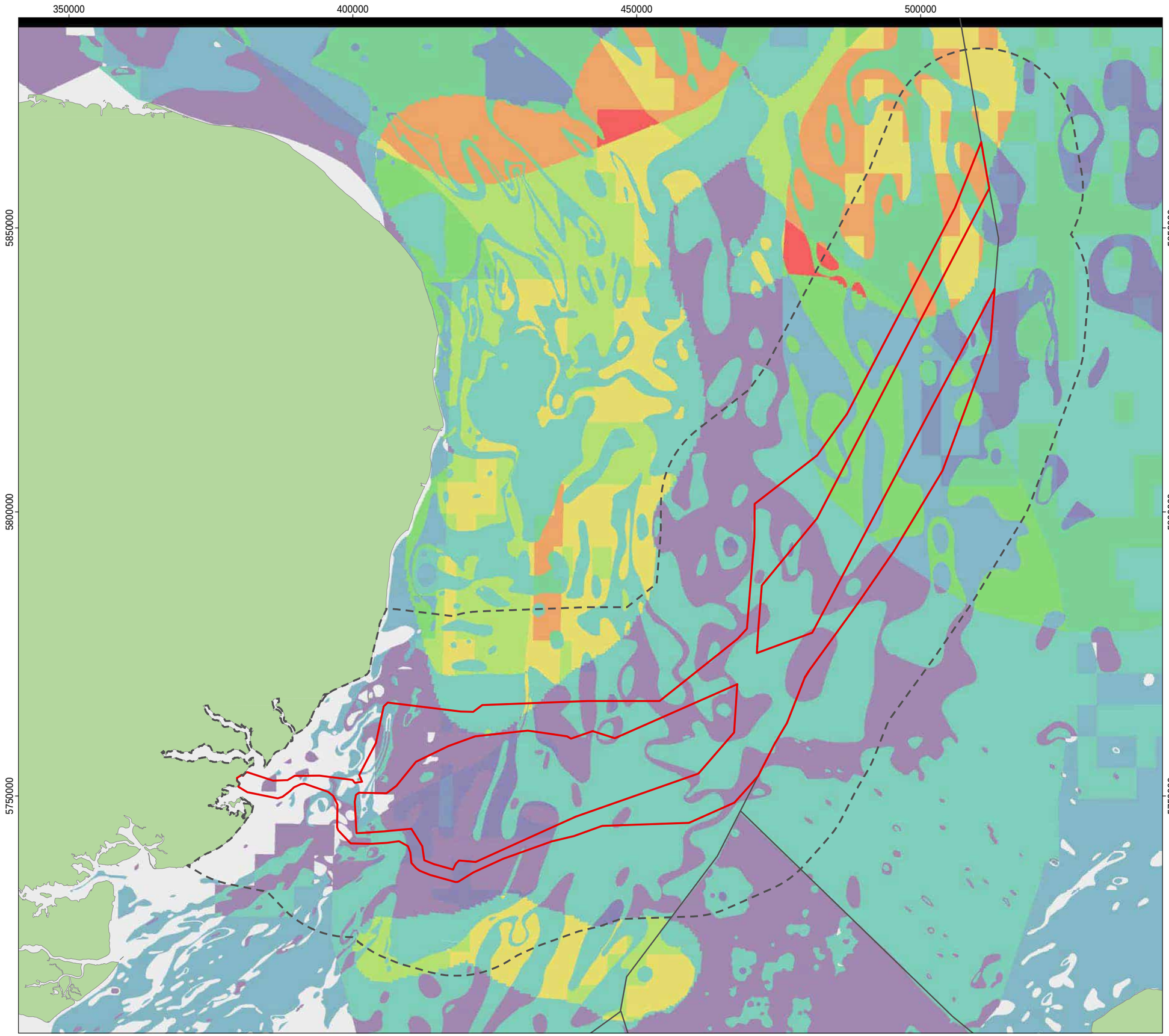
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Figure 15-8

Figure Reference: Tarchon_Scoping_FS_Fig15-8_SandeelSubstrateSuitability_v1

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## Sandeel Spawning Potential Heat Map Within the Study Area

Legend

- UK Marine Scheme Scoping Boundary
- Fish and Shellfish Study Area
- Exclusive Economic Zones (EEZ) Boundaries

Potential Supporting Sandeel Habitat Confidence

- 0.013 - 0.02 (Higher)
- 0.02 - 0.03
- 0.03 - 0.04
- 0.04 - 0.05
- 0.05 - 0.075
- 0.075 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.75 (Lower)



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Figure 15-9

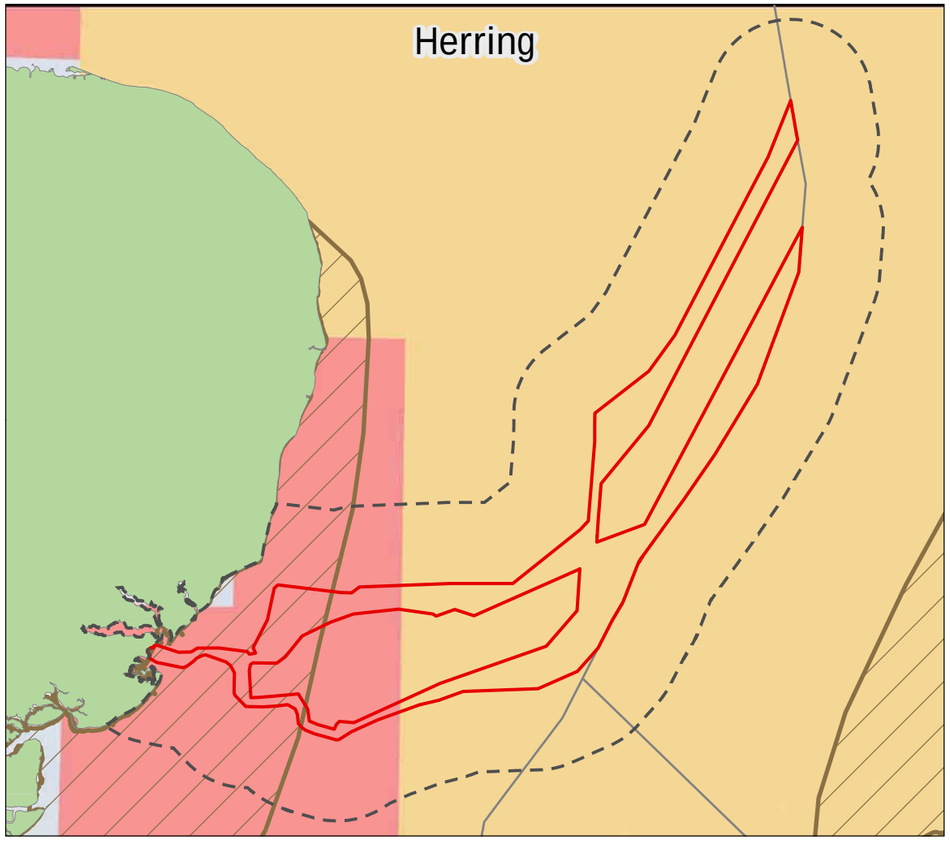
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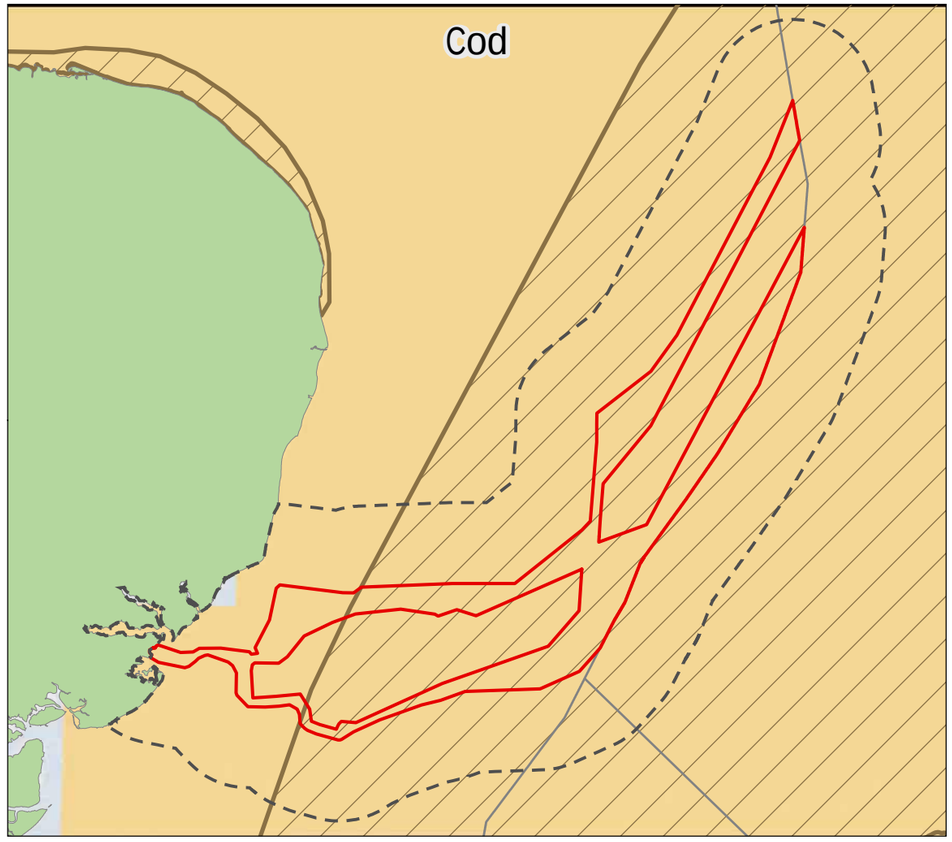
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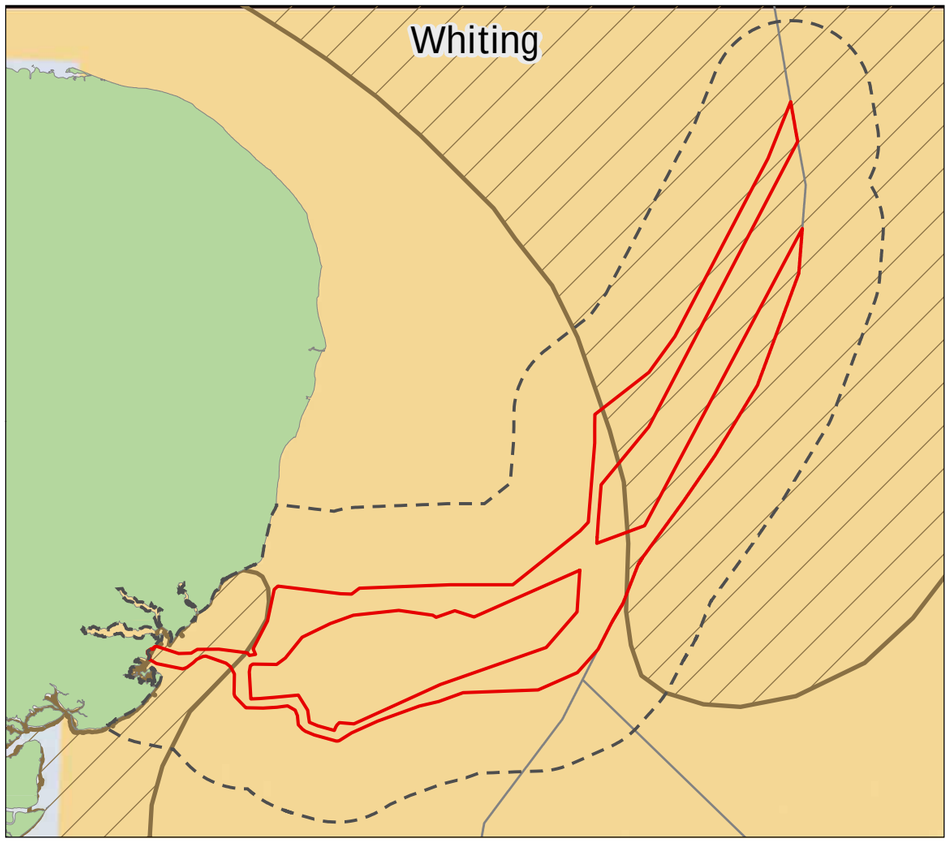
### 15.5.4 Nursery Grounds

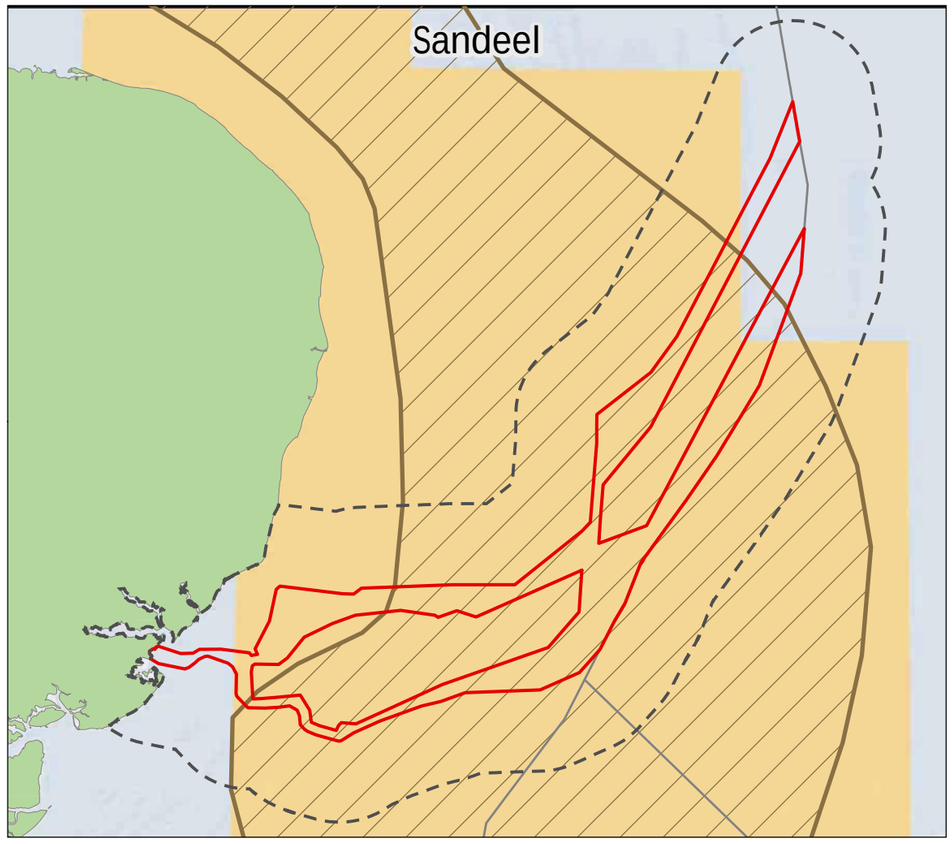
15.5.4.1 Nursery grounds for several fish species are known to be located within or in close proximity to the Study Area (Coull, Johnstone, & Rogers, 1988; Ellis J. R., Milligan, Readdy, Taylor, & Brown, 2012). The Study Area and UKMS Scoping Boundary interacts with high intensity nursery ground for herring and sole (Ellis J. R., Milligan, Readdy, Taylor, & Brown, 2012), low intensity nursery ground for herring, cod, whiting, sandeel, mackerel, plaice, sole, tope and thornback ray (Ellis J. R., Milligan, Readdy, Taylor, & Brown, 2012) and undetermined intensity nursery ground for lemon sole and sprat (Coull, Johnstone, & Rogers, 1988) (Figure 15-10, Figure 15-11, and Figure 15-12).

15.5.4.2 Orford Inshore MCZ overlaps with the Study Area, 1.95 km north of the UKMS Scoping Boundary. Its protected feature is subtidal mixed sediments which are important nursery and spawning grounds for many fish species, such as sole, lemon sole and sandeels (JNCC, 2025c). The presence of nursery grounds for these fish species within the Study Area are confirmed by those shown in Figure 15-10 and Figure 15-11.




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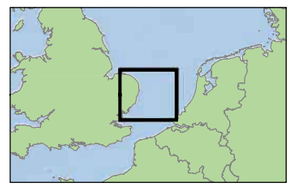
## Nursery Grounds that Intersect with the Study Area (Herring, Cod, Whiting, Sandeel) (Coull *et al.*, 1998; Ellis *et al.*, 2010; 2012)

Legend

- UK Marine Scheme Scoping Boundary
- Fish and Shellfish Study Area
- Exclusive Economic Zones (EEZ) Boundaries
- Nursery Grounds (Coull *et al.*, 1998)

Nursery Grounds (Ellis *et al.*, 2010; 2012) - Intensity

- Higher
- Lower



Notes

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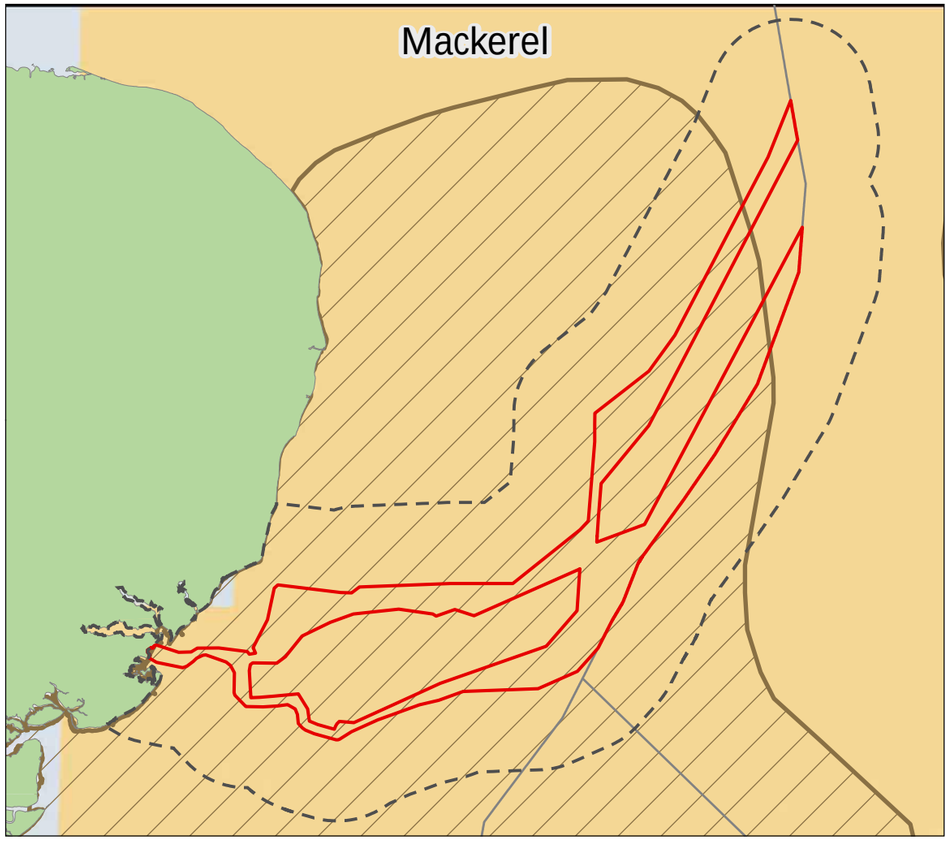
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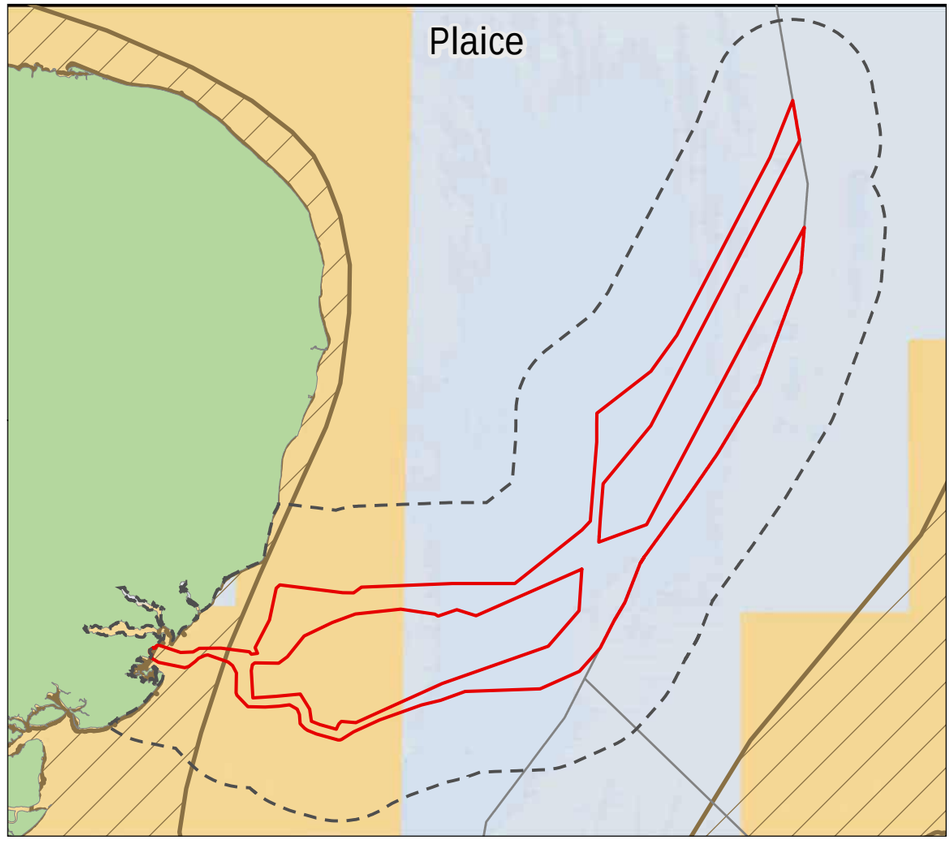
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Figure 15-10

Figure Reference: Tarchon_Scoping_FS_Fig15-10_NurseryGrounds1_v1

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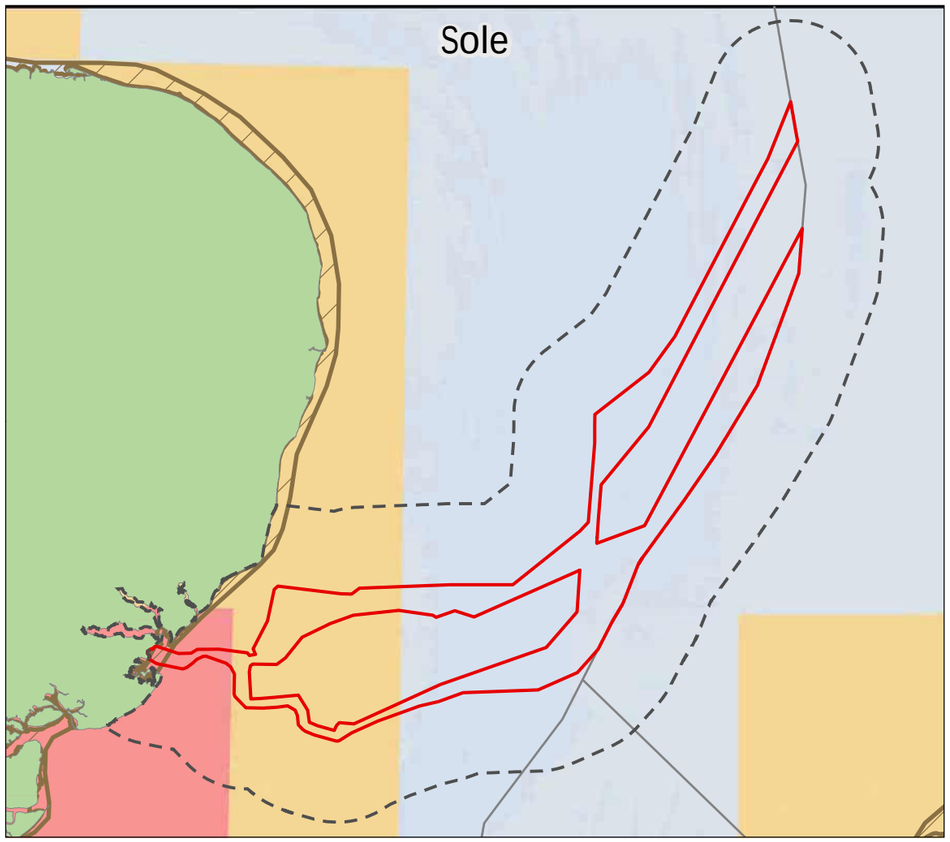

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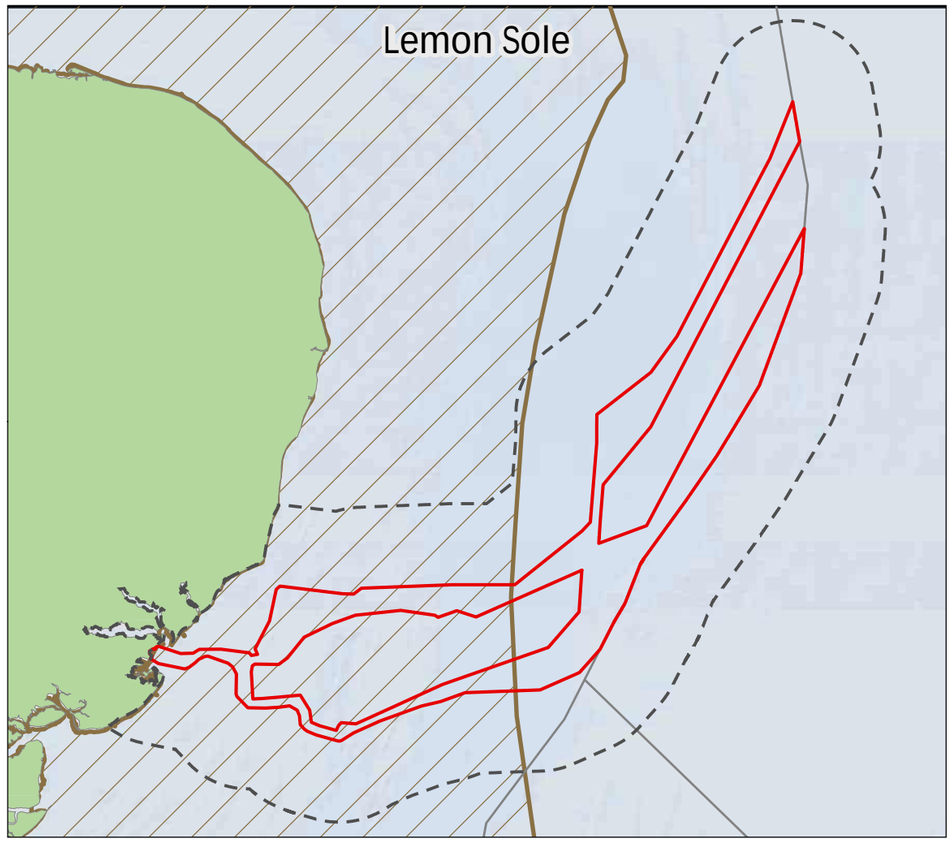
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Nursery Grounds that Intersect with the Study Area
(Mackerel, Plaice, Sole, Lemon Sole)
(Coull *et al.*, 1998; Ellis *et al.*, 2010; 2012)

Legend
- UK Marine Scheme Scoping Boundary
- Fish and Shellfish Study Area
- Exclusive Economic Zones (EEZ) Boundaries
- Nursery Grounds (Coull *et al.*, 1998)

Nursery Grounds (Ellis *et al.*, 2010; 2012) - Intensity
- Higher
- Lower






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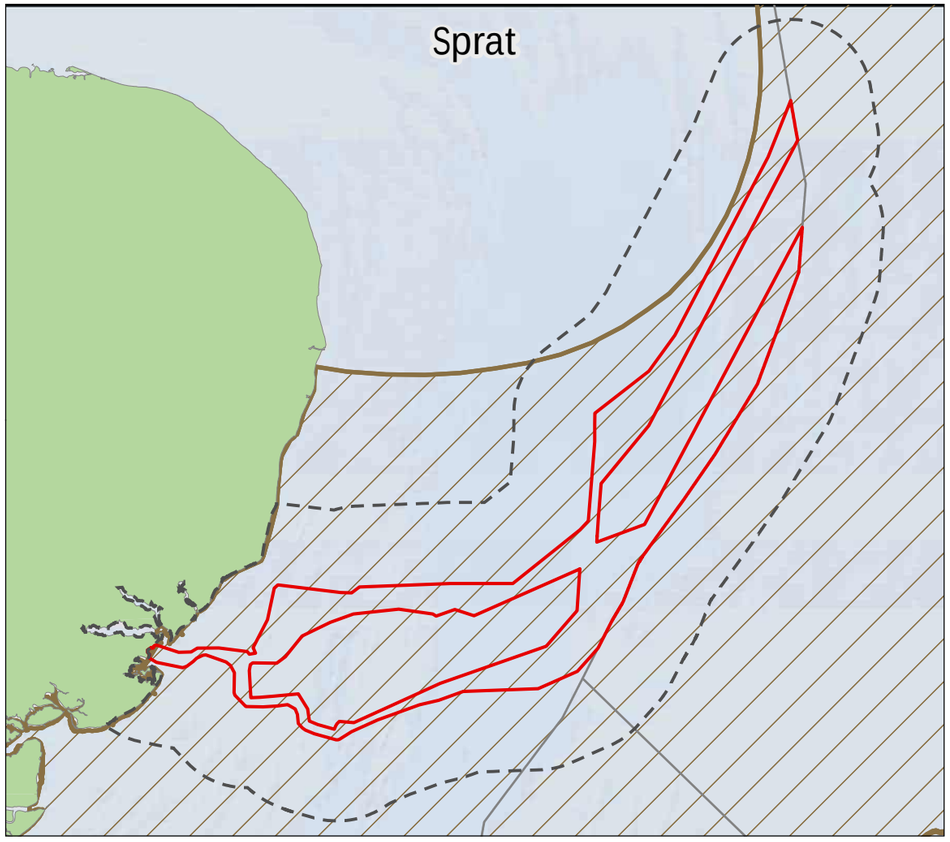
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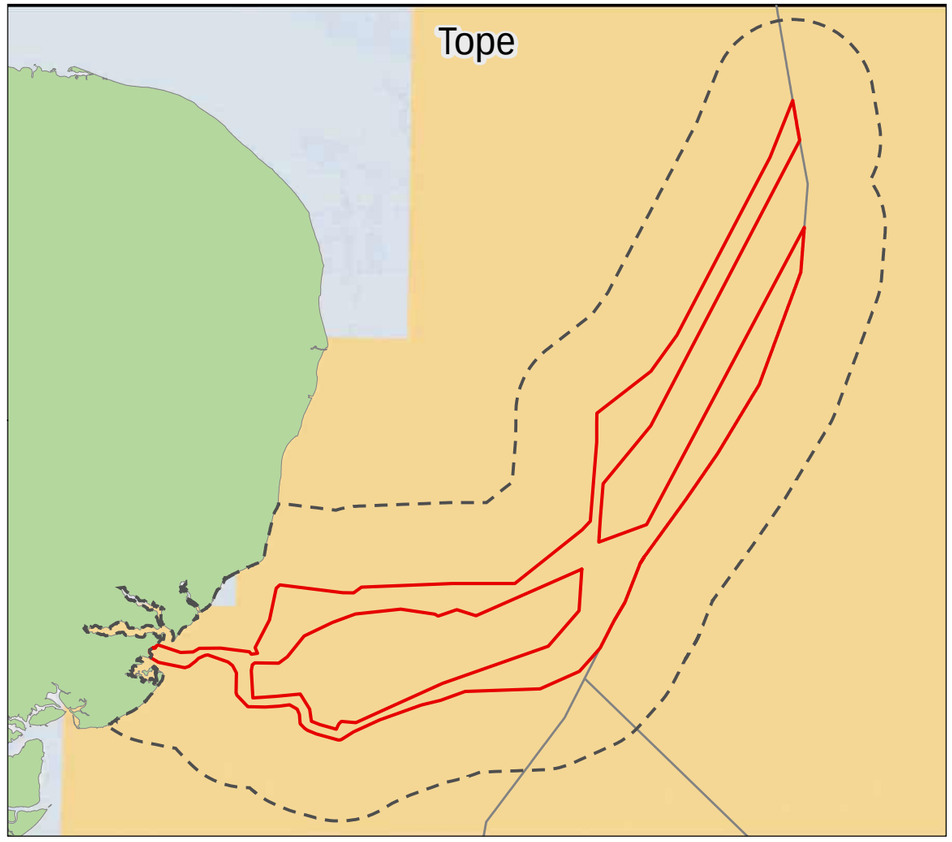
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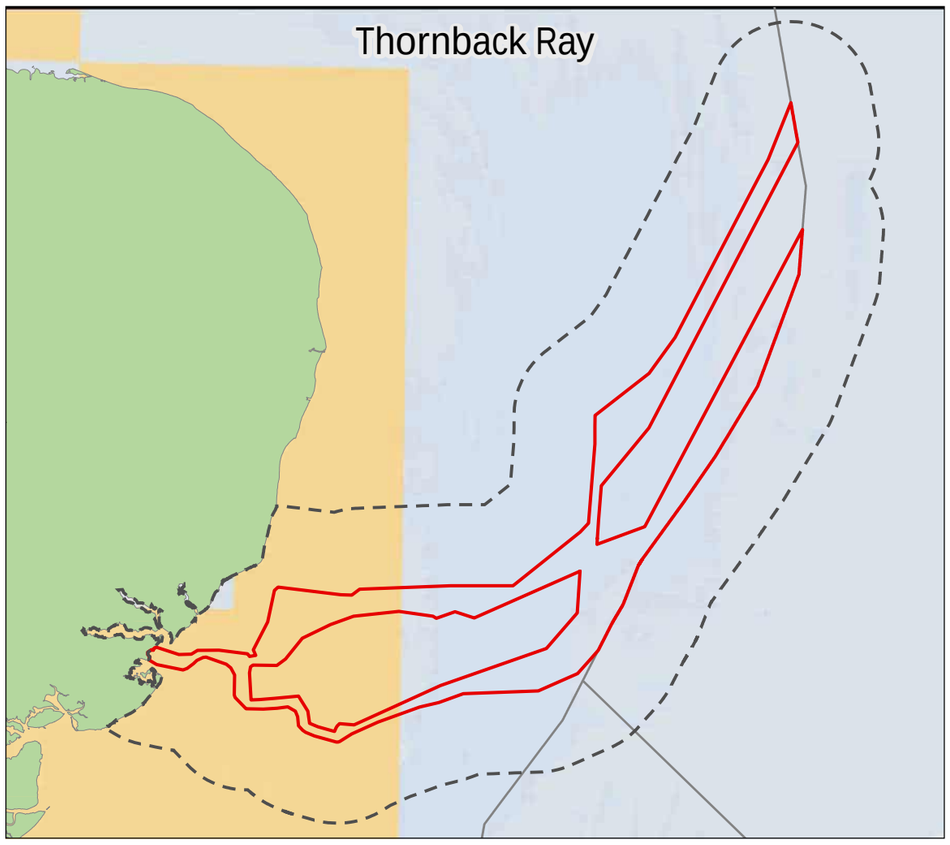
Figure 15-11

Figure Reference: Tarchon_Scoping_FS_Fig15-11_NurseryGrounds2_v1

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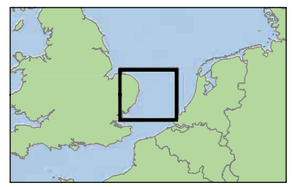

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Nursery Grounds that Intersect with the Study Area
(Sprat, Tope, Thornback Ray)
(Coull *et al.*, 1998; Ellis *et al.*, 2010; 2012)

Legend
- UK Marine Scheme Scoping Boundary
- Fish and Shellfish Study Area
- Exclusive Economic Zones (EEZ) Boundaries
- Nursery Grounds (Coull *et al.*, 1998)

Nursery Grounds (Ellis *et al.*, 2010; 2012) - Intensity
- Higher
- Lower



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Figure 15-12

Figure Reference: Tarchon_Scoping_FS_Fig15-12_NurseryGrounds3_v1

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### 15.5.5 Species of Commercial Importance

15.5.5.1 Detailed information on species of commercial importance is provided in Volume 03, Chapter 17: Commercial Fisheries.

15.5.5.2 Inshore fisheries within eastern England are dominated by shellfish and small-scale finfish operations, with common cockle and blue mussel fisheries in The Wash representing a major component of landings and economic value, alongside nationally significant brown shrimp fisheries (≈95% of UK catch) (Eastern IFCA, 2025). Common whelk fisheries have grown to become one of the top three by value but face sustainability concerns, while edible crab and lobster (*Homarus gammarus*) fisheries along the North Norfolk coast remain culturally and economically important (Eastern IFCA, 2025). Key finfish species such as herring, seabass, and sole support small-scale fleets and recreational sea angling, with herring showing strong growth in recent years (Eastern IFCA, 2025).

15.5.5.3 The MMO UK sea fisheries annual landing statistics indicate that the East Anglia region, and wider southern North Sea are dominated by shellfish (by quantity (tonnes) and value) (MMO, 2025). Landings into the major port of King's Lynn in West Norfolk (north of the Study Area) were dominated by edible crab, shrimps & prawns and common whelk. Landings into the major port of Leigh-on-Sea in Essex (south of the Study Area) were dominated by common cockles (MMO, 2025) .

15.5.5.4 Several species of commercially important shellfish are present within the Study Area, as demonstrated by the presence of shellfish classification zones for blue mussel, common cockle, hard-shell clam, native oyster, Pacific oyster and *Tapes* clam species (see Section 0). Other shellfish species of commercial importance detected within the Study Area, via ICES BTS and IBTS surveys, include brown shrimp, edible crab, European spider crab, King scallop, squid and blue mussel (ICES, 2025a; ICES, 2025b).

15.5.5.5 Commercially important squid species, including the European squid (*Loligo vulgaris*) and veined squid (*Loligo forbesii*), along with the common cuttlefish, were also detected within the Study Area by the ICES BTS and IBTS surveys (ICES, 2025a; ICES, 2025b).

### 15.5.6 Species of Conservation Importance

15.5.6.1 Within the southern North Sea region, there are records of several marine and estuarine species protected under national, European, and international legislation.

15.5.6.2 Species of conservation importance that have the potential to be present within the Study Area are listed below in Table 15-5 alongside their associated designations.

15.5.6.3 On account of the conservation importance of these species to the region, all species are considered to be receptors that are sensitive to the construction, O&M and decommissioning activities and, therefore, potential impacts on these species due to all phases of development will be taken into consideration in the Fish and Shellfish Ecology assessment.

Table 15-5: Species of Conservation Importance Potentially Present within the Study Area

| Species | OSPAR threatened and/or declining species | Species of Principal Importance in England | IUCN Red List status (Europe) | IUCN Red List status (Global) | Conservation of Habitats and Species Regulations 2017 (as amended) Schedule 4 species | Wildlife and Countryside Act 1981 |
|---|---|---|---|---|---|---|
| Allis shad | ✓ | ✓ | Critically endangered | Critically endangered | ✓ | ✓ |
| Angel shark | ✓ | | Critically endangered | Critically endangered | | ✓ |
| Atlantic salmon | ✓ | ✓ | Vulnerable | Near Threatened | ✓ | |
| Basking shark | ✓ | ✓ | Endangered | Endangered | | ✓ |
| Blonde ray | | | Near Threatened | Near Threatened | | |
| Blue mussel | ✓ | | No value | No value | | |
| Blue skate | ✓ | ✓ | Not categorised | Critically Endangered | | |
| Blue whiting | | ✓ | Least Concern | Not categorised | | |
| Cod | ✓ | ✓ | Least Concern | Vulnerable | | |
| Cuckoo ray | | | Not categorised | Near Threatened | | |
| European eel | ✓ | ✓ | Critically Endangered | Critically Endangered | | |

| Species | OSPAR threatened and/or declining species | Species of Principal Importance in England | IUCN Red List status (Europe) | IUCN Red List status (Global) | Conservation of Habitats and Species Regulations 2017 (as amended) Schedule 4 species | Wildlife and Countryside Act 1981 |
|---|---|---|---|---|---|---|
| Hake | | ✓ | Least Concern | Least Concern | | |
| Herring | | ✓ | Least Concern | Least Concern | | |
| Horse mackerel | | ✓ | Least Concern | Vulnerable | | |
| Leafscale gulper shark | ✓ | ✓ | Endangered | Endangered | | |
| Lesser sandeel | | ✓ | Least Concern | Not categorised | | |
| Mackerel | | ✓ | Least Concern | Least Concern | | |
| Monkfish | | ✓ | | | | |
| Native oyster | ✓ | ✓ | Not categorised | Not categorised | | |
| Nursehound | | | Near Threatened | Vulnerable | | |
| Plaice | | ✓ | Least Concern | Least Concern | | |
| Porbeagle | ✓ | ✓ | Critically endangered | Vulnerable | | |
| Portuguese dogfish | ✓ | ✓ | Endangered | Near Threatened | | |

| Species | OSPAR threatened and/or declining species | Species of Principal Importance in England | IUCN Red List status (Europe) | IUCN Red List status (Global) | Conservation of Habitats and Species Regulations 2017 (as amended) Schedule 4 species | Wildlife and Countryside Act 1981 |
|---|---|---|---|---|---|---|
| River lamprey | | ✓ | Near Threatened | Near Threatened | ✓ | |
| Sardine | | | Near Threatened | Least Concern | | |
| Sea lamprey | ✓ | ✓ | Least Concern | Least Concern | | |
| Seabass | | | Near Threatened | Near Threatened | | |
| Sea trout | | ✓ | Least Concern | Least Concern | | |
| Smelt | | ✓ | Least Concern | Least Concern | | |
| Smooth-hound | | | Vulnerable | Endangered | | |
| Sole | | ✓ | Least Concern | | | |
| Spotted ray | ✓ | | Least Concern | Least Concern | | |
| Spurdog | ✓ | ✓ | Endangered | Vulnerable | | |
| Starry smooth hound | | | Near Threatened | Near Threatened | | |
| Thornback ray | ✓ | | Near Threatened | Near Threatened | | |

| Species | OSPAR threatened and/or declining species | Species of Principal Importance in England | IUCN Red List status (Europe) | IUCN Red List status (Global) | Conservation of Habitats and Species Regulations 2017 (as amended) Schedule 4 species | Wildlife and Countryside Act 1981 |
|---|---|---|---|---|---|---|
| Tope | | ✓ | Vulnerable | Critically Endangered | | |
| Twaite shad | ✓ | ✓ | Near Threatened | Least Concern | ✓ | ✓ |
| White skate | ✓ | | Critically Endangered | Endangered | | |
| Whiting | | ✓ | Least Concern | Least Concern | | |

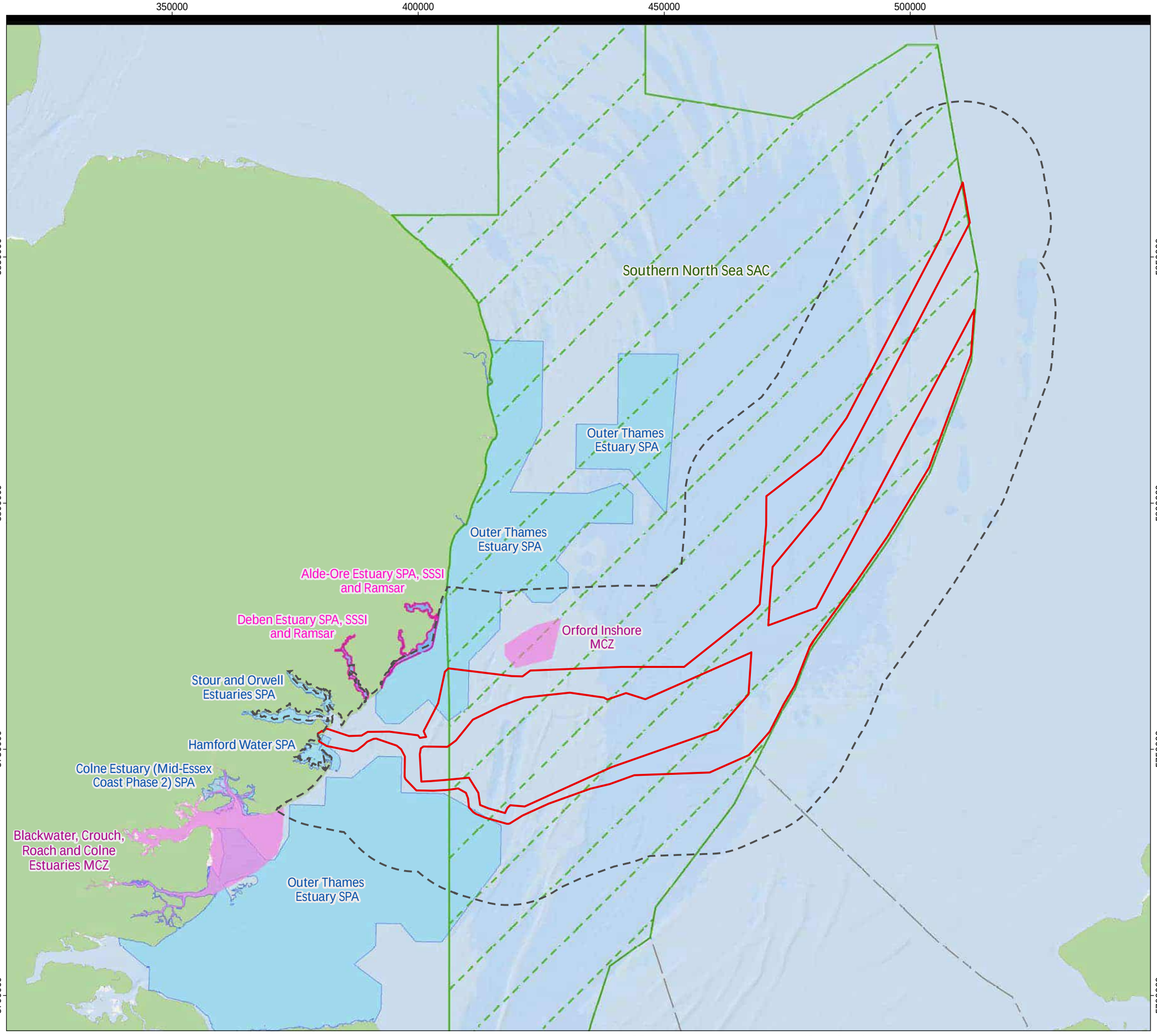
### 15.5.7 Designated Sites

15.5.7.1 Designated sites that interact with the Study Area and are of relevance to Fish and Shellfish Ecology receptors are presented in Figure 15-13, and are summarised in Table 15-6 below.

Table 15-6: Designated Sites of Relevance to Fish and Shellfish Ecology

| Designated Site | Distance from UKMS Scoping Boundary (km) | Fish and Shellfish Ecology Protected Feature(s) and COs |
|---|---|---|
| Blackwater, Crouch, Roach and Colne Estuary MCZ | 14.57 | A designated feature of this MCZ is the native oyster, with a related CO of recovering this species and native oyster beds to favourable condition (Natural England, 2017a). |
| Orford Inshore MCZ | 1.95 | There are no fish and shellfish qualifying features for this site. However, the designated feature of subtidal mixed sediments provides important nursery and spawning grounds for many fish species including sole, lemon sole and sandeels. Nationally important shark species such as the lesser spotted dogfish are also reported to be present within this protected area (Natural England, 2024). |
| Southern North Sea SAC | Interacts with the UKMS Scoping Boundary | There are no fish and shellfish qualifying features for this site. However, forage fish species (e.g., sandeel, whiting, herring) are essential for supporting the qualifying feature of harbour porpoise. The CO for this SAC is to ensure the availability of prey is maintained (JNCC, 2023). |
| Hamford Water SPA (also a Ramsar and SSSI) | Interacts with the UKMS Scoping Boundary | There are no fish and shellfish qualifying features for this site. However. forage fish (e.g., herring, sandeel, and sprat) and/or shellfish species (e.g., mussels, clams, and crustaceans) are essential for supporting the qualifying bird designated features of this site. A CO for this SPA is to maintain or restore the supporting processes on which the habitats of the supporting features rely. “Food availability” is listed as a key attribute of these habitats (English Nature, 2001a). |
| Stour and Orwell Estuaries SPA (also a Ramsar, and each estuary is a SSSI) | 1.45 | There are no fish and shellfish qualifying features for this site. However, forage fish (e.g., herring, sandeel, and sprat) and/or shellfish species (e.g., mussels, clams, and crustaceans) are essential for supporting the qualifying bird designated features of this site. A CO for this SPA is to maintain or restore the supporting processes on which the habitats of the supporting features rely. “Food availability” is listed as a key attribute of these habitats (English Nature, 2001b). |
| Outer Thames Estuary SPA | Interacts with the UKMS Scoping Boundary | There are no fish and shellfish qualifying features for this site. However, forage fish (e.g., herring, sandeel, and sprat) are essential for supporting the qualifying bird designated features of this site. A CO for this SPA is to maintain or restore the supporting processes on which the habitats of the supporting features rely (JNCC, |

| Designated Site | Distance from UKMS Scoping Boundary (km) | Fish and Shellfish Ecology Protected Feature(s) and COs |
|---|---|---|
| | | 2020). These processes underpin the ecological conditions that support prey availability for the qualifying bird features. |
| Deben Estuary SPA (also a Ramsar and SSSI) | 7.55 | There are no fish and shellfish qualifying features for this site. However, forage fish (e.g., gobies) and/or shellfish species (e.g., crustaceans) are essential for supporting a qualifying bird designated feature of this site. A CO for this SPA is to maintain or restore the supporting processes on which the habitats of the supporting features rely. These processes underpin the ecological conditions that support prey availability for the qualifying bird features. |
| Alde-Ore Estuary SPA (also a Ramsar and SSSI) | 6.12 | There are no fish and shellfish qualifying features for this site. However, forage fish (e.g., herring, sandeel, and sprat) and/or shellfish species (e.g., mussels, clams, and crustaceans) are essential for supporting the qualifying bird designated features of this site. A CO for this SPA is to maintain or restore the supporting processes on which the habitats of the supporting features rely (Natural England, 2017b). These processes underpin the ecological conditions that support prey availability for the qualifying bird features. |
| Colne Estuary (Mid-Essex Coast Phase 2) SPA (also a Ramsar and SSSI) | 15.63 | There are no fish and shellfish qualifying features for this site. However, forage fish (e.g., herring, sandeel, and sprat) and/or shellfish species (e.g., mussels, clams, and crustaceans) are essential for supporting the qualifying bird designated features of this site. A CO for this SPA is to maintain or restore the supporting processes on which the habitats of the supporting features rely (Natural England, 2019). These processes underpin the ecological conditions that support prey availability for the qualifying bird features. |




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Scoping Report

## Designated Sites of Relevance to Fish and Shellfish Ecology

Legend

- UK Marine Scheme Scoping Boundary
- Fish and Shellfish Study Area
- Exclusive Economic Zones (EEZ) Boundaries
- Marine Conservation Zone (MCZ)
- Special Area of Conservation (SAC)
- Special Protection Area (SPA), SSSI and Ramsar



Notes

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Figure 15-13

Figure Reference: Tarchon_Scoping_FS_Fig15-13_Designations_v3

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### 15.5.8 Future Baseline Conditions

15.5.8.1 The baseline environment is not static and is expected to change over time, irrespective of the UKMS. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UK Scheme over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

15.5.8.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

### 15.5.9 Summary of Proposed Receptors Screened in to Scoping Assessment

15.5.9.1 A summary of species recorded and other species that are known to be present in the Study Area are detailed in Table 15-7. At this stage, all the species detailed in Table 15-7 have been screened into the scoping assessment. This list of species will later be reviewed for the EIA assessment considering site-specific survey data.

**Table 15-7: Fish and Shellfish Species Recorded, or Potentially Present within the Study Area**

| Common Name | Species Name |
|---|---|
| **Pelagic Species** | |
| Anchovy | *Engraulis encrasicolus* |
| Blue whiting | *Micromesistius poutassou* |
| Haddock | *Melanogrammus aeglefinus* |
| Herring | *Clupea harengus* |
| Horse mackerel | *Trachurus trachurus* |
| Mackerel | *Scomber scombrus* |
| Norway pout | *Trisopterus esmarkii* |
| Sandeel | *Ammodytidae spp.* |
| Sardine | *Sardina pilchardus* |
| Seabass | *Dicentrarchus labrax* |
| Sprat | *Sprattus sprattus* |
| **Demersal Species** | |
| Cod | *Gadus morhua* |
| Sole | *Solea solea* |
| Hake | *Merluccius merluccius* |
| Lemon sole | *Microstomus kitt* |
| Monkfish | *Lophius piscatorius* |
| Plaice | *Pleuronectes platessa* |
| Whiting | *Merlangius merlangus* |

| Common Name | Species Name |
|---|---|
| **Elasmobranchs** | |
| Angel shark | *Squatina squatina* |
| Basking shark | *Cetorhinus maximus* |
| Blonde ray | *Raja brachyura* |
| Cuckoo ray | *Leucoraja naevus* |
| leafscale gulper shark | *Centrophorus squamosus* |
| Lesser spotted dogfish | *Scyliorhinus canicula* |
| Nursehound | *Scyliorhinus stellaris* |
| Porbeagle | *Lamna nasus* |
| Portuguese dogfish | *Centroscymnus coelolepis* |
| Spotted ray | *Raja montagui* |
| Smooth-hound | *Mustelus mustelus* |
| Spurdog | *Squalus acanthias* |
| Starry smooth-hound | *Mustelus asterias* |
| Thornback ray | *Raja clavata* |
| Tope | *Galeorhinus galeus* |
| **Diadromous Fish** | |
| Allis shad | *Alosa alosa* |
| Atlantic salmon | *Salmo salar* |
| European eel | *Anguilla Anguilla* |
| River lamprey | *Lampetra fluviatilis* |
| Sea lamprey | *Petromyzon marinus* |
| Sea trout | *Salmo trutta* |
| Smelt | *Osmerus eperlanus* |
| Twaite shad | *Alosa fallax* |
| **Shellfish and Cephalopods** | |
| Blue mussel | *Mytilus edulis* |
| Brown shrimp | *Crangon crangon* |
| Common cuttlefish | *Sepia officinalis* |
| Common whelk | *Buccinum undatum* |
| Edible crab | *Cancer pagurus* |
| European spider crab | *Maja brachydactyla* |
| King scallop | *Pecten maximus* |
| Native oyster | *Ostrea edulis* |
| Common cockle | *Cerastoderma edule* |
| Hard-shell clam | *Mercenaria mercenaria* |
| Lobster | *Homarus gammarus* |
| European squid | *Loligo vulgaris* |
| Veined squid | *Loligo forbesii* |

### 15.5.10 Additional Proposed Data Sources

15.5.10.1 In addition to those data sources outlined in Table 15-1, site-specific survey data is planned to inform the EIA and enhance the understanding of the baseline conditions. These include:

- Geophysical surveys in the UKMS Scoping Boundary to determine the bathymetry, seabed infrastructure, classification and morphology; and
- Benthic surveys comprising DDV and sediment grab sampling to identify the macrofaunal communities present across the UKMS Scoping Boundary, as well as classify the sediment types present and monitor sediment bound contaminants. These data will also be used to identify the presence of fish spawning habitats within the Study Area.

## 15.6 Assessment Methodology

15.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the construction, operational and decommissioning phases of the UKMS. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

15.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on Fish and Shellfish Ecology receptors arising from the construction, operational, and decommissioning phases of the UKMS. This approach defines:

- **Sources and impacts:** The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor:** The component of the environment that may be affected.

15.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

15.6.1.4 Receptors will be assessed against relevant effect pathways, with receptor sensitivity and magnitude of impacts being defined. This section describes the criteria that will be applied to assign values to the sensitivity of receptors and the magnitude of potential impacts.

### 15.6.2 Sensitivity of Receptor

15.6.2.1 In line with CIEEM guidance (CIEEM, 2024), the sensitivity of Fish and Shellfish Ecology receptors will be informed by the Marine Life Information Network (MarLIN) MarESA framework, which classifies sensitivity using a four-point scale (High, Medium, Low and Not Sensitive) (MarLIN, 2019).

15.6.2.2 The scale of sensitivity for a receptor is dependent on the specific impact and receptor in question and considers the value of a receptor in the context of its resistance and ability to recover from impacts (resilience). Specific benchmarks (duration and intensity) are defined for the different impacts for which sensitivity has been assessed (e.g., smothering, habitat loss/damage etc.).

15.6.2.3 The CIEEM guidance recognises the importance of ecological features, which may relate to the quality, rarity or extent of habitats or species, their conservation status, degree of threat, rate of decline or functional importance within the ecosystem.

15.6.2.4 For the purposes of the assessment, four sensitivity categories have been defined, drawing on the MarLIN MarESA framework and the importance of the receptor, as set out in Table 15-8.

**Table 15-8: Definitions of Sensitivity for Fish and Shellfish Ecology**

| Sensitivity | Definition |
|---|---|
| High | Internationally or nationally important receptors with high vulnerability and low ability for recovery. |
| Medium | Regionally important receptors with high vulnerability and no ability for recovery. Internationally or nationally important receptors with medium to high vulnerability and low to medium recoverability. |
| Low | Locally important receptors with medium to high vulnerability and low recoverability. Regionally important receptors with low vulnerability and medium recoverability. Nationally important receptors with low vulnerability and medium to high recoverability. Internationally important receptors with low vulnerability and high recoverability. |
| Negligible | Receptor is not vulnerable to impacts regardless of value/importance. Locally important receptors with low vulnerability and medium to high recoverability. |

### 15.6.3 Magnitude of Impact

15.6.3.1 The magnitude of potential impacts will be determined by a series of factors, including the spatial extent of any interaction and the likelihood, frequency and duration the impact. Magnitude definitions to be applied in the assessment are set out in Table 15-1. Potential impacts will be assessed in terms of whether they are permanent or temporary, and adverse or beneficial. Where an effect could reasonably be assigned to more than one magnitude category, professional judgement will be applied to determine the most precautionary and appropriate rating.

**Table 15-9: Definitions of Magnitude for Fish and Shellfish Ecology**

| Magnitude | Definition |
|---|---|
| Large | Fundamental, permanent/irreversible changes, over the whole receptor, and/or fundamental alteration to key characteristics or features of the receptor's character or distinctiveness. |
| Medium | Considerable, permanent/irreversible changes, over the majority of the receptor, and/or discernible alteration to key characteristics or features of the receptor's character or distinctiveness. |
| Small | Discernible, temporary change, over a minority of the receptor, and/or limited but discernible alteration to key characteristics or features of the receptor's character or distinctiveness. |
| Negligible | Discernible, temporary change (for part of the UKMS's duration), or barely discernible change for any length of time, over a small area of the receptor, and/or slight alteration to key characteristics or features of the receptor's character or distinctiveness. |

### 15.6.4 Significance of Effect

15.6.4.1 To ensure consistency across topics, a matrix approach has been adopted to present judgements made on the significance of an effect. This terminology is outlined in Table 15-10 below. The combination of the magnitude of the impact with the sensitivity of the receptor will determine the assessment of significance of effect.

**Table 15-10: Significance Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Negligible |
| High | Major | Moderate | Moderate | Minor |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

15.6.4.2 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

15.6.4.3 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UKMS design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UKMS.

## 15.7 Potential Effects and Mitigation

### 15.7.1 Introduction

15.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 15.7.2 Embedded Mitigation and Good Practice Measures

15.7.2.1 The UKMS will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as "*mitigation measures that have been incorporated into a project's description and form an inherent part of the project's design*" (ISEP, 2024). The embedded mitigation measures which are relevant to this Chapter are presented below. These may be incorporated into the design where necessary and practicable.

- Where practicable, cable burial is the preferred method of cable protection, informed by the Cable Burial Risk Assessment (CBRA) and detailed within the Cable Plan (CaP);
- Development of, and adherence to a CaP. A CaP would be prepared to set out the proposed cable routing, installation methods, cable burial depths, cable specifications and any additional cable protection measures, together with the approach to post-installation cable monitoring. The CaP is likely to be informed by a CBRA, which would consider where external cable protection may be required and how its use could be minimised where target cable burial is achievable;
- Development, and adherence to, an outline Construction Environmental Management Plan (CEMP) and an outline Operational Environmental Management Plan (OEMP). The outline CEMP and outline OEMP would be prepared to describe environmental management measures and procedures relevant to the project, including (but not limited to) chemical use, INNS management, pollution prevention and waste management; and
- An outline Decommissioning Environmental Management Plan (DEMP) will be developed and adhered to. An outline DEMP would be prepared to describe environmental management measures and procedures relevant to decommissioning and will consider the potential effects on Fish and Shellfish Ecology. At this stage, the specific details of decommissioning are not yet defined and will be developed closer to the end of the operational life of the asset, when further information on infrastructure condition and available techniques are known.

15.7.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UK Scheme development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does

not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

15.7.2.3 As the UKMS advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective, and compliant with regulatory standards and stakeholder input.

### 15.7.3 Scoping Assessment

15.7.3.1 An initial assessment of the potential significant effects on Fish and Shellfish Ecology due to UKMS activities for the Scoping stage of the EIA process is presented in Table 15-11. This assessment is based on a combination of the following:

- The definition of the UKMS at the Scoping stage;
- Embedded mitigation (as presented in Section 15.7.2, together with the means by which it will be secured);
- The level of understanding of the baseline at the present Scoping stage;
- The existing evidence base for Fish and Shellfish Ecology effects associated with UKMS activities;
- Relevant policy; and
- The professional judgement of qualified Fish and Shellfish Ecology specialists.

**Table 15-11: Elements Scoped In and Out for Fish and Shellfish Ecology**

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction | • Seabed preparation for offshore cable installation: boulder clearance; pre-sweeping; seabed levelling.<br>• Offshore cable installation/ trenching.<br>• Trenchless techniques for cable installation e.g. at UK Landfall. | Increases in Suspended Sediment Concentrations (SSCs) and deposition of disturbed sediments. | All | In | Sediment will be disturbed and released into the water. This will give rise to temporary suspended sediment plumes and localised changes in seabed levels as material settles out of suspension. Elevations in SSC and subsequent deposition of disturbed sediments have the potential to result in adverse and indirect impacts on fish and shellfish receptors and key habitats. |
| | | Direct and indirect seabed disturbance leading to release of sediment contaminants. | | | Seabed disturbance during construction could lead to the mobilisation of sediments; whilst in suspension, there is the potential for sediment-bound contaminants, such as metals, hydrocarbons and organic pollutants, to be released into the water column, which can lead to an effect on fish and shellfish receptors. |
| Construction | • Seabed preparation for offshore cable installation: use of vessels<br>• Trenchless techniques for cable installation: use of vessels | Mortality, injury, behavioural impacts and auditory masking arising from Underwater Noise (UWN) and vibration | All | In | UWN as a result of these activities has the potential to result in physical and behavioural impacts to the fish and shellfish communities within the Study Area. |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | • Offshore cable installation: rock placement; trenching | | | | |
| Construction | All construction activities | Direct damage (for example crushing) and disturbance to mobile demersal and pelagic fish and shellfish species arising from construction activities. | All | Out | Most fish and shellfish species (even the slowest swimming/moving) are likely to be mobile and can move away from direct damage (for example crushing) and disturbance (Cantrell, Covey, Relf, Irving, & Nicholson, 2023). It is therefore proposed that this impact is scoped out of the EIA. |
| Construction and operational | All construction and O&M activities | Accidental pollution events during the construction phase resulting in potential effects on fish and shellfish receptors. | All | Out | The magnitude of an accidental spill will be limited by the size of chemical or oil inventory on construction vessels. In addition, released hydrocarbons would be subject to rapid dilution, weathering and dispersion and would be unlikely to persist in the marine environment. The likelihood of an incident will also be reduced by implementation of an CEMP and OEMP (see Section 15.7). It is proposed that this impact is therefore scoped out of the EIA. |
| Operational | External offshore cable protection and cable crossings on seabed | Permanent and, or long-term habitat loss or alteration due to the addition of infrastructure to the area | All | In | Long-term habitat loss associated with the presence of external cable protection and cable crossings have the potential to impact Fish and Shellfish Ecology by the removal or degradation of essential habitats such as spawning, nursery and feeding habitats. |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | Colonisation of hard substrates | All | In | The introduction of subsea infrastructure can provide potential novel hard substrate for colonisation by species within the Study Area. The introduction of hard infrastructure may alter previously soft sediment habitat areas increasing habitat structural complexity. This may alter species assemblages and increase biodiversity of the area through artificial reef effects by attracting new species with a preference for hard substrates (Degraer, et al., 2020). |
| Operational | Presence of offshore cable | EMF impacts arising from cables | All | In | EMFs are generated by the current that passes through an electrical cable. It is known that EMFs can be detected by fish and elasmobranchs, and it is thought shellfish can also detect EMFs. The presence of EMF-generating infrastructure such as underwater cables associated with the Proposed Development may lead to displacement for fish and shellfish species (Gill & Kimber, 2005; Tricas, 2012). |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Decommissioning | Removal of offshore cable, external cable protection and cable crossings | Increases in Suspended Sediment Concentrations (SSCs) and deposition of disturbed sediments | All | In | Sediment will be disturbed and released into the water. This will give rise to temporary suspended sediment plumes and localised changes in seabed levels as material settles out of suspension. Elevations in SSC and subsequent deposition of disturbed sediments have the potential to result in adverse and indirect impacts on fish and shellfish receptors and key habitats. |
| | | Direct and indirect seabed disturbance leading to release of sediment contaminants | All | In | Seabed disturbance during decommissioning could lead to the mobilisation of sediments; whilst in suspension, there is the potential for sediment-bound contaminants, such as metals, hydrocarbons and organic pollutants, to be released into the water column, which can lead to an effect on fish and shellfish receptors |
| | | Mortality, injury behavioural impacts and auditory masking arising from UWN and vibration during decommissioning. | All | In | UWN as a result of these activities has the potential to result in physical and behavioural impacts to the fish and shellfish communities within the Study Area. |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction, operational and decommissioning | All | Temporary habitat loss and disturbance | All | In | Temporary habitat loss and disturbance will be a likely occurrence from the potential use of jack-up vessels (JUVs), anchored vessels and any works that disturb the seabed, including seabed preparation and installation works, cable maintenance and the removal of infrastructure when decommissioned. These activities have the potential to impact on Fish and Shellfish Ecology through direct loss/disturbance to individuals and the temporary disturbance of essential habitats for survival (for example, spawning, nursery and feeding habitats). |
| | | Increased risk of introduction and/or spread of (INNS). | All | Out | The potential for risk of introduction and/or spread of INNS will be managed the implementation of a CEMP. It is proposed that this impact is therefore scoped out of the EIA. |

### 15.7.4 Cumulative and Transboundary Effects

#### Cumulative Effects

15.7.4.1 Volume 01, Chapter 06: EIA Approach & Methodology details how potential cumulative effects will be assessed through a Cumulative Effect Assessment (CEA) and gives examples of the projects which are likely to be included in that assessment. For Fish and Shellfish Ecology, cumulative interactions may occur with the whole Tarchon Project in combination with the UKMS, with planned OWFs as well as with other activities in the Fish and Shellfish Ecology Study Area.

15.7.4.2 Impacts that are scoped into the assessment for the UKMS alone are generally spatially restricted to being within close proximity to the UKMS. However, certain potential impacts have the potential to affect the fish and shellfish communities over a wider area. It is proposed that impacts with limited spatial extent, which do not have an effect on a designated species, site or feature, are scoped out of any further assessment within the CEA.

15.7.4.3 For this reason, only the following impact on Fish and Shellfish Ecology receptors is being proposed for further consideration within the CEA, subject to Study Area refinement:

- Cumulative temporary increase in SSC and sediment deposition.

15.7.4.4 The CEA for Fish and Shellfish Ecology will consider the Maximum Design Scenario (MDS) for the project, plans and activities in line with the methodology outlined in Volume 01, Chapter 06: EIA Approach & Methodology.

#### Transboundary Effects

15.7.4.5 There is potential for transboundary effects upon Fish and Shellfish Ecology receptors due to the proximity of the UKMS with the Belgium and Netherlands EEZs. The likelihood and extent of transboundary effects cannot be determined at this stage and will be subject to assessment in the EIA.

15.7.4.6 Potential transboundary impacts, including those associated with sediment plumes, will be assessed as with the other cumulative impacts, and the Applicant, where possible, will liaise with developers in other European Economic Area (EEA) Member States to obtain up to date project information to inform the assessment.

15.7.4.7 Further detail on the approach to assess potential transboundary effects is provided in Volume 01, Chapter 06: EIA Approach & Methodology within this Scoping Report. Potential transboundary effects on designated sites that fall outside UK waters will be given due consideration in the ES.

## 15.8 Assumptions, Limitations and Uncertainties

15.8.1.1 At this scoping stage, the understanding of Fish and Shellfish Ecology is informed by a review of existing desk-based information and regional datasets, rather than site-specific survey data. These sources provide a broad overview of sediment types

and subsequently spawning habitats within the Fish and Shellfish Ecology Study Area, but do not offer full spatial resolution and are subject to inherent limitations, including uncertainty in the precise extent and distribution of suitable spawning substrates for demersal spawning receptors (such as sandeel and herring).

15.8.1.2 Historical and regional datasets have been used to characterise the Fish and Shellfish Ecology Study Area, providing appropriate contextual information at this stage. While reliance on non-site-specific and historical data introduces some uncertainty, this approach is considered proportionate for Scoping purposes, particularly as potential effects on Fish and Shellfish Ecology are anticipated to be generally localised, and likely to occur within the UKMS Scoping Boundary. Site-specific benthic survey data will be used to inform the EIA and enhance the understanding of the baseline conditions, particularly the presence of fish spawning grounds.

15.8.1.3 Overall, the seabed and fish and shellfish assemblages in the region are well studied and the available evidence base is considered sufficient to identify potential impact pathways and inform scoping decisions. Site-specific survey data will be used to refine the baseline and inform the assessment of effects on potential spawning habitats in the ES at the next stage of the EIA process.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 03, Chapter 16: Marine Mammal Ecology

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00022 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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# Annexes

Volume 06, Annex 22-2: Underwater Sound Assessment Methodology

## Acronyms

| Acronym | Definition |
|---|---|
| ASCOBANS | Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas |
| CEA | Cumulative Effects Assessment |
| Cefas | Centre for Environment, Fisheries and Aquaculture Science |
| CEMP | Construction Environmental Management Plan |
| CI | Confidence interval |
| CITES | Convention on International Trade in Endangered Species of Wild Fauna and Flora |
| COLREG | International Regulations for Preventing Collisions at Sea |
| CV | Coefficient of variation |
| DAS | Digital Aerial Surveys |
| DEFRA | Department for Environment Food and Rural Affairs |
| DEMP | Decommissioning Environmental Management Plan |
| EDR | Effective Deterrent Range |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| EMF | Electromagnetic field |
| EPS | European Protected Species |
| EU | European Union |
| HRA | Habitats Regulations Assessment |
| IAMMWG | Inter-Agency Marine Mammal Working Group |
| CIEEM | Chartered Institute of Ecology and Environmental Management |
| IMO | International Maritime Organisation |
| IUCN | International Union for Conservation of Nature |
| JNCC | Joint Nature Conservation Committee |
| MCZ | Marine Conservation Zones |
| MDS | Maximum Design Scenario |
| MHWS | Mean High Water Springs |
| MMO | Marine Management Organisation |
| MPA | Marine Protected Area |
| MU | Management Unit |
| NERC Act | Natural Environment and Rural Communities Act 2006 |
| nm | Nautical Miles |
| NPPF | National Planning Policy Framework |
| NPS | National Policy Statements |
| O&M | Operation and maintenance |
| OEMP | Operational Environmental Management Plan |
| PLONOR | Pose Little or No Risk to the Environment |
| PTS | Permanent Threshold Shift |
| SAC | Special Areas of Conservation |
| SCANS | Small Cetaceans in European Atlantic waters and the North Sea |

| Acronym | Definition |
|---|---|
| SCOS | Special Committee on Seals |
| $SEL_{cum}$ | Cumulative Sound Exposure Level |
| SMU | Seal Management Unit |
| SNS SAC | Southern North Sea Special Area of Conservation |
| SOLAS | Safety of Life at Sea |
| $SPL_{peak}$ | Peak Sound Pressure Level |
| SSC | Suspended sediment concentrations |
| TTS | Temporary Threshold Shift |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| USBL | Ultrasonic Baseline |
| UXO | Unexploded Ordnance |
| VMP | Vessel Management Plan |
| WCA 1981 | The Wildlife and Countryside Act (1981) |
| ZoI | Zone of Influence |
| ZSL | Zoological Society of London |

# 16. Marine Mammal Ecology

## 16.1 Introduction

16.1.1.1 This Chapter presents the Marine Mammal Ecology assessment which will consider the potential significant effects on Marine Mammal Ecology receptors during the construction, operational, and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Areas used and receptors considered in this Chapter, only the UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. The English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is therefore not considered further for Marine Mammal Ecology.

16.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Marine Mammal Ecology baseline, as well as a summary of the potential interactions between the UKMS and marine mammals;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Marine Mammal Ecology receptors from the proposed components of the UKMS; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

16.1.1.3 It should be noted that licensing for unexploded ordnance (UXO) works (including clearance) will be subject to separate, standalone licence applications (e.g. standard marine licence application(s) and a European Protected Species (EPS) licence). The impact pathways and associated effects in relation to UXO works (including clearance) are therefore not considered further in this EIA, but will be included in the environmental assessments that accompany these separate, standalone licence applications.

16.1.1.4 This Chapter should be read alongside the following Chapters:

- Volume 01, Chapter 02: UK Project Description;
- Volume 01, Chapter 06: EIA Approach and Methodology;
- Volume 03, Chapter 13: Marine Physical Environment;
- Volume 03, Chapter 14: Benthic and Intertidal Ecology;
- Volume 03, Chapter 15: Fish and Shellfish Ecology; and
- Volume 05, Chapter 32: Approach to Cumulative Effects.

16.1.1.5 This Chapter should be read alongside the following Annexes:

- Volume 06, Annex 22-2: Underwater Sound Assessment Methodology

## 16.2 Study Area

16.2.1.1 There are two groups of marine mammals found in UK waters; cetaceans (whales, dolphins, and porpoises), and pinnipeds (seals). This Marine Mammal Ecology Chapter of the Scoping Report will consider both cetaceans and pinnipeds.

16.2.1.2 Marine mammals are highly mobile and transient species, with varied behaviour and ecology between species. To account for this, the Study Area will be assessed at two spatial scales: a Site Specific Study Area (see Section 16.2.2) and a Regional Study Area (see Section 16.2.3).

16.2.1.3 The two Study Areas are outlined below in Section 16.2.2 and Section 16.2.3. Both of these Study Areas are defined by the UKMS Scoping Boundary, which is then extended over a wider area, which are defined by species-specific Management Units (MU), to account for the scale of movement and population structure for each species as appropriate.

### 16.2.2 Site Specific Study Area

16.2.2.1 The Site-Specific Study Area is defined as the UKMS Scoping Boundary, which extends from Mean High Water Springs (MHWS) to the Exclusive Economic Zone (EEZ) boundary, plus a 3 km buffer (Figure 16-1).

16.2.2.2 This Site Specific Study Area is based on a precautionary Zone of Influence (ZoI) for the UKMS, using the Effective Deterrent Range (EDR) for harbour porpoises associated with ‘Sub Bottom Profilers (all types)’ as well as ‘Ultrasonic Baseline USBL’, as recommended in the Joint Nature Conservation Committee (JNCC) ‘Updated Effective Deterrent Ranges (EDRs) for assessing the significance of noise disturbance in harbour porpoise Special Areas of Conservation (SACs)’ (JNCC, 2025).

16.2.2.3 As per the JNCC 2025 guidance, a precautionary EDR of 3 km has been adopted to account for potential disturbance or displacement of marine mammals, within the UKMS Scoping Boundary, primarily due to underwater noise effects during the construction phase. Whilst the JNCC 2025 guidance is specifically for harbour porpoise, this species is considered to the most sensitive species to underwater noise (Southall *et al*., 2019), hence precautionary approach is applied for all other species considered.

### 16.2.3 Regional Study Area

16.2.3.1 In addition to the Site-Specific Study Area, a Regional Study Area will be used to capture wider ecological considerations and regional population dynamics beyond the immediate ZoI (Figure 16-2).

16.2.3.2 For each cetacean species (whales, dolphins and porpoises), the Regional Study Area is defined by species-specific MU for cetaceans as defined by the Inter-Agency Marine Mammal Working Group (IAMMWG) (IAMMWG, 2023). A MU

typically refers to a geographical area in which the animals of a particular cetacean species are found, to which management of human activities is applied. It may be smaller than what is believed to be a 'population[1]', to reflect spatial differences in human activities and their management (IAMMWG, 2023).

16.2.3.3 Using MUs in the assessment of cetacean species allows consideration of the scale of movement of a species and its respective populations, whilst taking account of jurisdictional boundaries and the management of human activities.

16.2.3.4 For cetaceans, the IAMMWG has established MUs for the seven most common species in UK waters (IAMMWG, 2023). These species and their respective MUs are summarised in Table 16-1 and Figure 16-1.

**Table 16-1: The Management Units defined for cetacean species in UK waters relevant to the UKMS (IAMMWG, 2023).**

| Common name | Latin name | MU Name |
|---|---|---|
| Harbour porpoise | *Phocoena phocoena* | North Sea |
| Bottlenose dolphin | *Tursiops truncatus* | Greater North Sea |
| Short-beaked common dolphin | *Delphinus delphis* | Celtic and Greater North Sea |
| White-beaked dolphin | *Lagenorhynchus albirostris* | |
| Atlantic white-sided dolphin | *Lagenorhynchus acutus* | |
| Risso's dolphin | *Grampus griseus* | |
| Minke whale | *Balaenoptera acutorostrata* | |

16.2.3.5 Seal Monitoring Units (SMUs) are defined by the Special Committee on Seals (SCOS) based on the distribution of haul-out sites, practical considerations such as the ability to survey within a single season, and jurisdictional boundaries (SCOS, 2025). These units are not strict management divisions and should be combined appropriately when developing management strategies.

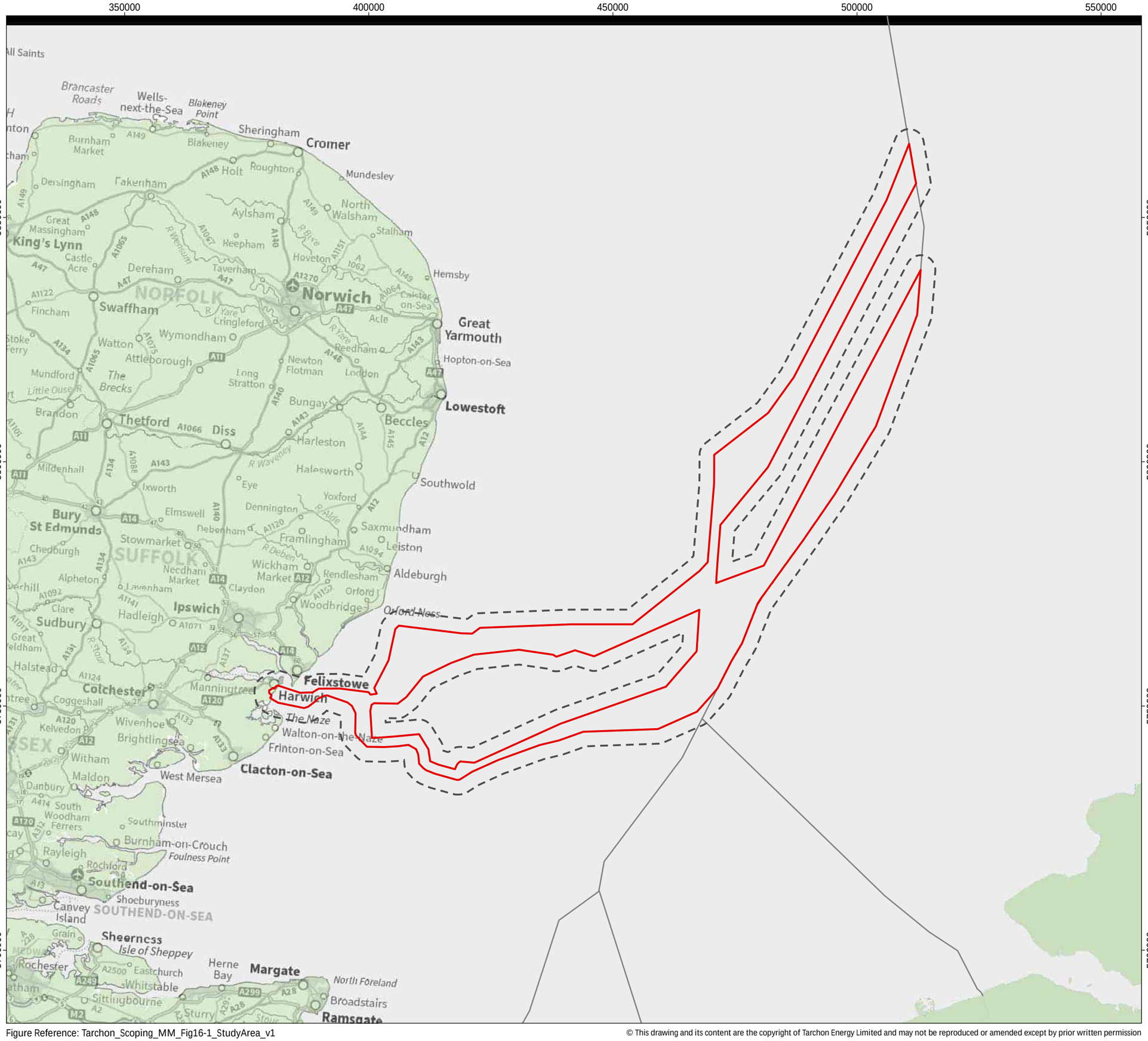
16.2.3.6 The UKMS lies entirely within the Southeast England SMU for harbour and grey seals. The Northeast England SMU is also relevant because the foraging range of grey seals (approximately 100 km; (Carter, et al., 2022)) extends into this area, indicating ecological connectivity. Consequently, this SMU will be considered for grey seal assessments. In contrast, harbour seals exhibit significantly shorter foraging ranges, suggesting limited connectivity; therefore, only the Southeast England SMU will be considered for this species.

16.2.3.7 These species and their relevant SMU is summarised in Table 16-2 and Figure 16-2.

[1] Defined as a collection of individuals of the same species found in the same area, where genetic variation occurs within the population and between other populations

**Table 16-2: The SCOS Monitoring Units relevant to the UKMS (SCOS, 2024)**

| Common name | Latin name | SMU Name |
|---|---|---|
| Harbour seal | *Phoca vitulina* | Southeast England |
| Grey seal | *Halichoerus grypus* | |
| Grey seal | *Halichoerus grypus* | Northeast England |




# TARCHON

## Tarchon Interconnector Project
Scoping Report

## Site Specific Study Area

**Legend**

- UK Marine Scheme Scoping Boundary
- Site Specific Study Area
- Exclusive Economic Zones (EEZ) Boundaries



**Notes**

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 — 20 — 40 km

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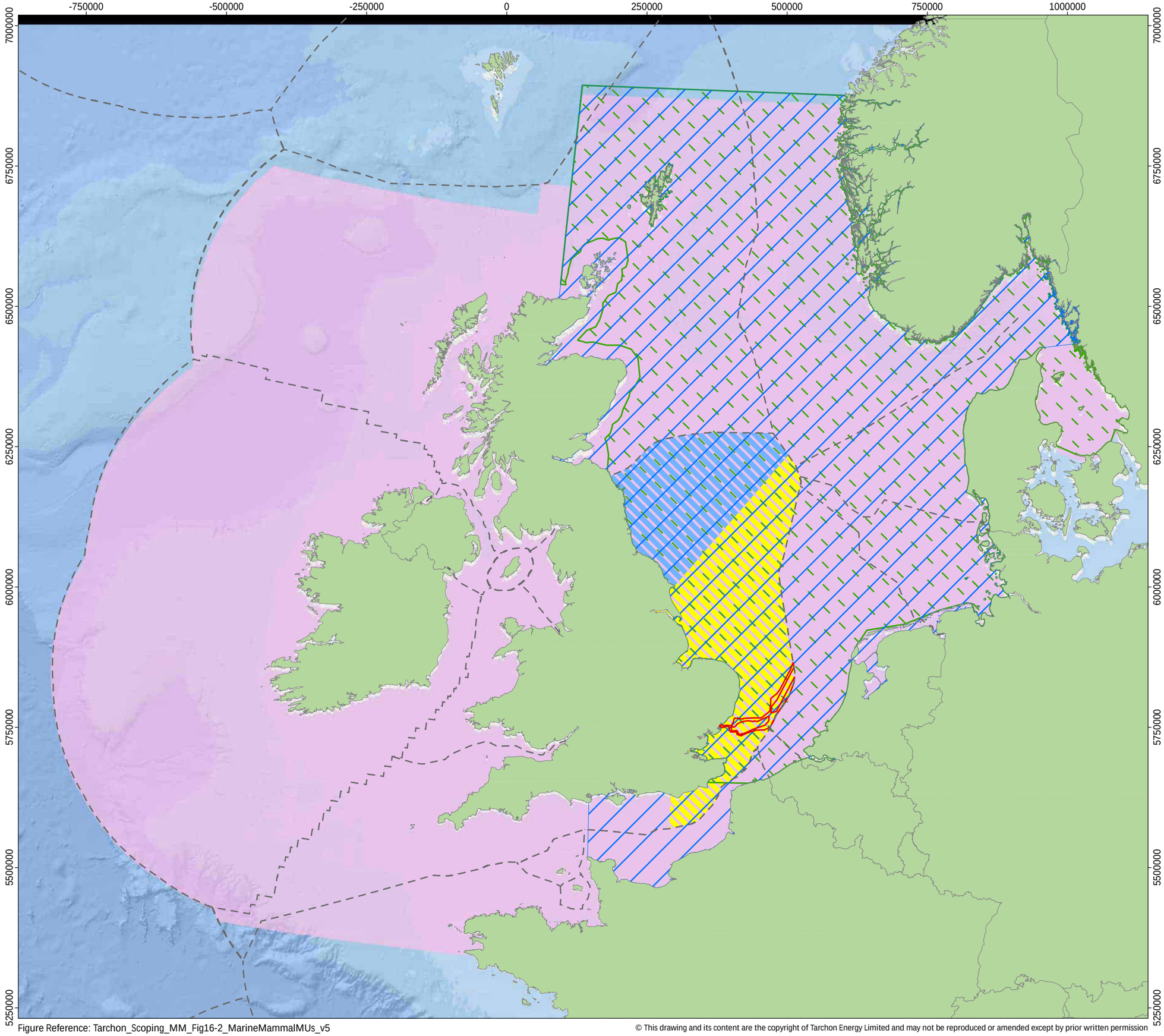

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Figure 16-1

Figure Reference: Tarchon_Scoping_MM_Fig16-1_StudyArea_v1

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TARCHON

# Tarchon Interconnector Project

Scoping Report

## Regional Study Area

**Legend**

- UK Marine Scheme Scoping Boundary
- Exclusive Economic Zones (EEZ) Boundaries

**Regional Study Area**

**Marine Mammal Management Units**

**Harbour Porpoise**

- North Sea

**Bottlenose Dolphin**

- Greater North Sea

**Short-beaked Common Dolphin, White-beaked Dolphin, Atlantic White-sided Dolphin, Risso's Dolphin, Minke Whale**

- Celtic and Greater North Sea

**Seal Monitoring Units**

**Grey and Harbour Seal**

- North-East England SMU
- South-East England SMU



**Notes**

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 200 400 km

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**Figure 16-2**

Figure Reference: Tarchon_Scoping_MM_Fig16-2_MarineMammalMUs_v5

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## 16.3 Relevant Legislation, Policy and Guidance

16.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context describes the overall regulatory and planning policy context for the UKMS. This Section sets out the legislation and planning policy that is relevant to the assessment of potential significant effects on marine mammals associated with the construction, operation, maintenance and decommissioning of the UKMS.

16.3.1.2 Policy generally seeks to minimise effects to marine mammals from development and avoid significant adverse effects to marine biodiversity, including marine mammals. This applies particularly where the UKMS activities have the potential to interfere with protection and conservation initiatives for local populations, and species or habitats of conservation importance.

### 16.3.2 Legislation

16.3.2.1 The following legislation specifically applies to marine mammal ecology:

#### Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive)

16.3.2.2 The Habitats Directive requires Member States to enforce a system of strict protection for species listed in Annex IV(a), which includes all cetaceans. The Habitats Directive remains embedded in domestic law in England through the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017.

16.3.2.3 In addition, two cetacean species (bottlenose dolphin and harbour porpoise) and two pinniped species (grey seal and harbour seal) are listed in Annex II of the Habitats Directive, requiring the designation of SACs.

#### The Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017

16.3.2.4 The Conservation of Habitats and Species Regulations 2017, as amended, are applicable in England in the territorial sea, up to 12nm from the coastal baseline.

16.3.2.5 The Conservation of Offshore Habitats and Species Regulations 2017, as amended, are applicable beyond 12nm throughout the UK offshore marine area.

16.3.2.6 Under these respective regulations, it is an offence to deliberately capture, injure, kill or disturb any animal of Annex IV(a) species (i.e. all cetaceans). The regulations provide a definition of ‘disturbance’ which includes, in particular, any disturbance which is likely to impair their ability to survive, breed or reproduce, to rear or nurture their young, to migrate or to significantly affect the local distribution or abundance of the species to which they belong.

#### Conservation of Seals Act 1970

16.3.2.7 The principal legislation governing seals in England is the Conservation of Seals Act 1970 (as amended). Under the Conservation of Seals Act 1970, it is an offence

to intentionally or recklessly kill, injure or take a seal. Further offences include attempts to commit such acts. There are exceptions to these offences and licences can be obtained from the MMO under specified circumstances. The Conservation of Seals Act 1970 is applicable in England up to 12nm from the coastal baseline.

### Wildlife and Countryside Act 1981

16.3.2.8 The Wildlife and Countryside Act (1981) (WCA 1981), as amended, is applicable in England up to 12nm from the coast.

16.3.2.9 In England, all cetaceans are listed in Schedule 5 of the WCA 1981. Under the WCA 1981 in England, the offence of intentionally or recklessly disturbing a Schedule 5 species, only applies to whales and dolphins – it does not apply to the harbour porpoise.

16.3.2.10 Of the pinniped species, only the vagrant walrus is listed in Schedule 5. Therefore, it is an offence to intentionally or recklessly disturb a walrus. Walruses have been sighted along the coast of England in recent years, including off the coast of Yorkshire.

16.3.2.11 Disturbance of grey or harbour seals may constitute an offence where they are a notified special interest feature of a Site of Special Scientific Interest (SSSI). Such provisions are site specific and do not provide a general prohibition on disturbance of these species.

### Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas' (ASCOBANS) 1992

16.3.2.12 ASCOBANS provides an international framework for the protection of cetaceans through coordinated monitoring, research, pollution control, data sharing, and public awareness. Eight European countries bordering the Baltic and North Seas, including the UK, are signatories, and ASCOBANS publishes a range of technical guidance documents that support best practice in cetacean conservation and management (ASCOBANS, 2024).

### Natural Environment and Rural Communities (NERC) Act 2006

16.3.2.13 Section 41 requires the Secretary of State to publish a list of the living organisms and types of habitat which in the Secretary of State's opinion are of principal importance for the purpose of conserving or enhancing biodiversity. The published list contains cetaceans and pinniped species.

### Marine and Coastal Access Act 2009

16.3.2.14 Sets out the framework for marine spatial planning, marine licensing, designation of Marine Conservation Zones (MCZ) (though, noting that there are currently no MCZs designated for marine mammals) and duties on public bodies to exercise their functions in ways that further the conservation objectives set for MCZs and not authorise activities or development which carry a significant risk of hindering those conservation objectives.

#### Marine Strategy Regulations 2010

16.3.2.15 The Marine Strategy Regulations (2010) transpose the Marine Strategy Framework Directive (2008/56/EC) into UK law. The Regulations require the UK to achieve or maintain Good Environmental Status across its marine waters through coordinated monitoring and management programmes.

#### Environment Act 2021

16.3.2.16 Requires legally binding targets to be set, including in respect of biodiversity and the marine environment. The Environment Targets (Marine Protected Areas (MPA) Regulations 2023 set out a long-term environmental target in respect of the condition of protected features in MPAs, that before the end of 31 December 2042, the number of protected features within relevant MPAs that are in 'favourable condition' is to be not less than 70% of the total number of protected features within relevant MPAs, with the remainder in 'recovering condition' (as defined within the regulations). This target applies to the pinniped and cetacean SACs.

### 16.3.3 Marine Policy Statements

16.3.3.1 The UK Marine Policy Statement (DEFRA, 2020), adopted in 2011, provides the overarching framework for marine planning and sets out how decisions affecting the marine environment should be taken. It establishes the national aim to halt biodiversity loss and maintain healthy, functioning marine ecosystems. In preparing this Scoping Report, the following marine plans have been taken into account:

- South-East Inshore Marine Plan (DEFRA, 2021) and
- East Inshore and East Offshore Marine Plan (DEFRA, 2014).

16.3.3.2 The UK Biodiversity Framework. JNCC on behalf of the Four Countries' Biodiversity Group (JNCC, 2024):

- The UK Biodiversity Framework replaces the previous UK Post-2010 Biodiversity Framework, which was developed in response to the Convention on Biological Diversity's Strategic Plan for Biodiversity 2011–2020. The updated framework provides a coordinated approach across the four UK nations to fulfil the commitments set out under the Kunming–Montreal Global Biodiversity Framework.
- As an initial step in implementing these obligations, the UK has developed and published a National Biodiversity Strategy and Action Plan, which outlines how the UK intends to deliver the goals, targets, and reporting requirements of the Global Biodiversity Framework.

### 16.3.4 National Planning Policy

16.3.4.1 National Policy Statements (NPS) set out the UK Government's objectives for the development of Nationally Significant Infrastructure Projects. The NPS documents relevant to marine mammal considerations for the UKMS include:

- EN-1: Overarching National Policy Statement for Energy (Department for Energy Security & Net Zero, 2026)

- EN-3: National Policy Statement for Renewable Energy Infrastructure (Department for Energy Security & Net Zero, 2026)
- EN-5: National Policy Statement for Electricity Networks Infrastructure (Department for Energy Security & Net Zero, 2026)
- National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2025a)
- Planning Practice Guidance – Natural Environment (Ministry of Housing, Communities and Local Government, 2025b)
- Planning Practice Guidance – Renewable and Low Carbon Energy (Ministry of Housing, Communities and Local Government, 2023)

16.3.4.2 The NPPF (Ministry of Housing, Communities and Local Government, 2025a) sets out the Government's overarching planning policies for sustainable development. The NPPF includes policies on coastal change and biodiversity. These policies are directly applicable to marine mammal ecology and underpin the assessment approach in this Chapter, including the identification of sensitive species, evaluation of potential impacts, and development of measures to avoid or minimise impacts.

### 16.3.5 Local Planning Policy

16.3.5.1 Local policy relevant to marine mammal ecology is primarily set out in Policy PPL 4 – Biodiversity and Geodiversity of the Tendring District Local Plan 2013–2033, which requires Habitats Regulations Assessment (HRA) for development that may affect International or European Sites and supports measures to mitigate recreational disturbance and protect or restore priority habitats. Additionally, the intertidal part of the UKMS falls within the Essex and South Suffolk Shoreline Management Plan 2, specifically the Hamford Water Management Unit, where the management intent is to support local communities while creating new intertidal habitat and directing flood-risk management to priority areas.

### 16.3.6 Guidance

16.3.6.1 In addition to the legislation and policies outlined, the marine mammal assessment has been carried out in accordance with the following good practice guidance documents and technical guidance insofar as such guidance is applicable and relevant to the assessment:

- JNCC guidelines for minimising the risk of injury to marine mammals from geophysical surveys (JNCC, 2017)[2].
- Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales and Northern Ireland) (JNCC, 2020); and JNCC Updated Effective Deterrent Ranges for assessing the significance of noise disturbance against

[2] A draft version of the JNCC Guidelines for Minimising the Risk of Injury to Marine Mammals from Geophysical Surveys was released for consultation in February 2025. However, as an update has not been released at the time of writing, the 2017 JNCC guidelines will be applied for the current assessment. Should an updated version be released in the future, the UKMS will ensure that the most recent guidance is followed.

Conservation Objectives of harbour porpoise Special Areas of Conservation (England, Wales and Northern Ireland) (JNCC, 2025).

- Harbour porpoise Special Area of Conservation: Southern North Sea Conservation Objectives and Advice on Operations (JNCC and NE, 2019)
- Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects (Southall, et al., 2019).
- Marine mammal noise exposure criteria: assessing the severity of marine mammal behavioural response to human noise (Southall, et al., 2021).
- The Protection of Marine EPS from Injury and Disturbance: Draft Guidance for the Marine Area in England and Wales and the UK Offshore Marine Area (JNCC, 2010).
- Department for Environment, Food & Rural Affairs guidance Marine and coastal wildlife code (DEFRA, 2023).
- Institute of Ecology and Environmental Management (IEEM) guidelines for marine and coastal ecological impact assessment in Britain and Ireland (CIEEM, 2024).

## 16.4 Consultation and Engagement

16.4.1.1 Consultation relating to Marine Mammal Ecology has been undertaken with the following consultees (consultation will continue with consultees following Scoping, as detailed within Volume 01, Chapter 04: Approach to Consultation):

- Natural England;
- Marine Management Organisation (MMO); and
- JNCC.

16.4.1.2 Feedback received during this initial introductory consultation prior to the submission of the Scoping Report included:

- Advice from NE to consider the baseline conditions in the Southern North Sea SAC (SNS SAC) to inform the species to take forwards for further assessment;
- Advice from NE to develop the Study Area for marine mammals based on relevant MU;
- Advice from NE to consider the potential for underwater noise generating activities and to ensure these are considered both individually and in-combination alongside noise thresholds; and
- Advice from NE to consider disturbance from vessels, collision risk, disturbance at seal haul-out sites, changes to prey resource, and changes to water quality throughout the construction, operational, and decommissioning phases of the UKMS.

16.4.1.3 Prior to the ES, additional consultation will be undertaken with the MMO and the Centre for Environment, Fisheries and Aquaculture Science (Cefas) regarding the potential effects on marine mammals as a result of the proposed UKMS.

Consultation will also continue with Natural England and JNCC regarding nature conservation areas and policy advice.

16.4.1.4 Responses on the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council and Tendring District Council. No relevant comments to Marine Mammal Ecology have been received.

## 16.5 Baseline Environment

### 16.5.1 Data Sources used to Inform the Scoping Report

16.5.1.1 For the purposes of this Scoping Report, a comprehensive desk-based review of existing and planned activities was undertaken using relevant spatial and scientific data sources. These sources, listed in Table 16-3, provide the foundation for the marine mammal assessment and will be carried forward into the EIA. Additional site-specific data collected for the UKMS will supplement this information to ensure a robust and evidence-based evaluation.

16.5.1.2 The baseline data sources identified in this Scoping Report will remain under review and may be updated in response to feedback from relevant statutory and non-statutory consultees during the EIA process, or in response to new sources of information becoming available.

Table 16-3: Key sources used to compile information on marine mammal ecology.

| Source, Author and Year | Summary | Coverage of the UKMS |
|---|---|---|
| Spatial models of cetacean density in European Atlantic waters based on Small Cetaceans in European Atlantic waters and the North Sea (SCANS)-IV summer 2022 survey data (Gilles, et al., 2025) | Report summarises results of predictive habitat-based models of cetacean density for seven species and two species groups using survey effort and sighting data from the SCANS-IV surveys conducted during summer 2022. | SCANS-IV survey block NS-B covers the UKMS Scoping Boundary. |
| Estimates of cetacean abundance in European Atlantic waters in summer 2022 from the SCANS-IV aerial and shipboard surveys (Gilles, et al., 2023). | Report provides estimates of cetacean abundance in European Atlantic waters in summer 2022 using the SCANS-IV aerial and shipboard surveys. | SCANS-IV survey block NS-B covers the UKMS Scoping Boundary. |
| Estimates of cetacean abundance in the southern North Sea in winter of 2024 from the winterSCANS aerial surveys (Ramirez-Martinez, et al., 2025) | Report provides estimates of cetacean abundance in the southern North Sea from January to March 2024 during the winterSCANS aerial surveys. | winterSCANS survey block NS-B covers the UKMS Scoping Boundary. |
| Estimates of cetacean abundance in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys (Hammond, et al., 2021) | Report provides estimates of cetacean abundance in European Atlantic waters in summer 2016 using the SCANS-III aerial and shipboard surveys. | SCANS-III survey block L covers the UKMS Scoping Boundary. |
| Modelled density surfaces of cetaceans in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys (Lacey, et al., 2022) | Report utilises density models based on spatially linked environmental variables to produced surface density estimates for nine cetacean species, using survey effort and sighting data from the SCANS-III surveys conducted during summer 2016. | SCANS-III survey block L covers the UKMS Scoping Boundary. |
| Updated abundance estimates for cetacean MUs in UK waters (IAMMWG, 2023) | Report provides abundance estimates for the seven most common cetacean species found in UK waters. MU were defined across UK waters and abundance estimates were calculated for each species within their respective MU. | Study area covers UK waters which, in turn covers the UKMS Scoping Boundary. |

| Source, Author and Year | Summary | Coverage of the UKMS |
|---|---|---|
| Thames Estuary Harbour Porpoise Survey Report 2022 (ZSL, 2022) | Visual and acoustic vessel surveys conducted in April 2022, augmented by opportunistic sightings records and strandings data. | The Study Area covers waters in the vicinity of the UKMS Scoping Boundary. |
| Scientific Advice on Matters Related to the Management of Seal Populations: 2025 (SCOS, 2025) | Report provides formal advice in response to questions raised in 2025 from Scottish Government, Defra and Natural Resource Wales. It outlines the current status of both harbour and grey seals in the UK, as well as counts for both species and grey seal pup production in Scotland. | The relevant SMU for both the UKMS Scoping Boundary is: South-East England SMU for both harbour seal and grey seal. |
| At-sea distribution of seals on the Northwest European Shelf: Towards transboundary conservation and management (Carter, et al., 2025) | Update at-sea distribution maps for both harbour and grey seals hauling out (including across the North Sea) with improvements to existing methods in Carter *et al*. (2022). | Study area covers UK waters which, in turn covers the UKMS Scoping Boundary. |
| Sympatric Seals, Satellite Tracking and Protected Areas: Habitat-Based Distribution Estimates for Conservation and Management (Carter, et al., 2022) | Study models the at-sea distribution of all grey and harbour seals hauling out in the UK and Ireland, calculated using satellite tracking and abundance data (haul out counts). | Study area covers UK waters which, in turn covers the UKMS Scoping Boundary. |
| Population trends of harbour and grey seals in the Greater Thames Estuary (Cox, et al., 2020; ZSL, 2021) | Seal population data for the Greater Thames Estuary between 2003 to 2021. | The Study Area covers waters in the vicinity of the UKMS Scoping Boundary. |
| Sea Watch Foundation Recent Sightings (Sea Watch Foundation, 2026) | Database of the latest sightings records of marine mammal species collected by citizen scientists across UK and Irish waters. | The UKMS is covered within the ‘Eastern England’ region database. |
| ORCA Whale and dolphin sightings (ORCA, 2026) | Database of all the sighting records of whale and dolphin species made by ORCA’s citizen scientists over nearly 30 years. Sightings were originally focused on | ORCA provides data of sightings globally. This includes sightings within the UKMS Scoping Boundary. |

| Source, Author and Year | Summary | Coverage of the UKMS |
|---|---|---|
| | the Northeast Atlantic, but data is now global. | |
| Five Estuaries offshore windfarm Digital Aerial Surveys (DAS) (Wright & Sinclair, 2022) | DAS were conducted monthly between March 2019 and February 2021 across the Five Estuaries array area plus a 4 km buffer. | No Coverage –The DAS encompasses their respective projects array plus a 4 km buffer[3]. Given that these projects, together with the UKMS, are located within the southern North Sea and border the proposed UKMS Scoping Boundary, they provide valuable insight into marine mammal ecology in the surrounding area. |
| North Falls offshore windfarm DAS (RWE, 2023) | DAS were conducted monthly between March 2019 and February 2021 across the North Falls array area plus a 4 km buffer. | |
| Norfolk Boreas offshore windfarm DAS (Royal HaskoningDHV, 2019). | DAS were conducted monthly between August 2016 and July 2018 across the Norfolk Boreas array area plus a 4 km buffer. | |
| Norfolk Vanguard East offshore windfarm DAS (Norfolk Vanguard Limited, 2018). | DAS were conducted monthly between September 2015 and April 2016 across the Norfolk Vanguard East array area plus a 4 km buffer. | |

[3] It is acknowledged that other offshore developments, such as the East Anglia projects (One, One North, Two, and Three), Greater Gabbard, and Galloper, are located adjacent to the UKMS area. However, the site specific surveys for these projects were conducted over a decade ago and are therefore considered outdated. In contrast, the selected developments have undertaken DAS during a more recent period, providing data that is both current and more representative of present marine mammal ecology. This ensures that the baseline information used is robust, relevant, and reflective of contemporary ecological patterns.

### 16.5.2 Baseline Conditions

16.5.2.1 Marine mammals considered in this Scoping Report include cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals). To inform the assessment, an initial desk-based review of relevant literature and available datasets has been undertaken (see Table 16-3). This review provides baseline information on species presence, distribution, and ecological context within the Study Areas of the UKMS, supporting the identification of potential impacts from the UKMS and informing the Scoping process.

16.5.2.2 Of the 28 marine mammal species recorded in UK waters, 17 are known to occur in the North Sea (Sea Watch Foundation, 2020; IAMMWG, 2023). The North Sea supports both grey and harbour seals, which use haul-out sites along the coast and forage extensively offshore. Several odontocete species (toothed whales, which includes dolphins, porpoise, and all other whales with teeth) are present in the North Sea, including harbour porpoise, white-beaked dolphin, white-sided dolphin, Risso's dolphin, common dolphin and bottlenose dolphin. As the distribution and range of the white-sided and Risso's dolphin does not extend as far south as the UKMS, and common dolphin have a limited distribution in the southern North Sea, these three species are not considered further (JNCC, et al., 2026a), (JNCC, et al., 2026b), (JNCC, et al., 2026c).

16.5.2.3 Larger mysticete species such as minke whale are also observed in both inshore and offshore waters, particularly during summer months when prey availability is high. Other mysticetes include humpback whales (*Megaptera novaeangliae*) and fin whales (*Balaenoptera physalus*), though these species are rarely sighted and/or are infrequent visitors to the area of UKMS (JNCC, et al., 2026d), (JNCC, et al., 2026e), hence neither humpback whale nor fin whales are considered further. . Seasonal patterns, such as increased sightings of certain species during migration or breeding periods, are relevant for assessing potential impacts.

16.5.2.4 The approximate abundance and density of key cetacean species in the UKMS Scoping Boundary have been quantified using the results from the SCANS surveys. The SCANS project is a large-scale ship and aerial based survey effort to quantify cetacean abundance and distribution in UK and European Atlantic Waters. The most recent summer surveys took place in 2022 (SCANS-IV), between June and August (Gilles, et al., 2023), though there has been a recent winterSCANS report of the southern North Sea, which gathered data from January to March 2024 (Ramirez-Martinez, et al., 2025).

16.5.2.5 The UKMS overlaps with SCANS-IV survey block NS-B (Gilles, et al., 2023) and SCANS-III survey block L (Hammond, et al., 2021) (see Figure 16-3). These large-scale surveys provide robust data on abundance and distribution, which are critical for understanding population density and spatial use. To complement these datasets, additional records from other developments' site specific surveys in the area (Table 16-3), citizen science initiatives and public sightings compiled by ORCA (2026) and the Sea Watch Foundation (2026) have been considered. These

sources help capture opportunistic observations and seasonal variability, ensuring a more comprehensive picture of marine mammal presence and behaviour within the UKMS Scoping Boundary.

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# Tarchon Interconnector Project

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## Relevant SCANS-IV and SCANS-III Survey Blocks for Marine Mammals

Legend

- UK Marine Scheme Scoping Boundary
- Exclusive Economic Zones (EEZ) Boundaries
- SCANS-III Survey Block L
- SCANS-IV Survey Block NS-B



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 25 50 km

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| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:1,000,000@A3 | 02/03/2026 | BPHB | EH | MB |

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Figure 16-3

Figure Reference: Tarchon_Scoping_MM_Fig16-3_SCANS_Blocks_v1

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### Cetaceans

16.5.2.6 The cetacean species most commonly sighted within the UKMS Scoping Boundary include harbour porpoise, bottlenose dolphin, white-beaked dolphin, and minke whale (Hammond, et al., 2021; Gilles, et al., 2023).

16.5.2.7 While other species have been recorded along England's east coast and throughout the broader North Sea, available baseline data suggest sporadic occurrence. Such infrequent visitors include Risso's dolphin, short-beaked common dolphin, and Atlantic white-sided dolphin (Hammond, et al., 2021; Gilles, et al., 2023; Ramirez-Martinez, et al., 2025).

#### *Harbour porpoise*

16.5.2.8 The harbour porpoise is the most widely distributed and frequently recorded cetacean species in the North Sea (Gilles, et al., 2025; Gilles, et al., 2023). Harbour porpoise are currently classified as Least Concern on the International Union for Conservation of Nature (IUCN) Red List (Braulik, Minton, Amano, & Bjørge, 2023). However, its conservation status within the UK remains uncertain due to a lack of comprehensive data (JNCC, 2019a).

16.5.2.9 The UKMS lies within the North Sea MU for harbour porpoise, which covers a significantly larger area than the SCANS survey blocks. The estimated abundance within the UK portion of this MU is 159,632 individuals, with a coefficient of variation (CV) of 0.12 and a 95% confidence interval (CI) ranging from 127,442 to 199,954 (IAMMWG, 2023).

16.5.2.10 Population estimates from the SCANS-IV survey indicate a density of 0.3096 individuals/km² and an abundance of approximately 7,982 individuals within survey block NS-B (Gilles, et al., 2023). These figures are lower than those from the earlier SCANS-III survey, which reported a density of 0.607 individuals/km² and an estimated 19,064 individuals in block L (Hammond, et al., 2021). However, both the SCANS-IV and SCANS-III densities are lower than those reported in winterSCANS, which indicate a density of 0.8253 individuals/km² and an abundance of approximately 21,281 individuals within survey block NS-B (Ramirez-Martinez, et al., 2025), the highest density reported of all blocks surveyed.

16.5.2.11 Considering the closest offshore developments for which site specific survey results are available, harbour porpoises were the most frequently sighted species during the Five Estuaries (Wright & Sinclair, 2022), North Falls (RWE, 2023), Norfolk Boreas (Royal HaskoningDHV, 2019) and Norfolk Vanguard East (Norfolk Vanguard Limited, 2018) DAS. Further, the Zoological Society of London (ZSL) conducting visual and acoustic vessel-based surveys within the Thames Estuary from 22nd to 28th of April 2022 confirmed sightings and/or detections of harbour porpoise (ZSL, 2022), overlapping with the UKMS.

16.5.2.12 In addition to formal survey data, frequent sightings of harbour porpoise have been reported through citizen science initiatives, including those compiled by

ORCA and the Sea Watch Foundation. Both databases also include records of unidentified dolphin and cetacean species, some of which may have been harbour porpoise (Sea Watch Foundation, 2026; ORCA, 2026).

#### *Bottlenose dolphin*

16.5.2.13 Bottlenose dolphins are widely distributed across the globe, inhabiting tropical and temperate waters in both hemispheres. They are commonly associated with coastal zones and continental shelf habitats (IAMMWG, 2023; JNCC, et al., 2026f). In many areas, including the UK continental shelf, distinct inshore and offshore sub-populations have been identified (IAMMWG, 2023). Within UK waters, inshore dolphins are most frequently observed along the north-east and south-west coasts of Scotland, within the Irish Sea, and across the western English Channel (IAMMWG, 2023). Bottlenose dolphins are listed as a species of Least Concern on the IUCN Red List (Wells, Natoli, & Braulik, 2019). The UK conservation status for the bottlenose dolphin is currently unknown due to insufficient data (JNCC, 2019b).

16.5.2.14 Two key locations within UK territorial waters support semi-resident bottlenose dolphin communities: Cardigan Bay in Wales and the Moray Firth on Scotland's north-east coast. Both sites have been designated as SACs for this species. However, recent photo-identification research suggests that the Moray Firth inshore population may be expanding or shifting southward (Arso Civil, et al., 2019; Arso Civil, et al., 2021; Arso Civil, Ellis, Coxon, & Hammond, 2023). Individuals from this population are most frequently re-sighted within the Firth of Forth in Scotland, and records from the Citizen Fin project confirm infrequent movements further south along the east coast of England. These include encounters off the Northumberland coast and as far south as Scarborough, the most southerly confirmed sighting (Arso Civil, et al., 2019; Arso Civil, et al., 2021; Arso Civil, Ellis, Coxon, & Hammond, 2023). However, even these southern most sightings remain considerably north of the UKMS, indicating that, despite a southward shift, the Moray Firth population has not expanded its range sufficiently to overlap with the UKMS. Further, sightings of bottlenose dolphins in the southern North Sea remain rare (Hammond, et al., 2021; Gilles, et al., 2023).

16.5.2.15 The UKMS lies within the Greater North Sea MU for bottlenose dolphins. The estimated abundance within the UK portion of this MU is 1,885 individuals, with a CV of 0.8 and a 95% CI ranging from 476 to 7,461 individuals (IAMMWG, 2023). There are no density, or abundance estimates available for SCANS-IV or winterSCANS survey block NS-B (Gilles, et al., 2023; Ramirez-Martinez, et al., 2025) nor SCANS-III survey block L (Hammond, et al., 2021), as bottlenose dolphin sightings were not recorded within these blocks during the respective surveys.

16.5.2.16 Bottlenose dolphins were not recorded in any of the site specific surveys undertaken for surrounding developments, and therefore it was concluded in each case, alongside other referenced literature, that bottlenose dolphins would not be considered in subsequent reports, and therefore did not progress to quantitative assessments (Norfolk Vanguard Limited, 2018; Royal Haskoning DHV, 2019; Wright & Sinclair, 2022; RWE, 2023).

16.5.2.17 Nevertheless, occasional sightings of bottlenose dolphins have been documented through citizen science initiatives, including those compiled by ORCA, which report 11 sightings between 2011 and 2019 (ORCA, 2026), as well as the Sea Watch Foundation which has also recorded several sightings within the 'Eastern England' region (Sea Watch Foundation, 2026). In addition, both formal surveys and the citizen science databases include records of unidentified dolphins and other cetacean species, some of which may have been bottlenose dolphins.

16.5.2.18 Given the very low number of bottlenose dolphin sightings within the UKMS area, and that no sightings have been reported in the surrounding developments, the species is not considered likely to be affected by the proposed activities. Bottlenose dolphin is therefore scoped out of the assessment and is not taken forward for further consideration.

***White-beaked dolphin***

16.5.2.19 White-beaked dolphins occur widely across the northern European continental shelf. Within the North Sea, they are most commonly found along the Scottish coastline and the north-east coast of England (Gilles, et al., 2025). These dolphins are present throughout the year, typically favouring waters between 50–100 m deep, with the majority of sightings reported during the summer and early autumn months, particularly June to October (Sea Watch Foundation, 2020). The white-beaked dolphin is listed as a species of Least Concern on the IUCN Red List (Kiszka & Braulik, 2018). The conservation status of white-beaked dolphins in UK waters has however been assessed as unknown (JNCC, 2019c).

16.5.2.20 Although white-beaked dolphins are broadly distributed across the central North Sea, sightings along England's southern and eastern coasts are scarce, and their occurrence in the southern North Sea remains relatively low (Gilles, et al., 2025; Gilles, et al., 2023; Hammond, et al., 2021). Habitat modelling further supports this pattern, highlighting waters off north and east Scotland and north-east England as areas of highest abundance, while densities within the UKMS Scoping Boundary are predicted to be minimal (Gilles, et al., 2025).

16.5.2.21 The UKMS lies within the Celtic and Greater North Sea MU for white-beaked dolphins. The estimated abundance within the UK portion of this MU is 34,025 individuals, with a CV of 0.28 and a 95% CI ranging from 20,026 to 57,807 (IAMMWG, 2023). However, there are no density or abundance estimates available for SCANS-IV or winterSCANS survey block NS-B (Gilles, et al., 2023; Ramirez-Martinez, et al., 2025) nor SCANS-III survey block L (Hammond, et al., 2021), as white-beaked dolphin sightings were not recorded within these blocks during the respective surveys.

16.5.2.22 Four white-beaked dolphins were recorded during the Norfolk Vanguard East digital aerial survey (Norfolk Vanguard Limited, 2018). No additional sightings were reported in other site specific surveys, including Five Estuaries (Wright & Sinclair, 2022), North Falls (RWE, 2023), and Norfolk Boreas (Royal HaskoningDHV, 2019). Citizen science data also indicate very limited occurrence of this species; the Sea

Watch Foundation has no recent records for the ‘Eastern England’ region (Sea Watch Foundation, 2026), and ORCA reports only six sightings in 2014, with none since (ORCA, 2026). Despite this, all datasets include observations of unidentified dolphins and other cetaceans, some of which may have been white-beaked dolphins.

#### *Minke whale*

16.5.2.23 Minke whales are most frequently encountered in UK continental shelf waters, generally in depths of less than 200 m. Although present year-round, sightings peak between May and November (Risch, et al., 2019), when individuals move closer inshore to feed on prey such as herring and mackerel. The minke whale is listed as a species of Least Concern on the IUCN Red List (Cooke, 2018). Their conservation status within UK waters is currently classified as unknown (JNCC, 2019d).

16.5.2.24 Minke whales occur along the Atlantic coasts of Britain and Ireland and throughout the North Sea. Habitat modelling from SCANS-III (Lacey, et al., 2022) indicates that the highest densities occur in the central and north-eastern North Sea and in shelf waters west of Scotland, while numbers in the southern North Sea remain low. Updated models (Gilles, et al., 2025) reinforce this pattern, showing peak abundance in the north-western North Sea and western Scottish shelf waters. Compared to summer 2016 results, recent modelling suggests reduced densities in the central North Sea and Moray Firth, alongside a northward shift in distribution (Gilles, et al., 2025).

16.5.2.25 The UKMS Scoping Boundary lies within the Celtic and Greater North Sea MU for minke whale, which covers a significantly larger area than the SCANS survey blocks. The estimated abundance within the UK portion of this MU is 10,288 individuals, with a CV of 0.26 and a 95% CI ranging from 6,210 to 17,042 (IAMMWG, 2023).

16.5.2.26 No density or abundance estimates are available for SCANS-IV or winterSCANS survey block NS-B (Gilles, et al., 2023; Ramirez-Martinez, et al., 2025) nor SCANS-III survey block L (Hammond, et al., 2021), as minke whale sightings were not recorded within these blocks during the respective surveys.

16.5.2.27 A single minke whale was recorded during the North Falls DAS (RWE, 2023). No additional sightings were reported in other site specific surveys, including Five Estuaries (Wright & Sinclair, 2022), Norfolk Boreas (Royal HaskoningDHV, 2019), and Norfolk Vanguard East (Norfolk Vanguard Limited, 2018). Citizen science initiatives indicate similarly low occurrence, with no records from ORCA (ORCA, 2026) and only a small number of recent sightings reported by the Sea Watch Foundation (Sea Watch Foundation, 2026). Regardless, both site specific survey and citizen science datasets include observations of unidentified cetaceans, some of which could have been minke whales.

### Pinnipeds

16.5.2.28 Two pinniped species are regularly seen within English waters, the harbour seal and grey seal, with both regularly occurring along the east coast of England (Carter, et al., 2025; SCOS, 2024). Both species have been listed as Least Concern on the IUCN Red List (Bowen, 2025; Russell, 2025).

#### *Grey seal*

16.5.2.29 Grey seals are the more abundant seal species on the east coast of England and are present year-round. Foraging ranges of up to 448 km from haul-out sites have been reported (Carter, et al., 2022). However, typically, foraging distances tend to be shorter, with Carter *et al*. (2022) reporting an average foraging distance of 100 km or less.

16.5.2.30 Grey seals regularly haul-out to rest, breed, and moult. The breeding season for grey seals occurs between August and December, while the annual moult occurs between December and April (SCOS, 2022; SCOS, 2024; SCOS, 2025). The UK conservation status for grey seals has been assessed as favourable with an improving overall trend (JNCC, 2019e).

16.5.2.31 The most recent August counts of grey seals at haul-outs within the Southeast England SMU was 10,735 in 2022/2023 (SCOS, 2025). Further, within the SMU there is an SAC with grey seals as a qualifying feature, the Humber Estuary SAC, which reported 6,008 grey seals in 2023, a 5,166.2% (95% CI = 2,859-9,193.1) increase since 1992. As well as a key area, Donna Nook to Scroby Sands, which reported 9,793 grey seals in 2023, a 5,406.4% (95% CI = 3,727.3-7,799.3) increase since 1992, and an annual increase of 4.1% (95% CI = -1.6-10.2; SCOS, 2025). Additionally pup production within this SMU continues to increase annually for grey seals.

16.5.2.32 As for the most recent August counts of grey seals at haul-outs within the Northeast England SMU, 5,381 individuals were recorded in 2020 to 2023 (SCOS, 2025). This represents a long-term increase of 1,171.7% (95% CI = (576.7-2,307.7;) in grey seals hauled out since 1997 and an annual rise of 11.7% (95% CI = 8.7-14.9). Further, within the SMU there is an SAC with grey seals as a primary reason for site selection, the English component Berwickshire and Northumberland SAC, which reported 4,251 grey seals in 2020, which is an 1,116.8 % (95% CI = 529.9-2,254.2) increase since 1997.

16.5.2.33 Recent studies within the Greater Thames Estuary, surrounding the UKMS area, have identified several seal haul-out sites. In 2019, the grey seal population was estimated at 3,243 individuals (95% CI: 2,710–4,036) (Cox, et al., 2020), with the most recent estimate in 2021 reporting 3,134 individuals (95% CI: 2,619–3,901) (ZSL, 2021). These figures indicate a sustained long-term increase since the initial estimate in 2013 of 849 grey seals (ZSL, 2021; Cox, et al., 2020).

16.5.2.34 Grey seals occur in their highest densities along offshore sandbanks, notably at Kentish Knock and Goodwin Sands, but they are also observed on sandbanks further within the estuary and along the coastline. Although breeding is not

considered to occur within the Greater Thames Estuary, evidence suggests that grey seals regularly migrate to haul-out sites within the Study Area and may transit across the UKMS Scoping Boundary (ZSL, 2021; Cox, et al., 2020).

16.5.2.35 Grey seals were recorded during site specific surveys for both Five Estuaries (eight seals; Wright & Sinclair, 2022) and North Falls (23 seals; RWE, 2023). Seal species were also observed in the DAS for Norfolk Boreas (Royal HaskoningDHV, 2019) and Norfolk Vanguard East (Norfolk Vanguard Limited, 2018); however, these individuals were not identified to species level and could represent either grey or harbour seals. Regarding citizen science data, ORCA focuses exclusively on cetaceans and therefore does not provide pinniped records. In contrast, the Sea Watch Foundation database includes recent reports of grey seals within the 'Eastern England' region (Sea Watch Foundation, 2026).

***Harbour seal***

16.5.2.36 Harbour seals will haul-out to give birth to their pups in June and July and will moult in August, outside these times they will haul-out regularly to rest (SCOS, 2024; SCOS, 2022). Foraging ranges of up to 273 km from a haul-out site have been reported (Carter, et al., 2022). However, typically, harbour seals will forage within 50 km of their haul-out site and show high site fidelity. Harbour seals have been assessed as having an unfavourable-inadequate conservation status in the UK (JNCC, 2019f).

16.5.2.37 The most recent August count of harbour seals at haul-out sites within Southeast England SMU was 3,372 in 2022/2023 (SCOS, 2025). This indicates a long-term increase in harbour seals hauled out compared to long-term data sets, since 2003 there has been a rise of 14.9% (95% CI = -11.1-48.6). Further, within the SMU there is a SAC with harbour seals as a primary reason for site selection, the Wash and North Norfolk Coast SAC, which reported 2,675 harbour seals in 2023, a 35.7% (95% CI = 15.7-59.4) increase since 1992 (SCOS, 2025). However, the Southeast England SMU is depleted (since 2018) and currently is showing no sign of recovery.

16.5.2.38 Harbour seals are also known to haul-out within the Greater Thames Estuary, including Margate Sands, Pegwell Bay, Goodwin Knoll, the Blackwater, and Hamford Water (ZSL, 2021). The 2021 survey (ZSL, 2021) estimated a population of 692 individuals (95% CI: 566–922) within the Greater Thames Estuary, representing a decline over the previous four years and aligning closely with the 2013 estimate. Harbour seals are most frequently observed at coastal sites such as Dengie Flats, Hamford Water, Swale Estuary, and Pegwell Bay, as well as on outer sandbanks including Margate Sands, Goodwin Knoll, and Goodwin Sands (Cox, et al., 2020). Haul-out behaviour is strongly seasonal, peaking during August–September in the moulting period.

16.5.2.39 No harbour seals were recorded during the site specific DAS for Five Estuaries (Wright & Sinclair, 2022), North Falls (RWE, 2023), Norfolk Boreas (Royal HaskoningDHV, 2019), or Norfolk Vanguard East (Norfolk Vanguard Limited, 2018). However, all surveys reported sightings of unidentified seal species, which

could represent either grey or harbour seals. Regarding citizen science data, ORCA does not provide pinniped records, but the Sea Watch Foundation database includes reports of harbour seals within the 'Eastern England' region, albeit in much lower numbers compared to grey seals (Sea Watch Foundation, 2026).

### 16.5.3 Summary of Scoped-in receptors

16.5.3.1 The key marine mammal receptors which will inform this Scoping Report and the subsequent EIA include:

- Harbour porpoise;
- White-beaked dolphin;
- Minke whale;
- Grey seal; and
- Harbour seal.

### 16.5.4 Designated Sites

16.5.4.1 The designated sites are considered when they are situated within the species-specific MUs (the defined Regional Study Areas for each marine mammal species), and when the marine mammal species concerned is formally recognised as a protected feature of that site. Designated sites for marine mammals within the Regional Study Area are presented in Table 16-4 and shown in Figure 16-4. For the purposes of Scoping, a precautionary approach has been adopted to ensure comprehensive consideration of all relevant protected areas. This approach encompasses all MPAs located within the Regional Study Area, taking into account the applicable MUs and SMUs for each species included in the assessment.

16.5.4.2 In accordance with the EU Habitats Directive (Council Directive 92/43/EEC), as transposed into UK legislation, a network of European sites, including SACs, has been established to safeguard habitats and species of European importance. These designations aim to protect species listed under Annex II of the Directive (being bottlenose dolphins, harbour porpoise, grey seal and harbour seal in the UK).

#### Cetaceans

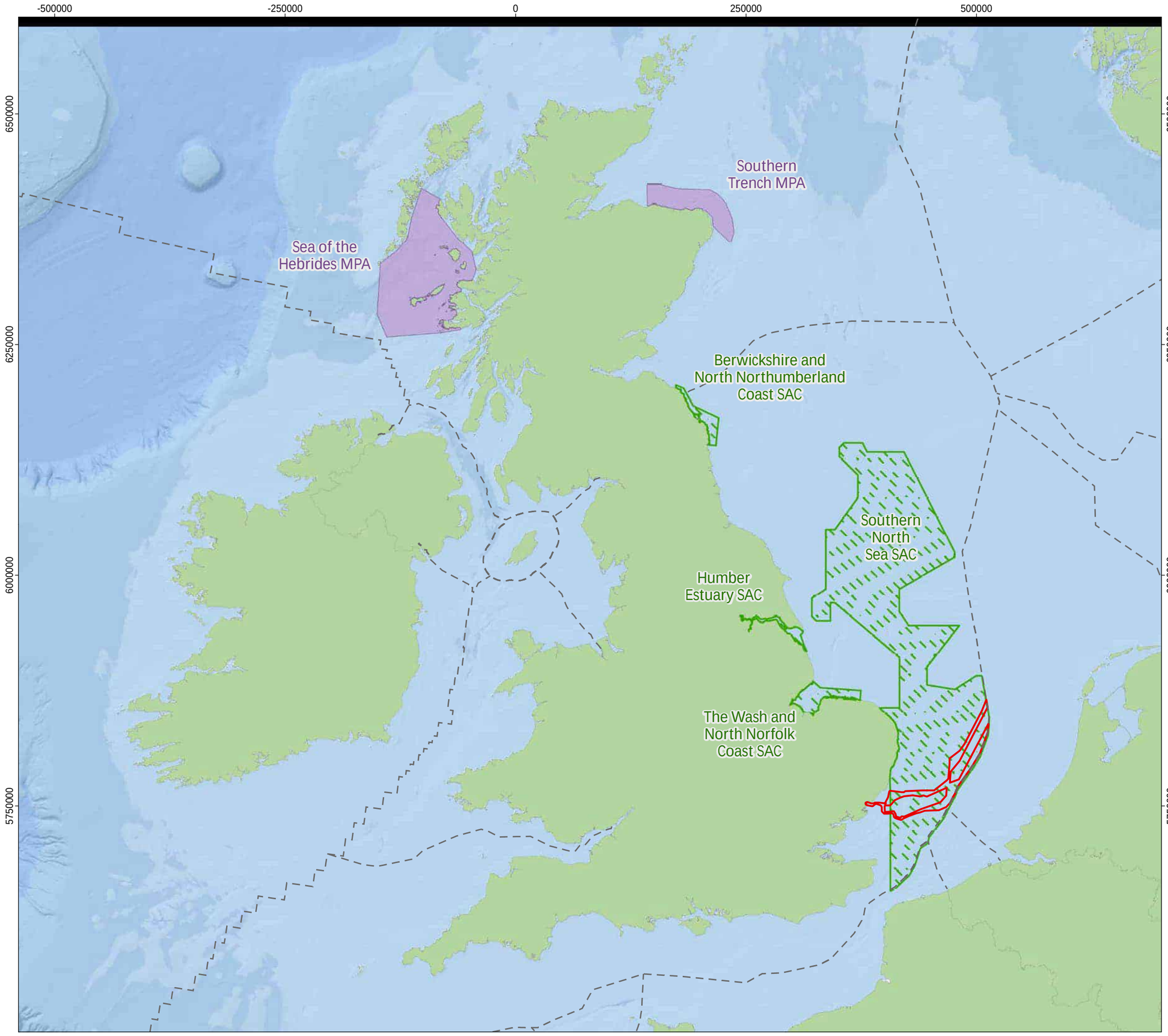
16.5.4.3 Within UK waters, two cetacean species are included in Annex II: the harbour porpoise and the bottlenose dolphin. These species benefit from enhanced protection through SACs designated to conserve essential habitats, including breeding, foraging, and transit areas. Notably, the Southern North Sea SAC, designated for harbour porpoise, overlaps with the UKMS area (Table 16-4; Figure 16-4). Additionally, there are two nature conservation MPAs designated under the Marine (Scotland) Act 2010 which list minke whales as a designated feature of interest: the Southern Trench MPA in the Moray Firth and the Sea of the Hebrides MPA (Table 16-4; Figure 16-4), both in Scottish waters.

### Pinnipeds

16.5.4.4 Both grey seals and harbour seals are Annex II species for which SACs can be designated for their protection. There are no designated SACs for either grey seal or harbour seal that overlap with the UKMS. The closest SAC to the area for seals is the Wash and North Norfolk Coast SAC designated for harbour seals (Figure 16-4), which is located 120 km (at the closest point) from the UKMS. The closest SAC for grey seals is the Humber Estuary SAC (Figure 16-4), which is located 196.6 km (at the closest point) from the UKMS.

**Table 16-4: Designated sites relevant for marine mammals**

| Designated Site name | Type of designated site | Distance to nearest point of the Tarchon Project (km) | Marine Mammal Protected Feature(s) |
|---|---|---|---|
| Southern North Sea | SAC | 0.00 | Harbour porpoise |
| Wash and North Norfolk Coast | SAC | 120 | Harbour seal |
| Humber Estuary | SAC | 196.6 | Grey seal |
| Berwickshire and North Northumberland Coast | SAC | 407.1 | Grey seal |
| Southern Trench | MPA | 574.9 | Minke whale |
| Sea of the Hebrides | MPA | 1,023.4 | Minke whale |




TARCHON

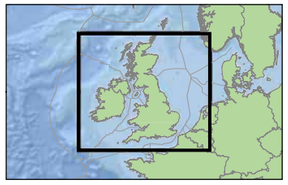
# Tarchon Interconnector Project

Scoping Report

## Marine Mammal Designated Sites

Legend

- UK Marine Scheme Scoping Boundary
- Exclusive Economic Zones (EEZ) Boundaries
- Special Areas of Conservation (SAC)
- Marine Protected Areas (MPA)



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 125 250 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:4,000,000@A3 | 02/03/2026 | BPHB | EH | MB |

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APEM

Sheet 1 of 1

Figure 16-4

Figure Reference: Tarchon_Scoping_MM_Fig16-4_Designations_v1

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### 16.5.5 Future Baseline Conditions

16.5.5.1 The baseline environment is not static and is expected to change over time, irrespective of the UKMS. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UKMS over its operational lifetime. This future baseline will be defined for the purposes of the Environmental Impact Assessment.

16.5.5.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures to a reasonable extent that can be envisaged, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Additionally, the future baseline will include consideration of the possibility of further marine protected areas becoming designated over the lifetime of the UKMS.

16.5.5.3 Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

16.5.5.4 At present, no other projects are identified that could influence the marine mammal baseline. It is assumed that marine mammal populations will generally follow regional and national trends, provided no significant local impacts occur. Natural population fluctuations between now and the start of construction are unlikely to be quantifiable. Potential changes may result from climatic factors, such as variations in sea temperature affecting species distribution; however, these typically occur gradually over long-term trends. Other natural phenomena, such as disease outbreaks (e.g., morbillivirus) (Duignan, et al., 2014), may have more immediate but less predictable effects.

16.5.5.5 Additionally, certain anthropogenic pressures could act as supplementary stressors on marine mammal populations. Key threats listed in House of Commons Environment, Food and Rural Affairs Committee (2023) report includes bycatch and entanglement in fishing gear, commercial factors such as hunting practices, and underwater noise generated by offshore development activities, vessel traffic, drilling operations and military exercises. Marine mammals may also be impacted by vessel collisions, which can result in serious injury or mortality, as well as chemical pollution events that degrade habitats and impair overall health.

16.5.5.6 As stated, there are a vast number of sources of stressors which can threaten marine mammals. Consequently, baseline conditions are expected to exhibit some degree of change over time independent of the UKMS.

### 16.5.6 Additional Proposed Data Sources

16.5.6.1 A more detailed literature review will be developed for the EIA, building upon the high-level outline provided within this Scoping Report (Section 16.5.1 and Table 16-3). These may include the following across the UKMS area:

- Reports and supplementary assessments related to large-scale cetacean surveys will be reviewed, with particular focus on the most recent survey campaigns. This includes any additional data and analyses released from the latest phase of the SCANS programme;
- Future SCOS annual reports; and
- Any additional data sources and publications identified by stakeholders during consultation workshops.

## 16.6 Assessment Methodology

16.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology of this Scoping Report and will consider the construction, operational and decommissioning phases of the UKMS. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

16.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on Marine Mammal Ecology receptors arising from the construction, operational, and decommissioning phases of the UK Scheme. This approach defines:

- **Sources and impacts:** The origin of a potential impact;
- **Pathway:** The mechanism by which the impact may affect a receptor; and
- **Receptor:** The component of the environment that may be affected.

16.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

16.6.1.4 The evaluation of potential impacts on marine mammals will draw upon publicly available datasets (see Table 16-3). These sources will be reviewed and consulted during the EIA process. The assessment will be informed by professional expertise and established best practice methodologies.

16.6.1.5 To determine the significance of any impact, the EIA will consider both the sensitivity of the species (Table 16-5) and the magnitude of the effect (Table 16-6). The assessment will also incorporate embedded mitigation measures designed to minimise environmental harm, alongside the application of recognised best practice. Where necessary, additional consents or licences will be discussed and acquired.

16.6.1.6 Underwater noise is a key factor in assessing potential impacts on marine mammals. Activities that generate underwater noise will arise during the construction, operational and decommissioning phases.

16.6.1.7 The most up-to-date research, which is currently accepted on auditory thresholds for marine mammals, (with the currently accepted thresholds being Southall, *et al*., 2019) will be used to identify where levels may exceed thresholds for permanent (Permanent Threshold Shift; PTS) or temporary (Temporary Threshold Shift; TTS) hearing damage.

16.6.1.8 The methodology for assessing underwater noise is set out in Volume 06, Annex 22-2: Underwater Sound Assessment Methodology, which describes the approach used to characterise anticipated underwater noise sources, evaluate their potential propagation, and assess the associated risks to marine receptors. This includes the rationale for adopting a qualitative assessment, the application of recognised guidance (e.g., Southall *et al*., 2019), and the criteria used to interpret potential behavioural and physiological effects on marine mammals.

### 16.6.2 Sensitivity of Receptor

16.6.2.1 The sensitivity of marine mammals to potential impacts will be evaluated based on documented behavioural and ecological responses to various pressures. This assessment will rely on professional judgment, taking into account available evidence on how distinct species react to specific types of effects (such as underwater noise) and whether their ecology makes them particularly susceptible to potential impacts.

16.6.2.2 Sensitivity will be determined using the criteria set out in Table 16-5, with consideration given to species-specific behaviour and ecological characteristics.

16.6.2.3 The value of the receptor is not incorporated into the criteria used to assess the sensitivity of marine mammals. All marine mammals are considered to be of very high value, as they are either listed under Annex II of the Habitats Directive as species of Community Interest or under Annex IV(a) as EPS requiring strict protection.

**Table 16-5: Definitions of sensitivity for marine mammal receptors**

| Sensitivity | Definition |
|---|---|
| Very High | *Adaptability*: The receptor shows no ability to adapt its behaviour in a way that would prevent adverse effects on individual survival or reproductive success.<br>*Tolerance*: The receptor is unable to withstand the pressure, and impacts are expected to alter both survival and reproduction.<br>*Recoverability*: There is no realistic potential for the receptor to recover from disruptions to vital rates (reproduction and survival rates) once effects have occurred. |
| High | *Adaptability*: The receptor displays only limited ability to adjust its behaviour, meaning survival or reproductive rates may still be affected.<br>*Tolerance*: The receptor has limited tolerance, and impacts may influence both survival and reproduction at the individual level.<br>*Recoverability*: Recovery from changes to vital rates is possible but limited. |
| Medium | *Adaptability*: Individuals can alter behaviour sufficiently to avoid impacts on survival rates, although reproductive rates may still be affected.<br>*Tolerance*: The receptor has some level of tolerance, making it unlikely that both survival and reproduction would be simultaneously affected.<br>*Recoverability*: The receptor is generally capable of recovering from temporary impacts to vital rates. |
| Low | *Adaptability*: The receptor can readily adapt behaviour such that neither survival nor reproduction is affected. |

| Sensitivity | Definition |
|---|---|
| | *Tolerance*: The receptor can withstand the pressure without measurable effects on vital rates.<br>*Recoverability*: Once the pressure ceases, the receptor can quickly return to its pre-impact behavioural patterns and activities. |
| Negligible | Very little or no effect on the behaviour of the receptor. |

### 16.6.3 Magnitude of Impact

16.6.3.1 The magnitude of impacts on marine mammals reflects both the scale and duration of the effect. Wherever feasible, this will be evaluated using quantitative data. For habitat features, magnitude is defined by the extent of habitat area affected within the UKMS Scoping Boundary footprint. For marine mammal populations, it refers to the anticipated number of individuals impacted. Each impact will be classified into one of four magnitude levels, as described in Table 16-6.

16.6.3.2 Determining the appropriate magnitude level involves expert judgment, drawing upon a wide range of evidence sources. These include relevant guidance documents (refer to Section 16.3.5), peer-reviewed scientific literature, current research findings, and established descriptive terminology.

**Table 16-6: Definitions of magnitude of impact for marine mammal receptors**

| Magnitude | Definition |
|---|---|
| Large | A change in the size or extent of distribution of the relevant biogeographic population or the population that is the interest feature of a specific protected site that is predicted to irreversibly alter the population in the short-to-long term and to alter the long-term viability of the population and/or the integrity of the protected site. Recovery to baseline levels from that change predicted to be achieved in the long term (i.e. more than five years) following cessation of the UKMS. |
| Medium | A change in the size or extent of distribution of the relevant biogeographic population or the population that is the interest feature of a specific protected site that occurs in the short and long term, but which is not predicted to alter the long-term viability of the population and/or the integrity of the protected site. Recovery to baseline levels from that change predicted to be achieved in the medium term (i.e. no more than five years) following cessation of the UKMS. |
| Low | A change in the size or extent of distribution of the relevant biogeographic population or the population that is the interest feature of a specific protected site that is sufficiently small-scale or of short duration to cause no long-term harm to the feature/population. Recovery to baseline levels from that change predicted to be achieved in the short term (i.e. no more than one year) following cessation of the UKMS. |
| Negligible | A very slight change from the size or extent of distribution of the relevant biogeographic population or the population that is the interest feature of a specific protected site. Recovery to baseline levels from that change predicted to be rapid (i.e. no more than circa six months) following cessation of the UKMS. |

### 16.6.4 Significance of Effect

16.6.4.1 The determination of whether an effect is considered significant will be based on a combined assessment of the receptor's overall sensitivity and the magnitude of the impact. This evaluation will follow a matrix-based methodology, as outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

16.6.4.2 To ensure consistency across topics, a matrix approach has been adopted to present judgements made on the significance of an effect. This terminology is outlined in Table 16-7 below.

**Table 16-7: Significance Matrix**

| **Sensitivity of Receptor** | **Magnitude of Impact** | | | |
|---|---|---|---|---|
| | Large | Medium | Low | Negligible |
| Very High | Major | Major | Moderate | Minor |
| High | Major | Moderate | Moderate | Minor |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

16.6.4.3 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

16.6.4.4 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UKMS design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UKMS.

## 16.7 Potential Effects and Mitigation

16.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 16.7.2 Embedded Mitigation and Good Practice Measures

16.7.2.1 The UKMS will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as "*mitigation measures that have been incorporated into a project's description and form an inherent part of the project's design"* (ISEP, 2024).

16.7.2.2 Although there are no embedded measures specific to marine mammals, the following control and management measures are proposed at this stage, reflecting standard international regulatory practice and best-practice guidelines:

### Underwater Noise Management

- Adherence to JNCC Guidelines, where appropriate, to minimise impacts from underwater sound generated by UKMS activities, including geophysical surveys (JNCC, 2017).
- Compliance with JNCC Guidance for assessing the significance of noise disturbance against the conservation objectives of the Southern North Sea SAC (JNCC, 2020).

### Environmental Management Planning

- Development of an outline Construction Environmental Management Plan (CEMP) prior to installation, incorporating:
  - Emergency spill response plan;
  - Waste management plan;
  - Marine pollution contingency plan;
  - Shipboard oil pollution emergency plan;
  - Drilling Fluid Management at UK Landfall (if required); and
  - Dropped objects procedure.
- An outline Operational Environmental Management Plan (OEMP) and a Decommissioning Environmental Management Plan (DEMP) will also be developed and adhered to for the operational and decommissioning phases. At this stage the specific details for decommissioning are not yet defined and will be developed closer to the end of the operational life of the asset, when further information on infrastructure condition and available techniques are known.

### Vessel Management and Compliance

- Development and implementation of a Vessel Management Plan (VMP). The VMP will:
  - Set out the types and numbers of vessels engaged in the works;
  - Define project vessel coordination measures and interactions with SUNK VTS/HHA Harbour Control;
  - Include indicative transit routes;
  - Give detail on concurrent working procedures which will set out details of the project vessels and their movements during the survey, seabed preparation, construction and O&M phases in sensitive area;
  - Detail specific navigational safety hazards such as the DWRs and how they will be managed;
- All Tarchon Project vessels associated with the UKMS must comply with:

  - International Regulations for Preventing Collisions at Sea (COLREG) 1972 (IMO, 1972), as implemented by The Merchant Shipping (Distress Signals and Prevention of Collisions) Regulations 1996;
  - International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) (IMO, 1983), including UK regulations such as The Merchant Shipping (Prevention of Oil Pollution) Regulations 2019; and
  - International Convention for the Safety of Life at Sea (SOLAS) (IMO, 1974).
- All UKMS vessels will adhere to the International Maritime Organisation Guidelines for the Control and Management of Ships' Biofouling, to minimise the transfer of invasive aquatic species (IMO, 2011).

### 16.7.3 Scoping Assessment

16.7.3.1 The preliminary assessment of the potential significant effects of the UKMS is reported in this section and considers potential impacts from the construction, operational, and decommissioning phases, as well as embedded, control and management and mitigation measures.

16.7.3.2 Potential impact pathways that have been considered in this scoping exercise are provided in Table 16-8. The impact pathways that have been scoped in have been done so on a precautionary basis. Once the proposed UKMS progresses through the design phase, the impact pathways may become more refined.

**Table 16-8: Elements Scoped In and Out for Marine Mammals**

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction | Construction activities such as geophysical surveys, geotechnical sampling, trenching, cable protection, and vessel operations | Increased underwater noise from other construction activities | Harbour porpoise<br>Bottlenose dolphin<br>White-beaked dolphin<br>Minke whale<br>Grey seal<br>Harbour seal | Scoped In | Construction activities such as geophysical surveys, geotechnical sampling, trenching, cable protection, and vessel operations will produce continuous or intermittent underwater noise.<br><br>While lower intensity than other construction activities, these sources may still cause behavioural disturbance, PTS/TTS, or displacement, especially if occurring over extended periods or within sensitive habitats. Following JNCC EDR guidance (JNCC, 2025), these pathways are considered relevant and are scoped in. |
| | Vessel movements, airborne noise from construction activities, and visual stimuli (including lighting) | Airborne sound and visual disturbance | Grey seal<br>Harbour seal | Scoped In | Vessel movements, airborne noise from construction activities, and visual stimuli (including lighting) may disturb and/or displace seals, at sea, when travelling to and when at haulout sites. With the nearest haul-out site identified as Hamford Water, approximately 2.5 km from the UKMS landfall area<br><br>Although the nearest SAC is 120 km from the UKMS boundary, disturbance can still occur during construction due to the close distance to nearby haul-out sites. Potential behavioural changes, including avoidance or interrupted resting, justify scoping this impact in. |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | Construction activities such as geophysical surveys, geotechnical sampling, trenching and cable protection | Potential for indirect effects through impacts to prey species | Harbour porpoise<br>Bottlenose dolphin<br>White-beaked dolphin<br>Minke whale<br>Grey seal<br>Harbour seal | Scoped In | Construction activities may temporarily affect benthic habitats (see Benthic Ecology (Volume 03, Chapter 14: Benthic Ecology) and Fish and Shellfish populations (Volume 03, Chapter 15: Fish and Shellfish Ecology)).<br><br>As a result, marine mammals may experience indirect impacts through altered prey availability or distribution. Although many species are generalist feeders capable of adapting (Hernandez-Milian, Berrow, Santos, Reid, & Rogan, 2015; Hernandez-Milian, Santos, Reid, & Rogan, 2016; Santos, et al., 2004), the pathway remains plausible and will be assessed. Therefore, this impact is scoped in. |
| | Vessel use | Increased vessel activity; resulting in greater levels of disturbance, and increased risk of collision | Harbour porpoise<br>Bottlenose dolphin<br>White-beaked dolphin<br>Minke whale<br>Grey seal<br>Harbour seal | Scoped In | Vessel activity may elevate underwater noise, cause behavioural disturbance (e.g. avoidance, altered surfacing), and introduce collision risk. Collisions are a recognised cause of injury and disturbance (Pirotta, Merchant, Thompson, Barton, & Lusseau, 2015) as well as mortality for marine mammals (Maxwell, et al., 2022). Given the potential for both disturbance and direct harm, this impact pathway is considered relevant and is therefore scoped in for assessment. |
| | Accidental releases/pollution | Reduction in water quality due to discharges | Harbour porpoise<br>Bottlenose dolphin | Scoped Out | While accidental releases could reduce water quality, the UKMS includes robust measures such as MARPOL compliance, a |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | and unplanned releases, accidental leaks, and spills from vessels | White-beaked dolphin<br>Minke whale<br>Grey seal<br>Harbour seal | | CEMP outlining details on marine pollution control and avoidance, and vessel management protocols. Any spill is expected to be highly localised and short-lived, with marine mammals able to avoid affected areas. With low likelihood of significant effects, this pathway is scoped out. |
| | Disturbance to seabed (e.g. trenching) | Temporary increase in SSC leading to contaminant mobilisation and increased turbidity | Harbour porpoise<br>Bottlenose dolphin<br>White-beaked dolphin<br>Minke whale<br>Grey seal<br>Harbour seal | Scoped Out | Turbidity and SSC increase during trenching or seabed disturbance will be short-term and highly localised. Marine mammals are mobile and capable of avoiding such areas. Given the low likelihood of significant ecological consequences, this pathway is considered negligible and is therefore scoped out. |
| Operational | Operation of cable (transmission of electricity) | Disturbance to marine mammals from electromagnetic field (EMF) emissions | Harbour porpoise<br>Bottlenose dolphin<br>White-beaked dolphin<br>Minke whale<br>Grey seal<br>Harbour seal | Scoped Out | Subsea cables emit low level EMFs, but current evidence indicates- these are not strong enough to directly affect marine mammals (Copping & Hemery, 2020). Potential indirect effects via prey will be assessed in relevant ecology Chapters, but there is no direct marine mammal pathway. This is therefore scoped out. |
| | Operation of cable (transmission of electricity) | Disturbance to marine mammals from thermal emissions | Harbour porpoise<br>Bottlenose dolphin<br>White-beaked dolphin<br>Minke whale<br>Grey seal<br>Harbour seal | Scoped Out | Heat generated by subsea cables may slightly warm surrounding sediments but is rapidly dissipated due to seawater’s high heat capacity. No measurable heating of the water column is expected, and no credible direct or indirect impact pathway |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | exists for marine mammals. This impact is scoped out. |
| | Maintenance activities | Increased underwater noise from maintenance activities | Harbour porpoise<br>Bottlenose dolphin<br>White-beaked dolphin<br>Minke whale<br>Grey seal<br>Harbour seal | Scoped In | Maintenance activities such as geophysical surveys, cable reburial, cable repair activities, and vessel operations will produce continuous or intermittent underwater noise.<br>These sources may still cause behavioural disturbance, PTS/TTS, or displacement, especially if occurring over extended periods or within sensitive habitats.<br>Following JNCC EDR guidance (JNCC, 2025), these pathways are considered relevant and are scoped in. |
| | Use of vessels | Increased vessel activity; resulting in greater levels of disturbance, and increased risk of collision | Harbour porpoise<br>Bottlenose dolphin<br>White-beaked dolphin<br>Minke whale<br>Grey seal<br>Harbour seal | Scoped In | Vessel activity may elevate underwater noise, cause behavioural disturbance (e.g. avoidance, altered surfacing), and introduce collision risk. Collisions are a recognised cause of injury and disturbance (Pirotta, Merchant, Thompson, Barton, & Lusseau, 2015) as well as mortality for marine mammals (Maxwell, et al., 2022). Given the potential for both disturbance and direct harm, this impact pathway is considered relevant and is therefore scoped in for assessment. |
| Decommissioning | Decommissioning activities (e.g. cable removal, use of vessels, etc) | Increased underwater noise from other decommissioning activities | Harbour porpoise<br>Bottlenose dolphin<br>White-beaked dolphin<br>Minke whale | Scoped In | Decommissioning activities such as cable removal and vessel operations will produce continuous or intermittent underwater noise. |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | Grey seal<br>Harbour seal | | While lower intensity, these sources may still cause behavioural disturbance, PTS/TTS, or displacement, especially if occurring over extended periods or within sensitive habitats. Following JNCC EDR guidance (JNCC, 2025), these pathways are considered relevant and are scoped in. |
| | Vessel movements, airborne noise from decommissioning activities, and visual stimuli (including lighting) | Airborne sound and visual disturbance | Grey seal<br>Harbour seal | Scoped In | Vessel movements, airborne noise from decommissioning activities, and visual stimuli (including lighting) may disturb and/or displace seals, at sea, when travelling to and when at haulout sites. With the nearest haul-out site identified as Hamford Water, approximately 2.5 km from the UKMS landfall area.<br><br>Although the nearest designated site is beyond 3 km (the Site Specific Study Area) from the UKMS Scoping Boundary, disturbance can still occur (considering the distance to nearby haul-out sites) during decommissioning. Potential behavioural changes, including avoidance or interrupted resting, justify scoping this impact in. |
| | Decommissioning activities (e.g. cable removal, use of vessels, etc) | Potential for indirect effects through impacts to prey species | Harbour porpoise<br>Bottlenose dolphin<br>White-beaked dolphin<br>Minke whale<br>Grey seal<br>Harbour seal | Scoped In | Decommissioning activities may temporarily affect benthic habitats (see Benthic Ecology (Volume 03, Chapter 14: Benthic Ecology) and Fish and Shellfish populations (Volume 03, Chapter 15: Fish and Shellfish Ecology)). |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | As a result, marine mammals may experience indirect impacts through altered prey availability or distribution. Although many species are generalist feeders capable of adapting (Hernandez-Milian, Berrow, Santos, Reid, & Rogan, 2015; Hernandez-Milian, Santos, Reid, & Rogan, 2016; Santos, et al., 2004), the pathway remains plausible and will be assessed. Therefore, this impact is scoped in. |
| | Use of vessels | Increased vessel activity; resulting in greater levels of disturbance, and increased risk of collision | Harbour porpoise<br>Bottlenose dolphin<br>White-beaked dolphin<br>Minke whale<br>Grey seal<br>Harbour seal | Scoped In | Vessel activity may elevate underwater noise, cause behavioural disturbance (e.g. avoidance, altered surfacing), and introduce collision risk. Collisions are a recognised cause of injury and disturbance (Pirotta, Merchant, Thompson, Barton, & Lusseau, 2015) as well as mortality for marine mammals (Maxwell, et al., 2022). Given the potential for both disturbance and direct harm, this impact pathway is considered relevant and is therefore scoped in for assessment. |
| | Accidental releases/pollution | Reduction in water quality due to discharges and unplanned releases, accidental leaks, and spills from vessels | Harbour porpoise<br>Bottlenose dolphin<br>White-beaked dolphin<br>Minke whale<br>Grey seal<br>Harbour seal | Scoped Out | While accidental releases could reduce water quality, the UKMS includes robust measures such as MARPOL compliance, a CEMP outlining details on marine pollution control and avoidance, and vessel management protocols. Any spill is expected to be highly localised and short-lived, with marine mammals able to avoid affected areas. With low likelihood of |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | significant effects, this pathway is scoped out. |
| | Disturbance to seabed (e.g. trenching) | Temporary increase in SSC leading to contaminant mobilisation and increased turbidity | Harbour porpoise<br>Bottlenose dolphin<br>White-beaked dolphin<br>Minke whale<br>Grey seal<br>Harbour seal | Scoped Out | Turbidity and SSC increase during trenching or seabed disturbance will be short-term and highly localised. Marine mammals are mobile and capable of avoiding such areas. Given the low likelihood of significant ecological consequences, this pathway is considered negligible and is therefore scoped out. |

### 16.7.4 Cumulative and Transboundary Effects

#### Cumulative

16.7.4.1 The methodology for assessing potential cumulative and transboundary effects is outlined in Volume 05, Chapter 32: Approach to Cumulative and Transboundary Effects. This Chapter describes the process for undertaking a Cumulative Effects Assessment (CEA) and provides the criteria of the projects likely to be scoped in and included. For this assessment, only developments located within the defined Regional Study Area and ZoI, will be considered. To maintain temporal relevance, projects will only be included where there is overlap with the UKMS's construction and operation window.

16.7.4.2 The closest offshore developments to the UKMS that are not yet operational include a range of existing, consented and reasonably foreseeable developments. However, the cumulative screening process will not be limited to geographically proximate projects. It will also encompass other developments within species-specific management zones and any marine projects with construction timelines overlapping the UKMS (as described in Paragraph 16.7.4.1). Cumulative interactions may occur with the whole Tarchon Project in combination with the UKMS, offshore wind projects, wave and tidal energy projects, subsea cable installations, and seismic surveys associated with oil and gas exploration, where relevant.

16.7.4.3 The CEA for marine mammals will consider the Maximum Design Scenario (MDS) for each of the projects, plans and activities in line with the methodology outlined in Volume 05, Chapter 32: Approach to Cumulative and Transboundary Effects.

#### Transboundary

16.7.4.4 There is potential for transboundary impacts on marine mammals during the development phases of the UKMS. Although the site is located within UK territorial waters, many marine species are highly mobile, often exhibiting wide-ranging foraging behaviours and undertaking long-distance migrations for key life cycle events such as breeding and calving.

16.7.4.5 In the UK, cetacean populations are managed using MUs, which are defined spatial areas that reflect the biological range of a species rather than political boundaries (IAMMWG, 2023). For some species, these MUs extend across multiple national jurisdictions. For example, the North Sea MU for harbour porpoise spans the territorial waters of the UK, Norway, Denmark, Germany, the Netherlands, Belgium, and France.

16.7.4.6 As such, depending on the nature and significance of potential impacts identified through EIA, including assessment outputs and the CEA, transboundary effects may need to be considered. The assessment of these effects will be informed by the identification of ZoI for key impact pathways. These ZoIs will be defined during

the EIA process, using data, guidance and other relevant sources to determine the spatial extent of potential effects.

## 16.8 Assumptions, Limitations and Uncertainties

16.8.1.1 The availability of data on marine mammals within the North Sea is considered sufficient to characterise the baseline environment, providing a robust understanding of existing conditions. Extensive survey efforts and long-term monitoring programmes have contributed to a comprehensive dataset that supports environmental assessments and impact evaluations.

16.8.1.2 However, certain limitations remain inherent to marine mammal surveys. These limitations primarily arise from the highly mobile nature of marine mammal species and the variability in their spatial and temporal use of the area. Marine mammals exhibit dynamic movement patterns influenced by prey availability, seasonal behaviours, and environmental conditions. Consequently, each survey represents only a snapshot in time, rather than a continuous record of distribution and abundance. This introduces uncertainty when extrapolating short-term observations to long-term trends or predicting future presence within the Study Area.

16.8.1.3 For seals, at-sea distribution data presented in Carter, *et al*. (2025) provide estimates for harbour and grey seals during their foraging seasons, when individuals are expected to spend the majority of their time at sea. These estimates are based on predictive modelling and empirical observations, offering insight into spatial patterns of seal activity across the Site Specific Study Area.

16.8.1.4 Although the available data represent temporal snapshots, the reported abundances are considered precautionary and indicative of the Maximum Design Scenarios, as outlined in Volume 01, Chapter 02: UK Project Description, reflecting the highest densities likely to be encountered within the Site Specific Study Area. This approach ensures that environmental assessments adopt a conservative stance, accounting for potential variability and underestimation of marine mammal presence.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 03, Chapter 17: Commercial Fisheries

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00023 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| AIS | Automatic Identification System |
| CFP | Common Fisheries Policy |
| CFWG | Commercial Fisheries Working Group |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| EMODnet | European Marine Observation and Data Network |
| EMSA | European Maritime Safety Agency |
| ES | Environmental Statement |
| EU | European Union |
| FLO | Fisheries Liaison Officer |
| ICES | International Council for the Exploration of the Sea |
| IFCA | Inshore Fisheries Conservation Authority |
| IMO | International Maritime Organisation |
| INNS | Invasive Non-Native Species |
| KEIFCA | Kent and Essex Inshore Fisheries and Conservation Authority |
| kg | Kilogram |
| km | Kilometre |
| m | Metre |
| $m^2$ | Metre Squared |
| MCAA | Marine and Coastal Access Act |
| MMO | Marine Management Organisation |
| MPS | Marine Policy Statement |
| mW | Milliwatt |
| NFFO | National Federation of Fishermen’s Organisation |
| NM | Nautical Miles |
| NRW | Natural Resources Wales |
| NtM | Notice to Mariners |
| O&M | Operations and Maintenance |
| PEIR | Preliminary Environmental Impact Report |
| SNCB | Statutory Nature Conservation Body |
| SSC | Suspended Sediment Concentration |
| TEFA | Thames Estuary Fishermen's Association |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| UKSIA | United Kingdom Single Issuing Authority |
| UXO | Unexploded Ordinance |
| VMS | Vessel Monitoring System |

# 17. Commercial Fisheries

## 17.1 Introduction

17.1.1.1 This Chapter presents the Commercial Fisheries assessment which will consider the potential significant effects on Commercial Fisheries receptors during the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom Scheme (UK Scheme) (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Area used and receptors considered in this Chapter, only the UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. The English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is therefore not considered further for Commercial Fisheries.

17.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Commercial Fisheries baseline;
- Describes the proposed methodology and the datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Commercial Fisheries receptors from the proposed components of the UKMS; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

17.1.1.3 This Chapter should be read in conjunction with the following Chapters for a broader understanding of the UKMS and associated Commercial Fisheries interactions:

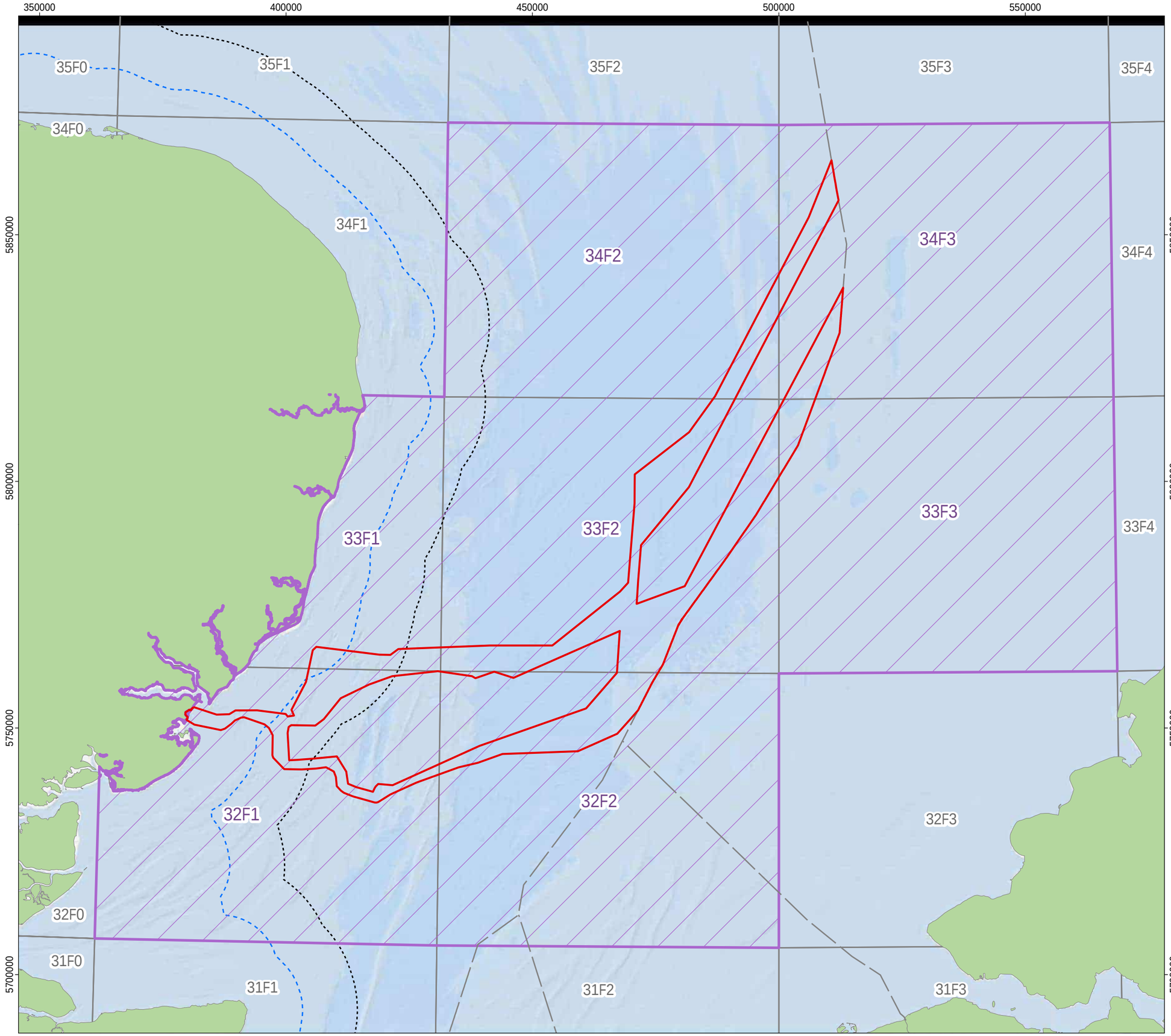
- Volume 01, Chapter 02: UK Project Description;
- Volume 01, Chapter 04: Approach to Consultation;
- Volume 01, Chapter 05: Legislative and Planning Policy Context;
- Volume 01, Chapter 06: EIA Approach and Methodology;
- Volume 03, Chapter 14: Benthic and Intertidal Ecology;
- Volume 03, Chapter 15: Fish and Shellfish Ecology;
- Volume 03, Chapter 18: Shipping and Navigation; and
- Volume 03, Chapter 20: Offshore Infrastructure and Other Users

## 17.2 Study Area

17.2.1.1 The UKMS is located within the International Council for the Exploration of the Sea (ICES) Division IV. Fisheries data are recorded and collated by ICES statistical rectangle within each ICES Division. The Commercial Fisheries Study Area has therefore been defined with reference to the ICES rectangles within which the UKMS

is located. These include ICES rectangles 32F1, 32F2, 33F1, 33F2, 33F3, 34F2 and 34F3 as shown in Figure 17-1.

17.2.1.2 The Commercial Fisheries Study Area defined above has been used to identify fisheries activity in the areas relevant to the UKMS. To consider the context of this area in relation to regional fishing practices, data for a wider area may also be considered, where relevant.



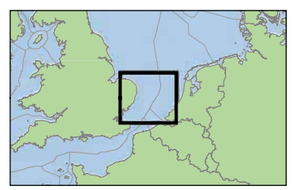

# TARCHON

## Tarchon Interconnector Project
Scoping Report

## Commercial Fisheries Study Area

**Legend**

- UK Marine Scheme Scoping Boundary
- Exclusive Economic Zones (EEZ) Boundaries
- 6nm Limit
- 12nm Limit
- Commercial Fisheries Study Area
- ICES Rectangles



**Notes**

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System:
WGS 1984 UTM Zone 31N

0 — 20 — 40 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:750,000 @A3 | 02/03/2026 | BPHB | EH | MB |

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Figure 17-1

Figure Reference: Tarchon_Scoping_CF_Fig17-1_StudyArea_v1

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## 17.3 Relevant Legislation, Panning Policy and Guidance

### 17.3.1 Legislation

17.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context describes the overall regulatory and planning policy context for the UKMS. Key legislation, policy and guidance relevant to the assessment of potential likely significant effects on Commercial Fisheries associated with the construction, operation, maintenance and decommissioning of the UKMS is presented below.

17.3.1.2 The following legislation applies to Commercial Fisheries:

- Marine and Coastal Access Act (MCAA) 2009 - 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 12 NM limits and the UK Exclusive Economic Zone (EEZ);
- Fisheries Act (2020) - establishes a legal framework for the regulation of fisheries in the UK including creating a legal requirement for the UK's devolved national fisheries policy authorities to produce a Joint Fisheries Statement (JFS) (DEFRA, 2022) relating to identified fisheries objectives (e.g., sustainability, ecosystem and access rights) and fisheries management plans, of which there are currently 11 for English and Welsh waters (DEFRA, 2025);
- Salmon and Freshwater Fisheries Act 1975 - relates to the protection of salmon and freshwater fisheries, as well as preventing the obstruction of fish migration routes (HM Government, 1976);
- Marine Works (Environmental Impact Assessment) Regulations 2007 - implements the European Environmental Impact Assessment Directive into UK law, ensuring relevant marine projects assess the potential environmental effects in marine areas, thus promoting sustainable development (HM Government, 2007).

### 17.3.2 National Policy Statements

17.3.2.1 Details of policies contained in the National Policy Statements relevant to Commercial Fisheries include:

- NPS EN-1 (DECC, 2023a)
  - Paragraph 4.5.7 - "*Applicants are encouraged to approach the marine licensing regulator (MMO in England and Natural Resources Wales (NRW) in Wales) in pre-application, to ensure that they are aware of any needs for additional marine licenses alongside their Development Consent Order application*".
  - Paragraph 4.5.7 - "*Applicants for a Development Consent Order must take account of any relevant Marine Plans and are expected to complete a Marine Plan assessment as part of their project development, using this information to support an application for development consent*".
- NPS EN-3 (DECC, 2023b)

  - Paragraph 2.8.154 - "*Applicants should undertake early consultation with a cross section of the fishing industry, as well as MMO, Statutory Nature Conservation Bodies (SNCBs), relevant IFCAs, Defra and Welsh Government, to identify impacts and actively encourage input from active fishers to provide evidence of their use of the area to support the impact assessments*".
  - Paragraph 2.8.155 - "*Where any part of a proposal involves a grid connection or transmission to shore or in the inshore area, appropriate inshore fisheries groups should also be consulted*".
  - Paragraph 2.8.157 - "*Applicant assessments should include robust baseline data and detailed surveys of the effects on fish stocks of commercial interest and any potential reduction or increase in such stocks. "The assessments should also provide evidence regarding any likely benefits or constraints on fishing activity within the project's boundaries*".

- NPS EN-5 (DECC, 2023c)
  - Paragraph 2.2.10 - "*As well as having duties under Section 9 of the Electricity Act 1989, (in relation to developing and maintaining an economical and efficient network), applicants must take into account Schedule 9 to the Electricity Act 1989, which places a duty on all transmission and distribution licence holders, in formulating proposals for new electricity networks infrastructure, to "have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special 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*".

### 17.3.3 Marine Policy Statement

17.3.3.1 The UK Marine Policy Statement (MPS) was adopted in 2011 and provides the policy framework for the preparation of marine plans and establishes how decisions affecting the UK marine area should be made. The following marine plans have been considered in the development of this Scoping Report Chapter:

- East Inshore and East Offshore Marine Plan (DEFRA, 2014); and
- South East Inshore Marine Plan (DEFRA, 2021).

### 17.3.4 National Planning Policy Framework

17.3.4.1 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2024) sets out national planning policies that reflect priorities of the Government for operation of the planning system and the economic, social and environmental aspects of the development and use of land. Those potentially relevant to Commercial Fisheries are:

- Planning Practice Guidance – Natural Environment (HM Government, 2019); and
- Planning Practice Guidance – Renewable and low carbon energy (HM Government, 2015).

### 17.3.5 Common Fisheries Policy

17.3.5.1 The Common Fisheries Policy (CFP) (European Commission, 2013) managed fisheries within UK whilst part of the European Union (EU). Following the UK's exit from the EU and the end of the transitional period on 31 December 2020, the UK Single Issuing Authority (UKSIA) (DEFRA, 2022) was established. As part of the MMO, the UKSIA now manages fishing vessel licencing for foreign vessels accessing to UK waters within the British Fishery Limits, on behalf of the UK 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.

### 17.3.6 National Guidance and Local Planning Policy

17.3.6.1 The UKMS lies within the jurisdiction of the MMO, Suffolk County Council, East Suffolk Council, Babergh District Council, Essex County Council and Tendring District Council. The local plan policies for Suffolk and Essex do not currently have any policies relevant to Commercial Fisheries assessment.

## 17.4 Consultation and Engagement

17.4.1.1 Consultation relating to Commercial Fisheries has been undertaken with relevant stakeholders in order to introduce the UKMS and to receive early feedback on proposed cable corridors from the fishers. Additionally, a Fisheries Liaison Officer (FLO) was appointed who has been and will continue to be in regular contact with the stakeholders throughout the duration of the UKMS Scoping exercise, any planned nearshore/offshore survey works, and for the duration of the Development Consent Order (DCO) process and throughout the construction phase.

17.4.1.2 Commercial Fisheries stakeholders who have been consulted to date include:

- The Commercial Fisheries Working Group (CFWG) who represent the local fisheries associations in Suffolk and Essex;
- The National Federation of Fishermen's Organisation (NFFO);
- The Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA); and
- Several independent fishers associations, including:
  - Felixstowe Ferry Fisherman's Association;
  - Harwich Fishermen's Association;
  - Sizewell (individual representatives);
  - Southwold Fishermen's Association (individual representatives);
  - Lowestoft Fisherman's Association (individual representatives); and
  - West Mersea Fishermen's Association.

17.4.1.3 This consultation has enabled the Applicant to listen to the concerns of Commercial Fisheries stakeholders and to understand the pressures they are under in a region which is already heavily constrained due to existing and planned developments.

17.4.1.4 During the Preliminary Environmental Information Report (PEIR) stage, further consultation with Commercial Fisheries stakeholders, including fishers and representatives of fishermen's associations and organisations will be undertaken to corroborate the findings of desk-based baseline data analysis and to provide insight into specific fishing grounds and activity of any vessels active in the area. Consultation will also enable a better understanding of gear specifications for vessels active in the area, providing insight on how different vessels and different gear configurations may be affected by the UKMS.

17.4.1.5 Throughout all phases of the Tarchon Project, the Applicant will remain committed to maintaining open dialogue and effective communications with the fishing industry. This is key to supporting the Applicant's commitment to co-existence where possible to enable both the Tarchon Project and the relevant Commercial Fisheries operators to manage works through awareness of upcoming activities, for example notification of planned marine survey and construction works. Contact details of the FLO will be included within Notice to Mariners (NtM) that will be issued a minimum of 14 days prior to the commencement of works, where feasible.

## 17.5 Baseline Environment

### 17.5.1 Baseline Conditions

17.5.1.1 The Commercial Fisheries baseline has been characterised using several data sources listed below. Notably, these sources include MMO UK sea fisheries annual statistics, which provide landings and first sales value for the most recently available data reporting period (2020-2024):

- Total fishing effort (kW/h) of UK vessels (>12 m) for all gear types in 2022;
- Average Fishing Effort (MW) for EU vessels (including UK) >12 m deploying beam trawls, bottom otter trawls, bottom seines, dredges, pelagic trawls and seines and static gears between 2020 and 2024 (EMODnet, 2020);
- Fishing vessel route density 2024 (EMODnet, 2020);
- UK Sea Fisheries Statistics by ICES rectangle and estimated EEZ between 2020 to 2024 (MMO, 2025);
- UK and foreign vessels landings by UK port and UK vessel landings abroad (MMO, 2021) (MMO, 2022) (MMO, 2023);
- Centre for Environment, Fisheries and Aquaculture (Cefas) ICES fisheries survey data (Cefas, 2025); and
- UK fishing vessel lists (MMO, 2025);

17.5.1.2 Catches of under 30 kg are not required to be reported and therefore are not captured with the MMO sea fisheries statistics. Additionally, there is no statutory requirement for vessels under 10 m to declare their catches. It is acknowledged that publicly available statistics will underrepresent the inshore fleet. Landings data derived from the MMO sea fisheries statistics can therefore only provide a general overview of fishing effort.

17.5.1.3 The UKMS is located within the Southern North Sea. Commercial fishing is widely distributed in this body of water and is fished by both UK vessels and foreign fishing vessels with historic fishing rights.

17.5.1.4 Out of the top 20 ports for annual average value of catch landed by vessels fishing within the Study Area between 2020 and 2024 (Table 17-1), 15 are in the UK, with four located in the Netherlands and one in Belgium. Two of top 20 Study Area ports (Leigh-On-Sea and Brixham) are included in the UK top 20 major ports for quantity of landings in 2024 (HM Government, 2025).

17.5.1.5 It is likely that the majority of vessels fishing within the Study Area are registered in the counties which are adjacent or in relative proximity to the UKMS; namely Kent, Essex, Suffolk, or Norfolk. The nearest ports in the Study Area are Felixstowe and Harwich, both less than 3.1 km from the UKMS at the closest point. However, more than half of the top 20 Study Area ports are located more than 55 km (28 nm) from the UKMS.

17.5.1.6 A total of 333 vessels are registered across 15 UK ports within the Study Area, comprising 224 vessels under 10 m and 109 vessels over 10 m. Of these, 128 hold a shellfish licence and 57 hold a scallop licence (MMO, 2025).

17.5.1.7 The majority of the UK vessels in this region use multiple gear types throughout the year to target specific species or to adapt to the weather conditions. A summary of landed catches from the Study Area is provided in Table 17-1.

Table 17-1: Top 20 Ports with landed catches from the Study Area

| Port | County/ Country | Approximate Distance from UKMS (km) | Landings Value (Annual Average) (£)(1) | Landed Weight (Annual Average) (tonnes) (1) | No. Vessels under 10 m (2) | No. Vessels over 10 m (3) | No. Vessels with Shellfish licence (3,4) | No. Vessels with Scallop licence (3,4) |
|---|---|---|---|---|---|---|---|---|
| Ijmuiden | Netherlands | 50.50 | 1,199,753.86 | 655.13 | 22 | 3 | 11 | 0 |
| Vlissengen | Netherlands | 106.00 | 976,083.20 | 287.04 | N/A† | N/A† | N/A† | N/A† |
| Lowestoft | Suffolk, UK | 106.27 | 764,894.91 | 518.32 | N/A† | N/A† | N/A† | N/A† |
| Scheveningen | Netherlands | 103.58 | 665,618.25 | 145.24 | N/A† | N/A† | N/A† | N/A† |
| Leigh-On-Sea | Essex, UK | 67.21 | 576,502.18 | 605.06 | 8 | 12 | 3 | 2 |
| West Mersea | Essex, UK | 68.32 | 282,525.80 | 170.25 | 5 | 4 | 2 | 2 |
| Whitstable | Kent, UK | 62.81 | 275,636.18 | 245.26 | 11 | 5 | 7 | 1 |
| Southwold | Suffolk, UK | 35.18 | 254,558.00 | 191.02 | 14 | 1 | 6 | 0 |
| Queenborough | Kent, UK | 3.08 | 218,145.55 | 208.98 | 17 | 1 | 10 | 0 |
| Harwich | Essex, UK | 36.25 | 193,398.55 | 31.34 | 10 | 0 | 7 | 0 |
| Kings Lynn | Norfolk, UK | 3.08 | 135,192.90 | 94.51 | 13 | 0 | 7 | 0 |
| Felixstowe | Suffolk, UK | 194.79 | 110,835.55 | 17.29 | 12 | 22 | 12 | 10 |
| Oostende | Belgium | 38.69 | 92,759.91 | 44.53 | 7 | 0 | 2 | 0 |

| Port | County/ Country | Approximate Distance from UKMS (km) | Landings Value (Annual Average) (£)[1] | Landed Weight (Annual Average) (tonnes) [1] | No. Vessels under 10 m [2] | No. Vessels over 10 m [3] | No. Vessels with Shellfish licence [3,4] | No. Vessels with Scallop licence [3,4] |
|---|---|---|---|---|---|---|---|---|
| Aldeburgh and Orford | Suffolk, UK | 143.94 | 76,785.17 | 10.39 | 11 | 4 | 15 | 0 |
| Wells | Norfolk, UK | 44.17 | 69,990.85 | 14.02 | 0 | 1 | 0 | 0 |
| Colchester | Essex, UK | 23.69 | 58,377.10 | 17.26 | 8 | 0 | 6 | 0 |
| Wivenhoe | Essex, UK | 101.92 | 54,700.18 | 8.99 | N/A† | N/A† | N/A† | N/A† |
| Brixham | Devon, UK | 449.85 | 49,430.21 | 7.57 | 69 | 55 | 30 | 42 |
| Great Yarmouth | Norfolk, UK | 64.87 | 47,525.93 | 22.74 | 17 | 1 | 10 | 0 |
| Harlingen | Netherlands | 157.10 | 39,454.58 | 11.50 | N/A† | N/A† | N/A† | N/A† |
| **Total** | **N/A** | **N/A** | **6,142,168.86** | **3,306.42** | **224** | **109** | **128** | **57** |

* *UK vessels - top 20 major ports by value of landings*

** *UK vessels - top 20 major ports by quantity of landings*

† *Data will be included as appropriate at the Environmental Impact Assessment stage*

Source: (1) (MMO, 2024); (2) (MMO, 2025); (3) (MMO, 2025); (4) (UK Parliament, 2017)

### Fleet Composition and Vessel Size

17.5.1.8 The south/southwest of the Study Area, in the outer Thames Estuary, is characterised by strong tidal currents and mobile sediments. A shallow plateau extends 14 km from the coast offshore from the west of the Study Area, just offshore from the Stour and Orwell Estuary, characterised by water depths less than 10 m. This environment is characterised by shallow reefs, shoals associated with the underlying London Clay bedrock geology and sandbanks (British Geological Survey, 2023). The ICES rectangles located more centrally within the English Channel (33F2, 32F2 and 34F2) are the deepest overall, with average depths of approximately 40 m. These ICES rectangles are fished almost exclusively by vessels > 10 m. Vessels in these ICES rectangles predominantly deploy demersal seines and demersal trawls targeting squid and surmullet. Pots and traps are also heavily utilised, landing over £1.9 million of whelk across these ICES rectangles between 2020 to 2024 (MMO, 2025).

17.5.1.9 All ICES rectangles, with the exception of 33F1, are predominantly fished by vessels > 10 m. Within 33F1, depth is almost entirely below 40 m and is mostly around 5 m, likely excluding larger vessels from operating. The primary gear types being deployed are fixed and drift nets and pots and traps, with whelks making up the majority of the landed species at over £1 million in landed value between 2020 to 2024. The species with the next highest first sales value is lobsters at £237,472 (MMO, 2025).

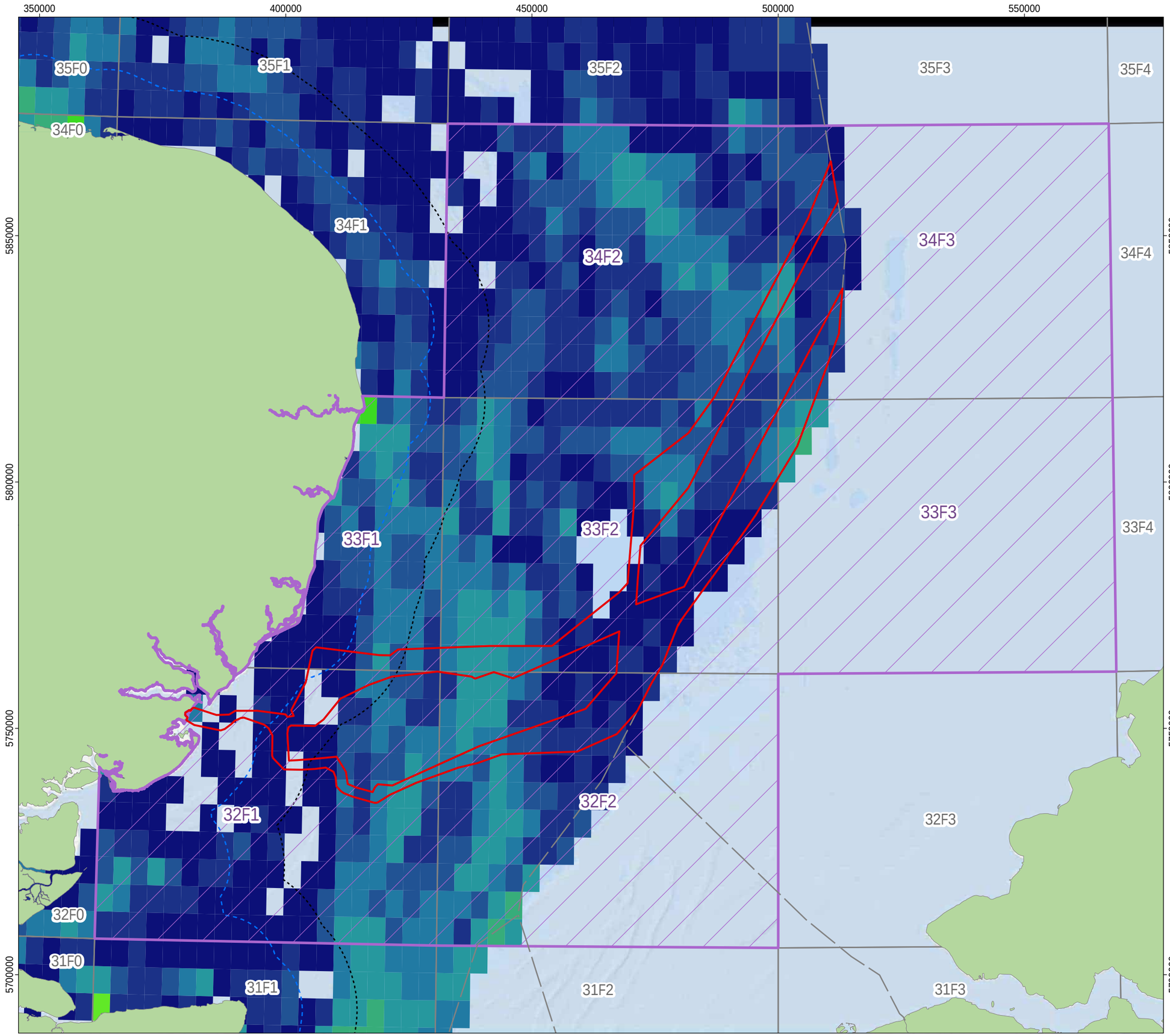
17.5.1.10 In the remaining ICES rectangles (32F1, 33F3 and 34F3), again activity is dominated by vessels over 10 m, largely deploying dredges, demersal trawls and demersal seines. Of these three, only 32F1 contains significant activity by vessels < 10 m, owing to the shallower western edge of the rectangle. The shallower depths and more sheltered near-shore conditions are ideal for shellfish such as whelks and cockles. Naturally, pots and traps are a commonly employed gear type within this rectangle, largely targeting whelks. Dredges are used to target cockles, with £4,927,619 worth of cockles landed from 2020 to 2024 (MMO, 2025).

### Fishing Grounds and Intensity of Use

17.5.1.11 For the purposes of analysing and presenting fishing activity at a finer spatial scale, this Scoping Chapter also draws upon MMO Vessel Monitoring System (VMS) fishing effort data for UK vessels > 12 m with spatial resolution of 0.05 ° c-squares (roughly equivalent to 15 $km^2$ at 60°N latitude) and ICES VMS fishing effort data for EU (including the UK) vessels ≥ 12 m (available through EMODnet (2025) in grid cells of 0.05° latitude × 0.05° longitude (approximately 5.5 × 5.5 km). MMO and ICES VMS data display average kilowatt per hour (kW/h) and milliwatt fishing hours (mW/h) respectively to provide a standardised measure of fishing effort that accounts for differences in vessel size and engine power. By combining the time vessels spend actively fishing with their engine kilowattage, this metric adjusts raw activity into a scale-sensitive indicator of fishing intensity.

17.5.1.12 Figure 17-2 presents the average fishing effort (hours per km²) for all gear types amalgamated, based on activity by UK vessels >12 m in length, averaged across the data reporting period between 2020 and 2022. Figure 17-2 indicates that fishing effort within and immediately adjacent to the UKMS boundary is generally low to moderate, with most grid cells overlapping the route displaying effort levels in the lower value bands shown (typically between <10 and 100 hours per km²). Pockets of moderate to moderately high intensity are evident in ICES rectangles 33F1, 33F2, 32F1 and 32F2 indicating favourable fishing grounds, with smaller, discrete pockets evident further offshore in 34F3 and 33F3, reflecting more concentrated activity from UK vessels, however, no areas of very high intensity fishing activity directly intersect the UKMS.

17.5.1.13 It should be noted that the quantitative datasets identified may not capture all Commercial Fisheries activity within the Study Area. For example, the ICES and MMO VMS datasets only cover vessels >12 m in length respectively. As such, vessel length classifications vary depending on which dataset is being referenced. Through targeted consultation with fisheries organisations, supported by the FLO, the Applicant is aiming to understand the landings and the effort by vessels < 12 m within the Study Area.




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Scoping Report

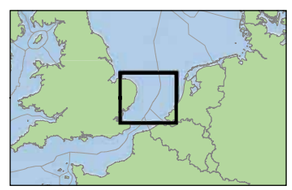
Average Total Fishing Effort of UK Vessels (>12m) 2020 - 2022 (kW/h) (Source: MMO, 2025)

## Legend

- UK Marine Scheme Scoping Boundary
- Exclusive Economic Zones (EEZ) Boundaries
- 6nm Limit
- 12nm Limit
- Commercial Fisheries Study Area
- ICES Rectangles

Total Fishing Effort >12m - All Gears (kilowatt/hours)

- <10
- 10 - 25
- 25 - 50
- 50 - 100
- 100 - 500
- 500 - 1,000
- 1,000 - 5,000
- 5,000 - 1,0000
- 10,000 - 50,000



## Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

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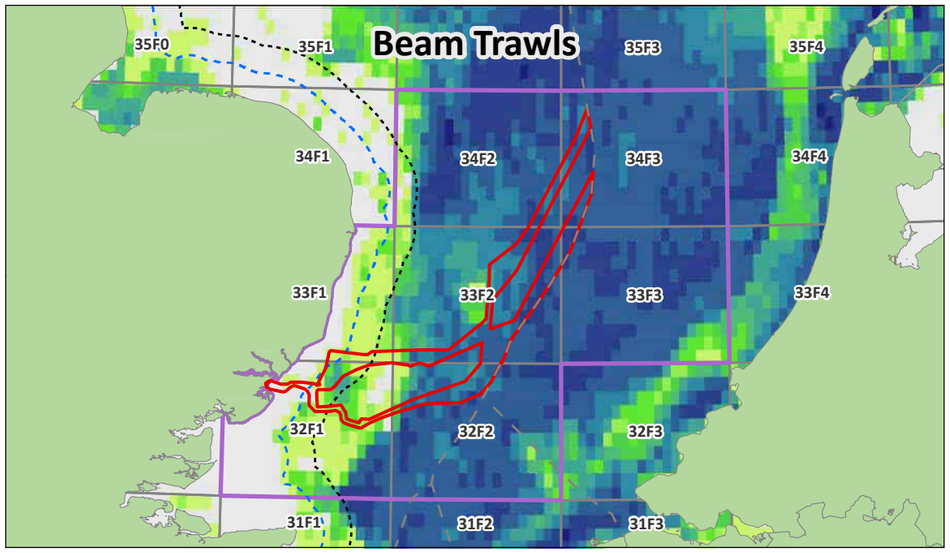
Figure 17-2

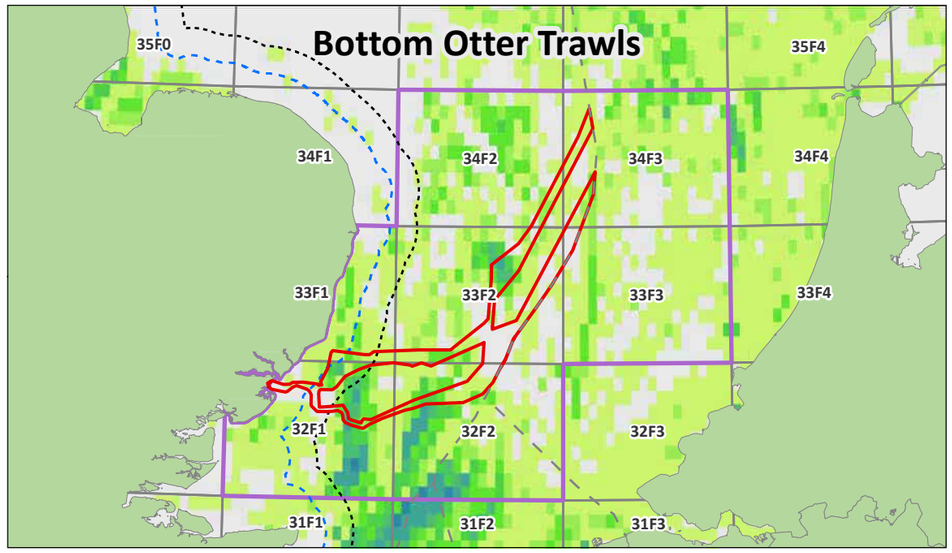
Figure Reference: Tarchon_Scoping_CF_Fig17-2_FishingEffort2022MMO_v2

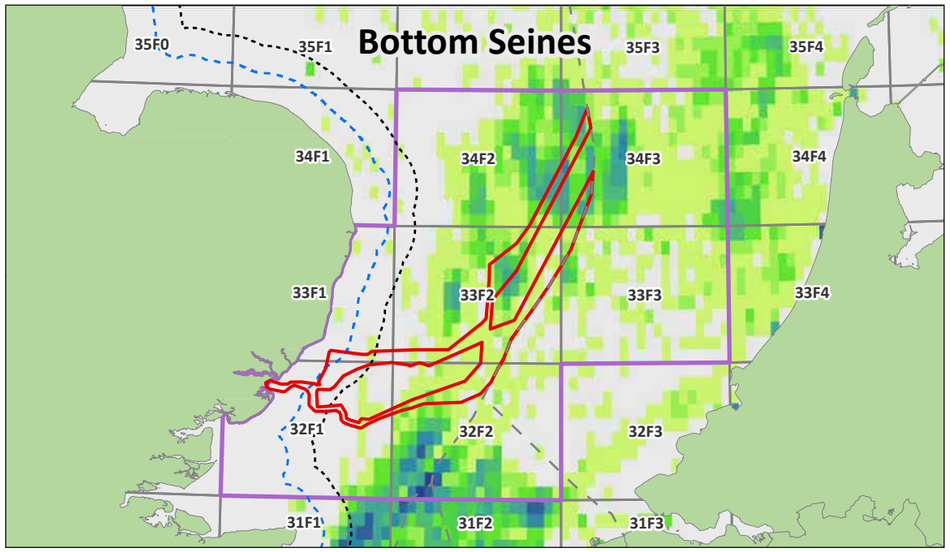
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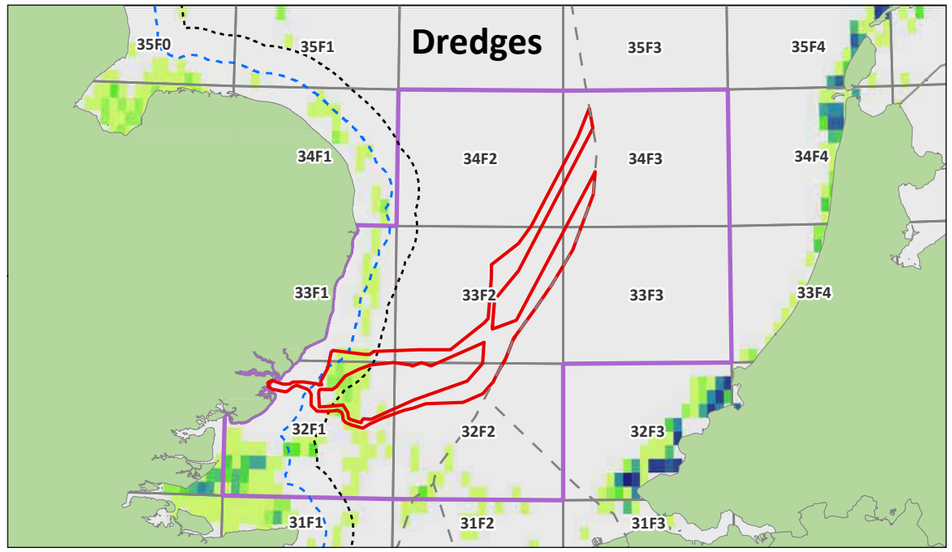
17.5.1.14 VMS data for EU vessels, including those from the UK, measuring ≥ 12, was analysed for six gear types operating within the Study Area (Figure 17-3). To provide a meaningful interpretation of the ICES MW-hours fishing effort dataset, effort values are grouped using the non-linear class structure applied by ICES and EMODnet, which reflects the strongly skewed distribution of bottom-towed gear activity. Grid cells recording > 0 to 1 MWh represent very light or occasional fishing, while 1 to 5 MW hours indicates low but recurrent activity. Effort values between 5 and 20 MW hours correspond to moderate intensity, representing areas fished with greater regularity. Grid cells in the 20 to 100 MW-hour range denote high-intensity fishing grounds that experience sustained use by bottom-towed gears. The upper categories, 100 to 200 MW hours, 200 to 500 MW hours and >500 MW hours, identify areas of very high to exceptional fishing intensity, typically associated with well-established commercial grounds repeatedly targeted by larger demersal trawl or beam-trawl fleets.

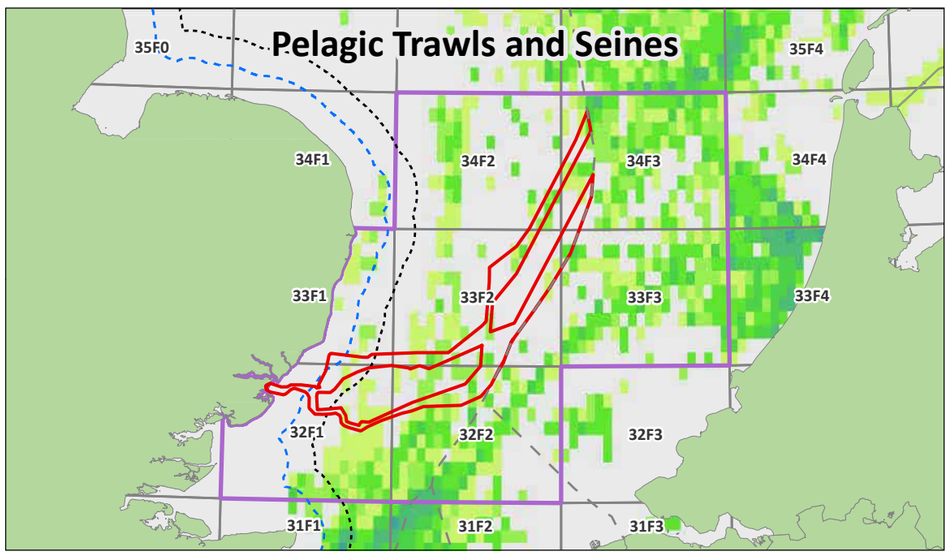
17.5.1.15 This analysis focused on the average total fishing effort between 2020 and 2024 for beam trawls, bottom otter trawls, bottom seines, dredges, pelagic trawls and seines and static gear, providing a spatially resolved understanding of commercial fishing activity within the defined Commercial Fisheries Study Area. ICES rectangles within the Study Area exhibited a mix of gear types; however, beam trawls displayed the highest average MW fishing hours, being heavily deployed in the deeper areas including ICES rectangles 34F2, 32F2, 33F2, 34F3 and 33F3. Dredges were only shown to be deployed in the nearshore areas and shallower waters, almost exclusively in the western edges of 32F1 and 33F1. Bottom seines were largely excluded from 33F1 and 32F1, with the highest average MW hours of fishing effort located in 32F2 in the deeper waters towards the centre of the Channel. This distribution reflects both ecological gradients and operational preferences (Figure 17-3).

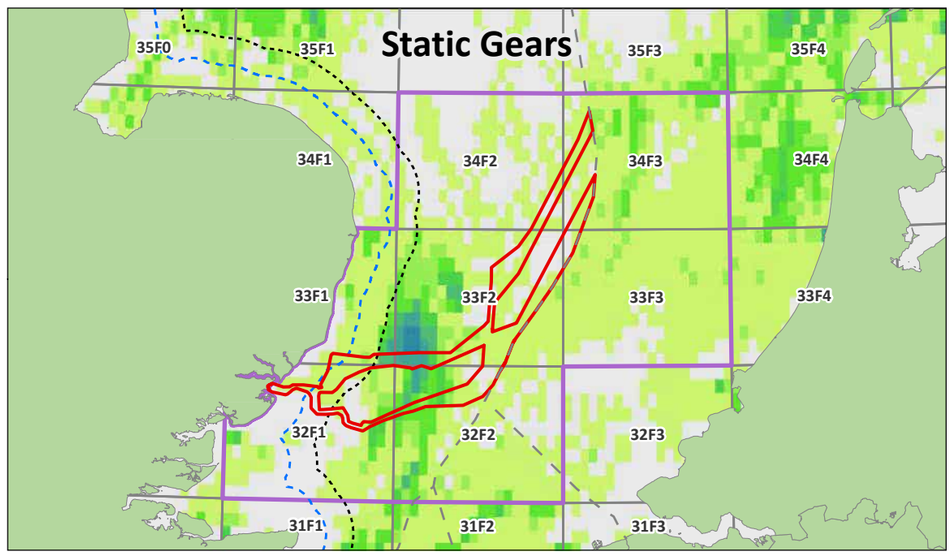



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Scoping Report

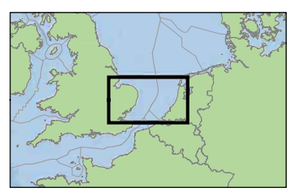
**Average Fishing Effort for EU vessels (including UK) 12 m and over deploying beam trawls, bottom otter trawls, bottom seines, dredges, pelagic trawls and seines and static gears between 2019 and 2022 (Source: EMODnet, 2025)**

**Legend**

- UK Marine Scheme Scoping Boundary
- Exclusive Economic Zones (EEZ) Boundaries
- 6nm Limit
- 12nm Limit
- Commercial Fisheries Study Area
- ICES Rectangles

Average MW Fishing hours

- > 0 <= 1
- > 1 <= 2
- > 2 <= 5
- > 5 <= 10
- > 10 <= 20
- > 20 <= 50
- > 50 <= 100
- > 100 <= 200
- > 200 <= 500
- > 500



**Notes**
Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System:
WGS 1984 UTM Zone 31N

0 50 100 km

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**Figure 17-3**

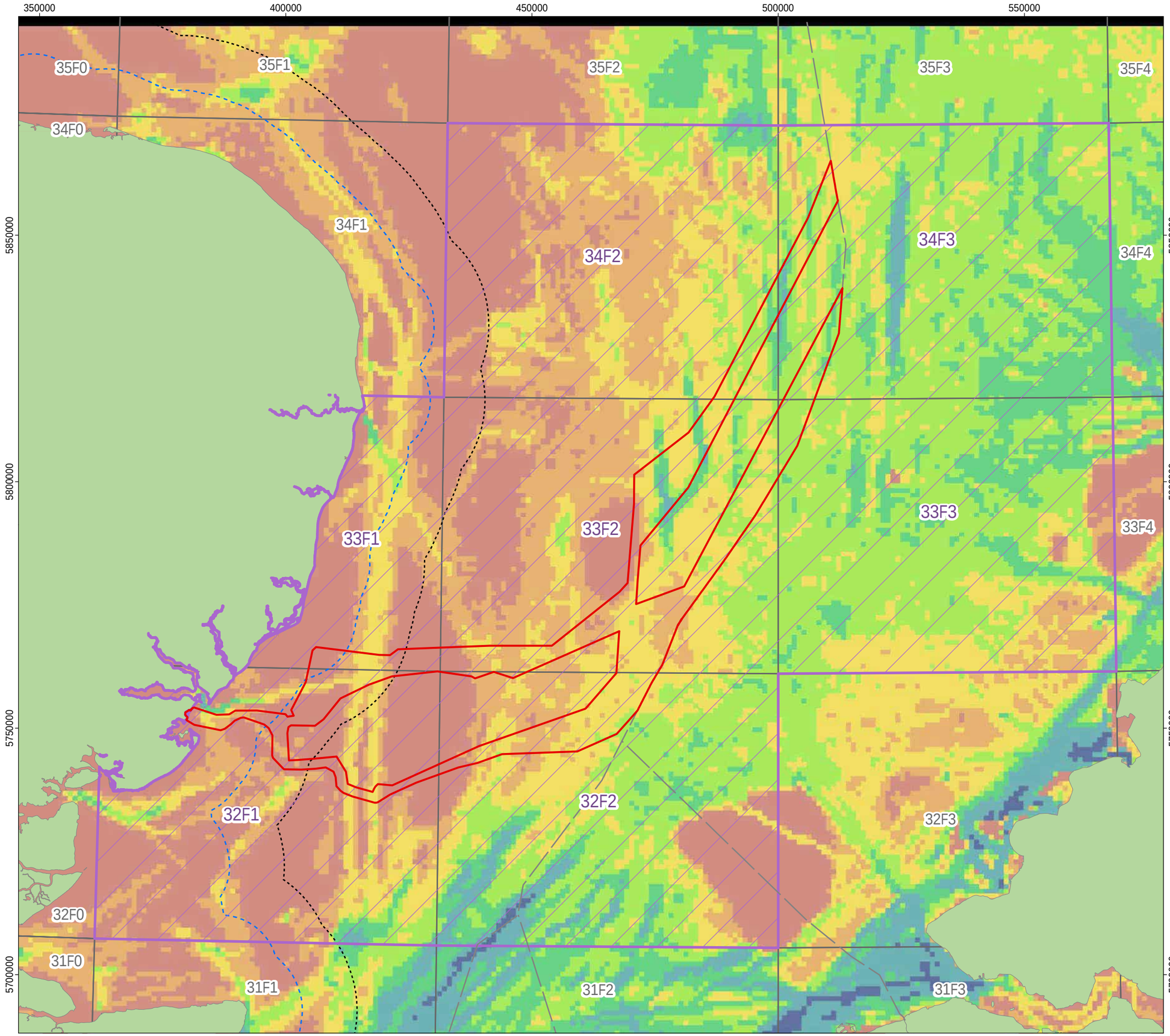
Figure Reference: Tarchon_Scoping_CF_Fig17-3_FishingEffortEUVesselsOver12m_v3

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17.5.1.16 European Maritime Safety Agency fishing vessel density track data (EMODnet, 2025) illustrates the movement patterns and concentration of fishing vessels across EU waters over time. By aggregating satellite and AIS signals, it reveals hotspots of fishing activity and identifies frequently used routes. Figure 17-4 indicates low - medium levels of activity by fishing vessels (including both steaming and active fishing) in the vicinity of the UKMS. In the ICES rectangles to the western edge of the scoping boundary (34F3 and 33F3), route density remains mostly below six routes per square km per year, with some tracks of higher route density evident in a north-south direction down the centre of 33F1 and 32F1.

17.5.1.17 Further time series will be analysed for ICES and MMO VMS data and EMSA fishing vessel route density data within the ES.

17.5.1.18 As shown in Figure 17-5 and Figure 17-6, the top 15 species landed within the Study Area by value and weight respectively from 2020 to 2024 (MMO, 2025). Landings statistics indicate that the key fisheries in the Study Area are targeting squid, cockles, sole, whelks, surmullet, bass, horse mackerel, whiting, lobsters, mackerel, thornback ray, tub gurnard, plaice, herring and turbot. Further detail on commercially important species present within the Study Area, as informed by the EIFCA review (2025), is provided in Volume 03, Chapter 15: Fish and Shellfish.




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# Tarchon Interconnector Project

Scoping Report

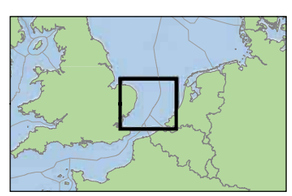
## Fishing Vessel Route Density 2024 (Source: EMSA, 2025)

**Legend**

- UK Marine Scheme Scoping Boundary
- Exclusive Economic Zones (EEZ) Boundaries
- 6nm Limit
- 12nm Limit
- Commercial Fisheries Study Area
- ICES Rectangles

Route Density for Fishing Vessels (2024)
(Routes per Square Km per Year)

- <6
- 6.01 - 24
- 24.01 - 60
- 60.01 - 120
- 120.01 - 240
- 240.01 - 1,200
- >1,200



**Notes**

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

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| Scale | Date | Drawn by | Checked by | Approved by |
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Figure 17-4

Figure Reference: Tarchon_Scoping_CF_Fig17-4_FishingVesselRouteDensity2024_v1

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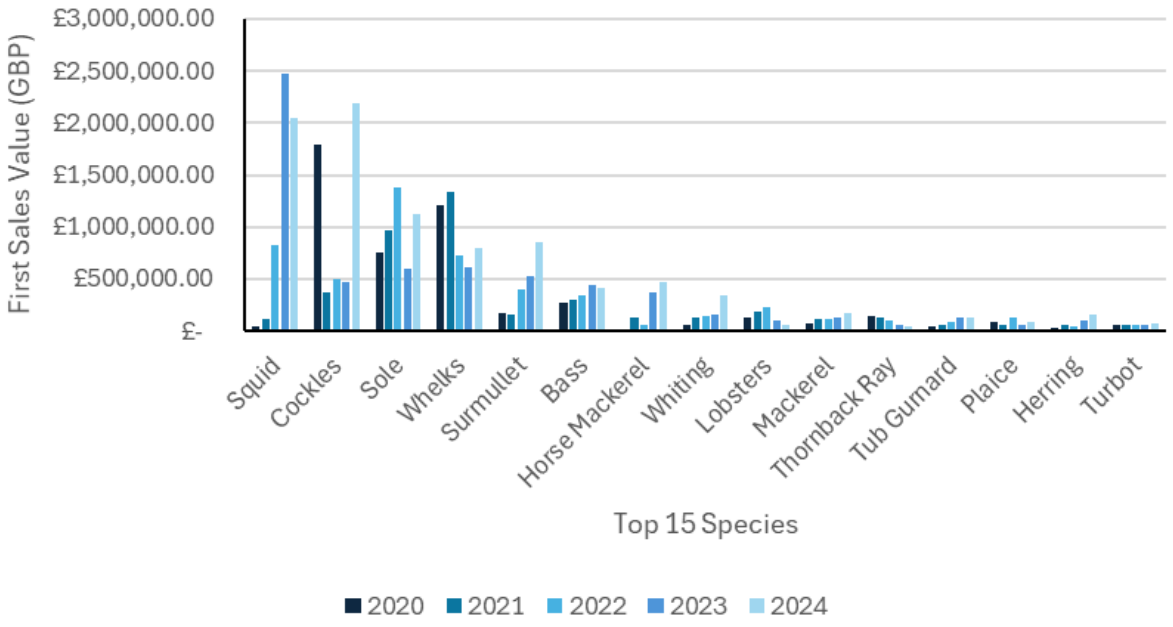



**Figure 17-5: Average annual landed value of species from the Commercial Fisheries Study Area based on a five-year average from 2020 to 2024 (MMO, 2025).**

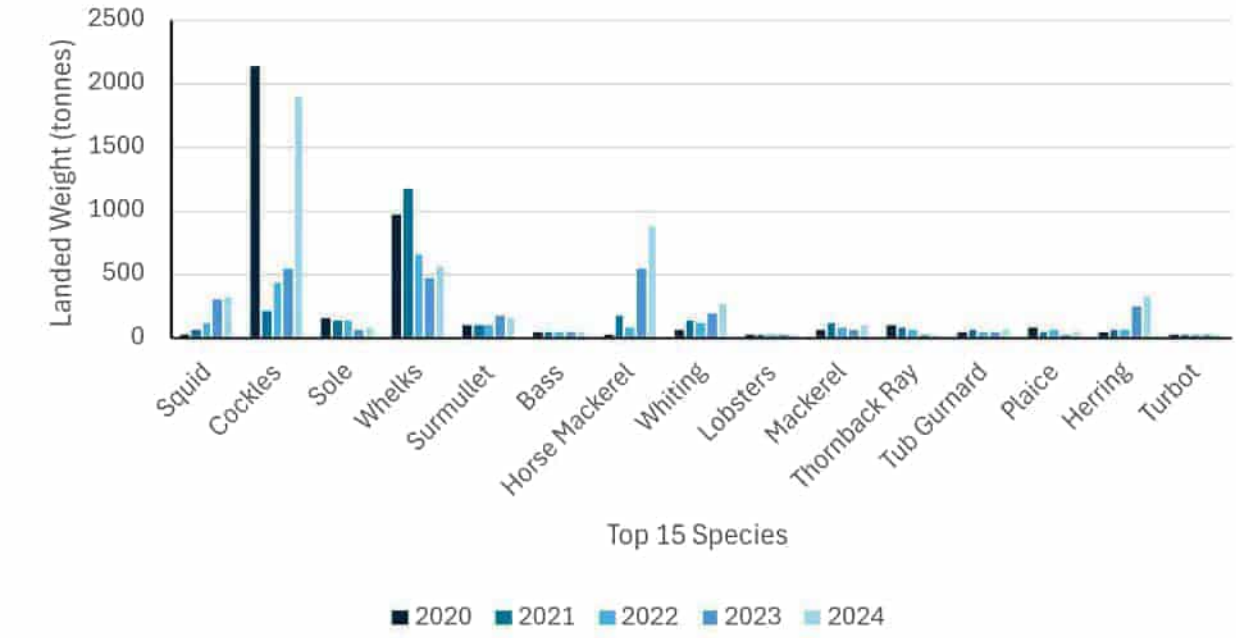



**Figure 17-6: Average annual landed weight of species from the Commercial Fisheries Study Area based on a five-year average from 2020 to 2024 (MMO, 2025).**

17.5.1.19 Throughout the Commercial Fisheries Study Area, landings appear relatively consistent between 2020 to 2022. 2021 shows a slight downward trend from the previous year of approximately £129,000, however signs of recovery were evident in 2022. There is then a further increase in 2023 of roughly £165,000, followed by another increase of £384,000 into 2024 (Figure 17-7). A likely explanation for the lower overall landings recorded in between 2020 and 2022 is the COVID-19 pandemic which restricted usual fishing and trading operations. Into 2023, business

operations and market trade had begun to resume normal practice and by 2024 landings are again approaching pre-pandemic levels.

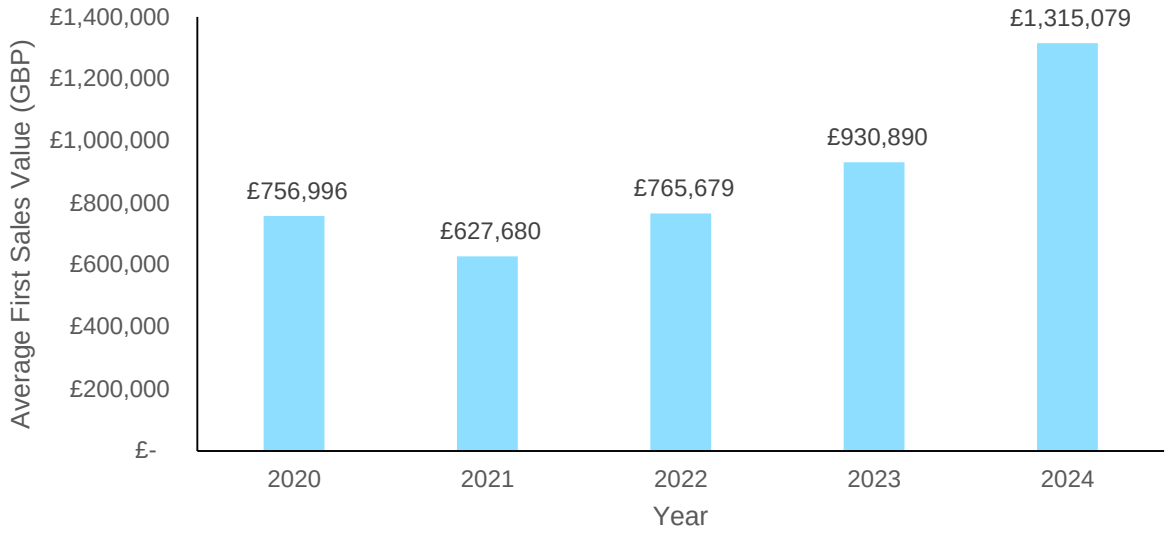



**Figure 17-7: Average first sales value of landings across the Commercial Fisheries Study Area (2020 – 2024)**

17.5.1.20 From 2020 to 2024, UK vessels fishing in ICES rectangles 32F1, 32F2, 33F1, 33F2, 33F3, 34F2 and 34F3 landed a total combined annual average weight of 3,284 tonnes, with an annual average value of £6,154,854. During this period, ICES rectangle 32F1 recorded the highest total landed weight and value, amounting to 7,648 tonnes valued at £11,109,620 (MMO, 2025). According to MMO data (MMO, 2025) no landings data were captured for foreign vessels landing catches from the Study Area. However, vessels from Belgium, France and the Netherlands, are known to fish within ICES rectangles 32F1, 32F2, 33F1, 33F2, 33F3, 34F2 and 34F3 (Gibin, Zanzi, Hekim, Adamowicz, & Kovsars, 2024). Foreign vessels which land catch from the study area at foreign ports is likely absent from this data set, and so any estimate of catch taken from the study area is likely an underestimate. When examining the total landed weight and total landed value across the ICES rectangles within the Study Area, higher landed weight almost always proportionately corresponds to higher landed value (Figure 17-8 and Figure 17-9). A notable exception is the difference between 33F1 and 34F2. Total landed weight at 34F2 is almost half that of 33F1, however the total landed value between these ICES rectangles only differs by roughly 5.6%.

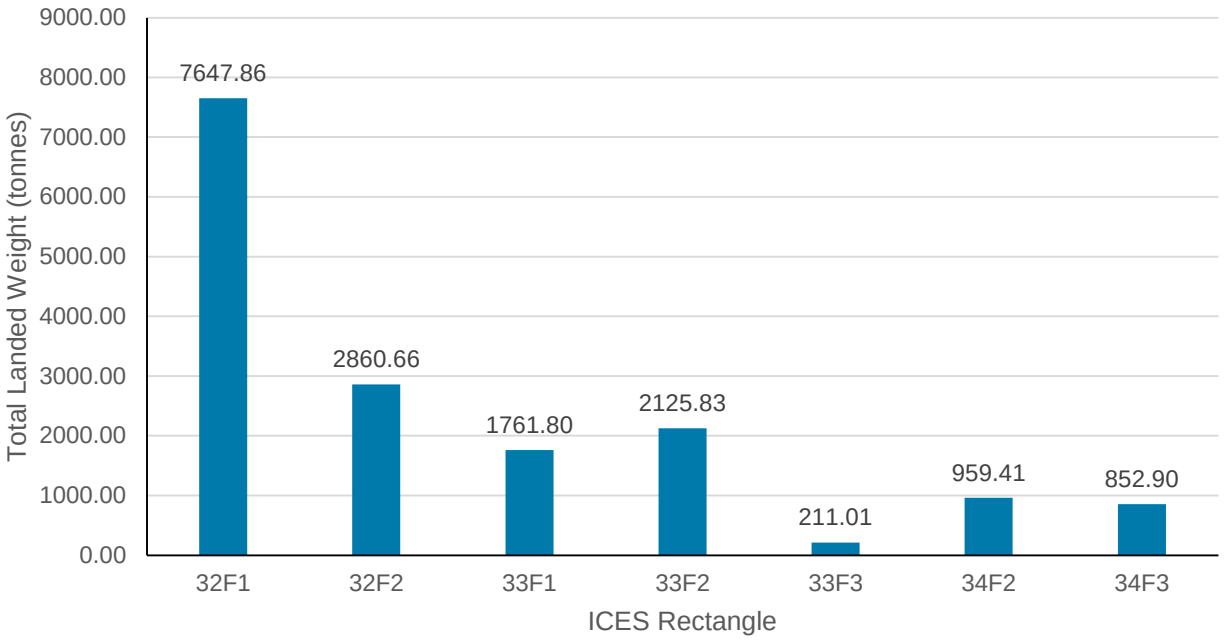



**Figure 17-8: Total landed weight (tonnes) between 2020 to 2024 at each ICES rectangle within the Commercial Fisheries Study Area**

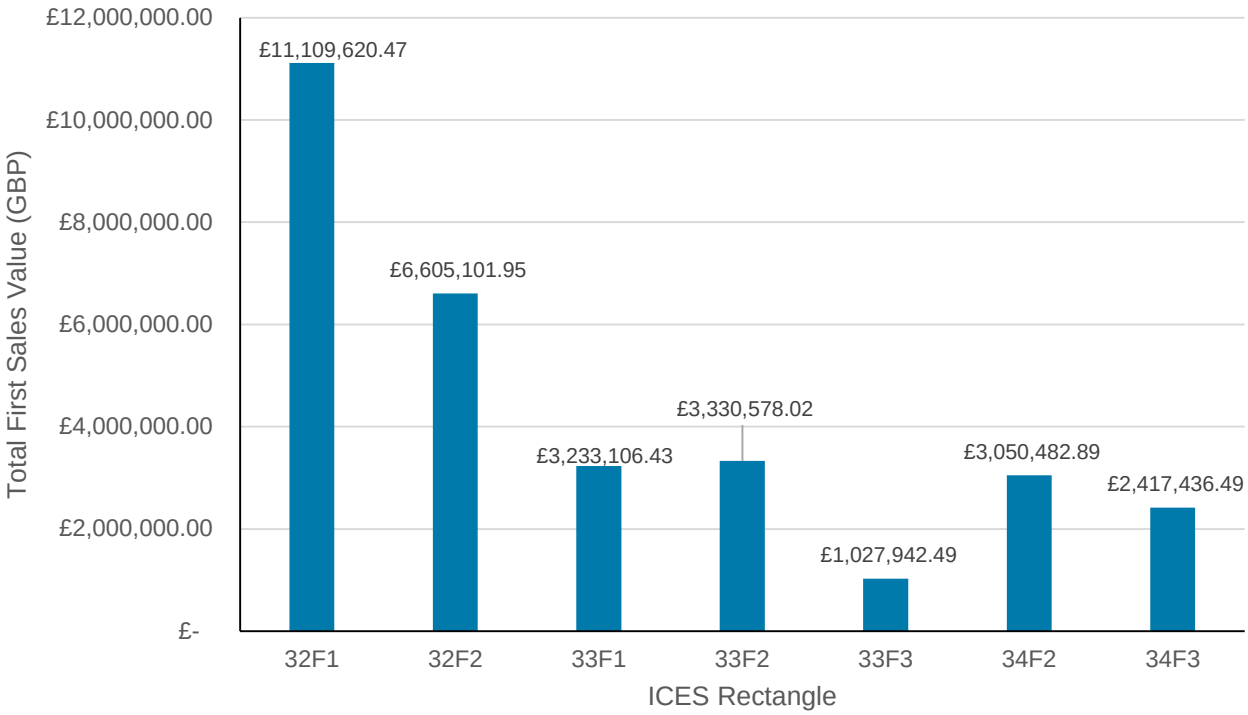



**Figure 17-9: Total landed value (GBP) between 2020 to 2024 at each ICES rectangle within the Commercial Fisheries Study Area**

17.5.1.21 Annual statistics for the relevant ICES rectangles show the quantity of landings (tonnes) to be dominated by shellfish species, in comparison to pelagic or demersal species (Figure 17-8) (MMO, 2024) (MMO, 2025).

17.5.1.22 On average, between 2020 and 2024, shellfish accounted for 54.14% of total landed value across all seven ICES rectangles, demersal species accounted for

39.47% and pelagic species 6.38% (MMO, 2025). Squid represented the highest proportion of the total landings value (18.73%), followed by cockles (18.14%), sole (16.42%) and whelks (15.95%) (MMO, 2025). From 2020 to 2024, most landed weight was comprised of shellfish species (Figure 17-6), which contributed from 46.86% to 80.02% of the landed weight. Similarly, shellfish were the primary contributors to landed value from 2020 to 2024. The only exception is 2022, in which demersal species contributed to 51.3% of landed value compared to 43.95% by shellfish Figure 17-11).

17.5.1.23 The high presence of shellfish catch reflects the importance of the Cockle Fishery Flexible Permit Byelaw Areas; with the northern portion between Harwich and Ridgemarsh overlapping the UKMS. The Thames Cockle Fishery is also of key importance, located on the north Kent coast, partially within ICES 31F1. Furthermore, Whelk Fishery Flexible Permit Byelaw areas overlap with the UKMS. Multiple classified Bivalve Mollusc Harvesting Areas are also located to the South of the UKMS within approximately 26 km of the UKMS; as well as numerous shellfish waters, protected by The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. These include Waters Walton Backwaters and Colne Estuary, the Outer Thames and Margate designated shellfish waters, located approximately 3.5 and 26.5 km south of the UKMS, respectively.

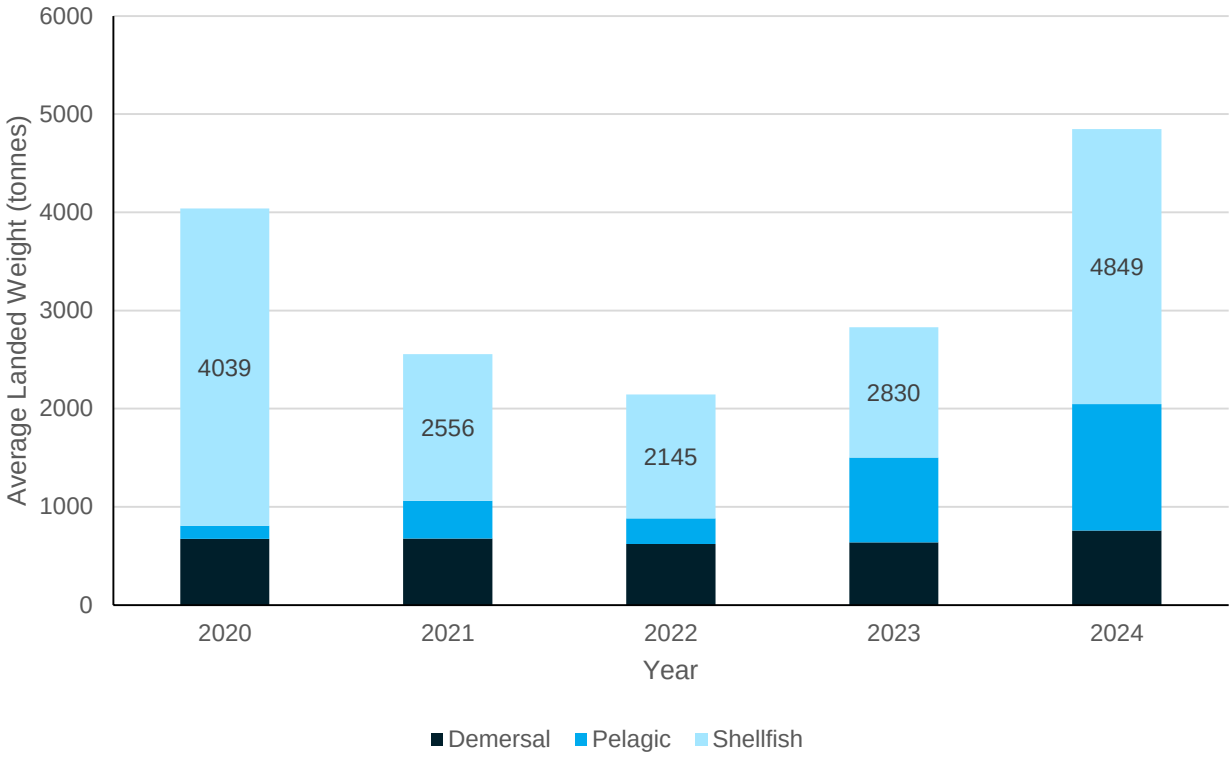



**Figure 17-10: Average landed weight (tonnes) of demersal, pelagic and shellfish species between 2020 and 2024 within the Study Area.**

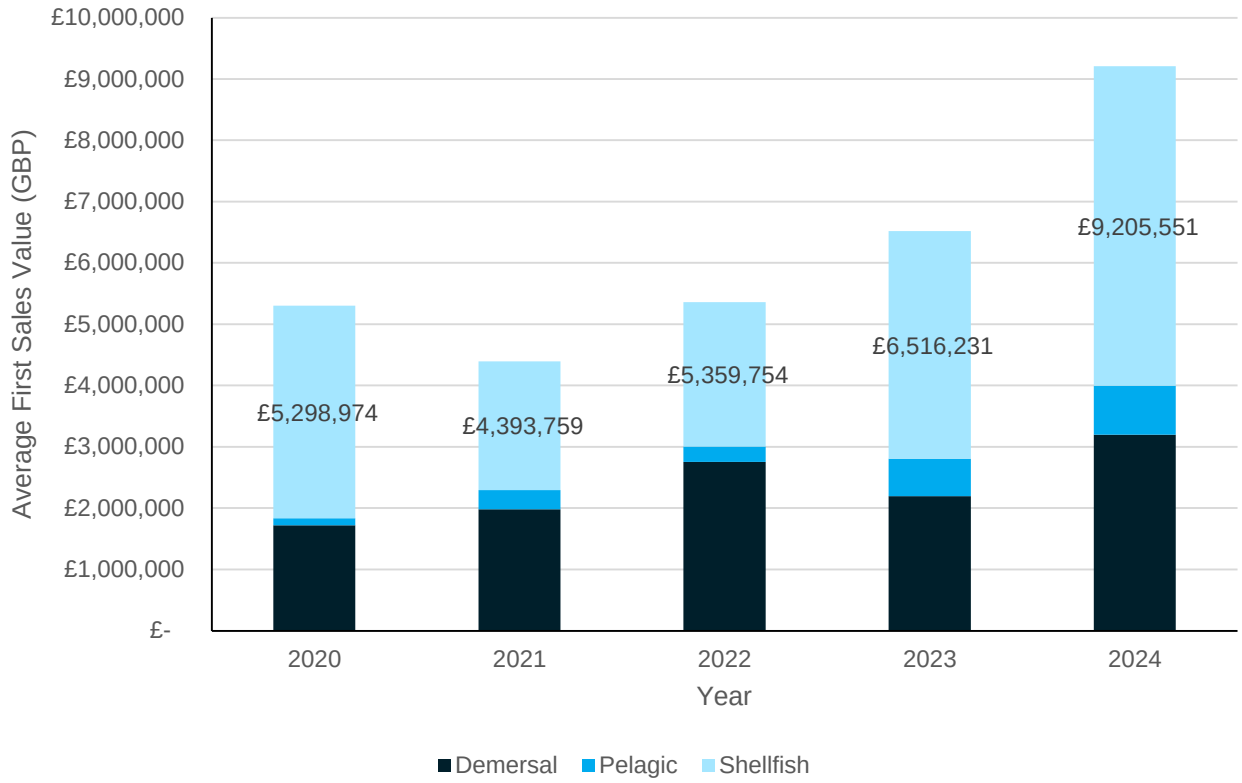
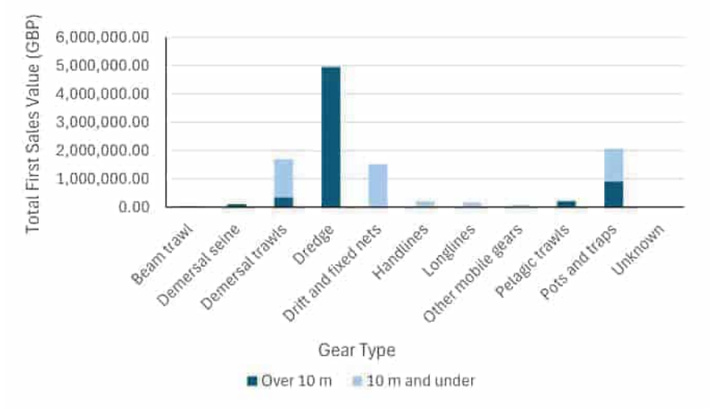



**Figure 17-11: Average landed value (GBP) of demersal, pelagic and shellfish species between 2020 and 2024 within the Study Area.**

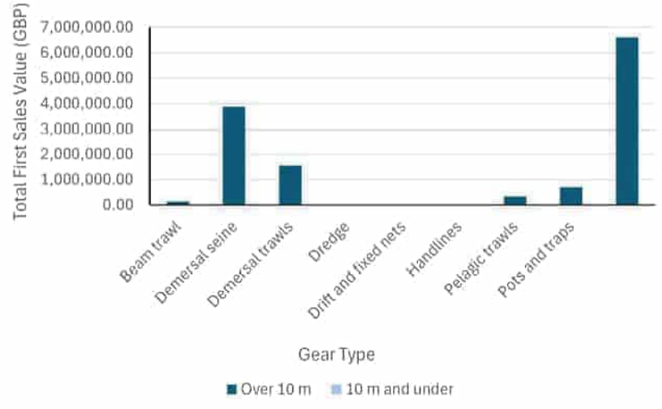
17.5.1.24 Dredges, pots and traps, demersal trawls and demersal seines, accounted for 16.22%, 17.61%, 22.19% and 24.38% of the total first sales value between 2020 to 2024, respectively (MMO, 2025). Bottom drift net fisheries are also an important static gear type deployed in the Study Area, accounting for 8.4% of the total first sales value between 2020 to 2024.

17.5.1.25 Gear types vary by ICES rectangle, with more coastal and shallow water rectangles such as 32F1, 33F1 and 33F2 fished by vessels deploying static gear and bottom trawls; and ICES rectangles further offshore, such as 32F2, 34F2 and 34F3 generally fished by vessels deploying demersal gear and trawls (Figure 17-12). Additionally, in most ICES rectangles the activity is dominated by vessels over 10 m, with 33F1 being the only exception which hosts far more activity by vessels 10 m and under (Figure 17-12).

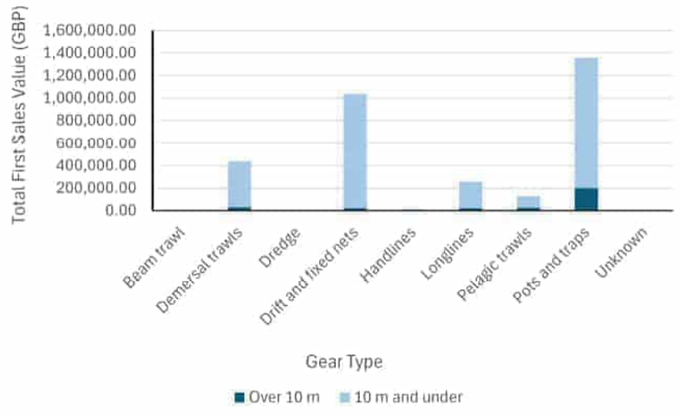
### ICES Rectangle 32F1



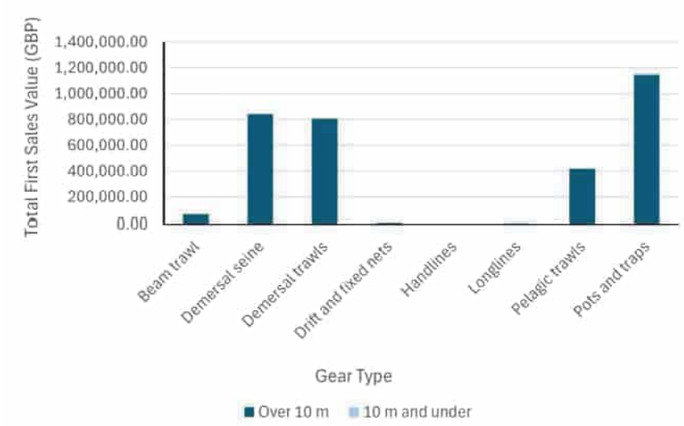

### ICES Rectangle 32F2



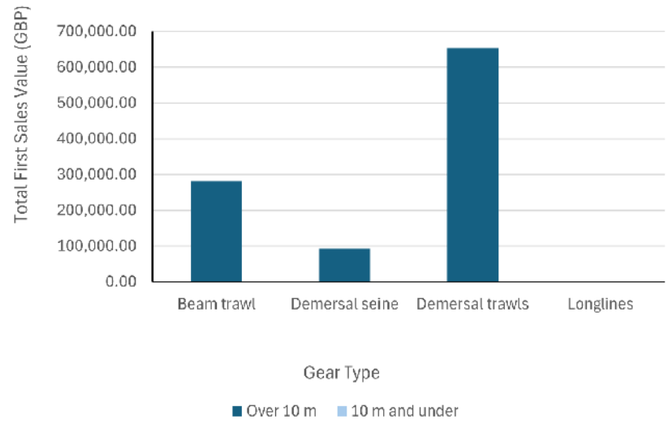

### ICES Rectangle 33F1



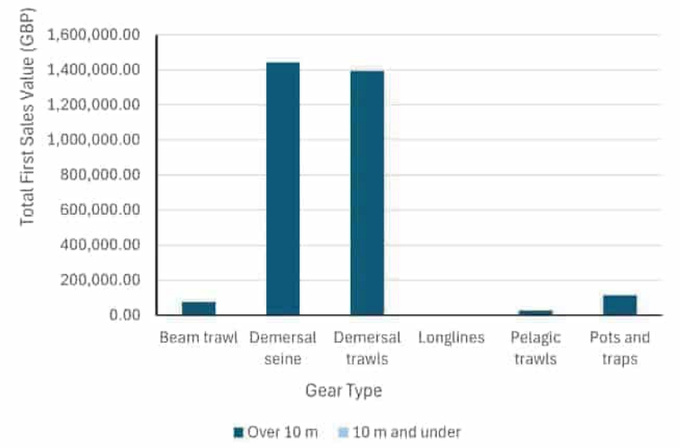

### ICES Rectangle 33F2




### ICES Rectangle 33F3




### ICES Rectangle 34F2




### ICES Rectangle 34F3

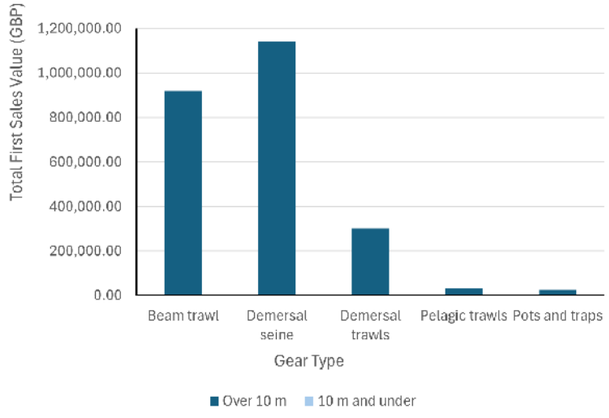



**Figure 17-12: Comparative effort by gear type and ICES rectangle for vessels ≤ 10 m and > 10 m operating in the Commercial Fisheries Study Area**

#### Key fleet métiers operating within the Study Area

17.5.1.26 Vessels ≥12 m and <10 m are referred to rather than a simple ≥12/<12 split because these categories reflect the way UK fisheries are actually monitored. Vessels 12 m and over are required to carry VMS equipment, so this is the group for which detailed spatial activity data is available.

17.5.1.27 Vessels under 10 m form a separate category because they make up most of the inshore fleet and follow different reporting rules. The intermediate 10–12 m group has inconsistent data coverage, so national datasets typically focus on the two clearer groups: <10 m (inshore) and ≥12 m (tracked). This approach ensures the most robust data available is used.

17.5.1.28 In summary, based on the data gathered to inform this scoping exercise, the key fleets operating across the Study Area include (in no particular order):

- Inshore fleet of vessels < 10 m operating dredges targeting cockles, with peak activity occurring from July to September;
- Demersal trawl fleet of vessels > 12 m primarily targeting sole and squid year-round but also landing cockles mostly in July;
- Demersal seine fleet of vessels > 12 m targeting surmullet year-round; and
- Inshore fleet deploying pots and traps, mostly by vessels < 10 m targeting whelks and lobsters year-round, but with peaks of lobster in July and August.

### 17.5.2 Future Baseline Conditions

17.5.2.1 The baseline environment is not static and is expected to change over time, irrespective of the UK Scheme. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UK Scheme over its operational lifetime. This future baseline will be defined for the purposes of the EIA in relation to the years of construction and the operational period of the UK Scheme.

17.5.2.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised

17.5.2.3 The Commercial Fisheries Chapter within the Environmental Statement (ES) will therefore include an outline of the likely evolution of the baseline environment without the implementation of the UKMS, as far as natural changes from the baseline scenario can be assessed.

17.5.2.4 The Commercial Fisheries baseline varies season-by-season based on a range of natural and socio-economic factors. The previous section illustrates the amount of

variability in the species, catch value and gear type used over a five-year period. Therefore, predicting the future baseline is difficult, but the following factors are relevant considerations:

- **Stock abundance**: fluctuation in the harvestable biomass in response to changes due to stock status, which is affected by recruitment, natural disturbances (e.g. due to storms, sea temperature etc.), changes in fishing pressure, amongst other factors, leading to changes in where, when and how much biomass is landed;
- **Fisheries management**: each year quotas are set by the government for specific fish species this is to avoid overfishing of specific species and therefore may mean a change in fishing effort in a particular area;
- **Environmental management**: including the potential restriction of certain fisheries within protected areas;
- **Market prices and demand**: commercial fishing fleets respond to market prices and demand by focusing effort on higher value target species when prices are high and markets in demand;
- **Improved efficiency and gear technology**: with fishing fleets constantly evolving to reduce operational costs e.g. by moving from beam trawl to demersal seine; this can lead to changes in gear configuration which may affect accessibility, as well as reduced fishery footprint due to improved catching efficiency;
- **Sustainability**: with seafood buyers more frequently requesting certification of the sustainably of fish and shellfish products, such as the Marine Stewardship Council certification, the industry is adapting to improve fisheries management and wider environmental impacts; and
- **Climate change**: It is anticipated over time that global climate change will result in changes to the marine environment (Tripathi, 2016; Cheung, 2010), which would include impacts on fish and shellfish populations of commercial importance. This may in turn result in changes to Commercial Fisheries practices in order to respond to any potential changes in species distribution abundance and/or seasonal trends.

### 17.5.3 Additional Proposed Data Sources

17.5.3.1 In addition to the data sources listed in Section 17.5, the following data sources are proposed to be used to inform the next phases of assessment:

- Project-specific survey data such as marine traffic surveys undertaken to inform the assessment in Volume 03, Chapter 18: Shipping and Navigation (where applicable);
- Fisheries Research and Management Plans;
- Non-UK landings by ICES Rectangles (MMO, 2025);
- Other publicly available reports and information, including:
  - Designated site risk-based fisheries assessments;
  - The Thames Estuary Cockle Fishery Regulating Order (2024) (HM Government, 2024);

- Review of Cockle Fishery total allowable catch (e.g. (Ref. 22 35));
- MSC Fisheries Surveillance Reports ( (MSC, 2024); and
- MMO Report 1382, Sensitivity of the under 12 m fishing fleet to offshore wind development in the east marine plan areas (MMO, 2024).

17.5.3.2 In addition to the statutory stakeholder consultation that forms part of the assessment methodology, further stakeholders will be identified, but are likely to include:

- Aldeburgh Fishermen's Association;
- The Eastern IFCA;
- Felixstowe Ferry Fishermen's Association;
- Harwich Fishermen's Association;
- Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA);
- Leigh Trawlermen's Association (including Wivenhoe fleet);
- Lowestoft Fishermen's Association;
- Orford and District Fishermen's Association;
- Southwold Fishermen's Association;
- The Thames Estuary Fishermen's Association (TEFA);
- Thanet Fishermen's Association;
- West Mersea Fisherman's Association; and
- Whitstable Fisherman's Association.

17.5.3.3 Consultation will be undertaken with both regulatory bodies and fisherman's organisations with guidance and input from the Project-appointed FLO. Regulatory bodies such as the MMO will be consulted via a series of meetings, confirming construction licence conditions, navigational safety measures, seasonal restrictions and mitigation relating to gear clearance, exclusion zones and guard vessel requirement. Fisheries organisations such as those listed above will be consulted, ideally through a series of arranged meetings to understand potential displacement effects, restricted access implications, gear interaction risks and to agree communication protocols, temporary closures and any co-existence measures required during construction. It is also recommended that targeted consultation with individual vessels owners is sought to identify precise fishing grounds, peak effort periods and gear deployment patterns, helping to minimise interference and reduce the risk of gear loss. Early notification of construction windows, vessel movements and safety zones allows fishers to plan operations and adjust activity to avoid conflict. In addition, consultation will be undertaken with other projects and/or their developers in order to limit any concurrent activities and reduce the potential for cumulative effects. This consultation will also inform the incorporation of exclusion zones, ensuring that consideration is given to the vessels involved in other nearby projects as well as those of the Tarchon UKMS.

## 17.6 Assessment Methodology

17.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology and will consider the construction, operation, maintenance and decommissioning of the UKMS, as described in Volume 01, Chapter 02: UK Project Description. Whilst this overarching methodology has informed the approach used for Commercial Fisheries, the following section sets out how it will be applied, and adapted as appropriate, to address the specific needs of the Commercial Fisheries assessment.

17.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on Commercial Fisheries receptors arising from the construction, operational, and decommissioning phases of the UKMS. This approach defines:

- **Sources and impacts**: The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

17.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

17.6.1.4 The proposed criteria for sensitivity of receptor and magnitude of impact for the assessment of Commercial Fisheries is presented below.

### 17.6.2 Sensitivity of Receptor

17.6.2.1 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
- I**mportance:** value of the fishery in the Study Area around the UKMS.

17.6.2.2 The criteria used to define the sensitivity of Commercial Fisheries receptors are provided in Table 17-2.

**Table 17-2: Definitions of sensitivity for Commercial Fisheries**

| Sensitivity | Definition |
|---|---|
| Very High | Highly restricted operational range and ability to deploy only one gear type.<br>High dependence upon a single fishing ground of high importance. |
| High | Limited operational range and ability to deploy only one gear type.<br>High dependence upon a single fishing ground. |
| Medium | Moderate extent of operational range and/or ability to deploy an alternative gear type.<br>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.<br>Ability to fish a number of fishing grounds. |
| Negligible | Extensive operational range and very high method versatility in terms of gear types.<br>Vessels are able to exploit a large number of fishing grounds. |

### 17.6.3 Magnitude of Impact

17.6.3.1 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; and
- **Duration and frequency**: overall time and frequency of the effect.

17.6.3.2 The criteria used to define the magnitude of impact on Commercial Fisheries receptors are provided in Table 17-3:

**Table 17-3: Definitions of magnitude for Commercial Fisheries**

| Magnitude | Definition |
|---|---|
| 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<br>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<br>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<br>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<br>The effect is short term. |

### 17.6.4 Significance of Effect

17.6.4.1 To ensure consistency across topics as outlined in Volume 01, Chapter 06: EIA Approach and Methodology, a matrix approach has been adopted to present judgements made on the significance of an effect. This terminology is outlined in Table 17-4 below.

**Table 17-4: Significance Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Negligible |
| Very High | Major | Major | Moderate | Minor |
| High | Major | Moderate | Moderate | Minor |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

17.6.4.2 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

17.6.4.3 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UKMS design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UKMS.

17.6.4.4 The assessment 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 and as such the relevant offshore wind sector guidance is utilised where relevant. A list of guidance that will be used to inform best practice, for consultation, assessment and other project elements is provided below.

- FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds (FLOWW, 2025);
- Developing guidance on fisheries Cumulative Impact Assessment for wind farm developers (Blyth-Skyrme, 2010a);
- Draft Guidance on preparing a Fisheries Management and Mitigation Strategy (Marine Scotland, 2020);
- Assessing fisheries displacement by other licensed marine activities: good practice guidance (Marine Scotland , Assessing fisheries displacement by other licensed marine activities: good practice guidance);
- Mapping fishing activities in the UK EEZ: a brief overview of data, methods and tools. Report produced for The Crown (Mendo, et al., 2023);
- Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments (Seafish, 2012); and
- Cumulative impact assessment guidelines, guiding principles for cumulative impacts assessments in offshore wind farms (Renewable UK, 2013).

## 17.7 Potential Effects and Mitigation

### 17.7.1 Maximum Design Scenario (MDS)

17.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 17.7.2 Embedded Mitigation and Good Practice Measures

17.7.2.1 The UK Scheme will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of impacts. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as “mitigation measures that have been incorporated into a project’s description and form an inherent part of the project’s design’ (ISEP, 2024).

17.7.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UKMS development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

17.7.2.3 As the UK Scheme advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective, and compliant with regulatory standards and stakeholder input. For example, as the corridor design is progressed, consultation with fishers will help to identify sensitive areas for fishing and elements of the design that may pose a risk to fishing gear, informing the refinement of UKMS design.

17.7.2.4 The following embedded mitigation measures have been proposed at this stage, on the basis that they represent standard practice on an international regulatory basis:

- All Tarchon Project vessels operating in the UKMS 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) (IMO, 2017);
- All Tarchon Project vessels operating in the UKMS must comply with the International Regulations for Preventing Collisions at Sea (1972) (IMO, 1972), regulations relating to International Convention for the Prevention of Pollution from Ships (the MARPOL Convention 73/78) (IMO, 1983) with the aim of preventing and minimising pollution from ships and the International Convention for the Safety of Life at Sea (IMO, 1974);
- All Tarchon Project vessels operating in the UKMS shall adhere to the International Maritime Organisation (IMO) Guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species (Biofouling Guidelines) (IMO, 2011);

- All Tarchon Project Vessels operating in the UKMS will not do so without prior communication with the FLO and with the relevant fisheries bodies through the FLO;
- Notice to Mariners (NtM) will also be issued prior to vessel mobilisation and periodically throughout the campaign as required;
- Continuation of the involvement of a FLO and implementation of a fisheries working group(s) to ensure the UKMS information is disseminated effectively and maintain an open dialogue with the commercial fishing industry; and
- There is a proposed minimum cable burial depth of 0.9 m which is anticipated to be sufficient to minimise risk of interaction with fishing gear. Where this is not possible due to crossings or installation restrictions, appropriate cable protection in the form of rock mattresses or rock placement may be deployed. Deeper burial may be required for future shipping and future case dredge depths.

17.7.2.5 Due to the early design phase of the UKMS, no other mitigation commitments have been formally identified at this stage. However, as a result of the impact appraisal it is recommended that the following best practice measures are considered:

- Sensitive routing and siting of infrastructure and temporary works;
- Minimising the amount of time the cable stays unprotected; and
- Consideration of cable protection design and potential risk to fishing gear.

17.7.2.6 Embedded and additional mitigation measures and good practice measures will be reassessed at the PEIR and ES stages and updated as necessary.

### 17.7.3 Scoping Assessment

17.7.3.1 The Commercial Fisheries assessment will consider the construction, operational, and decommissioning phases of the UKMS.

17.7.3.2 The impact pathways associated with the UKMS (Table 17-5) have been scoped in on a precautionary basis as the corridor design and methodology for the UKMS has not yet been finalised. Once the UKMS progresses through the design phase, the impact pathways will become more refined.

Table 17-5: Elements Scoped In and Out for Commercial Fisheries

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction, operational and decommissioning | • Pre-installation clearance of obstacles and debris;<br>• Sand wave sweeping;<br>• Cable installation and cable lay activities;<br>• Cable protection; and<br>• Exposed cables. | Displacement of fishing activity leading to gear conflict and increased fishing pressure on adjacent grounds | Commercial fishers within the UKMS | Scoped in | Route preparation, cable burial and cable protection activities may inhibit the use of particular gear types within certain areas. For instance, the use of demersal towed gear may incur significant snagging risk following the installation of cable protection measures. his may increase the fishing pressure within adjacent grounds and lead to gear conflict between fishers, particularly among static gear fleets. As fishers relocate from established areas, competition may intensify, raising the risk of entanglement, gear damage and community tension. These effects are likely to be more pronounced in areas with limited alternative grounds or high seasonal effort. Displacement may also erode spatial knowledge built over years, reducing catch efficiency and increasing operational uncertainty. |
| Construction, operational and decommissioning | • Pre-installation clearance of obstacles and debris;<br>• Sand wave sweeping;<br>• Cable installation and | Temporary reduction in access to, or exclusion from, established fishing grounds | Commercial fishers within the UKMS | Scoped in | During construction and decommissioning, there may be temporary restrictions to access of certain areas by fishers as a result of the establishment of safety zones, increased vessel traffic and the use of installation/seabed preparation equipment. During operation, cable |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | cable lay activities;<br>• Cable protection; and<br>• Exposed cables. | | | | protection such as rock berms/rock armour, may make some areas permanently unsuitable for demersal towed gear types as they pose a snagging risk. These disruptions can affect traditional fishing patterns, particularly for static gear fleets and reduce access to productive areas. Anchor deployment during construction and retrieval during decommissioning may disturb seabed habitats, impacting fishing viability, while informal anchoring and sheltering spots may also be lost, increasing operational risk. |
| Construction, operational and decommissioning | • Cable installation and cable lay activities;<br>• Cable protection;<br>• Presence of marine vessels;<br>• Removal of cable from seabed; and<br>• Removal of cable protection. | Increased vessel traffic associated with the Project within fishing grounds leading to interference with fishing activity | Commercial fishers within the UKMS | Scoped in | The temporary lack of access to any fishing grounds that overlap the UKMS and the associated safety zone typically placed around the cable installation vessel, could result in the temporary displacement of fishing activity into other areas. |
| Construction, operational and decommissioning | • Cable installation and cable lay activities; | Additional steaming to alternative fishing grounds for vessels that | Commercial fishers within the UKMS | Scoped in | Construction and decommissioning of cable infrastructure may displace vessels from traditional grounds, requiring longer transits to alternative areas. This increased steaming raises |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | • Cable protection;<br>• Presence of marine vessels;<br>• Removal of cable from seabed; and<br>• Removal of cable protection. | would otherwise fish within the UKMS | | | fuel costs, carbon emissions and vessel wear, while reducing fishing efficiency. Displacement may also intensify competition in adjacent grounds, leading to overcrowding, gear conflict and ecological pressure on less-used stocks. Impacts will be assessed through fisheries activity analysis and fleet sensitivity. Indirect effects may also arise for Shipping and Navigation (Volume 03, Chapter 18) and Socioeconomics and Land Use (Volume 04, Chapter 24), Tourism and Recreation (Volume 04, Chapter 27). |
| Construction, operational and decommissioning | • Pre-installation clearance of obstacles and debris;<br>• Sand wave sweeping;<br>• Cable installation and cable lay activities;<br>• Cable protection; Presence of marine vessels;<br>• Removal of cable from seabed; and | Physical presence of infrastructure leading to gear snagging | Commercial fishers within the UKMS | Scoped in | Seabed obstacles that may arise from the UKMS including the temporary presence of vulnerable sections of cable awaiting trenching or protection during installation, or sections of cable that could become exposed during the operational phase, may pose a snagging risk to fishing gear. Additionally, static gear may also be present within UKMS boundaries which if not temporarily relocated could be damaged or moved by cable installation activities. |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | • Removal of cable protection. | | | | |
| Construction, operational and decommissioning | • Pre-installation geophysical surveys;<br>• Pre-installation clearance of obstacles and debris;<br>• Sand wave sweeping;<br>• Cable installation and cable lay activities;<br>• Cable protection Presence of marine vessels;<br>• Presence of activated cable;<br>• Removal of cable from seabed; and<br>• Removal of cable protection. | Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity | Commercial fishers within the UKMS | Scoped in | There is potential for works associated with the UKMS to indirectly impact Commercial Fisheries as a result of impacts on the behaviour and distribution of fish and shellfish ecology. For example, changes in the underwater soundscape, or the increased Suspended Sediment Concentrations (SSC) during construction and maintenance may result in behavioural responses in individual receptors of commercial importance fished in the vicinity of the UKMS.<br>Consideration of fish and shellfish ecology is provided in Volume 02, Chapter 15: Fish and Shellfish Ecology. The assessment will determine if any of the impact pathways to ecological receptors have the potential to affect commercial fishing |
| Construction, operational and decommissioning | • Cable installation and cable lay activities; | Disruption to seasonal fishing patterns | Commercial fishers within the UKMS | Scoped in | Construction and decommissioning of offshore cable infrastructure may disrupt seasonal fishing patterns by limiting access during key harvesting periods. Many fisheries depend on |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | • Cable protection;<br>• Presence of marine vessels;<br>• Removal of cable from seabed; and<br>• Removal of cable protection. | | | | spawning migrations, market-driven peaks, or weather-sensitive operations. Temporary exclusion zones, vessel traffic and seabed disturbance may prevent gear deployment at optimal times or locations, reducing catch efficiency and economic returns, especially for fleets with limited flexibility or short seasonal windows. Impacts will be assessed through industry consultation and analysis of fleet behaviour, effort timing and sensitivity to temporal constraints. Indirect effects may also arise for Socioeconomics and Land Use (Volume 04, Chapter 24) and/or Tourism and Recreation (Volume 04, Chapter 27). |
| Operational | • Cable protection | Long-term exclusion from established fishing grounds | Commercial fishers within the UKMS | Scoped in | The continued presence of cable protection installations such as rock berms or concrete mattresses may result in permanent or seasonal exclusion from historically productive fishing areas. This limits access for fleets that rely on site-specific harvesting patterns and can reduce overall fishing opportunity, particularly for static gear operators with limited spatial flexibility. Long-term displacement from familiar grounds may erode fishers' spatial knowledge and reduce the effectiveness of site- |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | specific harvesting strategies. This loss of traditional patterns can affect decision-making, catch predictability and overall fleet resilience. |
| Construction, operational and decommissioning | • Presence of marine vessels; and<br>• Presence of exclusion zones. | Obstruction of navigation routes to commercial fishing grounds | Commercial fishers within the UKMS | Scoped in | The presence of UKMS-related vessel traffic and the implementation of safety zones typically placed around the cable installation vessel, have the potential to obstruct navigational routes, influencing shipping patterns. This in turn, may result in fishing vessels temporarily needing to take alternative routes, or delay departure times in order to access fishing grounds. Indirect effects may also arise for Shipping and Navigation (Volume 03, Chapter 18) |

### 17.7.4 Cumulative and Transboundary Effects

17.7.4.1 There is the potential for cumulative and transboundary effects associated with the UKMS and other nearby offshore developments. The methodology for assessing these effects is described in Volume 01, Chapter 06: EIA Approach and Methodology and Volume 05, Chapter 32: Approach to Cumulative Effects.

17.7.4.2 Potential transboundary effects are a possibility where effects on Commercial Fisheries within UK waters include fishers registered or operated wholly or in part from an area under the jurisdiction of another State, i.e. vessels from EU member states with historic fishing rights. The assessment of transboundary effects will therefore consider possible transboundary effects arising from UKMS activities.

17.7.4.3 A fully detailed assessment of potential cumulative and transboundary effects will be provided as part of the PEIR and ES, once the UKMS information is finalised.

## 17.8 Assumptions, Limitations and Uncertainties

17.8.1.1 The use of ICES rectangles for landings data encompasses spatially large areas. This has the potential to misrepresent the fishing activity in more localised areas, particularly when appraising the UKMS where relatively small sections of the UKMS overlap certain ICES rectangles. Care is required when interpreting the data.

17.8.1.2 Regarding UK fisheries landing data (MMO, 2025):

- Data are grouped into gear categories which in some cases may include different fisheries. For instance, data are collected under a single category for drift and fixed nets. This gear category does not allow for differentiation between two activities which have differences in target catch and geographical range of deployment. Where appropriate, landings statistics should be analysed by species to address this;
- Small catches in some instances (e.g. <less than 30 kg) do not require reporting. Under the Registration of Fish Buyers and Sellers and Designation of Fish Auction Sites Regulations (2005). Therefore, some fisheries activity may not be represented in the dataset;
- Notably, this dataset covers the years 2020 to 2024. There were significant impacts on commercial fishing during 2020, from March onwards, due to the Covid-19 pandemic. Effects to the fishing industry varied depending on sector, but the shellfish industry (which largely supplies the hospitality industry with freshly landed catches) was most severely impacted as demand in the UK and abroad dropped substantially through government lockdowns. Thus, while data from 2020 have been included in this scoping assessment, data from that period may not be fully representative of ‘normal’ fishing activity;
- VMS data from ICES and MMO only covers vessels > 12 m and > 15 m respectively, so inshore activity by smaller vessels (< 12 m) is often underrepresented. Apparent gaps in inshore fishing on VMS maps may reflect this limitation rather than actual absence of activity; and
- Variations and trends in Commercial Fisheries activity are an important aspect of the baseline assessment and are the principal reason for considering up to

five years of key fisheries data (where available). Given the data reporting period considered in this assessment, existing baseline data may to some extent capture potential changes in Commercial Fisheries activity resulting from the COVID-19 pandemic (2020 to 2022), which is understood to have temporarily affected market demand and supply chains and changes in fishing patterns resulting from the withdrawal of the UK from the EU.

17.8.1.3 Recent landings data (post-2017) for non-UK vessels (EU) are mostly unavailable. Accessible data is no longer categorised by ICES rectangle, instead they are grouped by broader ICES divisions. As such the data are less applicable to specific areas relative to the Study Area and thus less useful. It may be possible to obtain more recent and/or more detailed data from nationalised sources; however, these data are unlikely to be made available outside of personal networks and acquisition or permission to use for commercial purposes cannot be guaranteed.

17.8.1.4 Fishing vessel route density data are predominantly derived from VMS, or Automatic Identification System (AIS) data. These data track vessels greater than 12 metres or 15 m metres in length, respectively. While Inshore VMS have become mandatory for vessels under 12 m in England at the time of writing these data may not be publicly available. Furthermore, while these data are valuable for identifying key transit routes and possible fishing grounds, these data do not distinguish between vessels that in transit or on effort.

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# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 03, Chapter 18: Shipping and Navigation

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00024 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | Anatec Ltd |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| AIS | Automatic Identification System |
| ALARP | As Low As Reasonably Practicable |
| CBRA | Cable Burial Risk Assessment |
| CD | Chart Datum |
| COLREGs | Convention on the International Regulations for Preventing Collisions at Sea |
| DWR | Deep-Water Route |
| EIA | Environmental Impact Assessment |
| ES | Environmental Statement |
| FLO | Fisheries Liaison Officer |
| FSA | Formal Safety Assessment |
| GT | Gross Tonnage |
| HHA | Harwich Haven Authority |
| IMO | International Maritime Organization |
| KIS-ORCA | Kingfisher Information Service – (Offshore Renewable and Cables Awareness |
| m | Metre(s) |
| MAIB | Marine Accident Investigation Branch |
| MCA | Maritime and Coastguard Agency |
| MEAC | Marine Emergency Action Card |
| MGN | Marine Guidance Note |
| MMO | Marine Management Organisation |
| MPS | Marine Policy Statement |
| NAVTEX | Navigational Telex |
| NM | Nautical Mile(s) |
| NPS | National Planning Statement |
| NPSP | National Policy Statement for Ports |
| NRA | Navigational Risk Assessment |
| O&M | Operation and Maintenance |
| OREIs | Offshore Renewable Energy Installation |
| PLA | Port of London Authority |
| RAM | Restricted in Ability to Manoeuvre |
| RNLI | Royal National Lifeboat Institution |
| SOLAS | International Convention for the Safety of Life at Sea |
| TSS | Traffic Separation Scheme |
| UK | United Kingdom |
| UKHO | United Kingdom Hydrographic Office |
| UKMS | UK Marine Scheme |
| UNCLOS | United Nations Convention on the Law of the Sea |
| VMP | Vessel Management Plan |
| VMS | Vessel Monitoring System |

| Acronym | Definition |
|---|---|
| VTS | Vessel Traffic Service |

# 18. Shipping and Navigation

## 18.1 Introduction

18.1.1.1 This Chapter presents the Shipping and Navigation assessment which will consider the potential significant effects on Shipping and Navigation receptors during the construction, operational, and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Areas used and receptors considered in this Chapter, only the UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. The English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is therefore not considered further for Shipping and Navigation.

18.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Shipping and Navigation baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Shipping and Navigation receptors from the proposed components of the UKMS (as described in Volume 01, Chapter 02: UK Project Description); and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

18.1.1.3 This Chapter should be read in conjunction with:

- Volume 01, Chapter 02: UK Project Description;
- Volume 01, Chapter 05: Legislative and Planning Policy Context;
- Volume 03, Chapter 17: Commercial Fisheries;
- Volume 03, Chapter 19: Offshore Infrastructure and Other Users; and
- Volume 04, Chapter 24: Socio-economics and Land Use;
- Volume 05, Chapter 32: Approach to Cumulative Effects.

18.1.1.4 This Chapter is not supported by any annexes.

## 18.2 Study Area

18.2.1.1 The Study Area is presented in Figure 18-1. The Study Area generally encompasses a five nautical mile (NM) buffer of the UKMS Scoping Boundary. This buffer is sufficient to characterise shipping activity and navigational features in proximity to the UKMS Scoping Boundary capturing the main vessel routes crossing and in proximity to the UKMS Scoping Boundary while remaining focused enough to ensure that only those vessel movements of relevance are considered. The Study Area will be presented during consultation with stakeholders, noting that

use of a 5 NM buffer has been accepted by navigational stakeholders in previous subsea cable projects. The Study Area also includes the entrances to the ports of Harwich, Felixstowe and other ports and harbours on the Rivers Stour and Orwell, which are key to navigation in the area.

18.2.1.2 Any vessel activity which may be impacted by the UKMS and associated activities during construction, operational, and decommissioning phases is considered to be captured within the defined Study Area and any potential associated impacts on Shipping and Navigation are considered in Section 18.7.

18.2.1.3 The Study Area has been limited within the Harwich Haven Authority (HHA) limits to the location of the Bell Guard buoy, in order to avoid moored vessels skewing the data analysis. Navigational features outside of the defined Study Area for Shipping and Navigation are also discussed in the assessment of the baseline environment, where these may influence the movements of vessels navigating within the Study Area, for example ports, routeing measures and wind farms on the periphery of the Study Area.

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5850000 5800000 5750000

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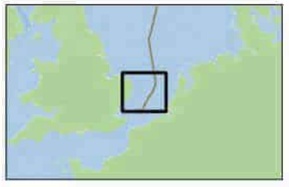
## Tarchon Interconnector Project

Scoping Report

## Study Area for Shipping and Navigation

**Legend**

- UK Marine Scheme Scoping Boundary
- Study Area
- EEZ



**Notes**

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Coordinate System:
WGS 1984 UTM Zone 31N

0 10 20 nm

N

| Scale | Date | Drawn By | Checked By | Approved By |
|---|---|---|---|---|
| 1:600,000 @A3 | 09/03/2026 | DS | LD | LC |

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Sheet 1 of 1

**Figure 18-1**

Figure Reference: Tarchon_Scoping_SN_Fig1_StudyArea

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## 18.3 Relevant Legislation, Planning Policy and Guidance

18.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context, provides an overview of all relevant legislation and planning policy context. This section presents an overview of legislation, planning policy and guidance relevant to Shipping and Navigation.

### 18.3.2 Legislation

18.3.2.1 The following legislation relevant to Shipping and Navigation will be considered within the assessment:

- Convention on International Regulations for Preventing Collisions at Sea (COLREGs) (International Maritime Organization (IMO, 1977));
- International Convention for the Safety of Life at Sea (SOLAS) Chapter V, Safety of Navigation (IMO, 1974);
- United Nations Convention on the Law of the Sea (UNCLOS) (United Nations, 1982);
- Submarine Telegraph Act (UK Government, 1885);
- Merchant Shipping (Distress Signals and Prevention of Collisions) Regulations 1996 (UK Government, 1996); and
- Merchant Shipping (Safety of Navigation) Regulations 2020 (UK Government, 2020).

### 18.3.3 Marine Policy Statements

18.3.3.1 The UK Marine Policy Statement (MPS) provides a framework for preparing Marine Plans and taking decisions which affect the marine environment.

18.3.3.2 Paragraph 3.4.7 of the MPS states that “Increased competition for marine resources may affect the sea space available for the safe navigation of ships. Marine plan authorities and decision makers should take into account and seek to minimise any negative impacts on shipping activity, freedom of navigation and navigational safety and ensure that their decisions are in compliance with international maritime law”.

### 18.3.4 National Policy Statements

18.3.4.1 The energy National Policy Statements (NPSs) set out the government’s policy for the delivery of energy infrastructure and provide the legal framework for planning decisions. The current energy NPSs were published in 2025 and details of policy relevant to Shipping and Navigation are detailed below.

18.3.4.2 The Overarching National Policy Statement for Energy (NPS EN-1) (Department for Energy Security & Net Zero, 2025), National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (Department for Energy Security & Net Zero, 2025) and National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (Department for Energy Security and Net Zero, 2025) all highlight that early stakeholder consultation should be carried out and continue throughout the

assessment. Initial consultation was undertaken at the route selection stage, with further consultation planned as the assessment progresses.

18.3.4.3 In line with Paragraph 2.8.162, an NRA will be prepared as appendix to the ES Chapter. Paragraph 2.8.293 of NPS EN-3 also notes the need to consider internationally recognised sea lanes, which are identified as part of the baseline assessment. Similarly, paragraphs 2.8.295 to 2.8.297 of NPS EN-3 discuss the need to consider disruption to shipping routes and port approaches, with particular emphasis given to port approaches, lifeline ferries and other essential routes. Vessel routeing is characterised as part of the baseline assessment, with disruption to routes to be considered in the NRA and impact assessment.

18.3.4.4 Paragraph 2.8.298 of NPS EN-3 highlights that risk to navigational safety should be demonstrated to be As Low As Reasonably Practicable (ALARP). The ALARP principle will be followed in carrying out the impact assessment, with mitigation measures proposed where impacts are found not to be ALARP.

18.3.4.5 Paragraphs 2.8.299 and 2.8.300 note that impact on recreational users should also be considered. Impacts relevant to recreational vessels, such as collision risk, as well as disruption to recreational activities will be considered as part of the impact assessment.

18.3.4.6 NPS EN-5 states the onshore connection locations must seek to minimise environmental and other impacts, including in the marine environment. Impacts relating to the landfall location will be assessed as part of the NRA and ES Chapter.

18.3.4.7 In addition to the energy NPSs, the NPS for Ports (NPSP) (Department for Transport, 2012) contains information relevant to Volume 03, Chapter 18: Shipping and Navigation. The NPSP states that applicants should consider all relevant socio-economic impacts of an application, which may include any reductions in port access resulting from an applicant's development. It is noted that there is a draft NPSP currently under consultation (published in June 2025 (UK Government, 2025)), which will be considered as the application progresses.

### 18.3.5 Guidance

18.3.5.1 The primary guidance documents relevant to the Shipping and Navigation assessment are:

- Revised Guidelines for Formal Safety Assessment (FSA) for Use in the IMO Rule-Making Process (IMO, 2018), which sets out the methodology required to be followed in carrying out the NRA (as detailed in Section 18.6);
- Maritime and Coastguard Agency (MCA) Marine Guidance Note (MGN) 654 (Merchant and Fishing) Safety of Navigation: Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response and its annexes (MCA, 2021), which sets out the considerations which should be covered as part of the NRA; and
- MGN 661 (Merchant and Fishing) Navigation – Safe and Responsible Anchoring and Fishing Practices (MCA, 2021), which provides guidance to

fishers and mariners on fishing and anchoring in proximity to subsea cables and pipelines.

### 18.3.6 Local Planning Policy

18.3.6.1 In addition to national planning policy, the Marine Management Organisation (MMO) has issued Marine Plans which provide guidance to developers and decision-makers for specific areas. The East Inshore and East Offshore Marine Plans (Department for Environment, Food and Rural Affairs, 2021) and South East Inshore Marine Plans (Department for Environment, Food and Rural Affairs, 2021) are relevant to the UKMS.

18.3.6.2 The Marine Plans set out priorities and direction for future infrastructure planning for decision-making. In particular, the marine plans state that proposals should not pose a risk to safe navigation, and should not impact the use of IMO routeing measures. Consideration of the UKMS in relation to key vessel routes and routeing measures will be considered as part of the NRA and ES impact assessment.

## 18.4 Consultation and Engagement

18.4.1.1 Consultation relating to Shipping and Navigation has been undertaken with the following consultees[1] (consultation will continue with consultees following Scoping, as detailed within Volume 01, Chapter 04: Approach to Consultation):

- **MCA**: An initial meeting was held with the MCA on 14th February 2025 to introduce the UK Scheme and discuss potential routing options. The MCA highlighted the need for early and continued consultation, as well as key requirements to be followed around water depth reductions and magnetic compass deviation. The MCA noted that they would expect a hazard workshop to be carried out to engage marine users in the area. A further meeting took place on 13th November to provide a project update and discuss routing further. The MCA noted the importance of considering deep-draught vessels, simultaneous operations with other projects, and water depths at cable crossings.
- **Trinity House**: A meeting was held on 19th May 2025 to introduce the UK Scheme and potential routing options to Trinity House. Trinity House raised the consideration of water depths, highlighting the MCA's guidance on depth reductions exceeding 5%. Trinity House also stated that consideration should be given to Aids to Navigation in the area.
- **Harwich Haven Authority (HHA):** The HHA have been consulted through a number of meetings beginning in February 2025, primarily offering feedback on routing options and route surveys. Key points raised having included the interaction between the UKMS and navigational channels such as the Harwich Deep Water Channel, proximity to pilot boarding locations and burial requirements.
- **Port of London Authority (PLA):** Similarly to HHA, PLA were consulted from an early stage of route planning beginning in February 2025, and have continued to be consulted throughout the route refinement and scoping

[1] Note that the Port of Felixstowe (Hutchison Ports) have also been consulted in relation to the planned Little Oakley seawall realignment project (21/02144/FUL) located at landfall (not in relation to Shipping and Navigation).

process. Key points raised have related to burial depths and water depth reductions in proximity to the Sunk Precautionary area and deep-water routes (DWRs). Cable crossings and considerations of cumulative developments have also been key points of discussion throughout consultation.

- **London Gateway Port:** London Gateway Port have also been consulted throughout the route selection process. Key points of discussion have again included burial depths and water depth reductions, particularly around the Sunk and Trinity DWRs.

18.4.1.2 Additionally, an introduction to the UKMS was presented at a meeting of the Sunk Vessel Traffic Service (VTS) User Group in July 2025. Consultation with commercial fisheries has been undertaken and is presented in Volume 03, Chapter 17: Commercial Fisheries.

18.4.1.3 As the assessment progresses, further consultation, including a hazard workshop will be held with the above stakeholders to inform the ES, as well as other Shipping and Navigation stakeholders including (but not limited to):

- UK Chamber of Shipping;
- Royal Yachting Association;
- Cruising Association;
- Defence Infrastructure Organisation;
- Commercial ferry operators with routes in the area; and
- Local ports and harbours, including the Port of Tilbury and Port of Felixstowe.

18.4.1.4 Responses on the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council and Tendring District Council. No relevant comments to Shipping and Navigation have been received.

18.4.1.5 Consultation will be ongoing whilst the UKMS is finalised. Consultation and scoping responses will be considered and incorporated, where relevant, throughout the EIA process.

## 18.5 Baseline Environment

### 18.5.1 Baseline Conditions

#### Navigational Features

18.5.1.1 As seen in Figure 18-2, the key navigational features are identified in proximity to the UKMS Scoping Boundary. Following this, Figure 18-3 presents a detailed overview of key navigational features in proximity to the Sunk and nearshore areas.

18.5.1.2 The UKMS Scoping Boundary has been refined from a number of previous corridor options in consultation with stakeholders, as discussed in Section 18.4, with a particular focus on routing in the area around the Sunk and as the UKMS approaches landfall. The northern of the two options (following the Shipwash Bank)

is named the “northern” option, while the southern of the two (crossing the Sunk Precautionary Area), is named the “central” option.

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GREAT YARMOUTH
LOWESTOFT
HARWICH
THE WOULD
WELLAND FIELD
DAVY FIELD
BROWN
SUN FIELD
DW Windfarm

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Scoping Report

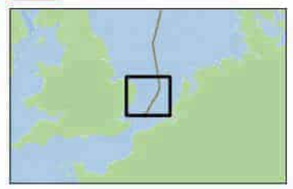
## Study Area for Shipping and Navigation

**Legend**

- UK Marine Scheme Scoping Boundary
- Study Area
- EEZ

Navigational Features

- Aid to Navigation
- VTS Reporting Point
- Pilotage
- Port
- Subsea Cable
- Subsea Pipeline
- Limits of HHA
- Aggregate Dredging Area
- Anchorage Area
- Area to be Avoided
- Deep Water Route
- Experimental Buoy Area
- Explosive Dumping Ground
- Harwich Channel
- Harwich Deep Water Channel
- Offshore Wind Farm
- Precautionary Area
- Restricted Entry Area
- Spoil Ground
- TSS Separation Zone
- Two Way Route



**Notes**

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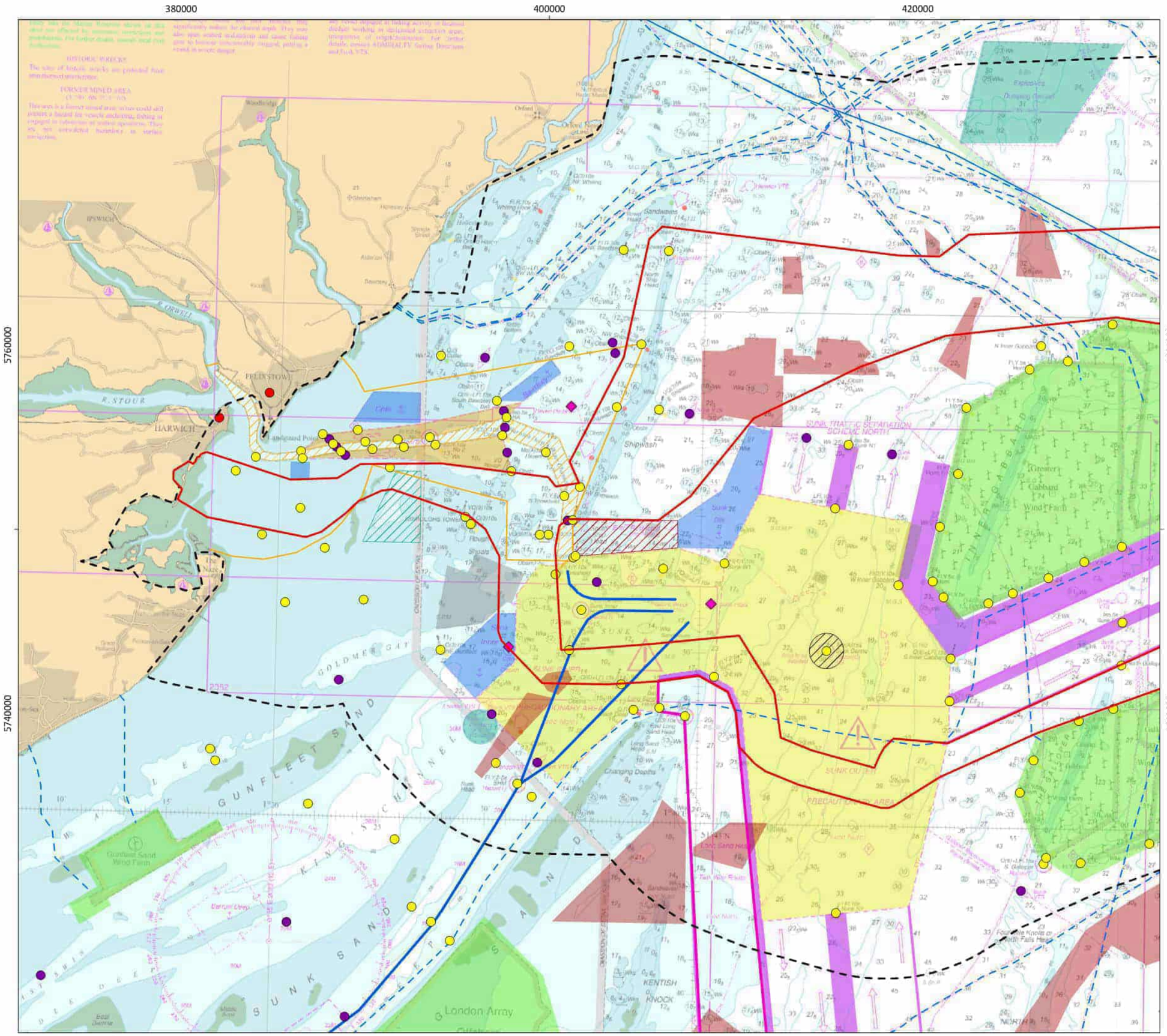
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**Figure 18-2**

Figure Reference: Tarchon_Scoping_SN_Fig2_NavigationalFeatures

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# Tarchon Interconnector Project

Scoping Report

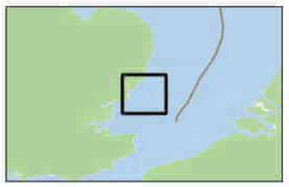
## Navigational Features in Proximity to the Landfall

**Legend**

- UK Marine Scheme Scoping Boundary
- Study Area

Navigational Features

- Aid to Navigation
- VTS Reporting Point
- Pilotage
- Port
- Subsea Cable
- Limits of HHA
- Aggregate Dredging Area
- Anchorage Area
- Area to be Avoided
- Deep Water Route
- Experimental Buoy Area
- Explosive Dumping Ground
- Harwich Channel
- Harwich Deep Water Channel
- Offshore Wind Farm
- Precautionary Area
- Restricted Entry Area
- Spoil Ground
- Traffic Separation Scheme
- Two Way Route



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**Figure 18-3**

Figure Reference: Tarchon_Scoping_SN_Fig3_LandfallNavigationalFeatures

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### *Ports, Harbours and Related Channels*

18.5.1.3 Key ports in the vicinity of the Study Area include Harwich and Felixstowe as well as other ports and harbours accessed via the rivers Stour and Orwell, which include Ipswich and Mistley. These are accessed via the Harwich Deep-Water Channel, which overlaps with the UKMS Scoping Boundary. A charted DWR directs vessels to and from the Harwich Deep-Water Channel, within the Sunk Inner Precautionary Area. This DWR provides a channel of specified depth, designated for larger vessels with deeper draught to navigate safely within.

18.5.1.4 The Rivers Colne and Crouch pilot boarding station is located within the Study Area on the edge of the southern route option of the UKMS Scoping Boundary, within the Sunk Inner Anchorage. In addition, the Haven pilot boarding station is approximately 0.7 NM from the northern route option of the UKMS Scoping Boundary, and the Sunk pilot boarding station is approximately 1 NM from the central route option of the UKMS Scoping Boundary, within the Sunk Inner Precautionary Area.

18.5.1.5 Other relevant ports include those in the Thames Estuary, which are served by further DWRs – the Sunk and Trinity DWRs – which cross the central route option of the UKMS Scoping Boundary.

### *Routeing Measures*

18.5.1.6 The central route option of the UKMS Scoping Boundary crosses the Sunk Inner and Sunk Outer Precautionary Areas, and follows the Sunk Traffic Separation Scheme (TSS) East by remaining adjacent to its eastbound lane along the TSS's extent. The northern route option passes to the north of the Sunk TSS North, approximately 0.6 NM north of the southbound lane at the closest point.

18.5.1.7 Further, adjacent to the central route option of the UKMS Scoping Boundary within the Study Area is the Long Sand Head Two-Way Route, which is linked to the Sunk Inner Precautionary Area. Further offshore, the central route option of the UKMS Scoping Boundary is also directly adjacent to the North Hinder Junction precautionary area over a distance of approximately 3.5 NM.

18.5.1.8 Within the eastern half of the UKMS Scoping Boundary, both the northern and southern route options cross a north/south DWR – "DWR via DR1 Light Buoy". This DWR connects to a northeast/southwest DWR, "DWR via TSS West Friesland", which separates the two route options of the UKMS Scoping Boundary for the remainder of their extent within UK waters.

### *Anchorages*

18.5.1.9 There are charted anchorages within the Study Area; one of these, the Sunk Inner Anchorage, intersects the central route option of the UKMS Scoping Boundary. There are two anchorage areas directly adjacent to the UKMS Scoping Boundary; the Platters anchorage, located approximately 130 m south of the Harwich Deep-Water Channel, and an anchorage area that borders the North Hinder Junction precautionary area. Also noted for its proximity is the Sunk DW anchorage area, which is approximately 75 m from the northern route option at its closest point.

### Aids to Navigation

18.5.1.10 There are several Aids to Navigation within the Study Area, mainly within 30 NM of the coast. These generally mark hazards such as shallow waters and obstructions, routeing measures on approach to ports and harbours, and are installed on peripheral turbines at nearby operational wind farms. Several of these are within the UKMS Scoping Boundary, including buoys marking the Shipwash bank, and buoys marking the Harwich Deep-Water Channel on the northern route option.

### Offshore Wind Farms

18.5.1.11 There are a number of operational or under construction offshore wind farms within the Study Area, including Greater Gabbard, Galloper, East Anglia One and East Anglia Three. Each of these are directly adjacent to the UKMS Scoping Boundary. It is also noted that further offshore wind farms such as the North Falls and Five Estuaries sites, adjacent to the UKMS Scoping Boundary, are consented or planned; see Section 18.5.2.

### Subsea Cables

18.5.1.12 A number of charted subsea cables intersect the UKMS Scoping Boundary. This includes the under construction NeuConnect cable, which crosses the central route option in the Sunk Outer Precautionary Area, then follows a similar route as the Northern route option further offshore alongside the DWR via TSS West Friesland. The Central route option also crosses a cable between the two arrays of the Greater Gabbard offshore wind farm and a telecommunications cable in proximity to the Sunk TSS East.

18.5.1.13 The Northern route option crosses the export cables for the Greater Gabbard and Galloper wind farms, as well as a number of UK – Netherlands telecommunications cables to the north of the wind farms. There are a number of further crossings with cables between the UK and mainland Europe in proximity to the East Anglia One offshore wind farm and the DWRs further offshore.

18.5.1.14 There are further planned subsea cables in proximity or intersecting the UKMS Scoping Boundary, such as the Sealink cable, which are discussed in Section 18.5.2.

### Aggregate Dredging

18.5.1.15 There are several aggregate dredging areas within the Study Area, with seven of these intersecting the UKMS Scoping Boundary. Five of these were part of the Shipwash dredging areas, with the other two being the Longsand and North Inner Gabbard areas. In addition to the dredging areas, there are a number of charted spoil grounds within the Study Area, with the UKMS Scoping Boundary intersecting one, a disused area north of the Sunk Inner Anchorage.

### Charted Water Depths, Wrecks and Obstructions

18.5.1.16 There is shallow water nearshore in the Study Area, necessitating dredged channels and DWRs to facilitate vessel access. These include variable depths in the Sunk Precautionary Areas, with water depths varying between 10 m below

Chart Datum (CD) in the shallowest parts of the Sunk Inner Precautionary Area, to up to 50 m below CD in the Sunk Outer Precautionary Area. Water depths inshore of the Precautionary Areas are typically less than 10 m below CD outside of the dredged channels.

18.5.1.17 There are also a number of wrecks and obstructions charted within the Study Area, with these particularly common in nearshore areas.

### Vessel Traffic Movements

18.5.1.18 This section presents a review of two months of Automatic Identification System (AIS) data, covering July and November 2025, recorded within the Study Area. July and November (representing summer and winter, respectively) were selected in order to capture seasonal variations in vessel traffic. It is noted that throughout the analysis, vessels engaged in temporary works, such as surveys, construction works or guard duty have been excluded from the analysis.

18.5.1.19 Figure 18-4 presents the tracks of vessels recorded within the Study Area, colour-coded by vessel type. Figure 18-5 presents the corresponding vessel density, based on a grid of 500 m by 500 m cells. Cells in the density grid are coloured based on the number of vessel tracks intersecting them, with the ranges defined such that an equal proportion of cells are in each range. This ensures that the density is specific to the particular area, highlighting the busy areas of shipping activity relative to the wider Study Area. The density map highlights the heavier areas of traffic within the Study Area, including IMO routeing measures such as the various Sunk TSS lanes and DWRs, as well as access channels to ports and harbours.

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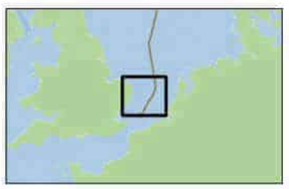
**AIS Vessel Tracks by Type (July and November 2025)**

**Legend**

- UK Marine Scheme Scoping Boundary
- Study Area

Vessel Type

- Unspecified
- Fishing
- Military
- Dredger / Underwater Ops
- Tug
- Passenger
- Cargo
- Tanker
- Other
- Recreational
- Oil and Gas
- Wind Farm



**Notes**

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**Figure 18-4**

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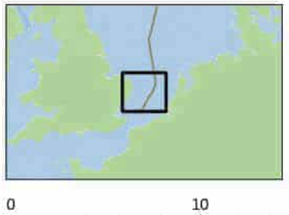
**AIS Vessel Density (July and November 2025)**

**Legend**

- UK Marine Scheme Scoping Boundary
- Study Area

AIS Vessel Density

- Lowest
- Highest



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**Figure 18-5**

Figure Reference: Tarchon_Scoping_SN_Fig5_AISVesselDensity

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18.5.1.20 Over the course of the two months, there was an average of 285 unique vessels per day[2] recorded within the Study Area, with an average of 319 vessels per day in July compared with 250 per day in November. The majority of increased vessel numbers in July were associated with an increase in recreational vessel activity, as well as a general increase in passenger vessels and wind farm support vessels over the summer.

18.5.1.21 Figure 18-6 presents the distribution of vessel types recorded within the Study Area, in terms of average number of vessels per day, for both July and November 2025.

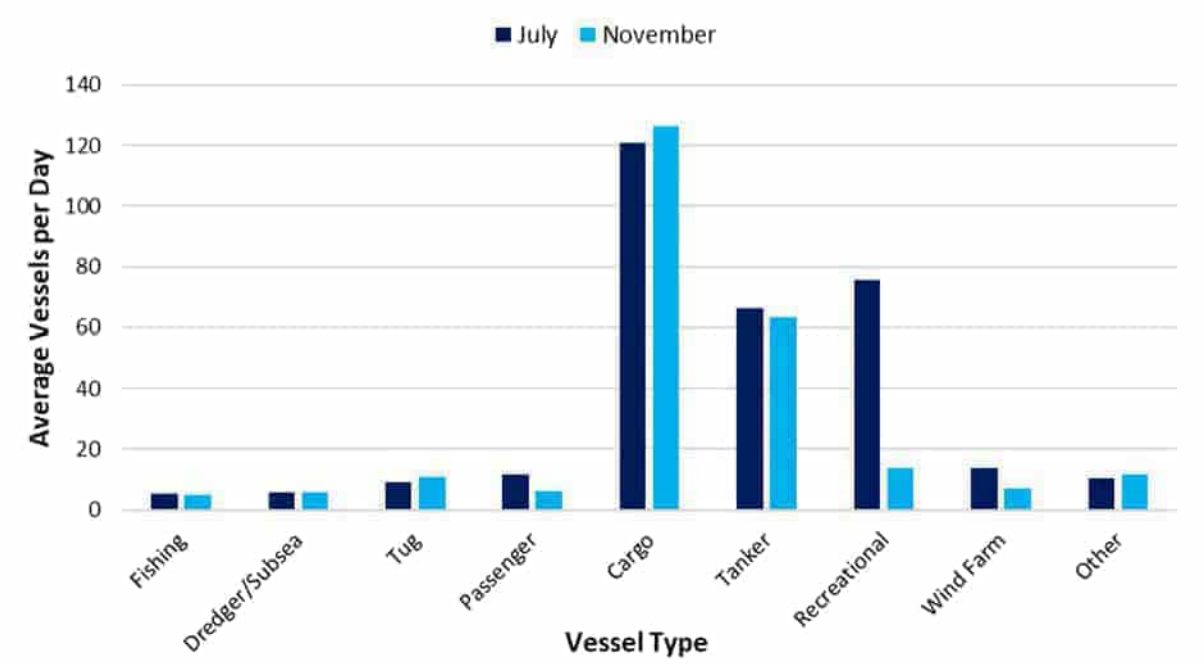



**Figure 18-6: Vessel Type Distribution (July and November 2025)**

18.5.1.22 The most common vessel types recorded within the Study Area were cargo vessels (carrying dry cargo, such as container ships and bulk carriers), accounting for 43% of vessels over the two months of data, followed by tankers (carrying fluid cargo, such as crude oil, liquified natural gas and chemical tankers) (23%) and recreational vessels (16%). As noted above, recreational vessels saw a significant seasonal variation, with over five times as many recreational vessels recorded in July compared with November.

18.5.1.23 Commercial vessel traffic (such as cargo vessels and tankers) was the most commonly observed type of vessel, making heavy use of IMO routeing measures within the Study Area, particularly the DWRs (both further offshore and on approach to UK ports such as Harwich) and the TSSs around the Sunk. This included Roll-on/Roll-off cargo routes between UK ports, such as Harwich, Tees

[2] An individual vessel identified on any particular calendar day, irrespective of how many tracks were recorded for that vessel on that day. This prevents vessels being over counted due to tracks breaking as a result of loss of coverage or changes to broadcast information.

and Immingham, and mainland Europe, operated by Stena Line, CLdN and DFDS Seaways. Recreational vessels were mostly recorded in coastal areas, particularly around the entrances to Harwich, Felixstowe and Walton-on-the-Naze. Recreational vessels were recorded in smaller numbers further offshore, including those using the Long Sand Head Two-Way Route, which runs adjacent to the Sunk TSS South.

18.5.1.24 Other common vessel types within the Study Area included wind farm vessels, which were associated mostly with the Greater Gabbard and Galloper offshore wind farms close to the Sunk routeing measures. Wind farm vessels were also recorded within the East Anglia One offshore wind farm, located on the western edge of the UKMS Scoping Boundary further offshore. It is noted that the East Anglia Three offshore wind farm is under construction at the time of writing, so third-party vessels are seen to avoid the construction area. Construction vessels associated with the development are not considered within the analysis as these are not representative of long-term vessel traffic. Traffic associated with planned and under construction wind farms, such as North Falls, Five Estuaries and East Anglia Three is considered as part of the future baseline in Section 18.5.2.

18.5.1.25 An average of six dredgers per day were recorded within the Study Area, with similar numbers recorded in July and November. Dredgers were recorded primarily transiting through the Sunk Precautionary Areas or actively dredging within the Harwich Deep-Water Channel and aggregate dredging sites.

18.5.1.26 An average of five fishing vessels per day were recorded within the Study Area, noting that fishing vessels (particularly smaller vessels) may be under-represented on AIS due to carriage requirements. Fishing was most common around the southeastern extent, approximately 45 NM offshore. A smaller volume of fishing activity was also recorded in nearshore areas. Further analysis will be undertaken in the ES to understand the gear types and nationalities of fishing vessels, as well as more detail on active fishing. Impacts on fishing vessels are also considered within Volume 03, Chapter 17: Commercial Fisheries.

18.5.1.27 An average of nine passenger vessels per day were recorded within the Study Area, with key routes including the following:

- P&O Ferries routes between Hull and Rotterdam;
- P&O Ferries route between Teesport and Zeebrugge;
- Stena Line route between Immingham and Hook of Holland; and
- Stena Line route between Harwich and Hook of Holland.

18.5.1.28 A small nearshore ferry operated by Harwich Harbour Ferry was also frequently recorded in the entrance to Harwich and Felixstowe. Cruise liners were recorded following more sporadic routes through the Study Area.

18.5.1.29 Figure 18-7 presents the distribution of vessel lengths recorded within the Study Area.

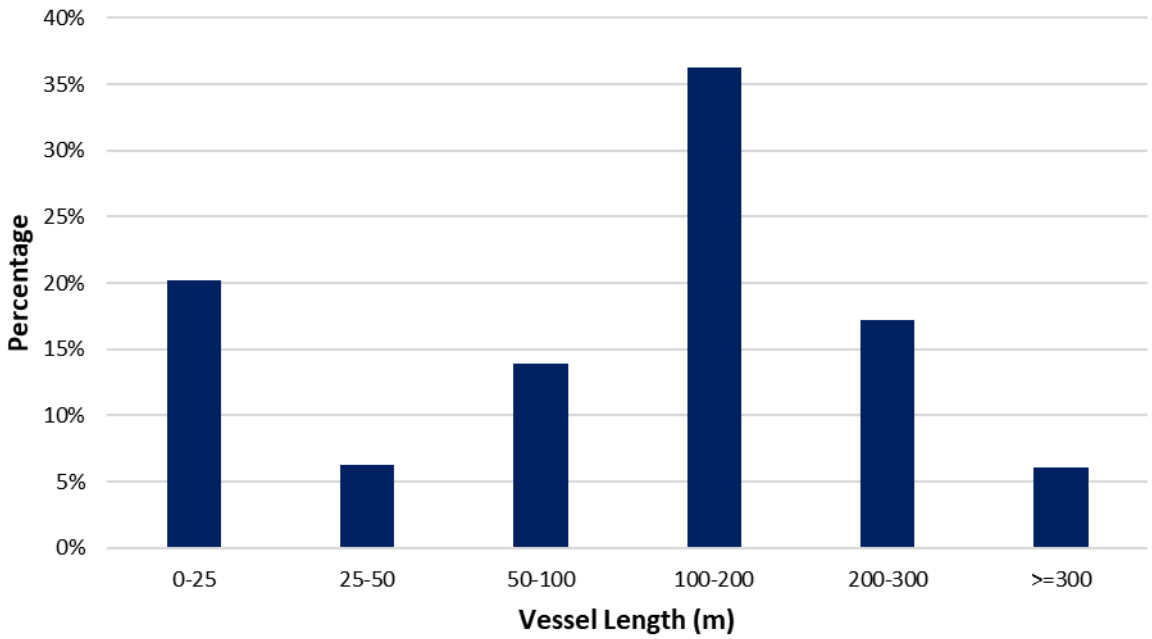



**Figure 18-7: Vessel Length Distribution (July and November 2025)**

18.5.1.30 The average length of vessels recorded within the Study Area was 134 m, with vessel sizes ranging up to 400 m, which were container vessels recorded either in the approaches to Harwich or utilising the DWRs further offshore. Overall, 6% of vessels recorded within the Study Area were greater than 300 m in length. Smaller vessels (under 25 m) typically included recreational vessels, wind farm vessels, pilot vessels, fishing vessels and lifeboats, and made up 20% of vessels within the Study Area. It is noted that smaller fishing vessels and recreational vessels are likely to be under-represented on AIS, due to carriage requirements.

18.5.1.31 Figure 18-8 presents the distribution of vessel draughts recorded within the Study Area.

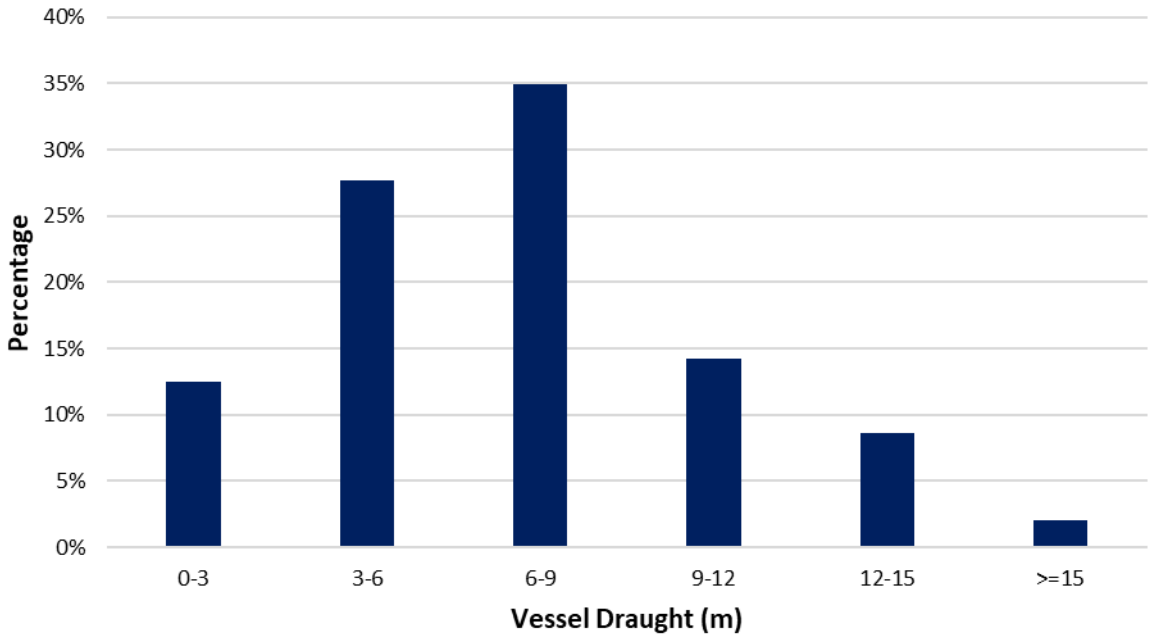



**Figure 18-8: Vessel Draught Distribution (July and November 2025)**

18.5.1.32 The average draught of vessels recorded within the Study Area was 7.0 m, with the deepest being a crude oil tanker broadcasting a draught of 20.9 m. This tanker was recorded transiting in the “DWR via DR1 Light Buoy”. Vessels with the deepest draught were typically commercial vessels such as tankers and cargo vessels and used the routeing measures throughout the Study Area. Shallower draught vessels such as recreational and fishing vessels were recorded using less established routes.

18.5.1.33 Vessels at anchor have been identified using navigational status as broadcast on AIS in combination with Anatec’s *Speed Analysis* program. Using the program, vessels recorded travelling at less than one knot for at least 30 minutes have been identified and reviewed manually to determine those which may have been at anchor. Figure 18-9 presents the tracks of vessels deemed to be at anchor within the Study Area, with charted anchorages also shown for context.

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ENGLAND

LOWESTOFT

IPSWICH

FELIXSTOWE

HARWICH

Aldeburgh

Orford

The Naze

Walton-on-the-Naze

Frinton-on-Sea

Clacton-on-Sea

Goldman Ost

Sizewell Bank

Dunwich Bank

Orford Ness

Shipwash

Inner Gabbard

Outer Gabbard

East Anglia One Offshore Wind Farm

Galloper Wind Farm

Gunfleet Sand

Kish Bank

Wallet Spit

Kirby Sand

Blake Deep

Edwin Fitch Shoal

Kish Channel

Sunk Channel

Middle Deep

Barrow Deep

Swin Deep

Knock John Channel

Black Deep

Roughs Tower

Sunk Inner Precautionary Area

Sunk Outer Precautionary Area

North Inner Junction

North Outer Precautionary Area

Dover Strait Traffic Separation Scheme

Figure Reference: Tarchon_Scoping_SN_Fig6_AnchoredVessels

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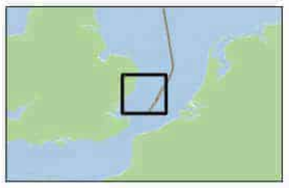
## Anchored Vessel Tracks by Type (July and November 2025)

**Legend**

- UK Marine Scheme Scoping Boundary
- Study Area
- Anchorage Area

**Anchored Vessel Type**

- Dredger / Underwater Ops
- Tug
- Passenger
- Cargo
- Tanker
- Other
- Recreational
- Wind Farm



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**Figure 18-9**

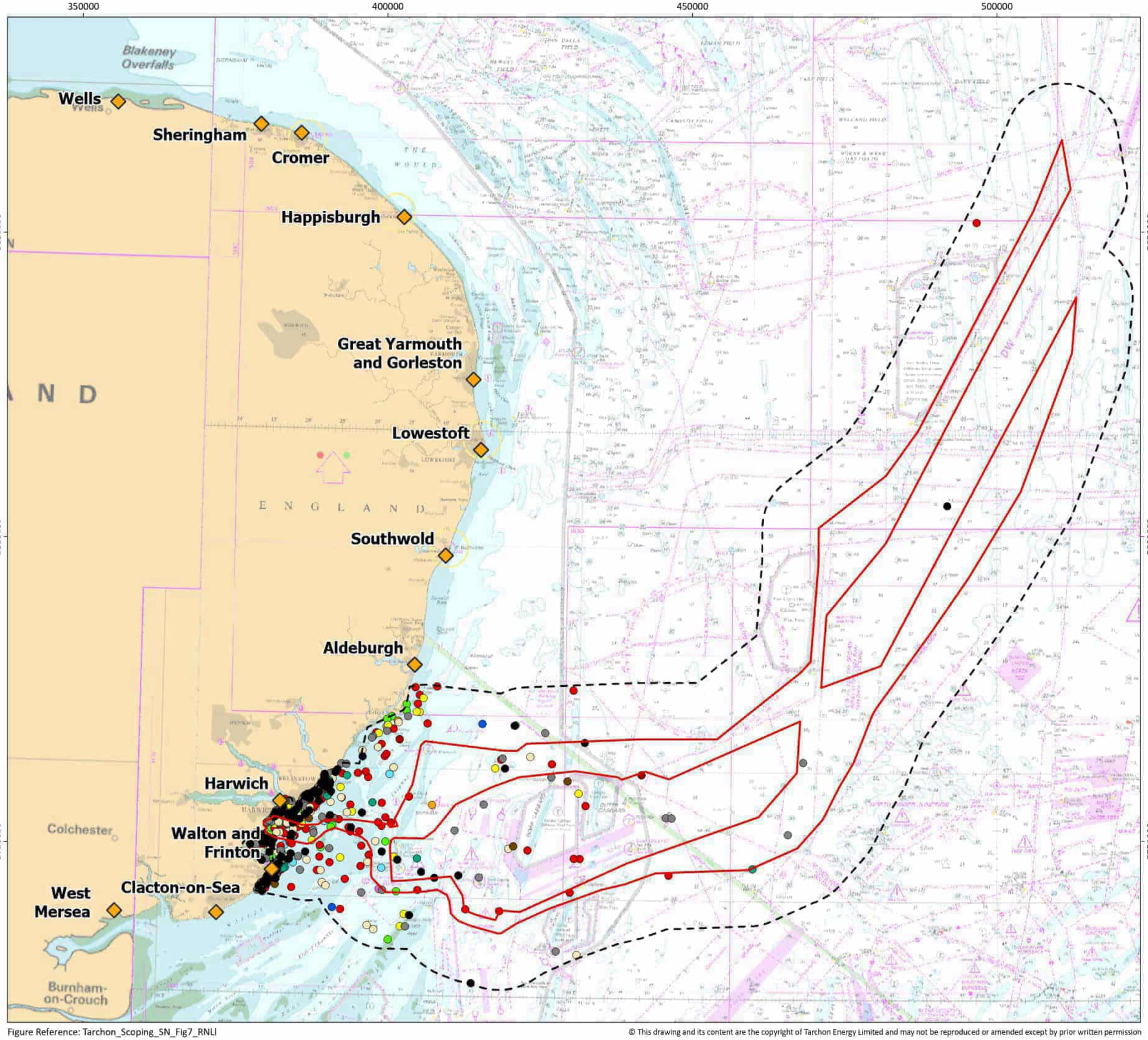
18.5.1.34 An average of nine vessels per day were recorded at anchor within the Study Area, with the vast majority of these being recorded within the anchorages around the Sunk Precautionary Areas. The majority of anchored vessels were commercial vessels, with cargo vessels making up 55% of anchored vessels, and tankers a further 35%.

### Marine Incident Review

18.5.1.35 Marine incident data from both the Royal National Lifeboat Institution (RNLI) and the Marine Accident Investigation Branch (MAIB) has been analysed within the Study Area, covering the period from 2015 to 2024. It is noted that in some cases, the same incident may be recorded by both organisations. Figure 18-10 presents the locations of incidents recorded by the RNLI between 2015 and 2024, colour-coded by incident type, as well as the locations of RNLI stations close to the Study Area.

18.5.1.36 Over the ten-year period, there was an average of approximately 62 incidents per year recorded by the RNLI within the Study Area, with incidents predominantly concentrated around the nearshore area. The most common incident types within the Study Area were “person in danger” (29% of incidents) followed by machinery failures (21%). It is noted that in some cases, a machinery failure may lead to a vessel drifting and potentially dropping anchor. Harwich Lifeboat Station responded to the majority of incidents (71%), with Walton and Frinton responding to 17%.

18.5.1.37 Ten years of incident data from the MAIB has also been reviewed, showing an average of 15 incidents per year within the Study Area. The most common incident types within the MAIB data were “Damage/loss of equipment” (33%), followed by “Accident to person” (23%) and machinery failure (13%).




# TARCHON

## Tarchon Interconnector Project

Scoping Report

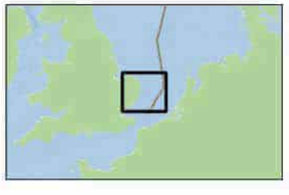
## RNLI Stations and Incidents by Incident Type (2015 – 2024)

**Legend**

- UK Marine Scheme Scoping Boundary
- Study Area
- RNLI Station

RNLI Incident Type

- Adverse Conditions
- Capsize
- Collision
- Fire/Explosion
- Flooding/Foundering
- Grounding
- Machinery Failure
- Other
- Person in Danger
- Sail Failure
- Steering Failure
- Vessel May be in Trouble
- Unspecified



**Notes**

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Coordinate System: WGS 1984 UTM Zone 31N

0 10 20 nm

N

| Scale | Date | Drawn By | Checked By | Approved By |
|---|---|---|---|---|
| 1:600,000 @A3 | 09/03/2026 | DS | LD | LC |

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Sheet 1 of 1

**Figure 18-10**

Figure Reference: Tarchon_Scoping_SN_Fig7_RNLI

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### 18.5.2 Future Baseline Conditions

18.5.2.1 The baseline environment is not static and is expected to change over time, irrespective of the UKMS. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UKMS over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

18.5.2.2 The ES will consider changes to vessel traffic in the future, including based on planned offshore wind farms, developments at local ports, and changes to vessel characteristics such as type, size and draught.

18.5.2.3 Planned offshore wind farms include the consented Five Estuaries offshore wind farm in proximity to the Sunk Precautionary Area, as well as further consented sites further offshore such as the East Anglia One North, Norfolk Vanguard and Norfolk Boreas offshore wind farms. The North Falls offshore wind farm, also located close to the Sunk Precautionary Area, is currently awaiting a consent decision.

18.5.2.4 In addition to offshore wind farm projects, there are planned and under-construction subsea cables located in the Study Area. These include the under-construction NeuConnect cable, running between England and Germany, and the planned Sea Link cable between Suffolk and Kent in the UK, which is currently under DCO Examination. A number of other subsea cable projects, such as Triton Link and Continental Link are in early planning stages.

18.5.2.5 Developments at local ports such as those noted among the navigational features in Section 18.5.1 will be reviewed as part of the NRA to ascertain whether there are likely changes to traffic associated with these.

### 18.5.3 Additional Proposed Data Sources

18.5.3.1 Additional data sources will be considered to inform the review of the baseline environment for the ES Chapter, and will include:

- 12 months AIS data collected within 24 months of the ES submission;
- Additional fishing vessel activity (e.g., Vessel Monitoring System (VMS));
- Latest incident data from the MAIB and RNLI;
- Department for Transport data on Search and Rescue helicopter taskings;
- Latest available UK Hydrographic Office (UKHO) Charts and Sailing Directions;
- Port statistics; and
- Any other data sources recommended as part of consultation identified during the assessment.

## 18.6 Assessment Methodology

18.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the

construction, operational and decommissioning phases of the UKMS. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

18.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects. This approach is outlined in Volume 01, Chapter 06, EIA Approach and Methodology. However, the Shipping and Navigation assessment of the UKMS will instead be undertaken in line with the IMO's FSA approach and terminology. It is noted that this differs from typical EIA methodology, however this is a requirement of the MCA for any NRA. The NRA will serve as the technical appendix to the ES Chapter.

18.6.1.3 The NRA will include a baseline study, summarising the key navigational features, historical incident data and vessel activity.

18.6.1.4 Hazards will be identified, ranked and quantified where appropriate to inform the level of impact during construction, O&M and decommissioning phases. Appropriate mitigation measures will also be identified.

18.6.1.5 The FSA Methodology is centred on risk control and assesses each impact in terms of its severity of consequence and frequency of occurrence, using the definitions presented in Table 18-1 and Table 18-2. Based on the rankings for severity and frequency, the significance can be determined as 'broadly acceptable', 'tolerable with mitigation' or 'unacceptable' via a risk matrix as shown in Table 18-3.

**Table 18-1: Definition of Severity of Consequence**

| Severity of Consequence | Definition |
|---|---|
| Negligible | No perceptible risk to people, property, the environment or business. |
| Minor | Slight injury(s) to people |
| | Minor damage to property, i.e. superficial damage |
| | Tier 1 environmental damage with local assistance required |
| | Minor reputational risk to business limited to users |
| Moderate | Multiple minor or single serious injury to people |
| | Damage to property not critical to operations |
| | Tier 2 environmental damage with limited external assistance required |
| | Local reputational risk to business. |
| Serious | Multiple serious injuries or single fatality to people |
| | Damage to property resulting in critical risk to operations |
| | Tier 2 environmental damage with regional assistance required |
| | National reputational risk to business |
| Major | Multiple fatalities to people |
| | Total loss of property |
| | Tier 3 environmental damage with national assistance required |
| | International reputational risk to business |

**Table 18-2: Definitions for Frequency of Occurrence**

| Frequency of Occurrence | Definition |
|---|---|
| Frequent | Yearly |
| Reasonably Probable | One per one to 10 years |
| Remote | One per 10 to 100 years |
| Extremely Unlikely | One per 100 to 10,000 years |
| Negligible | Less than one occurrence per 10,000 years |

**Table 18-3: Risk Ranking Matrix**

| Frequency of Occurrence | Severity of Consequence | | | | |
|---|---|---|---|---|---|
| | Negligible | Minor | Moderate | Serious | Major |
| Frequent | Tolerable with Mitigation | Tolerable with Mitigation | Unacceptable | Unacceptable | Unacceptable |
| Reasonably Probable | Broadly Acceptable | Tolerable with Mitigation | Tolerable with Mitigation | Unacceptable | Unacceptable |
| Remote | Broadly Acceptable | Broadly Acceptable | Tolerable with Mitigation | Tolerable with Mitigation | Unacceptable |
| Extremely Unlikely | Broadly Acceptable | Broadly Acceptable | Broadly Acceptable | Tolerable with Mitigation | Tolerable with Mitigation |
| Negligible | Broadly Acceptable | Broadly Acceptable | Broadly Acceptable | Broadly Acceptable | Tolerable with Mitigation |

18.6.1.6 The assessment will be informed by baseline data, expert opinion, consideration of embedded mitigation and consultation feedback. Should an effect be assessed as ‘unacceptable’ then additional mitigation measures implemented beyond those considered embedded will be required to bring the effect to ‘broadly acceptable’ or ‘tolerable with mitigation’ significance and to ensure the effect is within As Low as Reasonably Practicable (ALARP) parameters. Similarly, additional mitigation measures may require consideration for ‘tolerable’ effects to ensure they are ALARP.

## 18.7 Potential Effects and Mitigation

18.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 18.7.2 Embedded Mitigation and Good Practice Measures

18.7.2.1 The UKMS will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment.

Embedded mitigation is defined as “mitigation measures that have been incorporated into a project’s description and form an inherent part of the project’s design’ (ISEP, 2024). The embedded mitigation measures to reduce the effects of the UKMS on Shipping and Navigation are listed below:

- Promulgation of information via Notices to Mariners, Kingfisher Bulletins, Kingfisher Information Service – (Offshore Renewable and Cables Awareness (KIS-ORCA), Radio Navigational Warnings, Navigational Telex (NAVTEX) and other means in advance of and during any survey, seabed preparation works, construction, or operational phase works;
- A safe passing distance will be requested by project vessels which are Restricted in their Ability to Manoeuvre (RAM);
- Suitable cable burial and protection, as informed by a Cable Burial Risk Assessment (CBRA) will be implemented where possible;
- Guidance on reduction on water depths, including MGN 654, will be followed during the design and construction of the UKMS;
- Compliance with international legislation for project vessels including SOLAS and the COLREGs;
- Project vessels will display appropriate lights and marks, and will broadcast on AIS. This will include broadcasts of the nature of the work and highlight their RAM status if required;
- Guard vessel(s) will be deployed where deemed necessary via risk assessment;
- Project vessel movements will be managed via marine coordination;
- Compass deviation effects will be minimised through cable design and burial;
- Vessel management and concurrent working procedures will be developed setting out details of the project vessels and their movements during the construction and O&M phases. This will feed into an outline Vessel Management Plan (VMP) The VMP will:
  - Set out the types and numbers of vessels engaged in the works;
  - Define project vessel coordination measures and interactions with SUNK VTS/HHA Harbour Control;
  - Include indicative transit routes;
  - Give detail on concurrent working procedures which will set out details of the project vessels and their movements during the survey, seabed preparation, construction and O&M phases in sensitive area;
  - Detail specific navigational safety hazards such as the DWRs and how they will be managed;;
- The UKMS will be marked on Admiralty Charts with associated note/warning about anchoring, trawling or seabed preparation;
- Liaison with local ports and harbours will be undertaken regarding works associated with the UKMS in order to reduce disruption to vessel access;

- A Marine Emergency Action Card (MEAC) will be prepared to inform emergency response; and
- A Fisheries Liaison Officer (FLO) has already been appointed to facilitate communications with the fishing industry and increase awareness of upcoming and ongoing works during the construction phase.

18.7.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UKMS development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

18.7.2.3 As the UKMS advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective, and compliant with regulatory standards and stakeholder input (such as ensuring an ALARP status is achieved for effect significance (see Section 18.6)).

### 18.7.3 Scoping Assessment

18.7.3.1 The elements scoped in and out of the assessment for Shipping and Navigation are presented in Table 18-4.

**Table 18-4: Elements Scoped In and Out for Shipping and Navigation**

| UKMS Phase | Source (Cause) | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction | UKMS project vessels | Collision of a third-party vessel with a vessel associated with cable installation | All vessels | In | The presence of UKMS project vessels may increase collision risk for third-party vessels. |
| | UKMS project vessels | Cable installation causing disruption to passing vessel routeing or timetables | All vessels | In | The presence of UKMS project vessels may require third-party vessels to deviate routes, leading to increased journey times and disruption to timetables. |
| | UKMS project vessels | Increase in the risk of collision between third-party vessels due to construction activity | All vessels | In | The presence of UKMS project vessels may require third-party vessels to deviate routes and reduce sea room available for collision avoidance, leading to a potential increase in collision risk. |
| | UKMS project vessels | Vessel displacement leading to risk of allision with wind farm structures | All vessels | In | The presence of UKMS project vessels may lead to deviations to third-party vessel routes, which may lead vessels to pass closer to offshore wind farms, therefore increasing the risk of allision with wind farm structures. |

| UKMS Phase | Source (Cause) | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | UKMS project vessels | Reduced access to local ports and harbours and disruption to port related services | All vessels | In | The presence of UKMS project vessels, particularly close to access channels near ports and harbours or pilot boarding areas, may lead to disruption to port access. |
| | Subsea cables | Anchor interaction with the cable | All vessels | In | Vessel anchors may interact with the laid cables, either due to dragging anchor across the cables or dropping anchor in an emergency over the cables. |
| | Subsea cables, associated protection and displaced sediment | Reduction in under keel clearance due to cables, protection and displaced sediment | All vessels | In | The presence of the laid cables, associated protection and displaced sediment may lead to reduction in water depth, which will reduce under keel clearance available to vessels and therefore increase grounding risk. |
| | Subsea cables | Interference with marine navigational equipment due to electromagnetic field effects | All vessels | Out | Prior to the cables being energised, there will be no interference with magnetic compasses. |
| Operational | UKMS project vessels | Collision of a third-party vessel with a vessel associated with maintenance | All vessels | In | The presence of UKMS project vessels may increase collision risk for third-party vessels. |

| UKMS Phase | Source (Cause) | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | UKMS project vessels | Cable maintenance causing disruption to passing vessel routeing or timetables | All vessels | In | Given the sensitivity of the area to vessel traffic this is scoped in for the port access area. However, UKMS project vessel presence during the O&M phase is expected to be short-term and within a small area. |
| | UKMS project vessels | Increase in the risk of collision between third-party vessels due to maintenance activity | All vessels | In | The presence of UKMS project vessels may require third-party vessels to deviate routes and reduce sea room available for collision avoidance, leading to a potential increase in collision risk. |
| | UKMS project vessels | Vessel displacement leading to risk of allision with wind farm structures | All vessels | In | The presence of UKMS project vessels, particularly in the case of cable repair, may lead to deviations to third-party vessel routes, which may lead vessels to pass closer to offshore wind farms, therefore increasing the risk of allision with wind farm structures. |
| | UKMS project vessels | Reduced access to local ports and harbours and disruption to port related services | All vessels | In | The presence of UKMS project vessels, particularly close to access channels |

| UKMS Phase | Source (Cause) | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | near ports and harbours or pilot boarding areas, may lead to disruption to port access. |
| | Subsea cables | Anchor interaction with the cable | All vessels | In | Vessel anchors may interact with the cables, either due to dragging anchor across the cables or dropping anchor in an emergency over the cables. |
| | Subsea cables, associated protection and displaced sediment | Reduction in under keel clearance due to cables, protection and displaced sediment | All vessels | In | The presence of the laid cables, associated protection and displaced sediment may lead to reduction in water depth, which will reduce under keel clearance available to vessels and therefore increase grounding risk. |
| | Subsea cables | Interference with marine navigational equipment due to electromagnetic field effects | All vessels | In | Electromagnetic field effects resulting from the cables may result in interference with magnetic compasses. |
| Decommissioning | UKMS project vessels | Collision of a third-party vessel with a vessel associated with cable decommissioning | All vessels | In | The presence of UKMS project vessels may increase collision risk for third-party vessels. |

| UKMS Phase | Source (Cause) | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | UKMS project vessels | Cable decommissioning causing disruption to passing vessel routeing or timetables | All vessels | In | The presence of UKMS project vessels may require third-party vessels to deviate routes, leading to increased journey times and disruption to timetables. |
| | UKMS project vessels | Increase in the risk of collision between third-party vessels due to decommissioning activity | All vessels | In | The presence of UKMS project vessels may require third-party vessels to deviate routes and reduce sea room available for collision avoidance, leading to a potential increase in collision risk. |
| | UKMS project vessels | Vessel displacement leading to risk of allision with wind farm structures | All vessels | In | The presence of UKMS project vessels may lead to deviations to third-party vessel routes, which may lead vessels to pass closer to offshore wind farms, therefore increasing the risk of allision with wind farm structures. |
| | UKMS project vessels | Reduced access to local ports and harbours and disruption to port related services | All vessels | In | The presence of UKMS project vessels, particularly close to access channels near ports and harbours or pilot boarding areas, may lead to disruption to port access. |

| UKMS Phase | Source (Cause) | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | Subsea cables | Anchor interaction with the cable | All vessels | In | Vessel anchors may interact with the cables, either due to dragging anchor across the cables or dropping anchor in an emergency over the cables. |
| | Subsea cables, associated protection and displaced sediment | Reduction in under keel clearance due to cables, protection and displaced sediment | All vessels | In | If all or part presence of the laid cables, associated protection or displaced sediment remains in place during the decommissioning phase, the reduction in under keel clearance and resultant increase in grounding risk shall remain. |
| | Subsea cables | Interference with marine navigational equipment due to electromagnetic field effects | All vessels | Out | Once the cables are de-energised, there will be no interference with magnetic compasses. |

### 18.7.4 Cumulative and Transboundary Effects

18.7.4.1 There is the potential for cumulative and transboundary effects associated with the UKMS and other nearby offshore developments. The approach for the cumulative assessment for Shipping and Navigation will be consistent with Volume 01, Chapter 06: EIA Approach and Methodology and Volume 05, Chapter 32: Approach to Cumulative Effects, noting that the FSA process will be used to determine whether there is a change to the overall risk ranking (see Table 18-3) and therefore the significance of the effect.

18.7.4.2 Cumulative developments will include the whole Tarchon Project in combination with the UKMS, planned offshore wind farms, such as the consented Five Estuaries, Norfolk Vanguard, Norfolk Boreas, East Anglia One North and East Anglia Two sites. A consent application has also been submitted for the North Falls offshore wind farm. In addition, there are a number of subsea cable projects such as NeuConnect (under construction) and Sea Link (consent application submitted and currently in examination) in the area which will be considered within the cumulative assessment. A full cumulative screening exercise will be undertaken to inform the cumulative assessment.

18.7.4.3 Potential transboundary effects associated with the effects on Shipping and Navigation within UK waters include vessels based outside the UK, or on international passages to ports outside of UK waters. The AIS data used to inform the vessel traffic baseline environment includes international vessels and those on international passages; therefore, it is not considered that additional transboundary effects are expected above those considered within the baseline assessment.

18.7.4.4 A full detailed assessment of potential cumulative and transboundary effects will be provided as part of the ES, once further information on the UKMS is available.

## 18.8 Assumptions, Limitations and Uncertainties

18.8.1.1 Data sources used within the assessment will primarily consist of publicly available data.

18.8.1.2 The primary data source for the baseline vessel traffic analysis will be AIS data. Due to the scale of the UKMS Scoping Boundary, no site-specific vessel traffic survey is proposed, with long-term AIS data from terrestrial and satellite sources to be used to inform the assessment. It is assumed that those vessels which are under an obligation to broadcast information via AIS will do so, and that information has been broadcast correctly, unless there is clear evidence to the contrary. Data quality checks will be carried out to ensure broadcast details are as accurate as possible.

18.8.1.3 It is also noted that certain vessels, such as small fishing vessels (under 15 m in length), recreational vessels and military vessels are not obliged to broadcast on AIS, and therefore may be under-represented within the AIS data. Additional data sources, such as VMS data and stakeholder consultation, will supplement the AIS

data. Therefore, the AIS data is considered suitably comprehensive to inform the assessment.

18.8.1.4 Incident data provided by the MAIB and RNLI also cannot be considered entirely comprehensive given reporting requirements for the MAIB, and the RNLI data covering only those incidents to which a RNLI resource was mobilised. Despite this, both are considered valuable resources to reasonably characterise the historical incidents and inform the assessment.

18.8.1.5 Navigational features will be informed by review of UKHO Admiralty Charts and Sailing Directions, in addition to other sources which arise throughout the assessment. These are considered comprehensive data sources; however, both are updated periodically and therefore may not accurately reflect real-time features. The most up-to-date Admiralty Charts and Sailing Directions available will be used to inform on navigational features, with relevant features also presented to and discussed with stakeholders throughout the assessment process.

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# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 03, Chapter 19: Offshore Archaeology and Cultural Heritage

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00025 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | Maritime Archaeology |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| Rev 01 | April 2026 | Issued for information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| AEZ | Archaeological Exclusion Zone |
| CEA | Cumulative Effects Assessment |
| CFE | Controlled Flow Excavators |
| CHERISH | Climate Heritage and Environments of Reefs, Island and Headlands |
| CIfA | Chartered Institute for Archaeologists |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| ES | Environmental Statement |
| ETG | Expert Topic Group |
| HDD | Horizontal Directional Drilling |
| HER | The Historic Environment Record |
| HSC | Historic Seascape Characterisation |
| ICOMOS | International Council on Monuments and Sites |
| LAT | Lowest Astronomical Tide |
| MFE | Mass Flow Excavators |
| MHWS | Mean High Water Springs |
| MLWS | Mean Low Water Springs |
| MMO | Marine Management Organisation |
| MPS | Marine Policy Statement |
| NM | Nautical Miles |
| NMHR | The National Marine Heritage Record |
| NPPF | National Planning Policy Framework |
| NPS | National Policy Statement |
| O&M | Operations and Maintenance |
| OASIS | Online Access to the Index of archaeological investigations |
| OOS | Out of Service |
| PAD | Protocol for Archaeological Discoveries |
| PEIR | Preliminary Environmental Information Report |
| PLGR | Pre-Lay Grapnel Run |
| ROV | Remote Operated Vehicle |
| TEZ | Temporary Exclusion Zone |
| TSHD | Trailing Suction Hopper Dredger |
| UK | United Kingdom |
| UKHO | United Kingdom Hydrographic Office |
| UNCLOS | United Nations Convention on the Law of the Sea |
| UNESCO | United Nations Educational, Scientific and Cultural Organisation |
| UKMS | UK Marine Scheme |
| UTM | Universal Transverse Mercator |
| UXO | Unexploded Ordnance |
| WGS84 | World Geodetic System 1984 |

| Acronym | Definition |
|---|---|
| WSI | Written Scheme of Investigation |
| ZoI | Zone of Influence |

# 19. Offshore Archaeology and Cultural Heritage

## 19.1 Introduction

19.1.1.1 This Chapter presents the Offshore Archaeology and Cultural Heritage assessment which will consider the potential significant effects on Offshore Archaeology and Cultural Heritage receptors during the construction, operational, and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Areas used and receptors considered in this Chapter, only the UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. The English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is therefore not considered further for Offshore Archaeology and Cultural Heritage.

19.1.1.2 It should be noted that the UKMS Scoping Boundary does include the UK Landfall, as this is located below Mean High Water Springs (MHWS) and so is considered to be present in the marine environment. Meaning that despite the EOS not being considered further in this Chapter, the UK Landfall is included for the consideration of Offshore Archaeology and Cultural Heritage.

19.1.1.3 This Chapter of the Scoping Report:

- Provides a summary of the current Offshore Archaeology and Cultural Heritage baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Offshore Archaeology and Cultural Heritage receptors from the proposed components of the UKMS (as described in Volume 01, Chapter 02: UK Project Description); and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

19.1.1.4 This Chapter should be read in conjunction with:

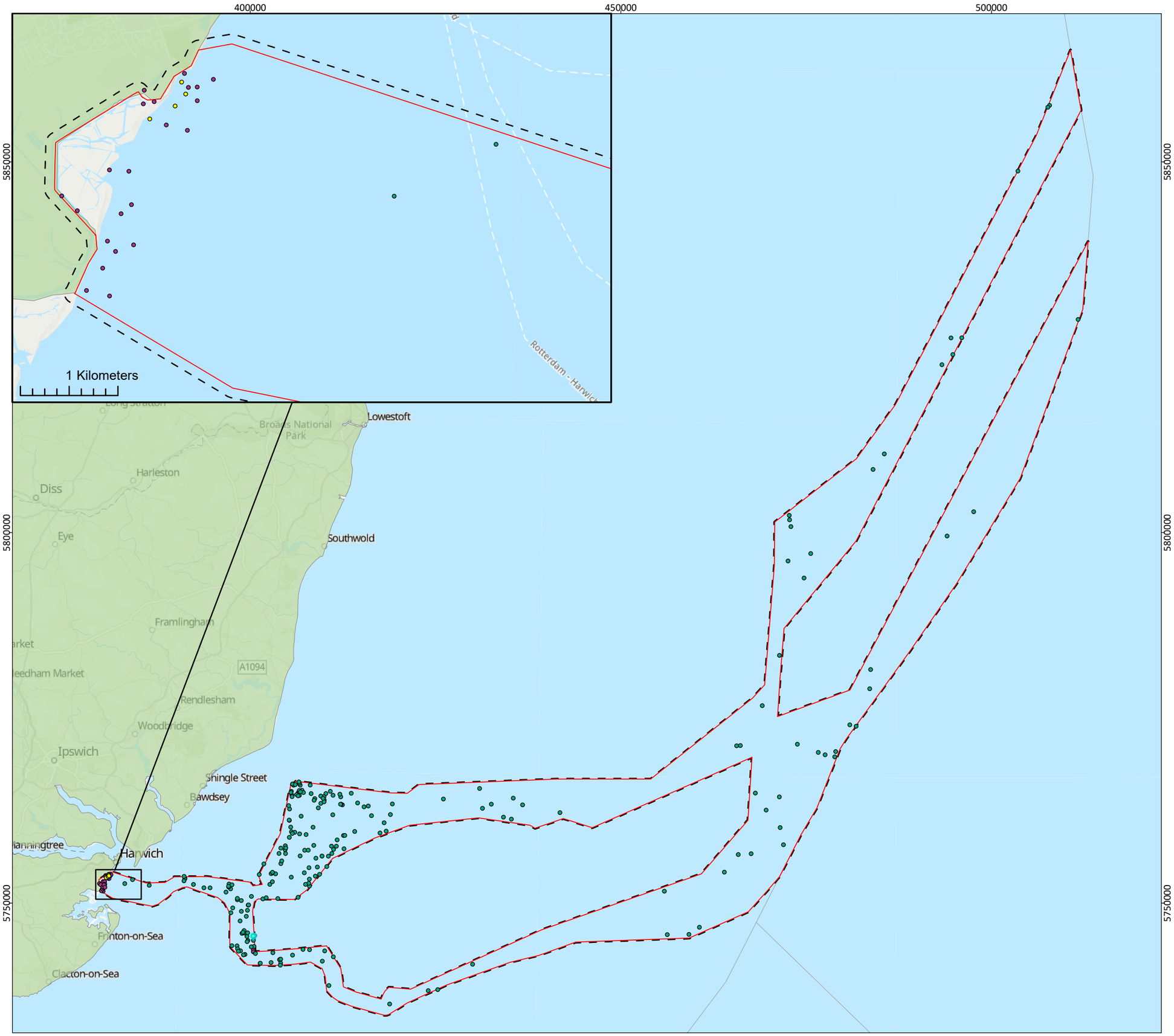
- Volume 01, Chapter 02: UK Project Description;
- Volume 01, Chapter 05: Legislative and Planning Policy Context;
- Volume 01, Chapter 06: EIA Approach and Methodology;
- Volume 02, Chapter 11: Onshore Archaeology and Cultural Heritage;
- Volume 03, Chapter 13: Marine Physical Environment; and,
- Volume 05, Chapter 32: Approach to Cumulative Effects

19.1.1.5 This Chapter is not supported by any accompanying annexes.

## 19.2 Study Area

19.2.1.1 The UKMS extends from the Indicative Landfall Zone, south of Harwich, Essex, to the median line with the Netherlands, also known as the United Kingdom's (UK) Exclusive Economic Zone (EEZ). The Study Area is defined as a 100 m buffer around the extent of the UKMS Scoping Boundary and extends to the Mean High Water Spring (MHWS) mark at the proposed Landfall. The Study Area is shown in Figure 19-1.

19.2.1.2 The 100 m buffer forming the Study Area enables marine archaeological and cultural heritage receptors that are located close to the extent of the UKMS Scoping Boundary to be included in the assessment, as the features themselves or their potential mitigation measures may extend into the UKMS Scoping Boundary and could potentially be impacted.




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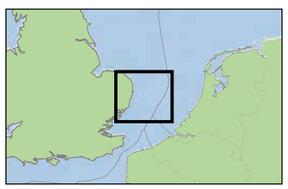
# Tarchon Interconnector Project

Scoping Report

## Marine Archaeological and Cultural Heritage Receptors within the Study Area

**Legend**

- UK Hydrographic Office (UKHO) Data
- National Marine Heritage Record (NMHR) Data
- Essex Historic Environment Record (HER) Data
- UK Marine Scheme Scoping Boundary
- Study Area
- Exclusive Economic Zones (EEZ) Boundaries



**Notes**

World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community
World Hillshade: Esri, NASA, NGA, USGS
World Ocean Base: Esri, GEBCO, Garmin, NaturalVue
World Hillshade: Esri, Intermap, NASA, NGA, USGS

Coordinate System:
WGS 1984 UTM Zone 31N

0 10 20 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:500,000 @A3 | 06/03/2026 | LR | CH | BM |

Maritime Archaeology Ltd.
National Oceanography Centre,
Room 014/11,
Empress Dock,
Southampton,
SO14 3ZH
http://www.maritimearchaeology.co.uk/

MARITIME ARCHAEOLOGY

Sheet 1 of 1

**Figure 19-1**

Figure Reference: 1918_Tarchon_Interconnector

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## 19.3 Relevant Legislation, Planning Policy and Guidance

19.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context describes the overall regulatory and planning policy context for the UKMS. The national, regional and local planning and legislative framework that governs the treatment of the marine historic environment in the planning process with regards to marine archaeological and cultural heritage receptors is presented below.

19.3.1.2 Historic England is the Archaeological Curator responsible for the marine historic environment within England's territorial waters, which extends to the 12 nautical mile (NM) limit, and also provides advice as a stakeholder for the marine historic environment within English offshore waters (up to the median line with an adjacent state). The Marine Management Organisation (MMO) is responsible for licencing, regulating and planning marine activities under the *Marine and Coastal Access Act* 2009 (HM Government, 2009) within waters in or adjacent to England up to the EEZ (or median line), to ensure they are carried out in a sustainable way. Historic England are the archaeological advisor to the MMO with relation to licensable activities under this Act.

19.3.1.3 The legislation presented below provides a context for focusing approaches and consultation requirements. These legal frameworks provide protection for marine archaeological and cultural heritage receptors of high historical, archaeological or artistic value, as well as allowing military wrecks and aircraft remains to be protected. Marine archaeological and cultural heritage receptors may be designated under the *Protection of Wrecks Act* 1973 (HM Government, 1973) and the *Ancient Monuments and Archaeological Areas Act* 1979 (HM Government, 1979). Military wrecks and aircraft remains may be protected under the *Protection of Military Remains Act* 1986 (HM Government, 1986). Ownership of any wreck remains is determined in accordance with the *Merchant Shipping Act* 1995 (HM Government, 1995), as administered by the Receiver of Wreck.

### 19.3.1 Legislation

19.3.1.1 The following legislation applies to marine archaeological and cultural heritage receptors:

**International Legislation/conventions:**

- **United Nations Educational, Scientific and Cultural Organisation (UNESCO) Convention on the Protection of Underwater Cultural Heritage** (UNESCO, 2025)**:** This was concluded in 2001 and is a comprehensive attempt to codify the law internationally with regards to underwater cultural heritage The UK abstained in the vote on the final draft of the Convention, however, it has stated that it has adopted the Annex of the Convention, which governs the conduct of archaeological investigations, as best practice for archaeology. Although the UK is not a signatory, the Convention entered into force on 02 January 2009, having been signed or ratified by 20 member states. To date, the 2001 Convention has been ratified by 79 countries (ibid.). The Annex of the convention suggests preservation *in situ* as the best archaeological practice.

- **United Nations Convention on the Law of the Sea (UNCLOS)** (UNCLOS, 1982)**:** This law sets out traditional rules for the usage of the worldwide oceans and provides new concerns about the wellbeing of the oceans and introduces new legal concepts and regimes. It also sets out a framework for further development of laws about the seas. The convention proposes that states have the duty to protect objects of an archaeological and historical nature found at sea and shall cooperate for this purpose.
- **International Council on Monuments and Sites (ICOMOS)** (ICOMOS, 1996)**:** This contains a Charter on the Protection and Management of Underwater Cultural Heritage The aim of the charter is to protect and manage underwater cultural heritage inshore and offshore.
- **Valletta Convention** (Council of Europe, 1992)**:**
  - The UK ratified the Convention for the Protection of the Archaeological Heritage of Europe (revised), known as the Valletta Convention, in 2000, putting it into force the following year. The convention binds the State to implement protective measures for the archaeological heritage within the jurisdiction of each party, including sea areas. Insofar as the UK exerts jurisdiction over the Continental Shelf, then the provisions of the Valletta Convention also apply to that jurisdiction.
  - The Articles of the Valletta Convention tackle various aspects. Article 1 deals with the inventorying and protection of sites and areas; Article 2 deals with the mandatory reporting of chance finds and providing for ‘archaeological reserves’ on land or underwater; Article 3 promotes high standards for all archaeological work undertaken by suitably qualified people; Article 4 requires the conservation of excavated sites and the safe-keeping of finds; and Article 5 is concerned with consultation that should take place between planning authorities and developers to avoid damage to archaeological remains.

**UK Legislation:**

- **Marine and Coastal Access Act 2009** (HM Government, 2009)**:** This act 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**, **Sections 1 and 2** (HM Government, 1973): It is an offence to carry out certain activities in a defined area surrounding a wreck that has been designated, unless a licence for those activities has been obtained from the Government. There are no protected wrecks within the Study Area;
- **Ancient Monuments and Archaeological Areas Act 1979** (HM Government, 1979)**:** It is a criminal offence to carry out any works on, or near to, a Scheduled Monument without Scheduled Monument Consent. Both terrestrial and maritime sites, including wrecks, may be designated under this Act. There are no Scheduled Monuments within the Study Area;
- **Protection of Military Remains Act 1986** (HM Government, 1986)**:** This Act provides protection for the wreckage of military aircraft and designated military vessels. The Act provides for two types of protection: ‘protected places’ and ‘controlled sites’. Military aircraft are automatically protected, although vessels

have to be specifically designated. The primary reason for designation is to protect as a 'war grave' the last resting place of servicemen; however, the Act does not require the loss of the vessel to have occurred during a war. There are no protected places or controlled sites within the Study Area;

- **Merchant Shipping Act 1995** (HM Government, 1995)**:** Part IX: Salvage and Wreck, sets out the procedures for determining the ownership of underwater material. All wreck material recovered from UK waters must be declared to the Receiver of Wreck who acts to determine ownership and salvage. 'Wreck' refers to all items of flotsam, jetsam, derelict and lagan found in or on the shores of the sea or any tidal water; and
- **National Heritage Act 2002** (HM Government, 2002)**:** This Act gives governing powers to Historic England to include underwater archaeology within UK territorial waters and to engage in trading functions, including overseas.

### 19.3.2 Marine Policy Statements

19.3.2.1 The UK Marine Policy Statement (MPS), originally published in 2011 and last updated September 2020 by Department for Environment, Food and Rural Affairs (Defra, 2020) provides the overarching policy framework for marine planning and decision-making.

19.3.2.2 The UK MPS notes that "*heritage assets are a finite and often irreplaceable resource and can be vulnerable to a wide range of human activities and natural processes" and "that heritage assets should be enjoyed for the quality of life they bring to this and future generations, and that they should be conserved through marine planning in a manner appropriate and proportionate to their significance*" (HM Government, 2011).

19.3.2.3 The UK MPS notes that "*marine activities have the potential to result in adverse effects on the historic environment both directly and indirectly, including damage to or destruction of heritage assets*" (HM Government, 2011).

### 19.3.3 National Planning Policy Framework

#### National Policy Statements

19.3.3.1 Details of policies contained in the National Policy Statements relevant to the UK Scheme are described in Volume 01, Chapter 05: Legislative and Planning Policy Context.

19.3.3.2 The National Policy Statements (NPS) relevant to this Chapter include EN-1 (DESNZ, 2026a) and EN-3 (DESNZ, 2026b). EN-1 states that *"Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to Scheduled Monuments or Protected Wreck Sites should be considered subject to the policies for designated heritage assets"*. EN-3 states that "*The avoidance of important heritage assets to ensure their protection in situ, is the most effective form of protection. This can be achieved through the implementation of exclusion zones around known and potential heritage assets which preclude development activities within their boundaries*".

### National Planning Policy Framework

19.3.3.3 The National Planning Policy Framework (NPPF) was first published by the Department for Communities and Local Government in March 2012, replacing Planning Policy Statement 5. The most recent iteration of the NPPF, published by the Ministry of Housing, Communities and Local Government was released in December 2024 and amended in February 2025 (Ministry of Housing, Communities and Local Government, 2024).

19.3.3.4 Section 16 of the NPPF (ibid.), 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.

19.3.3.5 The government guidance provides a framework that:

- Recognises that heritage assets are an irreplaceable resource;
- 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 of this and future generations;
- Requires applicants to provide proportionate information on the significance of heritage assets affected by the proposals, including any contribution made by their setting, and an impact assessment of the proposals on that significance;
- Takes into account the desirability of sustaining and enhancing the significance of heritage assets and their setting; and
- 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.

### National Planning Practice Guidance

19.3.3.6 The NPPF sets out the government's planning policies for England and how these are expected to be applied. The Planning Practice Guidance provides information relating to the NPPF and other relevant planning practice guidance (GOV.UK, 2024). Guidance relating specifically to the Historic Environment has been utilised for the purposes of this Chapter (GOV.UK, 2019).

## 19.3.4 Guidance

19.3.4.1 The assessment will be undertaken in a manner consistent with available guidance as described in chronological order of issue:

- Identifying and Protecting Palaeolithic Remains: Archaeological Guidance for Planning Authorities and Developers (English Heritage, 1998);

- Managing Lithic Scatters: Archaeological Guidance for planning authorities and developers (English Heritage, 2000);
- Military Aircraft Crash Sites: Guidance on their significance and future management (Historic England, 2002);
- The Code of Practice for Seabed Development (Joint Nautical Archaeology Policy Committee, 2006);
- Historic Environment Guidance for the Offshore Renewable Energy Sector (Wessex Archaeology, 2007);
- Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (English Heritage, 2008);
- Guidance for Assessment of Cumulative Impacts on the Historic Environment from Offshore Renewable Energy (COWRIE, 2008);
- Our Seas – A shared resource: High level marine objectives (Department for Environment, Food and Rural Affairs, 2009);
- Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (second edition) (Historic England, 2025b);
- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (COWRIE, 2011);
- People and the Sea: A Maritime Archaeological Research Agenda for England (Ransley, J., Sturt, F., Dix, J., Adams, J., and Blue, L., 2013);
- Standard and Guidance for Archaeological Advice by Historic Environment Services (Chartered Institute for Archaeologists, 2014, updated 2020);
- Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists, 2014, updated 2020);
- Code of Conduct: Professional Ethics in Archaeology (Chartered Institute for Archaeologists, 2014, updated 2022);
- Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record (Historic England, 2015);
- Managing Significance in Decision-Taking in the Historic Environment Historic Environment Good Practice Advice in Planning: 2 (Historic England, 2015);
- Preserving Archaeological Remains: Decision-taking for Sites under Development (Historic England, 2016);
- The Setting of Heritage Assets - Historic Environment Good Practice Advice in Planning 3 (Historic England, 2017);
- Conservation Principles for the Sustainable Management of the Historic Environment (Historic England, 2017);
- Ships and Boats: Prehistory to Present: Designation Selection Guide (Historic England, 2017);
- Statements of Heritage Significance: Analysing Significance in Heritage Assets: Historic England Advice Note 12 (Historic England, 2019);

- Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021);
- Curating the Palaeolithic (Historic England, 2023);
- Marine Geophysics: Data Acquisition, Processing and Interpretation Guidance Notes (Historic England, 2025a); and
- Relevant archaeological research frameworks (Research Frameworks, 2025).

#### Marine Plans

19.3.4.2 The MMO divides the inshore and offshore waters around England into 11 marine plan areas. The following marine plans have been considered within this Chapter:

- East inshore and East offshore Marine Plans (Department for Environment, Food and Rural Affairs, 2014);
- South East Inshore Marine Plan (Department for Environment, Food and Rural Affairs, 2021).

### 19.3.5 Local Planning Policy

19.3.5.1 Local planning policy is considered for this Chapter in context of the UK Landfall which falls within the marine environment and UKMS Scoping Boundary.

#### Essex Planning Policy

19.3.5.2 North Essex Authorities' Shared Strategic Section 1 Plan, adopted January 2021, sets out the strategic planning matters across North Essex (Tendring District Council, 2021). The plan addresses the importance of Heritage Impact Assessments and the need for drafting these assessments to inform any new developments in order to preserve and protect heritage assets. This Shared Strategic Section Plan, in combination with the Local Plans from local planning authorities, the Essex and Southend-on-Sea Waste Local Plan and any Neighbourhood Plans, form the Development Plan for a respective area (Essex County Council, 2025).

19.3.5.3 Each district in Essex is a Local Planning Authority and each authority is responsible for producing a Local Plan for the development of their area (Tendring District Council, 2022). The Local Planning Policy applicable to UKMS is the Tendring District Local Plan. Section 2 of the plan, adopted in January 2022 (Tendring District Council, 2025), includes specific policies for Tendring District Council, within which the Indicative Landfall Zone is located, including SPL 3 Sustainable Design, PPL7 Archaeology, PPL8 Conservation Areas and PPL9 Listed Buildings.

19.3.5.4 The Local Plan is currently under review by the council. In the new plan, new Conservation Area Appraisals with information about Planning Applications and how they might impact the historic environment, developers and homeowners will be published (Tendring District Council, 2025).

19.3.5.5 With regard to the historic environment, the Local Plan (Tendring District Council, 2021). states that the ongoing strategic objective is: "*To conserve and enhance Tendring District's historic environment, including heritage; respecting historic*

*buildings and their settings; heritage assets; landscapes; links; and views*" (Tendring District Council, 2021). Relevant to development proposals, the Local Plan explains, "*The Council has specific legal duties to preserve and enhance the historic environment. Proposals affecting buildings listed for their special architectural or historic interest ('listed buildings') or designated Conservation Areas, or their settings, Scheduled Monuments, archaeology, or Registered Historic Parks and Gardens will therefore be subject to particular scrutiny*" (Tendring District Council, 2022) (page 130).

## 19.4 Consultation and Engagement

19.4.1.1 Consultation relating to Offshore Archaeology and Cultural Heritage has been undertaken with the following consultees (consultation will continue with consultees following Scoping, as detailed within Volume 01, Chapter 04: Approach to Consultation):

- MMO;
- Historic England; and
- Essex County Council

19.4.1.2 It should be noted that consultation undertaken specifically with Tendring District Council is covered in Volume 02, Chapter 11: Onshore Archaeology and Cultural Heritage.

19.4.1.3 The consultation undertaken to date has enabled the Applicant to provide an update on the UKMS ahead of the Scoping Report submission. An enhanced advisory service from Historic England has been signed and is in place as of January 2026.

19.4.1.4 Feedback from Historic England to date includes:

- A request that a geo-archaeologist should be allowed direct access to the cores rather than just the logs. The reasoning for this that when the archaeologist is at the laboratory during the splitting and opening of the relevant archaeological cores, it is helpful in understanding the material for the phased reports; and
- Confirmation that it would be better to have data ahead of the Environmental Statement (ES) as Historic England need to have enough information to understand impacts.

19.4.1.5 Responses on the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council and Tendring District Council. No relevant comments to Offshore Archaeology and Cultural Heritage have been received.

19.4.1.6 Consultation will be ongoing whilst the UKMS progresses, and consultation and responses to the Scoping Opinion will be incorporated as part of the ES.

19.4.1.7 The Project will set up regular Expert Topic Group (ETG) meetings with Historic England where updates on the development and the archaeological components will be given. Further meetings may be required to discuss individual archaeological Method Statements for separate phase of works such as surveys.

## 19.5 Baseline Conditions

### 19.5.1 Data Sources

19.5.1.1 The baseline described in this Chapter and associated annexes has been informed by the following data sources and should be read in conjunction with Volume 02, Chapter 11: Onshore Archaeology and Cultural Heritage:

- The UK Hydrographic Office (UKHO) data for wrecks and obstructions;
- The National Marine Heritage Record (NMHR) maintained by Historic England, comprising data for terrestrial and marine archaeological sites, finds spots and archaeological events;
- The Historic Environment Record (HER) for Essex, comprising a database of recorded archaeological sites, findspots and archaeological events;
- National Historic Seascape Characterisation Consolidation dataset formed from the results of eight projects undertaken between 2008 and 2015 to characterise the historic seascape of England's coastal and marine area (English Heritage and Cornwall County Council, 2008); and
- Droit numbers for reported wreck remains maintained by the Receiver of Wreck.

19.5.1.2 The datasets in this assessment have been presented in Universal Transverse Mercator (UTM) Zone 31 North projected from a World Geodetic System 1984 (WGS84) Datum.

### 19.5.2 Offshore Archaeology and Cultural Heritage Baseline

19.5.2.1 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 (Wessex Archaeology, 2008).

19.5.2.2 The themes relevant to marine archaeological resource are:

- Palaeogeography (for example, palaeochannels and other features that contain prehistoric sediment, and derived Palaeolithic and Mesolithic artefacts such as handaxes) including their setting and value;
- 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 and value;
- Coastal and intertidal heritage receptors relating to marine activity, for example fish traps, piers and sea defences located within the intertidal zone up to MHWS; and
- The historic seascape character in and around the Study Area, including its value.

19.5.2.3 The types of archaeology listed above relate to the known resource, which will be discussed further in this Chapter, and also the currently unknown resource.

19.5.2.4 The following section provides a summary of the known Offshore Archaeology and Cultural Heritage baseline within the Study Area, compiled from the data sources listed in paragraph 24.5.1 and a range of secondary sources, including academic papers, geological information and previous work undertaken from the wider region. The aim is to establish the known historic environment resource that could be affected by the UKMS.

19.5.2.5 The distribution of the known marine archaeological and cultural heritage receptors discussed in this section is illustrated on Figure 19-1.

### Protected Sites

19.5.2.6 Wrecks protected under the *Protection of Wrecks Act* 1973 (HM Government, 1973), the *Protection of Military Remains Act* 1986 (HM Government, 1986) or the *Ancient Monuments and Archaeological Areas Act* 1979 (HM Government, 1979) are marked on appropriate UKHO Admiralty Charts. Interference or damage to these wrecks is considered a criminal offence.

19.5.2.7 There are currently no sites within the Study Area that are subject to statutory protection from these acts.

### UKHO Records Within the Study Area

19.5.2.8 There are 233 UKHO records located within the UKMS Scoping Boundary and its associated 100 m buffer forming the extent of the Study Area. The total correlates to:

- 116 dangerous wrecks (including one aircraft), 63 of which are named;
- 37 non-dangerous wrecks, 19 of which are named;
- Two records for distributed remains of wreckage; and
- 78 records relating to seabed obstructions.

19.5.2.9 Of the 233 UKHO records, 77 have been amended to ‘dead’ (including the aircraft site), which are not considered to represent a danger to navigation as material has not been detected during the most recent survey(s) and one has been ‘lifted’. It should be noted that material could still exist from these sites on or under the seabed.

19.5.2.10 Thirteen of the UKHO records relate to modern losses, comprising six vessels and one aircraft, that were lost between 1956 and 2002. Although these sites do not have archaeological value, they still retain social and cultural value and would also be considered navigational hazards for the UKMS. Despite their lack of archaeological value, these records will be retained in the overall number of receptors.

### NMHR Records Within the Study Area

19.5.2.11 There are 87 NMHR records located within the UKMS Scoping Boundary and its associated 100 m buffer forming the extent of the Study Area. A total of 81 NMHR records have corresponding UKHO records and an additional two NMHR records have corresponding Essex HER records. The total correlates to:

- 81 records relating to wrecks, 51 of which are named;
- Four findspots[1] reported through the Marine Aggregate Industry Protocol for the Reporting of Finds of Archaeological Interest, four of which relate to items from aircraft; and
- Two records relating to a Neolithic and Bronze Age dwelling sites.

19.5.2.12 There are 40 NMHR areas located within, or intersecting, the Offshore Scoping Boundary, that relate to Recorded Losses of vessels.

19.5.2.13 Recorded Losses 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 Named Locations by the NMHR. For example, a Recorded Loss within this dataset may be based on the loss of a vessel off 'Harwich, Essex' 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 and are therefore not represented on a figure.

#### Essex HER Records Within the Study Area

19.5.2.14 There are 26 Essex HER records located within the UKMS Scoping Boundary and its associated 100 m buffer forming the extent of the Study Area at the coast. The total correlates to:

- Eight findspots relating to animal remains, two coins, a sickle, an adze and an anchor fragment;
- Two records relating to evidence for prehistoric coastal occupation sites;
- Two records of Neolithic settlements;
- One record dating to the Roman period;
- One record dating to the Post-medieval period;
- Ten records relating to modern structures such as pillboxes; and
- Two records of unknown date, one of which relates to the remains of an earthwork forming an old sea wall.

#### Receiver of Wreck Records Within the Study Area

19.5.2.15 The Receiver of Wreck provided one record that is located within the Offshore Scoping Boundary. The record refers to the recovery of two portholes from the wreck of HMT *Holdene*, a site that is recorded in the UKHO dataset as a British trawler lost in 1917.

[1] A findspot relates to the location of an archaeological object. Since the object has been recovered, no impact will occur to it.

### Historic Seascape Characterisation

19.5.2.16 Historic Seascape Characterisation (HSC) assessment is the identification and interpretation of the historic dimension of the present day coastal and marine environment, shaped by the interplay of human activities and natural processes (English Heritage and Cornwall County Council, 2008).

19.5.2.17 The baseline summary for the character of the historic seascape within the Study Area was assessed using the compiled results of Land Use Consultant's Historic Seascape Characterisation: Consolidating the National HSC Database (Land Use Consultants, 2017). The HSC include ArcGIS shapefiles of the character areas and reports including a regional and national assessment of the historic seascape character types.

19.5.2.18 In summary, the Study Area has been characterised as having the following broad character types:

- Coastal infrastructure;
- Communications;
- Cultural topography;
- Fishing;
- Industry;
- Navigation; and
- Recreation.

### Palaeogeography Potential

19.5.2.19 There are seven NMHR records that relate to prehistoric findspots and one for a Bronze Age dwelling site, located within the Study Area.

19.5.2.20 Submerged landscapes are areas where human beings and early hominids previously lived; on terrain that was at that time dry land, or where they exploited marine resources on the coast, which is now submerged by Holocene sea-level change and geomorphological development.

19.5.2.21 There is potential for the presence of as yet undiscovered *in situ* palaeolandscape deposits (for example peats, estuarine and low-energy coastal sediments of archaeological interest) palaeochannels of river systems, prehistoric sites and finds located within the inundated palaeogeography. Any early prehistoric discoveries will be regarded as of national importance, above or below the seabed. Such material may be discovered from within vibrocores or boreholes recovered during pre-construction geotechnical surveys and following geoarchaeological assessment.

19.5.2.22 Based on Sub-Bottom profiler data taken from nearby Five Estuaries Offshore Wind Farm (OWF) (Five Estuaries Wind Farm Ltd, 2024) and North Falls OWF (North Falls Offshore Wind Farm Limited, 2023), a number of palaeographic features have been identified. Those thought to contain geoarchaeological potential include Channel/valley infills from the Pre Anglian to Early Holocene periods and may

contain *in situ* and derived archaeological material, as well as palaeoenvironmental material.

### 19.5.3 Maritime and Aviation Archaeology Potential

#### Maritime Archaeology

19.5.3.1 Maritime archaeological sites comprise two broad categories; the remains of vessels that have been lost as a result of stranding, foundering, collision, enemy action and other causes (for instance shipwrecks), and sites that consist of vessel-related material (for instance material that would be considered 'wreck' in terms of the *Merchant Shipping Act* 1995 (HM Government, 1995).

19.5.3.2 There is 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 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 or have not been recorded as they do not represent a hazard to navigation.

#### Aviation Archaeology

19.5.3.3 Marine aviation archaeology receptors comprise the remains or associated remains of military and civilian aircraft that have been lost at sea (Wessex Archaeology, 2008). Evidence is divided into three primary time periods based on major technological advances in aircraft design: pre-1939; 1939-1945; and post-1945.

19.5.3.4 There is one record relating to a known aircraft crash site within the UKHO records that has been amended to 'dead', however, it is possible that any of the obstructions or unidentified wreck remains may relate to aircraft and several records for findspots indicate the potential for aircraft crash sites to be discovered.

19.5.3.5 Higher potential exists for 20th century aircraft, particularly in relation to the Second World War (Air Ministry, 1952). Air/Sea Rescue Services mapping indicates that rescues took place within the Study Area and its vicinity, indicating the potential for associated aircraft material to exist (Wessex Archaeology, 2008) (Air Ministry, 1952). Incomplete, disbursed and/or buried aircraft crash sites may be harder to identify through archaeological assessments of geophysical survey, due to the nature of the material used to construct the fuselage of aircraft being typically aluminium or aluminium alloy which will not be detected by a magnetometer. However, experience indicates that material from the site, such as engines made of iron or ordnance, may be recorded as small obstructions or anomalies.

#### Coastal and Intertidal Archaeology Potential

19.5.3.6 Intertidal marine archaeological and cultural heritage receptors comprise sites and material located in the area between the MHWS and MLWS marks.

19.5.3.7 Sites could include fish traps, piers, historic sea defences or more modern features dating to the World Wars. Furthermore, with coastal erosion, heritage features that were once terrestrial may now lie in the marine area.

### 19.5.4 Future Baseline

19.5.4.1 The baseline environment is not static and is expected to change over time, irrespective of the UKMS. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UKMS over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

19.5.4.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised

19.5.4.3 At present, there will be limited natural change to the baseline conditions discussed above relating to palaeogeographic sites and prehistoric finds, or maritime and aviation sites and finds beyond those caused by natural physical environment and natural deterioration. There will likely be continued erosion and slow degradation of exposed metal and wooden wrecks on the seabed (aviation or maritime). Movement of seabed sediments will regularly expose and bury marine heritage remains, and exposed wrecks are expected to degrade at a faster rate than those that are buried or partially buried, although this will vary depending on each individual site and the nature of the material exposed.

19.5.4.4 Longer-term, with the changes to climatic and environmental conditions leading to impacts felt globally, the future Offshore Archaeology and Cultural Heritage baseline may experience greater, and more diverse, changes than before. CHERISH, the Climate Heritage and Environments of Reefs, Island and Headlands Ireland-Wales project (CHERISH, 2021), predicts the following changes will impact on offshore archaeology and coastal heritage:

- Warmer global temperatures, leading to:
  - Rising sea levels impacting on all coastal heritage as a result of flooding and storm surges;
  - Rising sea temperatures bringing new marine species and pests affecting marine and intertidal heritage.
- More frequent extreme weather, leading to:
  - Turbulent seas damaging heritage on the seabed and foreshore;
  - Erosion and loss at the coast edge from wave action;
  - Breaches in coastal barriers leading to flooding;

  - The movement of sand reshaping dune systems but also revealing hidden heritage; and
  - Structural damage to buildings.
- Hotter, drier summers, leading to drying out of cliff faces increasing the risk of destabilisation and collapse affecting heritage sites on the coast.
- Warmer, wetter winters, leading to saturation of the ground increasing the risk of flooding, landslides and erosion of coastal heritage sites.

19.5.4.5 Furthermore, the increased seabed surveys and investigations that are undertaken in association with offshore developments continue to positively enhance the archaeological record. Conversely, the discovery of significant archaeological sites can become at risk of being illicitly salvaged, causing direct damage to the physical fabric of such sites and their archaeological setting, along with the unlawful recovery of archaeological artefacts.

## 19.6 Assessment Methodology

19.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the construction, operational and decommissioning phases of the UK Scheme. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

19.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on ornithological receptors arising from the construction, operational, and decommissioning phases of the UKMS. This approach defines:

- **Sources and impacts**: The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

19.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

19.6.1.4 The assessment for Offshore Archaeology and Cultural Heritage is partly based on the methodology outlined in Volume 01, Chapter 06: EIA Approach and Methodology and supported by Maritime Archaeology's own assessment methodology, since to fully assess an marine archaeological and cultural heritage receptors, additional criteria are needed and are discussed in this Chapter.

19.6.1.5 The UK Marine Policy Statement (HM Government, 2011) 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.

19.6.1.6 For the significance of any given impact to be fully understood, the sensitivity of any marine archaeological and cultural heritage 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.

### 19.6.2 Sensitivity of Receptor

19.6.2.1 According to Volume 01, Chapter 06: EIA Approach and Methodology the sensitivity of a receptor or feature is characterised by the vulnerability to change, recoverability and importance of the receptor or feature. The sensitivity of receptors criteria is defined in Table 19-1.

**Table 19-1: Definitions of sensitivity**

| Sensitivity | Definition |
|---|---|
| Very High | Very high importance and rarity, valued at an international level and limited potential for recovery or substitution |
| 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. |

19.6.2.2 The NPPF (GOV.UK, 2024)(page 30) states that heritage assets should be recognised as "*an irreplaceable resource" and to "conserve them in a manner appropriate to their significance*."

19.6.2.3 Marine archaeological and cultural heritage receptors have no tolerance, which means they cannot typically adapt, tolerate or recover from physical impacts resulting in material damage or loss caused by development. Therefore, their sensitivity is very high. Consequently, the sensitivity of each receptor is predominantly quantified only by their archaeological value (or archaeological importance).

### 19.6.3 Archaeological Value of Receptors

19.6.3.1 The perceived archaeological value (or archaeological importance) of each marine archaeological and cultural heritage receptors is generally assessed and assigned on a site-by-site basis, depending on the criteria listed in Table 19-2. Based on Historic England's Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (English Heritage, 2008), the significance of a historic asset "*embraces all the diverse cultural and natural heritage values or interests that people associate with it*."

19.6.3.2 It should be noted that, while designation indicates that a receptor has been identified as being of high value, non-designated archaeological receptors are not necessarily of lesser value. Consequently, non-designated receptors that can be demonstrated to be of equivalent value to designated sites are also of equivalent significance.

19.6.3.3 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, whereby receptors are generally considered to be of high potential and consequently high value, until further information can be obtained.

19.6.3.4 The archaeological value of known receptors is assessed on a five-point scale using professional judgement informed by criteria provided in Table 19-2 below.

**Table 19-2: Criteria to Assess the Archaeological Value of Receptors**

| Value | Definition |
|---|---|
| Very High | • Best known or only example and/or significant potential to contribute to knowledge and understanding and/or public engagement. Receptors with a demonstrable international dimension to their importance are likely to fall within this category.<br>• Marine archaeological and cultural heritage receptors with a demonstrable international dimension to their importance are likely to fall within this category.<br>• Wrecked ships and aircraft that are protected under the *Protection of Wrecks Act* 1973, *Ancient Monuments and Archaeological Areas Act* 1979 or *Protection of Military Remains Act* 1986 with an international dimension to their importance, plus as-yet undesignated sites that are demonstrably of equivalent archaeological value.<br>• Known submerged prehistoric sites and landscapes with the confirmed presence of largely *in situ* artefactual material. |
| High | • Above average example and/or high potential to contribute to knowledge and understanding and/or public engagement.<br>• Marine archaeological and cultural heritage receptors with a demonstrable national dimension to their importance are likely to fall within this category.<br>• All other wrecked ships and aircraft with statutory protection under the *Protection of Wrecks Act* 1973, *Ancient Monuments and Archaeological Areas Act* 1979 or *Protection of Military Remains Act* 1986, plus as-yet undesignated sites that are demonstrably of equivalent archaeological value.<br>• Palaeogeographic features with demonstrable potential to include artefactual and/or palaeoenvironmental material, possibly as part of a prehistoric site or landscape.<br>• Where there is not presently enough information available about a receptor or site to assess its archaeological value (for example a buried magnetic anomaly), in accordance with the precautionary principle, such receptors are generally considered to be of high archaeological potential and consequently high archaeological value, until further information regarding the asset becomes available to refine this. |
| Medium | • Average example and/or moderate potential to contribute to knowledge and understanding and/or public engagement.<br>• Marine archaeological and cultural heritage receptors with a demonstrable district level dimension to their importance are likely to fall within this category. |

| Value | Definition |
|---|---|
| | • 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.<br>• 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 public engagement.<br>• Marine archaeological and cultural heritage receptors with a demonstrable local dimension to their importance are likely to fall within this category.<br>• 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.<br>• 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. Receptors with little or no surviving archaeological interest. |

19.6.3.5 These aspects help to characterise each archaeological asset, including palaeogeographic sites, prehistoric material, and maritime and aviation sites located within a marine or coastal / intertidal environment, whilst also comparing them to other similar receptors. The criteria also enable the potential to contribute to knowledge, understanding and public engagement to be assessed.

19.6.3.6 Furthermore, with regards to assessing the importance of shipwrecks, the following criteria can be used to assess an asset in terms of its value, as follows (Wessex Archaeology, 2008):

- Period;
- Rarity;
- Documentation;
- Group value;
- Survival or condition;
- Fragility;
- Vulnerability;
- Diversity; and
- Potential.

### 19.6.4 Magnitude of Effect

19.6.4.1 The magnitude of effect upon known and potential marine archaeological and cultural heritage 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; and
- Severity – the degree of change relative to existing environmental conditions.

19.6.4.2 The magnitude of a particular effect is defined by the criteria presented in Table 19-3.

**Table 19-3: Definitions of magnitude**

| Magnitude | Definition |
|---|---|
| Large | Long term and/or regional level (or above 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 UK Scheme 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. |

### 19.6.5 Significance of Impact

19.6.5.1 The significance of a direct or indirect impact (positive or negative) on a known or potential marine archaeological receptor is determined as a combination of the sensitivity of the marine archaeological receptor (Table 19-1) (based on its archaeological value (Table 19-2) and the measures of the magnitude of the effect (Table 19-3). The sensitivity and magnitude, when combined, generate a significance criteria (Table 19-4).

**Table 19-4: Significance Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Negligible |
| Very High | Major | Major | Moderate | Minor |
| High | Major | Moderate | Moderate | Minor |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

19.6.5.2 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

19.6.5.3 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UKMS design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UKMS.

## 19.7 Potential Effects and Mitigation

19.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

19.7.1.2 All marine archaeological and cultural heritage receptors have the potential to be damaged or destroyed if they directly interact with activities relating to the UKMS. Loss and/or degradation can subsequently reduce the significance of a heritage asset and its wider historic environment. The management and mitigation of such change is based on the principle that marine archaeological and cultural heritage receptors are finite, non-renewable and cannot adapt, tolerate or recover from direct impacts.

19.7.1.3 Marine archaeological and cultural heritage receptors may be buried within seabed sediments or may rest upon the seafloor, either with or without height. As such, direct impacts to such marine archaeological and cultural heritage receptors can occur during any development or related activity that contacts the intertidal zone, the seafloor or cuts through seabed deposits. marine archaeological and cultural heritage receptors with height, such as wrecks, may also be impacted by development or activities that occur within the water column.

19.7.1.4 Potential impacts to seabed, sub-seabed and intertidal marine archaeological and cultural heritage receptors 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. Furthermore, the discovery of significant archaeological sites can become at risk of being illicitly salvaged, causing direct damage to the physical fabric of the site and its setting along with the unlawful recovery of archaeological artefacts.
- The indirect interactions upon known and potential marine archaeological and cultural heritage receptors occur as a result of changes to hydrodynamic

patterns and sediment transport regimes, where these changes may occur as a consequence of activities and structures associated with the UKMS. Scour may have a negative or adverse impact on marine archaeological and cultural heritage 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 and cultural heritage receptors as greater sediment cover increases the potential for anaerobic environment, which inhibits a range of biological, chemical and physical degradation processes.

### 19.7.1 Embedded Mitigation and Good Practice Measures

19.7.1.1 The UKMS will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as "*mitigation measures that have been incorporated into a project's description and form an inherent part of the project's design*" (ISEP, 2024).

19.7.1.2 The proposed embedded mitigation measures detailed below will either avoid an impact altogether or ensure that where impact is unavoidable, further information is obtained for posterity or finds are recorded and potentially recovered and preserved, thus further informing the archaeological record and so offsetting the impact. These measures include the following, and are expanded upon on the below sections:

- Production of an offshore Written Scheme of Investigation (WSI);
- Undertaking archaeological assessments of geophysical and geotechnical survey data;
- Avoidance where possible (via implementation of Archaeological Exclusion Zones (AEZs));
- Anomaly investigation where avoidance is not possible;
- Archaeological walkover survey of UK Landfall and if required associated watching briefs; and
- Development of a Protocol for Unexpected Archaeological Discoveries (PAD).

#### Offshore Written Scheme of Investigation

19.7.1.3 For the purposes of Offshore Archaeology and Cultural Heritage, relevant mitigation measures will be presented and implemented through the preparation and development of an outline Offshore Written Scheme of Investigation (WSI). The detail within the outline Offshore WSI is intended to provide statutory (and non-statutory) advisors with the confidence that due consideration and protection of marine archaeological and cultural heritage receptors has been given throughout the EIA process. It is important to note that it is the implementation of the procedures detailed in the Offshore WSI, rather than its production, that discharges any associated licence conditions.

19.7.1.4 The outline Offshore WSI will be structured to consider required mitigation and offsetting works through archaeological assessment in relation to all the phases of the development. It will include a summary of the known and potential Offshore Archaeology and Cultural Heritage baseline, and the methodologies and standards that will be employed by the Applicant (and their appointed archaeological contractor) to implement the agreed strategy for mitigation measures. In this regard, implementing the measures presented in the Offshore WSI will prevent or reduce the potential for significant effect on the known and potential Offshore Archaeology and Cultural Heritage resource.

19.7.1.5 To support the Offshore WSI, detailed archaeological Method Statements will also be produced prior to survey or construction work presenting detail of the methodology to be undertaken and archaeological objectives.

19.7.1.6 The archaeological commitments within the Offshore WSI, and any Method Statements, will be set out for agreement in principle with the Archaeological Curator, Historic England. In format and content, the Offshore WSI and Method Statements will conform to current best practice and to the guidance outlined in Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021). Since guidance specifically for subsea interconnector cables does not currently exist, the Crown Estate's 2021 guidance (The Crown Estate, 2021) will be utilised as it represents the most relevant guidance specifically for Offshore Archaeology and Cultural Heritage.

19.7.1.7 The Offshore WSI will also outline the potential need of post-construction monitoring of AEZs and other areas of archaeological potential to confirm that no impact has occurred to the archaeological features within AEZs, and Method Statements should be prepared in advance to detail the objectives and methodology of monitoring.

19.7.1.8 Dissemination of any archaeological investigations undertaken for the UKMS would further enhance the current level of knowledge and understanding on a local, regional, national and even international scale. Information and relevant reports will be submitted to OASIS (Online Access to the Index of archaeological investigations) (Wessex Archaeology, 2005) and published through the Archaeology Data Service ArcSearch catalogue (Archaeology Data Service, 2025).

#### Geophysical and Geotechnical Survey

19.7.1.9 To establish indicators of archaeology, geophysical and geotechnical survey data acquisition for pre-consent planning purposes will be assessed by a suitably qualified marine archaeologist 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. Marine geophysical surveys will be of a high-quality specification with good coverage of the development area. Furthermore, prior to surveys commencing, geophysical survey specifications and geotechnical

sampling strategies will receive archaeological input to ensure their suitability for archaeological purposes.

19.7.1.10 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.

### Avoidance (where possible)

19.7.1.11 Avoidance is considered to represent the primary best-practice option with regards to mitigating impacts upon the Offshore Archaeology and Cultural Heritage resource. This is achieved through the implementation of Archaeological Exclusion Zones (AEZs), around known sites prohibiting any development activities to take place within its limit, or through the micro-siting of the UKMS design to avoid vulnerable heritage marine archaeological and cultural heritage receptors.

19.7.1.12 Appropriately sized AEZs will be established around known marine archaeological and cultural heritage receptors which are considered to be of high archaeological value or currently unknown archaeological potential, in consultation with the Archaeological Curator. AEZs may be recommended in the future as further information is obtained, for example following marine geophysical surveys. No seabed disturbance can take place within the AEZs, including installation and/or O&M activities or anchoring vessels that interact with the seabed. Periodic post-construction monitoring of AEZs to ensure there is no disturbance to them would also be part of this mitigation.

19.7.1.13 Micro-siting proposed components of the UK Scheme will, where practicable, avoid AEZs and other seabed features of archaeological potential (including those identified as geophysical anomalies following geophysical and geotechnical surveys). This would apply to works associated with installation of the interconnector cable including legs of jack-up vessels or the anchors of other associated vessels.

19.7.1.14 Locations of AEZs and seabed anomalies of archaeological potential will be taken into account during all phases of development to ensure avoidance of anomalies is undertaken.

### Anomaly Investigation

19.7.1.15 Where avoidance is not possible, further assessment will be undertaken to confirm the nature of the seabed anomaly. Methods of ground truthing assessment could include Remote Operated Vehicle (ROV) or diver survey and could be undertaken in conjunction with other surveys associated with the UKMS, for example UXO or obstruction surveys.

19.7.1.16 Any subsequent diver or ROV survey footage that takes place will be assessed by a suitably qualified marine archaeologist, as appropriate.

### Archaeological Walkover Survey and Watching Briefs

19.7.1.17 A walkover survey (or site visit) of the intertidal element of the Study Area is intended to be undertaken to inform the understanding of the existing marine archaeological and cultural heritage receptors and also the potential for unknown material to be uncovered.

19.7.1.18 If required, watching briefs may also be employed in the intertidal or marine areas where any intrusive works are planned. These could include pre-lay grapnel runs. The proposed methodology will be presented in a Method Statement and agreed through consultation with the Archaeological Curator, Historic England.

### Protocol for Unexpected Archaeological Discoveries

19.7.1.19 A bespoke Protocol for Archaeological Discoveries (PAD) will be established to support the reporting of unexpected archaeological material during the lifetime of the UKMS[2]. The Protocol will be based on other successful archaeological protocols, including the Marine Aggregate Protocol for Reporting Finds of Archaeological Interest (Wessex Archaeology, 2005) and the 2003 Guidance Note (Wessex Archaeology, 2003), and the Protocol for Archaeological Discoveries: Offshore Renewables Projects (Wessex Archaeology, 2007).

19.7.1.20 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 offshore archaeology environment by enabling staff to report discoveries of material in a manner that is convenient and effective.

19.7.1.21 If an unexpected archaeologically important site is subsequently discovered, 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. Within an intertidal zone this is typically achieved by means of a watching brief that involves archaeological monitoring during invasive groundworks to safeguard, to as great a degree as possible, any potential archaeological sites that may exist in this area.

## 19.7.2 Scoping Assessment

19.7.2.1 General potential impacts on marine archaeological and cultural heritage receptors have been identified which may occur during the construction, O&M, and decommissioning phases of the UKMS. The potential activities undertaken during the construction, O&M and decommissioning phases will be considered in more detail as the EIA process progresses.

[2] Where possible, a coordination will take place between the UKMS and the Dutch Scheme and German Scheme to ensure a consistent approach to the Protocol for Archaeological Discoveries.

19.7.2.2 Table 19-5 includes all impacts relating to Offshore Archaeology and Cultural Heritage and the justification with regard to their being scoped in or out of the assessment. At present no impacts have been scoped out.

Table 19-5: Elements Scoped In and Out

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction, operational and decommissioning | Seabed preparations | Physical disturbance activities causing direct damage and/or loss to marine archaeological and cultural heritage receptors on and below the seabed/coastal zone. | • Marine archaeological and cultural heritage receptors comprising known and potential marine palaeogeographic sites and prehistoric finds;<br>• Known and potential maritime and aviation features in a marine context; and<br>• Coastal and intertidal heritage receptors (including known and potential palaeogeographic sites and prehistoric finds, historic terrestrial, marine and aviation features). | Scoped in | The realistic worst-case scenario represents the maximum area where seabed preparations will be undertaken, with potential for marine archaeological and cultural heritage receptors present on and below seabed or coastal deposits. |
| Construction, operational and decommissioning | Physical disturbance activities including penetration of cable laying as well as repairs and removal. | Physical disturbance activities causing changes to hydrodynamic and sedimentary regimes leading to scour, exposing seabed and shallow buried, marine | Marine archaeological and cultural heritage receptors comprising known and potential maritime and aviation features in a marine context. | Scoped in | The realistic worst-case scenario for changes to the physical environment are presented in Volume 03, Chapter 13: Marine Physical Environment. The following impacts are relevant to Offshore Archaeology and Cultural Heritage receptors:<br>• Pre-installation:<br>– Changes to seabed bathymetry and morphology |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | archaeological and cultural heritage receptors potentially causing increased rates of deterioration. | | | and associated changes to local hydrodynamic, wave and sediment transport processes and wider sandbank receptors.<br>– Increased suspended sediment and deposition of sediment onto the seabed.<br>• Installation:<br>– Changes to beach morphology at the proposed Landfall due to HDD activities.<br>– Changes to seabed bathymetry and morphology.<br>• Operational:<br>– Coastal geomorphological change and associated changes to sediment transport regimes due to presence of Cable protection at HDD exist pits at the Proposed Landfill Site.<br>– Offshore scour of the seabed associated with cable protection measures. |
| Construction, operational and decommissioning | Physical disturbance activities including | Changes to hydrodynamic and sedimentary accretion on the | • Marine archaeological and cultural heritage receptors comprising known and potential | Scoped in | The realistic worst-case scenario for changes to the physical environment are presented in Volume 03, Chapter 13: Marine |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | penetration of cable laying as well as repairs and removal. | seabed, which may bury receptors inhibiting a range of biological, chemical and physical degradation processes. | maritime and aviation features in a marine context. | | Physical Environment. The following impacts are relevant to Offshore Archaeology and Cultural Heritage receptors:<br>• Pre-installation:<br>– Changes to seabed bathymetry and morphology and associated changes to local hydrodynamic, wave and sediment transport processes and wider sandbank receptors.<br>– Increased suspended sediment and deposition of sediment onto the seabed.<br>• Installation:<br>– Changes to beach morphology at the proposed Landfall due to HDD activities.<br>– Changes to seabed bathymetry and morphology.<br>– Increased suspended sediment and deposition of sediment onto the seabed.<br>• Operational:<br>– Coastal geomorphological change and associated changes to sediment |

| UKMS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | transport regimes due to presence of Cable protection at HDD exist pits at the Proposed Landfill Site.<br>– Offshore scour of the seabed associated with cable protection measures. |
| Construction, operational and decommissioning | Physical disturbance activities including penetration of cable laying as well as repairs and removal. | Temporary or permanent change to the setting of marine archaeological and cultural heritage receptors, due to the presence of infrastructure, which may affect the significance of such receptors. | • Marine archaeological and cultural heritage receptors comprising known and potential marine palaeogeographic sites and prehistoric finds;<br>• Known and potential maritime and aviation features in a marine context; and<br>• Coastal and intertidal heritage receptors (including known and potential palaeogeographic sites and prehistoric finds, historic terrestrial, marine and aviation features). | Scoped in | The realistic worst-case scenario represents the MDS and placement that has the potential to affect marine archaeological and cultural heritage receptors present on seabed coastal deposits. |

### 19.7.3 Cumulative and Transboundary Effects

19.7.3.1 The EIA will include a Cumulative Effects Assessment (CEA) to identify where an accumulation of impacts on a receptor could result in the need for mitigation measures.

19.7.3.2 The CEA for Offshore Archaeology and Cultural Heritage will consider the MDS for each of the projects, plans and activities, in line with the methodology outlined in Volume 05, Chapter 32: Approach to Cumulative and Transboundary Effects and Volume 01, Chapter 06: EIA Approach and Methodology. For the purposes of this Chapter, the Study Area forming the Zone of Influence (ZoI) for the CEA is the extent of the UKMS Scoping Boundary, although this could extend further depending on the results of the Marine Physical Environment assessment (Volume 03, Chapter 13: Marine Physical Environment). The proposed ZoI will also be subject of approval from the Archaeological Curator, Historic England

19.7.3.3 Any direct impacts of the UKMS on Offshore Archaeology and Cultural Heritage will likely be within the UKMS where other developments overlap with the UKMS, however, there is also the possibility of indirect impacts caused by other developments beyond the UKMS, for example due to changes to marine physical processes including displacement of seabed sediment. There is also potential for the setting of marine archaeological and cultural heritage receptors and the HSC to be affected by cumulative impacts.

19.7.3.4 For Offshore Archaeology and Cultural Heritage, cumulative interactions may occur with other seabed development including the whole Tarchon Project when considered in combination with the UKMS, other interconnectors, offshore wind farms, oil and gas infrastructure, aggregate licence areas and pipelines.

19.7.3.5 Consideration of whether an inter-related effects assessment is required for Offshore Archaeology and Cultural Heritage, or justification that it is an inherent part of the impact assessment, will be undertaken as part of the EIA process.

19.7.3.6 Transboundary effects are those that extend across international boundaries. For the assessment of potential transboundary effects in relation to marine archaeological and cultural heritage receptors, the following aspects could be applicable:

- Nationality of a shipwreck or aircraft crash site and their associated crews;
- Possible international links regarding the build and use of the wrecked vessel or aircraft; and
- Palaeogeographic receptors which have existed since before modern international boundaries and may have a level of international interest based on their relative scarcity.

19.7.3.7 These transboundary effects will be considered further within the EIA, as appropriate.

19.7.3.8 There are no UKHO, NMHR or Essex HER records within the UKMS Scoping Boundary and located close enough to the EEZ that the site may fall under both jurisdictions. There are, however, several recorded wreck sites for vessels of non-British origin that may have transboundary effects. As further seabed assessment is undertaken for the UKMS, and additional marine archaeological and cultural heritage receptors are identified, this assessment will be updated. For instance, further wreck sites and aircraft crash sites of different nationalities may be identified within the Study Area. All military aircraft crash sites are automatically protected under the *Protection of Military Remains Act* 1986 (HM Government, 1986), which can also be used to protect military vessels.

## 19.8 Assumptions, Limitations and Uncertainties

19.8.1.1 The assessment has been undertaken based on the following assumptions, limitation and uncertainties:

- This Chapter has been collated based on a range of publicly available data and information only. It is assumed that the data collated is accurate. The data will be supplemented with additional data as the EIA process progresses;
- In the absence of data, a precautionary approach has been taken and professional judgement, based on experience of similar linear schemes, has been used where required to inform the scope of the assessment;
- Data used to compile this Chapter comprises elements of secondary information derived from a variety of sources, only some of which have been directly examined for the purposes of this appraisal. The assumption is made that the secondary data, as well as that derived from other secondary sources, are reasonably accurate; and
- The records held by the UKHO, NMHR, Essex HER and the other sources used in this appraisal are not a record of all surviving marine archaeological and cultural heritage receptors, rather a record of the discovery of a wide range of archaeological and historical components of the marine historic environment. The information held within these datasets is not complete and does not preclude the subsequent discovery of further elements of the historic environment that are, at present, unknown. In particular, this relates to buried archaeological features.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 03, Chapter 23: Offshore Infrastructure and Other Sea Users

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00026 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| AIS | Automatic Identification System |
| CEA | Cumulative Effects Assessment |
| CEMP | Construction Environmental Management Plan |
| CCS | Carbon Capture Storage |
| CMS | Construction Method Statement |
| CoP | Construction Programme |
| COLREG | Convention on International Regulations for Preventing Collisions at Sea |
| DCO | Development Consent Order |
| DESNZ | Department of Energy Security and Net Zero |
| DS | Design Statement |
| EC | European Commission |
| ECC | Export Cable Corridor |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| ERCoP | Emergency Response Cooperation Plan |
| ES | Environmental Statement |
| ESCA | European Subsea Cable Association |
| GES | Good Environmental Status |
| ha | Hectare |
| HDD | Horizontal Directional Drilling |
| ICPC | International Cable Protection Committee |
| JNCC | Joint Nature Conservation Committee |
| KIS-ORCA | Kingfisher Information Service - Offshore Renewable Cable |
| km | Kilometre |
| m | Metre |
| $m^2$ | Metre Squared |
| MCA | Maritime and Coastguard Agency |
| MDS | Maximum Design Scenario |
| MEAC | Marine Emergency Action Card |
| MGN | Marine Guidance Note |
| MHWS | Mean High Water Springs |
| MLWS | Mean Low Water Springs |
| MMO | Marine Management Organisation |
| MoD | Ministry of Defence |
| MPS | Marine Policy Statement |
| MW | Megawatt |
| NAVAREA | Navigational Area |
| NAVTEX | Navigational Telex |
| NETS | National Energy Transmission Systems |

| Acronym | Definition |
|---|---|
| NM | Nautical Miles |
| NPS | National Policy Statement |
| NRA | Navigational Risk Assessment |
| NSIP | Nationally Significant Infrastructure Project |
| NSTA | North Sea Transition Authority |
| O&M | Operations and Maintenance |
| OEMP | Operational Environmental Management Plan |
| OREI | Offshore Renewable Energy Installations |
| OWF | Offshore Wind Farm |
| PEIR | Preliminary Environmental Impact Report |
| PEXA | Practice and Exercise Areas |
| PINS | Planning Inspectorate |
| ROV | Remotely Operated Vehicle |
| SOLAS | Safety of Life at Sea |
| SoS | Secretary of State |
| SSS | Side Scan Sonar |
| UK | United Kingdom |
| UKSAP | United Kingdom Storage Appraisal Project |
| UKMS | UK Marine Scheme |
| UNCLOS | United Nations Convention on the Law of the Sea |
| UXO | Unexploded Ordnance |
| VMP | Vessel Management Plan |
| ZOI | Zone of Influence |

# 20. Offshore Infrastructure and Other Sea Users

## 20.1 Introduction

20.1.1.1 This Chapter presents the Offshore Infrastructure and Other Sea Users assessment which will consider the potential significant effects on Offshore Infrastructure and Other Sea Users receptors during the construction, operational, and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Areas used and receptors considered in this Chapter, only the UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. The English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is therefore not considered further for Offshore Infrastructure and Other Sea Users.

20.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Offshore Infrastructure and Other Sea Users baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Offshore Infrastructure and Other Sea Users receptors from the proposed components of the UKMS (as described in Volume 01, Chapter 02: UK Project Description); and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

20.1.1.3 This Chapter should be read in conjunction with:

- Volume 01, Chapter 02: UK Project Description;
- Volume 01, Chapter 06: EIA Approach and Methodology;
- Volume 03, Chapter 13: Marine Physical Environment;
- Volume 03, Chapter 17: Commercial Fisheries;
- Volume 03, Chapter 18: Shipping and Navigation;
- Volume 04, Chapter 24: Socio-economics and Land Use; and
- Volume 04, Chapter 27: Tourism and Recreation.

## 20.2 Study Area

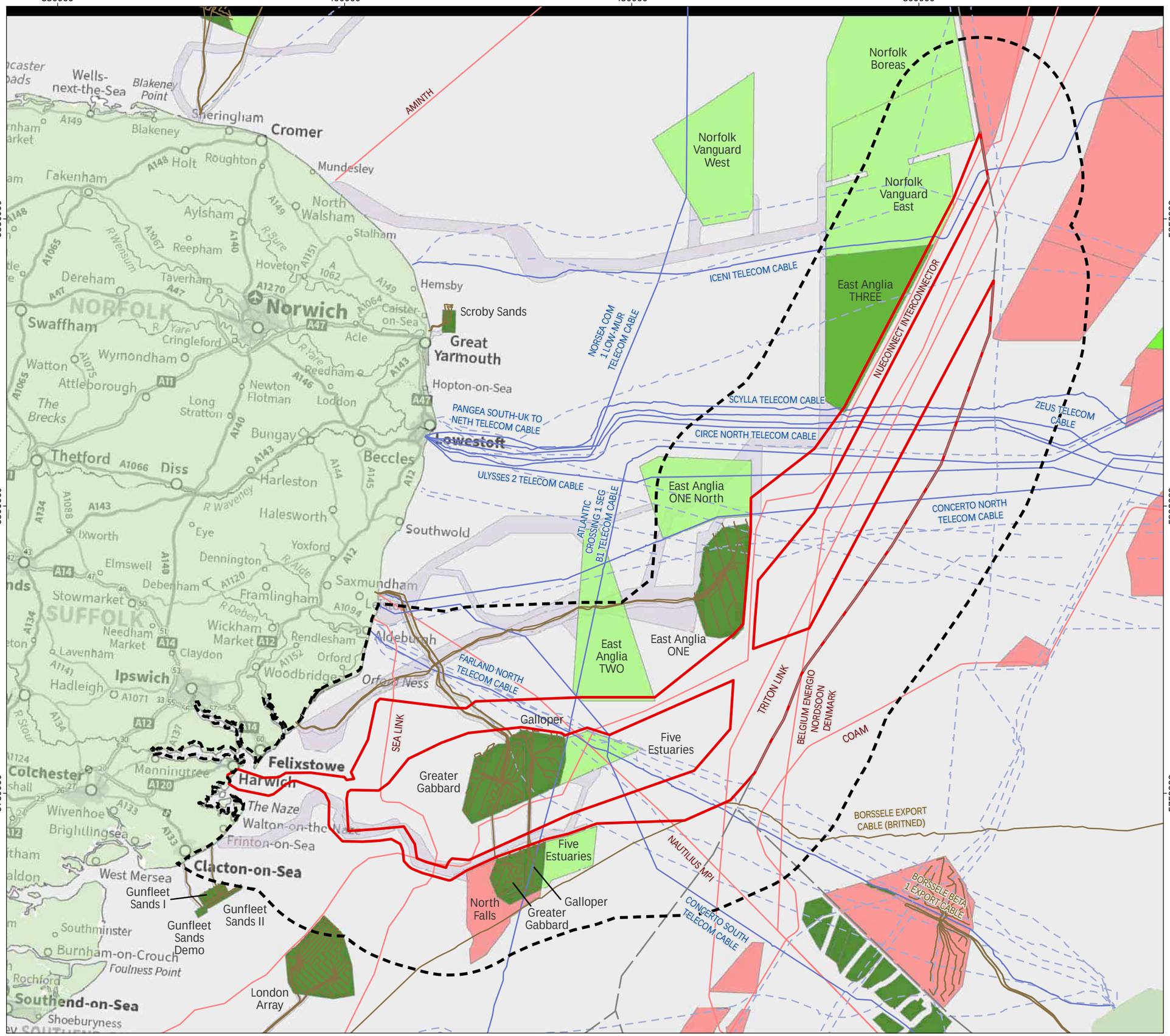
20.2.1.1 For the purposes of this Scoping assessment, the Study Area extends a maximum distance of 16.5 kilometres (km) from the UKMS Scoping Boundary (but does not

include onshore elements[1]), in order to encompass all likely Zones of Influence (ZOI) to relevant receptors. The 16.5 km buffer is the largest spring tidal ellipse for this area and is representative of the maximum area over which suspended sediments may be detected following disturbance as a result of construction activities, and therefore where deposition may occur and subsequently impact Offshore Infrastructure and Other Sea Users receptors. This has been defined using information gathered during the cable routing process, supported by desk-based research and an extensive search for relevant receptors. This is a precautionary approach, and a ZOI will subsequently be developed that will be informed by the marine physical environment assessment of tidal excursions and sediment plume pathways (see Volume 03, Chapter 13: Marine Physical Environment), resulting in a reduced ZOI for this pathway at the next stage of assessment. This ZOI also encompasses the vessel displacement study area of 5 nautical miles (nm) which is considered sufficient to characterise shipping and navigation features in proximity to the UKMS. This approach has been justified through professional judgement and is consistent with precedent set by previous offshore assessments (e.g. Eastern Green Link 3 and Eastern Green Link 4 (National Grid Electricity Transmission, 2024)). The Offshore Infrastructure and Other Users Study Area is shown on Figure 20-1 and Figure 20-2.

[1] The proposed UKMS intends to use trenchless such as Horizontal Directional Drilling (HDD) (or a similar trenchless technique) at the proposed landfall location, avoiding any work in the beach and coastline. The breakouts for the cable will be entirely in the subtidal environment. Therefore, it is not considered that there will be direct impacts to any beach users.

# Tarchon Interconnector Project
Scoping Report

## Offshore Wind Farms and Subsea Cables




## Legend

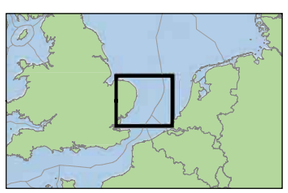
- UK Marine Scheme Scoping Boundary
- Offshore Infrastructure and Other Users Study Area
- Exclusive Economic Zones (EEZ) Boundaries

Offshore Wind Farm (Status)

- In Planning
- Consented
- Under Construction
- Operational
- Offshore Wind Farm Cable Corridor

Subsea Cable (Type - Status)

- Power - Active
- Power - Proposed (Indicative)
- Telecom - Active
- Telecom - Decommissioned



## Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 — 20 — 40 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
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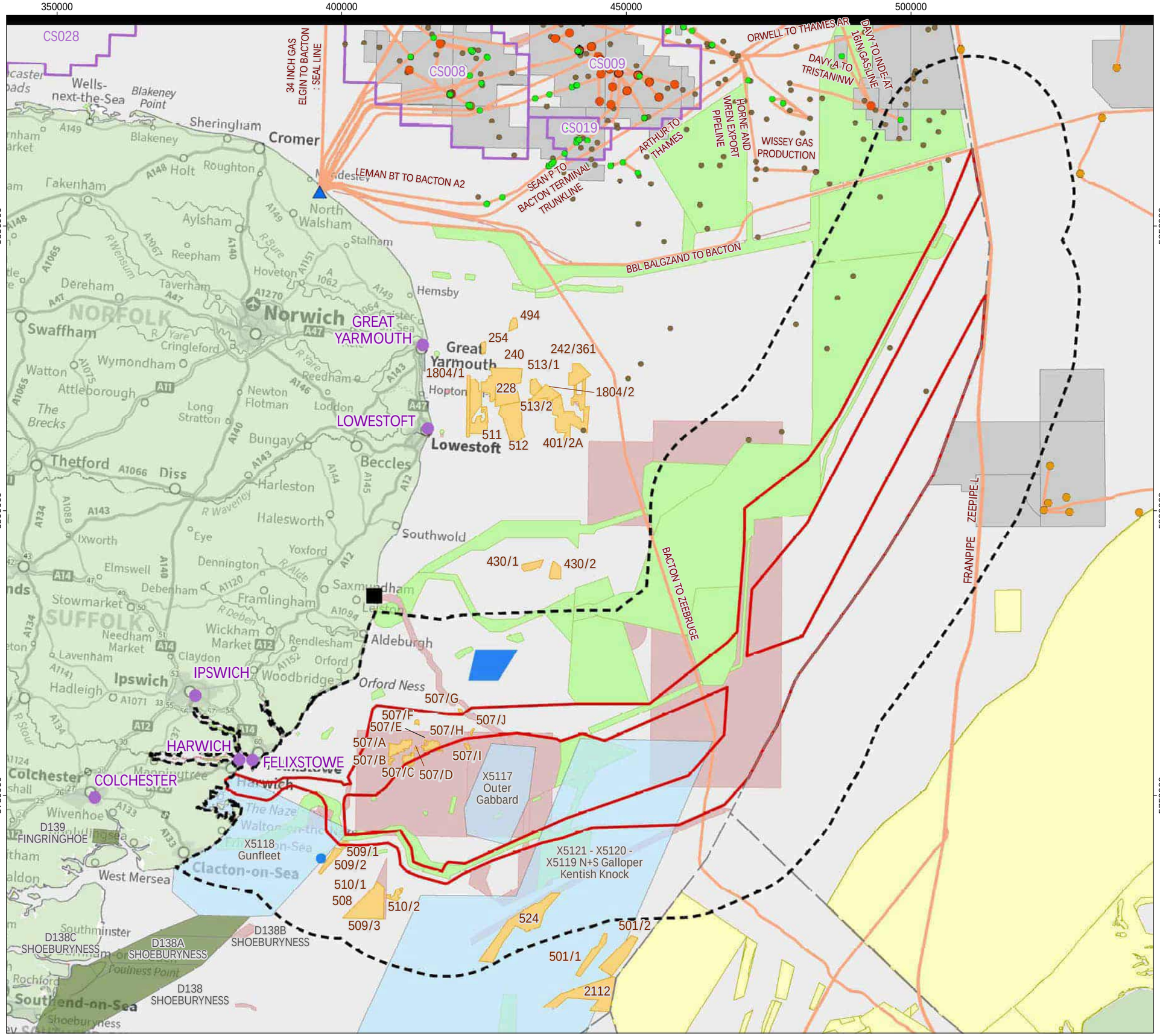

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Figure 20-1

Figure Reference: Tarchon_Scoping_IOU_Fig20-1_OWFs_Cables_v6

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# TARCHON

## Tarchon Interconnector Project
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## Other Infrastructure

### Legend

- UK Marine Scheme Scoping Boundary
- Offshore Infrastructure and Other Users Study Area
- Exclusive Economic Zones (EEZ) Boundaries
- Port
- Sizewell Nuclear Power Station
- Bacton Gas Terminal
- Oil and Gas Platform
- Oil and Gas Subsea Point
- Oil and Gas Well
- OIl and Gas Installation (Netherlands)
- Subsea Gas Pipeline
- Oil and Gas Licensed Block
- Aggregate Site Agreements
- Aggregate Extraction Areas (European)
- Open Disposal SIte
- Closed Disposal Site
- Munitions Disposal Site
- Carbon Storage Licence Area
- Practice and Exercise Area (PEXA) - Army
- Practice and Exercise Area (PEXA) - Navy



### Notes
Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 — 20 — 40 km

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| Scale | Date | Drawn by | Checked by | Approved by |
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Figure 20-2

Figure Reference: Tarchon_Scoping_IOU_Fig20-2_OtherInfrastructure_v5

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## 20.3 Relevant Legislation, Panning Policy and Guidance

20.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context describes the overall regulatory and planning policy context for the UKMS. Key legislation, policy and guidance relevant to the Offshore Infrastructure and Other Sea Users assessment associated with the construction, operational, maintenance and decommissioning phases of the UKMS is presented below.

### 20.3.2 Legislation

20.3.2.1 The following legislation is relevant to Offshore Infrastructure and Other Sea Users assessment:

- The Marine and Coastal Access Act 2009 (HM Government, 2009) 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. Key elements of the Act that are relevant to this Chapter include:
  - Creation of the Marine Management Organisation (MMO) - to operate as the marine planning authority on behalf of UK Government in English territorial waters and UK offshore waters such as marine licensing for sea usage and enforcement of marine legislation;
  - A Strategic Marine Planning System - to agree future marine objectives and priorities that encourage and facilitate a more efficient, sustainable use and protection of marine resources, regulating the activities and behaviours of sea users; and
  - Coastal and Estuarine Management - Integrated Coastal Zone Management (ICZM) links existing sectoral policies and bylaws associated with the coastal and estuarine environment to minimise conflict and promote its sustainable use, regulating the activities and behaviours of sea users.
- The Marine Strategy Regulations 2010 (HM Government, 2010) transposes the Marine Strategy Framework Directive (European Commission, 2008) into UK legislation. Essentially these regulations ensure that human activities within the marine environment remain compatible with achieving or maintaining Good Environmental Status (GES). It regulates the activities and behaviours of sea users and offshore infrastructures;
- United Nations Convention on the Law of the Sea (UNCLOS) 1982, (United Nations, 1982); Paragraph 5 protects submarine cables and pipelines and requires the Applicant to have due regard for any existing cables or pipelines and not prejudice the possibility of repair.
- The Submarine Telegraph Act 1885 (HM Government, 1885) - This act protects submarine telegraph cables.
- Energy Act 2004 (HM Government, 2004) – This act sets out the basic requirements for applying a safety zone to be placed around or adjacent to Offshore Renewable Energy Installations (OREIs).

### 20.3.3 National Policy Statements

20.3.3.1 There are four National Policy Statements (NPSs) that contain policy relevant to the UKMS. Applicants should ensure that their applications and any supporting documents are consistent with the guidance in the NPSs. Details of policies contained in the NPSs relevant to offshore infrastructure and other sea users are detailed below along with a brief description of how the UKMS has and is intending to show compliance as the Development Consent Order (DCO) application progresses:

20.3.3.2 Paragraph 4.5.9 of the Overarching National Policy Statement for Energy (EN-1) (NPS EN-1) (Department for Energy Security and Net Zero, 2025), encourages applicants to "*refer to Marine Plans at an early stage to inform any project planning. To avoid less favourable locations as a result of other uses or environmental constraints*." The Applicant has detailed their approach to this in Volume 01, Chapter 05: Legislative and Planning Policy Context.

20.3.3.3 Paragraph 5.3.36 of NPS-EN-1 sets out that "*new energy infrastructure does not unacceptably impede or compromise the safe and effective use of any defence assets*." The impact of Tarchon on PEXA has been scoped into the assessment.

20.3.3.4 Paragraph 5.16.4 of NPS EN-1 advises that: "*The applicant should make early contact with the relevant regulators, including the local authority, the Environment Agency and Marine Management Organisation, where appropriate, for relevant licensing and environmental permitting requirements*." The Applicant has undertaken consultation with several stakeholders, including local authorities, the Environment Agency and MMO which is detailed in Volume 01, Chapter 04: Approach to Consultation and will continue to do so during the DCO application process.

20.3.3.5 Paragraph 2.8.167 of National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (Department for Energy and Net Zero, 2025) states "*There may be constraints imposed on the siting or design of offshore wind farms because of the presence of other offshore infrastructure, such as oil and gas, Carbon Capture, Usage and Storage (CCUS), co-location of electrolysers for hydrogen production, marine aggregate dredging, telecommunications, or activities such as aviation and recreation."* The Applicant has sensitively designed the proposed Scoping Boundary to avoid impacts to all other users as much as practicable, this approach is presented in Volume 01, Chapter 03: Approach to Alternatives.

20.3.3.6 Paragraph 2.8.170 of NPS EN-3 states "*Prior to the submission of an application involving the development of the seabed, applicants should engage with key stakeholders, such as The Crown Estate and statutory bodies to ensure they are aware of any current or emerging interests on or underneath the seabed which might give rise to a conflict with a specific application*". The Applicant will engage with The Crown Estate and all consultation bodies through this scoping exercise and will continue to do so during the DCO process.

20.3.3.7 Paragraph 2.8.171 of NPS EN-3 states "*Applicants should engage with interested parties in the potentially affected offshore sectors early in the pre-application phase of the proposed offshore wind farm, with an aim to resolve as many issues as possible prior to the submission of an application*." The Applicant has undertaken consultation with other projects, including but not limited to North Falls OWF Ltd, Five Estuaries OWF Ltd, NGET and Neuconnect Britain Limited, as is detailed in Volume 01, Chapter 04: Approach to Consultation and will continue to do so during the DCO application process.

20.3.3.8 Paragraph 2.8.172 of NPS NPS-EN-3 states "*Where a potential offshore wind farm is proposed close to existing operational offshore infrastructure or has the potential to affect activities for which a licence has been issued by government, the applicant should undertake an assessment of the potential effects of the proposed development on such existing or permitted infrastructure or activities*." Consideration of the impacts of other users will be considered in the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES) in the Offshore Infrastructure and Other Sea Users Chapter.

20.3.3.9 Paragraph 2.8.173 of NPS EN-3 states "*Applicants are encouraged to work collaboratively with those other developers and sea users on co-existence/co-location opportunities, shared mitigation, compensation and monitoring where appropriate*". The Applicant has engaged with other projects within the region and will continue to do so this will ensure effective co-existence and minimises the potential for cumulative impacts between the scheme and other developments.

20.3.3.10 Paragraph 2.11.18 of NPS for Electricity Networks Infrastructure (NPS-EN-5) (Department for Energy Security and Net Zero, 2025) states "*For offshore transmission infrastructure, the Secretary of State should consult Section 2.8 of EN-3 in relation to the detailed consideration of matters which may be important and relevant for their decision*." The Applicant has considered relevant provisions in EN-3 above.

20.3.3.11 Paragraph 2.13.23 of NPS for Electricity Networks Infrastructure (NPS-EN-5) states "*onshore connection locations for offshore transmission must seek to minimise environmental and other impacts, both onshore and in the marine environment and including to local communities*". The site selection and alternatives at the scoping stage has been considered and is presented in Volume 01, Chapter 03: Approach to Alternatives.

20.3.3.12 The National Policy Statement for Ports (NPSP) (Department for Transport, 2012) provides the framework for decisions on proposals for new port development, recognising the essential role they play in the UK economy and the wider economic benefits that they can bring. Whilst the UKMS does not propose new port development, it does interact with Harwich and Felixstowe ports. Under Section 104 (2)(d) of the PA 2008, it is considered that relevant content within the NPSP is both important and relevant to the SoS decision (HM Government, 2006). The

Applicant has therefore considered the relevant policies within the NPSP as part of this Scoping Chapter.

### 20.3.4 Marine Policy Statements

20.3.4.1 The UK Marine Policy Statement (MPS) (HM Government, 2011) was adopted in 2011 with guidance provided in 2021 (HM Government, 2021), this provides the policy framework for the preparation of marine plans and establishes how decisions affecting the marine area should be made.

20.3.4.2 The UKMS Scoping Boundary falls within the UK marine area covered by the following marine plans. One of the aims of marine planning is to help ensure coexistence between a wide range of other sea users, such as offshore infrastructure and marine tourism and recreation, whilst supporting sustainable development

- South East Inshore Marine Plan (HM Government, Marine Management Organisation, 2021);
- East Inshore Marine Plan and East Offshore Marine Plan (HM Government, Government, Marine Management Organisation, 2014).

20.3.4.3 The Marine Plans are relevant to the UKMS as they are location-specific, and define an approach for marine-based developments, that promotes the minimisation and mitigation of adverse impacts to marine infrastructures, with specific reference to telecommunication cables.

20.3.4.4 On the other hand, the East Inshore Marine Plan and East Offshore Marine Plan policy aims to protect dredging and disposal activities, in or adjacent to licensed dredging and disposal areas, against other new proposals (e.g. cables or built infrastructure), that would compromise the continued access to ports and harbours for the shipping industry. This is considered a crucial means to maintain the access to ports and harbours and to meet various objectives within the marine plans.

### 20.3.5 Local Planning Policy

20.3.5.1 The relevant local policies for the UKMS Offshore Infrastructure and Other Sea Users are:

- Tendring District Local Plan 2013-2033 and Beyond (Tendring District Council, 2022);
  - Policy SPL 3 Sustainable Design: Part C: ‘Impacts and Compatibility. New development should be compatible with surrounding uses and minimise and adverse environmental impacts’. This policy highlights how impacts to neighbours or other users should be minimised and mitigated where appropriate.
- Essex and South Suffolk Shoreline Management Plan (Royal Haskoning, 2010);
  - Management Unit B: Hamford Water. ‘The overall intent of management for Hamford Water is to sustain and support the viability of communities, tourism and commercial activities while creating new intertidal habitats and

focusing flood risk management on frontages where it is most needed'. This shoreline management plan general aim for the section of shoreline where the UKMS makes landfall is an important consideration for the development so that the above user groups and management plan aims are considered within this Chapter and the EIA as a whole for this UKMS.

### 20.3.6 Guidance

20.3.6.1 The following Conventions and National Guidance are also of relevance for the Offshore Infrastructure and Other Sea Users assessment:

- Convention on International Regulations for Preventing Collisions at Sea (COLREGs), International Maritime Organization (IMO), 1972/77 (IMO, 1977);
- International Convention for the Safety of Life at Sea (SOLAS) Chapter V, Safety of Navigation, (IMO, 1974);
- Maritime and Coastguard Agency (MCA) Marine Guidance Note (MGN) 654 (Merchant and Fishing) Safety of Navigation: Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response and its annexes (Maritime and Coastguard Agency, 2021);
- International Cable Protection Committee (ICPC) Recommendation No.2 - Cable Routing and Reporting Criteria for Cables in Proximity to Others (International Cable Protection Committee, 2015);
- International Cable Protection Committee (ICPC) Recommendation No.3. Cable and Oil Pipeline/ Power Cables Crossing Criteria (International Cable Protection Committee, 2014);
- International Cable Protection Committee (ICPC) Recommendation No.13. The Proximity of Offshore Renewable Wind Energy Installations and Submarine Cable Infrastructure in National Waters (International Cable Protection Committee, 2013);
- The European Subsea Cable Association (ESCA) Guideline No.6. 'The Proximity of Offshore Renewable Energy Installations & Submarine Cable Infrastructure in UK Waters' (The European Subsea Cable Association, 2012); and
- The European Subsea Cable Association (ESCA) Guideline No.19. Marine Aggregate Extraction Proximity Guidelines (The European Subsea Cable Association, 2017).

## 20.4 Consultation and Engagement

20.4.1.1 4.2.3.1 The Applicant recognises the importance of an integrated and co-ordinated approach to developing the UKMS alongside other infrastructure projects in the same or nearby areas. This approach also includes collaboration with other marine users, such as commercial fisheries and shipping and navigation activities. Co-ordination with other projects within the region, ensures effective co-existence and minimises the potential for cumulative impacts between the UKMS and other developments.

20.4.1.2 Consultation relating to Offshore Infrastructure and Other Sea Users has been undertaken with the following consultees (consultation will continue with these and additional consultees following Scoping, as detailed within Volume 01, Chapter 04: Approach to Consultation):

- Marine Management Organisation (MMO);
- Joint Nature Conservation Committee (JNCC);
- Environment Agency;
- Natural England;
- Maritime Coastguard Agency (MCA);
- Trinity House;
- Harwich Haven Harbour Authority (HHA);
- Hutchison Port;
- Port of London Authority (PLA);
- Various fisheries organisations;
- North Falls Offshore Wind Farm Limited regarding the North Falls Offshore Wind Farm Project;
- Five Estuaries Offshore Wind Farm Limited regarding the Five Estuaries Offshore Wind Farm Project;
- National Grid Electricity Transmission in relation to the Norwich to Tilbury Project;
- National Grid Electricity Transmission in relation to the Sea Link Project; and
- NeuConnect Britain Limited in relation to the NeuConnect Project.

20.4.1.3 Scoping responses, when delivered as part of the Scoping Opinion, will be incorporated to the PEIR and ES.

20.4.1.4 Responses on the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council and Tendring District Council. No relevant comments associated to Offshore Infrastructure and Other Sea users have been received.

## 20.5 Baseline Environment

### 20.5.1 Baseline Conditions

20.5.1.1 Where offshore infrastructure has been considered, this Chapter includes those installations that are operational, consented or currently known to be in planning at the time of writing.

20.5.1.2 Key data sources used for the scoping assessment have included, but are not limited to, those listed below. These sources will be built on through the next stages of the proposed UKMS:

- The Crown Estate Asset Maps: including offshore wind farms, wind export cable agreements, carbon capture and storage sites, and marine aggregate digital data (The Crown Estate, 2025);
- Defra: ‘Magic Maps’ (Defra, 2025);
- North Sea Transmission Authority (NSTA): Digital data for oil and gas infrastructure and blocks (North Sea Transition Authority, 2025);
- MMO Public Register for marine licences and MMO Evidence Projects (Marine Management Organisation, 2025);
- MMO 'Explore Marine Plans' data portal, including spatial data for marine aggregates, aquaculture, dredging and disposal sites, and recreational areas (Marine Management Organisation, 2025);
- MMO Mapping recreational sea anglers in English waters (Marine Management Organisation, 2019);
- UK Hydrographic Office: Military Practice and Exercise Areas (UK Hydrographic Office, 2025);
- The Kingfisher Information Service - Offshore Renewable Cable (KIS-ORCA): Marine cables digital data (Kingfisher Information Service, 2025);
- Automatic Identification System (AIS) vessel traffic data (Marine Traffic, 2025);
- Publicly available academic journals and online reports; and
- Relevant ESs.

### 20.5.2 Study Area

20.5.2.1 This section provides an overview of offshore infrastructure and other sea users activities within the Study Area, including (but not limited to):

- Offshore renewable energy projects, including offshore windfarms;
- Oil and gas exploration and operations;
- Carbon capture and storage;
- Mineral and aggregate extraction;
- Dredging and disposal sites;
- Military areas;
- Pipeline and cable crossing; and
- Aquaculture.

20.5.2.2 Regarding other sea users, several recreational activities have been identified in the region. These are largely seasonal, typically taking place in the inshore waters, creeks, and rivers that flow into the Outer Thames Estuary. Anecdotal evidence suggests that diving activities also occur within the broader Outer Thames Estuary, though they are generally concentrated closer to shore and often associated with known shipwreck sites. These activities are considered in further detail in Volume 04, Chapter 27: Tourism and Recreation, and are not included in the Offshore Infrastructure and Other Sea Users Chapter.

20.5.2.3 Similarly, characterisation of shipping patterns and navigational usage of the area, including access to relevant ports, harbours and related channels were captured in Volume 03, Chapter 17: Commercial Fisheries and Volume 03, Chapter 18: Shipping and Navigation, as applicable.

### Renewable Energy Infrastructure

20.5.2.4 There are several offshore windfarms, with export cables, located within the Study Area, as shown in Figure 20-1. Those which are active, consented or in planning within the Study Area are listed in Table 20-1.

**Table 20-1: Operational and planned OWF located within the Study Area**

| Name | Operator | Status | Distance from the UKMS Scoping Boundary[2] |
|---|---|---|---|
| Five Estuaries | RWE Renewables | Consented | 0 km to Array (adjacent) Export Cable Corridor (ECC) intersects |
| North Falls | RWE Renewables and SSE Renewables | In Planning | 0 km to Array (adjacent) and ECC intersects |
| Galloper | RWE Renewables | Operational | 0 km to Array (adjacent) and ECC intersects |
| East Anglia ONE | ScottishPower Renewables | Operational | 0 km to Array (adjacent) and 2 km to ECC |
| East Anglia ONE North | ScottishPower Renewables | Consented | 0 km to Array (adjacent) and 14 km to ECC |
| East Anglia TWO | ScottishPower Renewables | Consented | 0 km to Array (adjacent) and 10 km to ECC |
| East Anglia THREE | ScottishPower Renewables | Under construction | 0 km to Array (adjacent) and intersects ECC |
| Norfolk Vanguard East | RWE Renewables | Consented | 0 km to Array (adjacent) and 16 km to ECC |
| Greater Gabbard | SSE Renewables and RWE Renewables | Operational | 0 km to Array (adjacent) and ECC intersects |
| London Array | London Array Ltd (joint venture between RWE, Orsted, CDPQ) | Operational | 13 km (Array) to the south |

[2] Where '0 km' is referenced, this means that a proportion of the OWF asset lies adjacent to the UKMS Scoping Boundary

| Name | Operator | Status | Distance from the UKMS Scoping Boundary[2] |
|---|---|---|---|
| Norfolk Boreas | RWE Renewables | Consented | 13 km (Array) |
| Gunfleet Sands I | Orsted | Operational | 16 km southwest to Array, 10 km to ECC |
| Gunfleet Sands II | Orsted | Operational | 16 km southwest |

20.5.2.5 There were no offshore wave and tidal projects occurring within the Study Area, hence no further consideration is proposed in the ES and they are scoped out of the assessment.

### Other Energy Infrastructure

20.5.2.6 There are no active oil and gas surface installations identified within the Study Area. There are four oil and gas licence blocks identified within the Study Area, the closest being 7 km from the UKMS Scoping Boundary. There are three closed or abandoned oil and gas wells located within the Study Area. There is an active oil and gas subsea structure (Judy Norpipe Wye tie-in) and three active gas pipelines identified in the Study Area two of which do not intersect the UKMS Scoping Boundary, as shown in Figure 20-2 and listed in Table 20-2.

**Table 20-2: Oil and gas assets located within the Study Area**

| Name | Operator | Status | Distance from UKMS Scoping Boundary |
|---|---|---|---|
| Licence Block 50/26 | Orcadian Energy | Licence Active | 7.19 km |
| Licence Block 53/5b | Perenco Oil & Gas Spirit Energy | Licence Active | 10.55 km |
| Well 53/05b-5 | Perenco UK Limited | Abandoned | 12.32 km |
| Licence Block 53/5a | Perenco Oil & Gas Spirit Energy | Licence Active | 12.63 km |
| Licence Block 49/30b | Orcadian Energy | Licence Active | 12.88 km |
| Well 53/05b-7 | Perenco UK Limited | Closed/Not in Use | 13.56 km |
| Well 53/05a-3 | Perenco UK Limited | Abandoned | 15.76 km |
| Judy Norpipe Wye Tie In (Wye part of Norpipe Pipeline) | Concophilips | Active | Intersects |
| BBL Balgzand to bacton Pipeline | BBL Company | Active | Intersects |
| Bacton to Zebrugge PL1339 pipeline | Fluxyz Europe | Active | Intersects |
| Davy Host to Davy East Pipeline and Umbilical | Perenco UK Limited | Active | 13.5 km |

20.5.2.7 Regarding Carbon Capture and Storage (CCS), no facilities or licences were identified within the Study Area. The nearest CCS storage licences (CS026 and CS027) awarded to Shell UK limited are 30 km and 39 km away from the Scoping Boundary respectively. Hence, CCS projects are not proposed for further consideration in the EIA and are scoped out.

20.5.2.8 There are no active Nuclear Power Plants located within the UKMS Scoping Boundary. The closest facility (Sizewell) is situated along the Suffolk coast, located circa 19 km northeast of the Study Area. The Bradwell nuclear power station located on the Dengie peninsula at the mouth of the River Blackwater is undergoing decommissioning. Given the distance of these facilities, no direct or indirect interactions are expected with the UKMS and no further assessment of nuclear projects is proposed within the EIA and as such is scoped out.

#### Mineral and Aggregate Extraction

20.5.2.9 Marine aggregates play an important role in supply of aggregates nationally. Demand is predominantly for use in construction projects, and the east marine plan areas typically account for over half of the total extraction of marine aggregates (by weight) at a national level (HM Government, Government, Marine Management Organisation, 2014).

20.5.2.10 There are a number of aggregate extraction areas located in the Thames Estuary, operated by a number of companies. Within the Study Area, seven of these sites overlap with the UKMS Scoping Boundary (see Figure 20-2). Table 20-3 below lists the aggregate extraction areas located within the Study Area. No mineral extraction sites were identified within the Study Area.

**Table 20-3: Mineral and aggregate extraction located within the Study Area**

| Name | Company | Distance from UKMS Scoping Boundary |
|---|---|---|
| Longsand (509/1) | Tarmac Marine Ltd | Intersecting |
| Shipwash (507/F) | CEMEX UK Marine Ltd | Intersecting |
| Shipwash (507/H) | CEMEX UK Marine Ltd | Intersecting |
| Shipwash (507/A) | CEMEX UK Marine Ltd | Intersecting |
| Shipwash (507/J) | CEMEX UK Marine Ltd | Intersecting |
| Shipwash (507/C) | CEMEX UK Marine Ltd | Intersecting |
| Shipwash (507/B) | CEMEX UK Marine Ltd | Intersecting |
| Shipwash (507/E) | CEMEX UK Marine Ltd | Intersecting |
| Shipwash (507/D) | CEMEX UK Marine Ltd | Intersecting |
| Shipwash (507/G) | CEMEX UK Marine Ltd | <1km |
| Longsand (509/2) | Tarmac Marine Ltd | <1km |
| Shipwash (507/L) | CEMEX UK Marine Ltd | <1km |
| Longsand (510/2) | CEMEX UK Marine Ltd | 3km |
| Longsand (509/3) | Tarmac Marine Ltd | 5km |
| Longsand (508) | Britania Aggregates Ltd | 5km |

| Name | Company | Distance from UKMS Scoping Boundary |
|---|---|---|
| Longsand (510/1) | CEMEX UK Marine Ltd | 5km |
| Thames D (524) | DEME Building Materials Ltd | 9km |

### Dredging and Disposal sites

20.5.2.11 There are a substantial number of existing maintenance dredging and disposal licenses within the East marine plan areas, largely associated with maintaining navigational channels and ports and harbours development and disposal sites associated with OWF and subsea cable proposed activities. Three main dredging sites have been identified in the Study Area, including Harwich navigation channel, Stour River harbour dredging site, and Orwell River dredging area (see Figure 20-2) (HM Government, Government, Marine Management Organisation, 2014) and disposal sites including, Inner Gabbard, Copperas and Inner Gabbard East located within 5 km of the scoping boundary. These are listed in Table 20-4, to note licensed disposal sites associated with OWF or Interconnectors are not listed but are shown on Figure 20-2, eight of these intersect the UKMS Scoping Boundary.

**Table 20-4: Dredging and disposal sites within the Study Area**

| Site | Name | Status | Distance from UKMS Scoping Boundary |
|---|---|---|---|
| TH027 | Harwich Haven | Open | <1 km |
| TH230 | Horsey | Open | 1.5 km |
| TH217 | Erwarton Track | Open | 3 km |
| TH216 | Copperas | Open | 3.5 km |
| TH052 | Inner Gabbard | Open | 5 km |
| TH034 | River Orwell | Open | 7 km |
| TH213 | Wrabness Beach | Open | 7 km |
| TH 225 – TH228 | Levington Sites 1-4 | Open | 7-8 km |
| TH056 | Inner Gabbard East | Open | 9 km |

### Military Areas

20.5.2.12 Several military practice zones, specifically Navy Practice and Exercise Areas (PEXAs) for surface fleet take place in the Outer Thames region and have been identified in the Study Area (X5121 Galloper Kentish Knock, X5117 Outer Gabbard and X5118 Gunfleet, as shown on Figure 20-2, these all intersect the UKMS Scoping Boundary. All UKMS activities crossing PEXAs will be discussed and agreed upon with the Military of Defence (MoD) prior to commencement. A disused munitions disposal site (managed by the MOD) is also located in the Offshore Infrastructure and Other Sea Users Study Area as shown on Figure 20-2.

### Subsea cables

20.5.2.13 The UKMS Scoping Boundary will cross a number of service cables. Existing cables include NeuConnect Interconnector Cable (currently under construction), and a number of subsea telecommunications cables. All of the cables located within the Study Area are listed in Table 20-5 below and shown in Figure 20-1.

**Table 20-5: Subsea Cables located within the Study Area**

| Name | Type | Status | Distance from UKMS Scoping Boundary |
|---|---|---|---|
| Aldeburg - Domburg 4 | Telecommunication Cable | Decommissioned | Intersecting |
| UK - NL 3 | Telecommunication Cable | Decommissioned | Intersecting |
| UK - NL 4 | Telecommunication Cable | Decommissioned | Intersecting |
| UK - NL 5 | Telecommunication Cable | Decommissioned | Intersecting |
| UK - NL 6 | Telecommunication Cable | Decommissioned | Intersecting |
| UK - NL 7 | Telecommunication Cable | Decommissioned | Intersecting |
| UK NL 8 | Telecommunication Cable | Decommissioned | Intersecting |
| UK - NL 10 | Telecommunication Cable | Decommissioned | Intersecting |
| UK NL 11 | Telecommunication Cable | Decommissioned | Intersecting |
| Sea Link | Power Cable | In planning | Intersecting |
| NeuConnect | Power Cable | Under construction | Intersecting |
| Belgium Energio Nordsoon Denmark | Power Cable | In planning | Intersecting |
| Nautilus MPI | Power cable | In planning | Intersecting |
| Atlantic Crossing 1 Seg B1 Telecom cable | Telecommunication Cable | Active | Intersecting |
| Concerto North Telecom Cable | Telecommunication Cable | Active | Intersecting |
| Farland North | Telecommunication Cable | Active | Intersecting |
| Iceni Telecom cable | Telecommunication Cable | Active | Intersecting |
| PANGEA Segment 2 | Telecommunication Cable | Active | Intersecting |
| Ulysses 2 | Telecommunication Cable | Active | Intersecting |

| Name | Type | Status | Distance from UKMS Scoping Boundary |
|---|---|---|---|
| Circe 1 North | Telecommunication Cable | Active | Intersecting |
| Hermes North | Telecommunication Cable | Decommissioned | Intersecting |
| Rembrandt 1 | Telecommunication Cable | Decommissioned | Intersecting |
| UK - NL 12 | Telecommunication Cable | Decommissioned | Intersecting |
| UK - NL 14 | Telecommunication Cable | Decommissioned | Intersecting |
| Scylla | Telecommunication Cable | Active | Intersecting |
| Concerto South | Telecommunication Cable | Active | Intersecting |
| Zeus | Telecommunication Cable | Active | Intersecting |
| Borssele | Power Cable | Active | < 1 km |
| BT North Sea (SEA-ME-WE3) | Telecommunication Cable | Decommissioned | 2 km |
| COAM | Power Cable | Proposed | 5 km |
| UK - Germany 5 | Telecommunication Cable | Decommissioned | 7 km |
| UK - Germany 5 | Telecommunication Cable | Decommissioned | Intersecting |

#### Aquaculture

20.5.2.14 The Outer Thames Shellfish Waters and Walton Backwaters Shellfish Waters are within the Study Area (Defra, 2025). These areas are designated under the Water Framework Directive (2000) to support the growth and health of shellfish populations, and ensure shellfish harvested from these areas (including multiple mussel, oyster, and clam species (Marine Management Organisation, 2025) are safe for human consumption by maintaining high water quality standards. Following a desk top review no aquaculture sites/users have been identified within the Study Area, therefore this is scoped out from further assessment.

20.5.2.15 Detail on non-aquaculture commercial shellfisheries such as whelk and cockle are detailed in Volume 03, Chapter 17: Commercial Fisheries.

### 20.5.3 Future Baseline Conditions

20.5.3.1 The Offshore Infrastructure and Other Sea Users Chapter within the PEIR and ES will include an outline of the likely evolution of the baseline environment without the implementation of the UKMS.

20.5.3.2 The baseline environment is not static and will exhibit some degree of change over time, with or without the UKMS in place. Therefore, when undertaking impact assessments, it will be necessary to place any potential effects in the context of the envelope of change that might occur naturally over the lifetime of the UKMS. This future baseline will be defined for the purposes of the EIA.

20.5.3.3 However, for the purposes of assessment, projects that are in planning or where development may reasonably occur have been included in the list of key receptors identified in the baseline Section 20.5 and will be assessed. Therefore, a level of uncertainty and precaution must be attributed to any receptors that are not currently operational, as there is no complete certainty that they will be developed or developed exactly according to the information currently available.

20.5.3.4 For offshore wind energy there is potential for significant growth in offshore wind energy, with the UK Government setting out plans to increase offshore wind capacity to 43- 50 Gigawatts (GW) of energy installed by 2030 (The UK Government, 2023). However, these users have largely been considered within this Scoping Report where enough information is publicly available and therefore, the future baseline scenario is unlikely to change substantially from that presented in Section 20.5. Nevertheless, it is acknowledged that the future baseline is subject to gradual change as new developments and plans are proposed and progressed, and the baseline will evolve with or without the UKMS being in place.

20.5.3.5 The oil and gas industry is undergoing an energy transition as renewable energy production expands. These changes will be influenced by a range of factors, including oil and gas infrastructure decommissioning, ongoing exploration and development and the repurposing of existing infrastructure. While this transition is expected to continue, the rate of oil and gas production remains uncertain and depends on a number of unpredictable factors, such as investment levels, available reserves and environmental considerations. New oil and gas blocks were awarded under the 32nd licensing rounds located north of the Study Area, offshore of the Norfolk coast.

20.5.3.6 No future carbon capture and storage facilities were identified within the boundaries of the Study Area at the time of reporting. Based on current information it is not expected that the Study Area will cross future carbon capture and storage facilities (HM Government, Government, Marine Management Organisation, 2014).

20.5.3.7 Based on current information it is not currently expected that any future wave and tidal projects will occur within the Study Area (HM Government, Government, Marine Management Organisation, 2014).

20.5.3.8 Dredging activities play a vital role in both maintaining and expanding the development of the Ports and Harbours of the Outer Thames Estuary region. When considered alongside port expansion proposals and the growth in offshore renewable energy developments, there is scope for expansion for the sector. Increased shipping activity and larger vessels are likely to result in applications to dredge deeper, wider and more frequently. This will have a direct effect on the

amount of disposal material to be managed at sea and a possible increase in the number of disposal licence applications (HM Government, Government, Marine Management Organisation, 2014).

20.5.3.9 The South East Inshore, East Inshore and South East Offshore Marine Plans identify 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 (HM Government, Government, Marine Management Organisation, 2014). There may be growth in this area given the Outer Thames and Walton Backwaters Shellfish Areas have been identified as areas that are protected to ensure the quality and sustainability of shellfish production (Defra, 2025).

20.5.3.10 A study published in 2019 identified areas of aquaculture potential in English waters (Marine Management Organisation, 2019) 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. Aquaculture is increasingly viewed as a sector with potential for development, particularly at the local level. In this context, the plan identifies strategic areas for sustainable aquaculture production, several of which intersect with the defined Study Area (HM Government, Government, Marine Management Organisation, 2014).

## 20.6 Assessment Methodology

20.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology of this Scoping Report and will consider the construction, operational, and decommissioning phases of the UKMS. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

20.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on ornithological receptors arising from the construction, operational, and decommissioning phases of the UK Scheme. This approach defines:

- **Sources and impacts**: The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

20.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

20.6.1.4 The proposed assessment methodology will also cover relevant embedded mitigation to minimise any potential significant effects on the receptors scoped into the assessment.

20.6.1.5 Existing and planned licensable activities will be identified and a timeline for future activities associated with the existing or planned infrastructure will be established.

Where proposed developments are identified which have limited levels of information or certainty, potential effects will not be fully determined and therefore they will not be assessed.

20.6.1.6 Aligning with other Chapters, such as Volume 03, Chapter 18: Shipping and Navigation or Volume 04, Chapter 31: Other Environmental Topics, for the ES the information from both direct and indirect impacts will be incorporated. The magnitude of an impact will be drawn from the reasonable worst-case scenario of the UKMS, while the sensitivity of a receptor will be based on the capacity to accommodate any change and the value or importance of each receptor.

20.6.1.7 The process for determining the significance of effects is a two-stage process that involves defining the magnitude of the potential impacts and the sensitivity of the receptors. This Section describes the criteria that will be applied in the EIA to assign values to the magnitude of potential impacts and the sensitivity of the receptors.

### 20.6.2 Sensitivity of Receptor

20.6.2.1 The sensitivity criteria for Offshore Infrastructure and Other Sea Users receptors are provided in Table 20-6 and reflect the nature of the receptors value to the economy.

**Table 20-6: Definitions of sensitivity**

| Sensitivity | Definition |
|---|---|
| Very high | • Receptor or the activities of the receptor is of very high value to the local, regional or national economy;<br>• The receptor or the activities of the receptor is very vulnerable to impacts that may arise from the Tarchon Project; and/or<br>• The receptor cannot adapt or tolerate change; recoverability is very slow and/or very costly. |
| High | • Receptor or the activities of the receptor is of high value to the local, regional or national economy;<br>• The receptor or the activities of the receptor is generally vulnerable to impacts that may arise from the Tarchon Project; and/or<br>• The receptor cannot adapt or tolerate change; recoverability is moderately slow and/or moderately costly. |
| Medium | • Receptor or the activities of the receptor is of moderate value to the local, regional or national economy;<br>• The receptor or the activities of the receptor is somewhat vulnerable to impacts that may arise from the Tarchon Project; and/or<br>• The receptor has limited adaptability or can tolerate minor changes; it has moderate to high levels of recoverability. |
| Low | • Receptor or the activities of the receptor is of low value to the local, regional or national economy;<br>• The receptor or the activities of the receptor is not generally vulnerable to impacts that may arise from the Tarchon Project; and/or |

| Sensitivity | Definition |
|---|---|
| | • The receptor can easily adapt to change and has high recoverability. |
| Very Low | • Receptor or the activities of the receptor is of negligible value to the local, regional or national economy;<br>• The receptor or the activities of the receptor is not vulnerable to impacts that may arise from the Tarchon Project; and/or<br>• The receptor has high adaptability and tolerance to change and high recoverability. |

### 20.6.3 Magnitude of Impact

20.6.3.1 The magnitude criteria for Infrastructure and Other Sea Users are provided in Table 20-7 and are based upon the technical expert's experience and judgement. In determining magnitude, each assessment will consider the spatial extent, duration, frequency, and reversibility of impact and these are outlined within the magnitude section of each assessment of impact.

**Table 20-7: Definitions of magnitude**

| Magnitude | Definition |
|---|---|
| High | • Total loss of ability to carry on activities or total change to key elements/features of baseline conditions;<br>• Impact is of extended large scale physical extent;<br>• Long-term duration (i.e. total lifetime of UKMS);<br>• Frequency of repetition is high or continuous over a long period of time; and/or<br>• Effect may result in damage to the asset which results in permanent or long-term inoperability or complete loss of access. |
| Medium | • Loss or alteration to one or more portions of key components or elements of the baseline conditions;<br>• Physical extent of impact over a medium scale/spatial footprint and is over a moderate and medium-term duration;<br>• Frequency of repetition is medium to high or continuous for a moderate period of time; and/or<br>• Effect may result in partial loss of damage to the asset which results in medium term inoperability or minor loss of access. |
| Low | • Minor shift away from baseline, leading to a reduction in level of activity that maybe undertaken;<br>• Physical extent of impact is local to medium spatial extent and has a short to medium term duration (i.e. construction period);<br>• Frequency of repetition is low to continuous; and/or<br>• Effect is unlikely to occur or is at low frequency/low intensity, if it does it is reversible. |
| Very Low | • Very slight change from baseline condition;<br>• Physical extent of impact is highly localised and short-term duration, with full and rapid recovery expected;<br>• Frequency of repetition is very low; and/or |

| Magnitude | Definition |
|---|---|
| | • Effect is very unlikely to occur, if it does it is reversible. |

### 20.6.4 Significance of Effect

20.6.4.1 By assigning and combining magnitude and sensitivity criteria, the overall effect significance on Infrastructure and Other Sea Users receptors will be determined as shown in Table 20-8**.**

20.6.4.2 To ensure consistency across topics, a matrix approach has been adopted to present judgements made on the significance of an effect. This terminology is outlined in Table 20-8 below.

**Table 20-8: Significance Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | High | Medium | Low | Very Low |
| Very High | Major | Major | Moderate | Minor |
| High | Major | Moderate | Minor | Negligible |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Minor | Minor | Negligible | Negligible |
| Very Low | Negligible | Negligible | Negligible | Negligible |

20.6.4.3 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

20.6.4.4 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UKMS design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UKMS.

## 20.7 Potential Effects and Mitigation

20.7.1.1 The preliminary assessment of potentially significant effects of the UKMS on other infrastructure and sea users is reported in this section and considers the construction, operational and decommissioning phases of the UKMS. Details of each of these stages are set out in Volume 01, Chapter 06: EIA Approach and Methodology.

### 20.7.2 Embedded Mitigation and Good Practice Measures

20.7.2.1 The UKMS will be adhering to the mitigation hierarchy in all instances to prioritise avoidance. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as "*mitigation measures that have been incorporated into a project's description and form an inherent part of the project's*

*design*" (ISEP, 2024). The embedded mitigation measures which are relevant to this Chapter are presented below.

20.7.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UKMS development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

20.7.2.3 As the UKMS advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective, and compliant with regulatory standards and stakeholder input.

20.7.2.4 In addition to the measures described in Volume 01, Chapter 02: UK Project Description, the following have been proposed at this stage, as they represent standard practice on an international regulatory basis:

- Development of and adherence to a Construction Environmental Management Plan (CEMP) and an Operational Environmental Management Plan (OEMP). This will ensure that all construction and operational phase activities are carried out in a manner that minimises their impact on the environment, and that mitigation measures contained in the Application, or as otherwise agreed, are fully implemented. This may help mitigate impacts on other users of the sea;
- Development and implementation of a Vessel Management Plan (VMP). The VMP will:
  - Set out the types and numbers of vessels engaged in the works;
  - Define project vessel coordination measures and interactions with SUNK VTS/HHA Harbour Control;
  - Include indicative transit routes;
  - Give detail on concurrent working procedures which will set out details of the project vessels and their movements during the survey, seabed preparation, construction and O&M phases in sensitive area;
  - Detail specific navigational safety hazards such as the DWRs and how they will be managed;
- Local mariners and fishermen's organisations will be made fully aware of proposed works through the on-going use of a Fisheries Liaison Officer (FLO) during the construction phase. This may help mitigate impacts on other users of the marine environment by providing information on the UKMS;
- Development of and adherence to an Emergency Response Cooperation Plan (ERCoP) to identify measures in place to support emergency response. Prepared in line with MCA guidance. This would help mitigate impacts of other users of the sea in an emergency response;
- All debris or waste materials arising during construction and O&M will be considered in relation to appropriate waste disposal methodology. This may help mitigate impacts to other users of the sea by minimising environmental impact;

- A Marine Emergency Action Card (MEAC) will be prepared to inform emergency response. This could help mitigate impacts to other users of the sea and is closely tied to safe vessel movements;
- Timely and efficient communication will be given to sea users including local mariners and fishermen's organisations in the area via Notices to Mariners, Kingfisher Bulletins, KIS-ORCA, Radio Navigational Warnings, and Navigational Telex (NAVTEX). This will be issued before the commencement of any survey, seabed preparation works, construction or O&M works. This will help mitigate impacts to other users of the sea; and
- 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.

Additional good practice and mitigation measures associated to the effects of the UKMS towards shipping and marine and coastal recreational use has been described in Volume 03, Chapter 17: Commercial Fisheries, Volume 03, Chapter 18: Shipping and Navigation, and Volume 04, Chapter 27: Tourism and Recreation.

### 20.7.3 Scoping Assessment

20.7.3.1 The potential for the UKMS to result in significant effects is summarised in Section 20.9, and takes into account the embedded and control and management measures described below.

20.7.3.2 The identified sources and impact pathways for Offshore Infrastructure and Other Sea Users that could occur as a result of the UKMS construction, O&M, and decommissioning include:

- Direct disturbance and damage impacts from construction activities and vessels to existing infrastructure could be caused during construction phase by:
  - pre-installation clearance of obstacles and debris;
  - sand wave sweeping;
  - cable installation and cable lay; and
  - cable protection (e.g. rock placement, concrete mattresses).
- Direct disturbance and damage impacts from O&M activities and vessels to existing infrastructure could be caused during O&M phase by:
  - presence of operational cable;
  - cable repair or replacement; and
  - cable protection (e.g. rock placement, concrete mattresses).
- Direct disturbance and damage impacts from decommissioning phase activities and vessels to existing infrastructure could be caused during decommissioning phase by:
  - removal of cable from seabed;

  - removal of cable protection (e.g. rock placement, concrete mattresses); and/or
  - abandonment of cable in seabed;
- Displacement or access impacts could be caused by the above activities and use of safety zones during the construction, O&M and decommissioning activities.
- Indirect displacement or disturbance caused by temporary increases in suspended solid concentrations and deposition may occur during the above activities in the construction and decommissioning phases.
- Indirect displacement or disturbance may occur caused by increased vessel movements during the above activities during the construction, O&M and decommissioning activities.

20.7.3.3 Potential impact pathways that have been considered in this scoping assessment are identified in Section 20.9. The impact pathways that have been scoped in have been done so on a precautionary basis, subject to further design information once available.

20.7.3.4 For direct disturbance and damage impacts, the ZOI for this pathway is limited to the areas where there is a direct overlap with the UKMS Scoping Boundary. For direct displacement impacts the ZOI for this pathway for effect is limited to the UKMS boundary plus a 1 km buffer (to account for a 500 m safety zone associated with the UKMS, and a 500 m safety zone associated with another marine user). Other plans/projects outside of this ZOI are not scoped into the assessment for this effect.

20.7.3.5 The ZOI for the sediment deposition/suspended sediment concentrations (SSC) pathway for effect at Scoping stage is 16.5 km which is the spring tidal excursion (see Volume 03, Chapter 13: Marine Physical Environment). This is representative of the maximum area over which suspended sediments may be detected following disturbance as a result of construction/decommissioning activities, and therefore where deposition may occur. This is a precautionary approach, and a ZOI will subsequently be developed that will be informed by the physical processes assessment of tidal excursions and sediment plume pathways. This ZOI will provide a more refined area in which impacts associated with deposition have to potential to occur.

20.7.3.6 For impacts associated with vessel displacement, the ZOI extends 5 NM from the Scoping Boundary this is consistent with the approach used in Volume 03, Chapter 18: Shipping & Navigation and is based on standard practice for shipping and navigation assessment Study Areas.

**Table 20-9: Elements Scoped In and Out**

| UKMS Phase(s) | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction, operational and decommissioning | • Pre-installation clearance of obstacles and debris.<br>• Sand wave sweeping;<br>• Cable installation and cable laying activities;<br>• Cable repair and replacement;<br>• Presence of cable/cable protection;<br>• Cable removal from seabed; and<br>• Cable protection removal. | Direct disturbance and damage impacts to existing infrastructure from UKMS activities and vessels. | • OWF and ECC<br>• Subsea cables<br>• Mineral and Aggregate extraction<br>• Dredging and Disposal<br>• PEXA | In | Installation of buried infrastructure such as cables and entry/exit points of trenchless techniques (such as HDD), may result in overlap with other seabed users (e.g. aggregates, windfarms and corresponding export cables, subsea cables, pipelines), potentially causing damage and disturbance. Potential impacts may arise from the crossing of navigation channels, particularly where future dredging may be required to accommodate vessels with greater draft. Such activities could jeopardize the continued or future use of these channels if the infrastructure restricts deepening or alters navigational safety. Navigation risk is assessed within Volume 03, Chapter 18: Shipping and Navigation. |
| Construction, operational and decommissioning | • Pre-installation clearance of obstacles and debris.<br>• Sand wave sweeping;<br>• Cable installation and cable laying activities; | Direct disturbance and damage impacts to existing infrastructure from UKMS activities and vessels. | • Nuclear<br>• Aquaculture<br>• CCS | Out | There are no nuclear, aquaculture or CCS sites within the Study Area and therefore no pathway for effect. |

| UKMS Phase(s) | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | • Cable repair and replacement;<br>• Presence of cable/cable protection;<br>• Cable removal from seabed; and<br>• Cable protection removal. | | | | |
| Construction, operational and decommissioning | • Presence of UKMS vessels and use of safety zones. | Displacement or access impacts associated with UKMS activities and use of advisory safety zones. | • OWF and ECC<br>• Subsea cables<br>• Mineral and Aggregate extraction<br>• Dredging and Disposal<br>• PEXA | In | The Tarchon Project construction, operational and decommissioning phase activities, will require the use of vessels Safety Zones. This may impact on the activities of other users with particular consideration of the displacement or access impacts.<br><br>This affects user groups both in close proximity to the UKMS and those user groups with existing transit routes through the UKMS Scoping Boundary. |
| Construction, operational and decommissioning | • Presence of UKMS vessels and use of safety zones. | Displacement or access impacts associated with UKMS and use of advisory zones | • Nuclear<br>• Aquaculture<br>• CCS | Out | There are no nuclear, aquaculture or CCS sites within the Study Area and therefore no pathway for effect. |
| Construction and decommissioning | • Pre-installation clearance of obstacles and debris. | Indirect displacement or disturbance caused by temporary | • Dredging and Disposal | In | The effects of sediment deposition or increased SSC caused by construction and decommissioning activities are relevant to other user groups where it |

| UKMS Phase(s) | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | • Sand wave sweeping;<br>• Cable installation and cable laying activities;<br>• Cable repair and replacement;<br>• Cable removal from seabed; and<br>• Cable protection removal. | increases to sediment deposition/SSC during construction and decommissioning phase | | | may cause a disruption to their activities, this is likely to affect user groups in close proximity to the UKMS. For the UKMS, this impact is relevant to dredging and disposal operations, whereby increased sediment deposition may disrupt or impede existing dredging or disposal operations (Impacts on Tourism and Recreation (recreational diving) receptors is considered in Volume 04, Chapter 27: Tourism and Recreation).The assessment will be informed by Volume 03, Chapter 13: Marine Physical Environment for assets within the zone of influence of SSC/deposition impacts. |
| Construction and decommissioning | • Pre-installation clearance of obstacles and debris.<br>• Sand wave sweeping;<br>• Cable installation and cable laying activities;<br>• Cable repair and replacement;<br>• Cable removal from seabed; and | Indirect displacement or disturbance caused by temporary increases to sediment deposition/SSC during construction and decommissioning phases. | • OWF and ECC<br>• Subsea cables<br>• Mineral and Aggregate extraction<br>• PEXA<br>• Nuclear<br>• Aquaculture<br>• CCS | Out | The effects of sediment deposition are relevant only to other users where it may cause an effect to their activities, this is likely to affect only other users in close proximity to the UKMS, where the sediment deposition may impact on existing operations, therefore this impact is only relevant to dredging and disposal operations and not to other types of users. OWF, subsea cables, mineral and aggregate extraction and PEXA, is therefore scoped out of the assessment. Nuclear, aquaculture and CCS are scoped out as there are no |

| UKMS Phase(s) | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | • Cable protection removal. | | | | sites within the Study Area and therefore no pathway for effect. |
| Construction, operational and decommissioning | • Presence of UKMS vessels | Indirect displacement or disturbance caused by increased UKMS vessel movements causing an impediment to other users. | • OWF and ECC<br>• Subsea cables<br>• Mineral and Aggregate extraction<br>• Dredging and Disposal<br>• PEXA | In | The presence of vessels may lead to temporary navigation disruption, interaction with existing other sea users (e.g. dredging, vessels supporting Offshore windfarms, Military practice areas etc.), and increase in collision risk. This assessment will be informed by the maximum number and types of vessels associated with the construction of the UKMS. The sensitivity of each of the potential receptors will be considered for increased vessel activity. This assessment will also be informed by and draw on, the conclusions of the Volume 03, Chapter 18: Shipping and Navigation and the Navigational Risk Assessment (NRA). |
| Construction, operational and decommissioning | • Presence of UKMS vessels | Indirect displacement or disturbance caused by increased UKMS vessel movements causing an impediment to other users. | • Nuclear<br>• Aquaculture<br>• CCS | Out | There are no nuclear, aquaculture or CCS sites within the Study Area and therefore no pathway for effect. |

### 20.7.4 Cumulative and Transboundary Effects

20.7.4.1 There is the potential for cumulative and transboundary effects to arise as a result of the proposed UKMS and other nearby offshore developments. The methodology assessing these effects is described in Volume 01, Chapter 06: EIA Approach and Methodology, Volume 05, Chapter 32: Approach to Cumulative Effects, and Volume 06, Annex 32-1: Transboundary Screening Matrix.

20.7.4.2 Cumulative effects will be assessed by taking into consideration other relevant developments that are in the Study Area and which have the potential to affect the same receptors. This includes existing developments as well as proposed developments which have a high level of certainty or information available. Where other developments are expected to be completed prior to the construction of the Tarchon Project, and the effects of these developments are fully determined, the effects arising from the developments are considered as part of the baseline and assessed as a receptor but where ongoing operational effects are identified they will also be considered as part of the Cumulative Effects Assessment (CEA).

20.7.4.3 The Offshore Infrastructure and Other Sea Users Study Area extends into the Netherlands and Belgian Exclusive Economic Zones (EEZs). Cumulative interactions may occur with the whole Tarchon Project in combination with the UKMS, as well as from the UKMS on users in the Netherlands and Belgian EEZs. Both will be considered in the CEA. The users identified within the offshore infrastructure Study Area are shown in Table 20-10. These receptors will be assessed in the CEA.

**Table 20-10: Transboundary users identified in the Study Area**

| Name | Type | Country | Status | Distance from UKMS Scoping Boundary |
|---|---|---|---|---|
| A_og_1045 | Aggregate Exploration Zone | Belgium | Active | 12 km |
| PL0186_PR | Pipeline (Statoil ASA) | Netherlands | Active | <1 km |
| PL0187_PR | Pipeline (Statoil ASA) | Netherlands | Active | <1 km |
| 310326 | Pipeline (GASSCO AS) | Norway | Active | <1 km |
| P10c | Oil and Gas Licence Block Jetex Petroleum Ltd. | Netherlands | Active | <1 km |
| P10b | Oil and Gas Licence Block Dana Petroleum Netherlands B.V | Netherlands | Active | 7 km |

| Name | Type | Country | Status | Distance from UKMS Scoping Boundary |
|---|---|---|---|---|
| P08b | Oil and Gas Licence Block Jetex Petroleum Ltd. | Netherlands | Active | 11 km |
| P11b | Oil and Gas Licence Block Dana Petroleum Netherlands B.V | Netherlands | Active | 14 km |
| 326374 | Pipeline (GASSCO AS) | Norway | Active | <1 km |
| Gebied 1 Zuid (1-Z) | OWF | Netherlands | Planned | <1 km |
| Umuiden Ver | OWF | Netherlands | Planned | <1 km |
| Umuiden Ver 2021 – Y-Ver | OWF | Netherlands | Planned | 12 km |

20.7.4.4 A further assessment of cumulative and transboundary effects will be assessed at PEIR and ES.

## 20.8 Assumptions, Limitations and Uncertainties

20.8.1.1 Baseline conditions have primarily been established through a desktop review of a range of official governmental data portals, a limited number of studies and surveys, and information available on non-governmental websites. This Scoping Report is based on a range of publicly available data and assumes this information is accurate. This data will be expanded on during the EIA process.

20.8.1.2 Baseline conditions described in this Chapter rely on the data sources used, and inconsistencies or inaccuracies may exist. No site-specific surveys for other sea users have been undertaken to inform this assessment.

### 20.8.2 Additional Data Sources

20.8.2.1 A more detailed literature review will be developed for the EIA, building upon the high-level outline provided within this Scoping Report. Project-specific survey outputs will be used to enhance the understanding of the baseline conditions.

## 20.9 Summary

20.9.1.1 Potential impact pathways that have been considered in this Scoping exercise are provided in Table 20-9.

20.9.1.2 All impact pathways which currently have the potential to affect Offshore Infrastructure and Other Sea Users have been scoped in. However, the impact pathways which have been scoped in may be further refined at the next stages of the assessment once the UKMS design has been finalised.

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TARCHON



TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 04: UK Scheme Wide

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Volume 06, Annex 22-2: Underwater Sound Assessment Methodology.

# Tarchon Interconnector Project

## Environmental Impacts Assessment Scoping Report

## Volume 04, Chapter 21: Landscape and Visual Impact Assessment

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00027 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| AONB | Area of Outstanding Natural Beauty |
| CEA | Cumulative Effects Assessment |
| DCO | Development Consent Order |
| DTM | Digital Terrain Model |
| EACN | East Anglia Connection Node |
| EIA | Environmental Impact Assessment |
| ELC | European Landscape Convention |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| GLVIA3 | Guidelines for Landscape and Visual Impact Assessment, Third Edition |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| km | Kilometre |
| kV | Kilovolt |
| LCA | Landscape Character Area |
| LCT | Landscape Character Type |
| LEMP | Landscape and Ecological Management Plan |
| LPA | Local Planning Authority |
| LITGN-2024 | Landscape Institute Technical Guidance Note 2024 |
| LVIA | Landscape and Visual Impact Assessment |
| m | Metre |
| MDS | Maximum Design Scenario |
| NCA | National Character Area |
| NCN | National Cycle Network |
| NL | National Landscape |
| NPPF | National Planning Policy Framework |
| NPS | National Policy Statement |
| NSIP | Nationally Significant Infrastructure Project |
| OS | Ordnance Survey |
| PEIR | Preliminary Environmental Impact Report |
| PRoW | Public Right of Way |
| UK | United Kingdom |
| ZTV | Zone of Theoretical Visibility |

# 21. Landscape and Visual Impact Assessment

## 21.1 Introduction

21.1.1.1 This Chapter presents the Landscape and Visual Impact Assessment (LVIA) which will consider the potential significant effects on LVIA receptors during the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). The UK Scheme is formed of both the UK Marine Scheme (UKMS) and the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description).

21.1.1.2 The Landscape and Visual impacts of the UKMS are proposed to be scoped out of the EIA based on the rationale provided in the scoping assessment in Table 21-7. As such, this Chapter refers to the EOS throughout, with the exception of the scoping assessment, where justification for the scoping out of the UKMS is provided.

21.1.1.3 This Chapter of the Scoping Report:

- Provides a summary of the current LVIA baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Landscape and Visual effects receptors from the proposed components of the UKMS and EOS; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

21.1.1.4 This Chapter should be read in conjunction with:

- Volume 01, Chapter 02: UK Project Description; and
- Volume 01, Chapter 06: EIA Approach and Methodology.

21.1.1.5 There are no Annexes associated with this Chapter.

21.1.1.6 Landscape and Visual effects are interrelated with other environmental effects, such as cultural heritage, noise and vibration, and biodiversity, but will be assessed separately to these specialisms. Landscape effects associated with the EOS relate to changes in the fabric, character and quality of the landscape and how it is experienced. Visual effects relate closely to changes within the landscape but also consider changes in people's views and visual amenity as a result of the introduction of the EOS.

21.1.1.7 In assessing the potential for effects on visual amenity, consideration will be given to receptors (people) on land, such as recreational receptors using Public Rights of Way (PRoW), residents and visitors, to cultural or heritage sites which would also likely experience visual effects. The LVIA will also assess effects on terrestrial

receptors at the coast and foreshore who may experience changed seaward views as a result of the EOS, primarily during UK landfall construction works. These effects will be assessed as part of the LVIA, avoiding the need for a separate 'seascape' assessment.

## 21.2 Study Area

21.2.1.1 An Initial LVIA Study Area has been identified for the LVIA (as shown in Figure 21-1 to Figure 21-4). This area has been established based on several factors including, the location and maximum parameters of each EOS element, precedents set by other Nationally Significant Infrastructure Projects (NSIPs) and the area within which potential significant effects may occur using professional judgement. It is referred to as an 'Initial' LVIA Study Area as it is expected that the LVIA Study Area will be refined as the EIA progresses, when further details of the Converter Station site, UK Landfall location and Cable Route are confirmed.

21.2.1.2 As shown in Figure 21-1, the Initial LVIA Study Area for the UK Landfall and Onshore High Voltage Alternating Current (HVAC) and High Voltage Direct Current (HVDC) Cable Routes extends to a 500 metres (m) buffer either side of the onshore Scoping Boundary. The Initial LVIA Study Area also extends to a 5 kilometres (km) radius around the EOS Scoping Boundary where it covers the Area of Search for the Converter Station Site. Together, these composite areas form the Initial LVIA Study Area shown in shown in Figure 21-1.

21.2.1.3 The 5km radius around the EOS Scoping Boundary, where it covers the Area of Search presents a cautionary approach for the Scoping Assessment, measured from the EOS Scoping Boundary and it is expected that this Initial LVIA Study Area will be refined as the EIA progresses. It is considered unlikely that significant effects will arise towards the outer edges of this 5 km radius area and that these are instead, more likely to occur in close proximity to the Converter Station site.

21.2.1.4 The Initial LVIA Study Area has also been defined to include land within the Dedham Vale and Suffolk and Essex Coast and Heaths National Landscapes requiring assessment in the LVIA, which have the potential to afford southerly views over the Stour Estuary towards the EOS (as represented by Viewpoint 10 and Viewpoint 23) (Figure 21-4). The Dedham Vale National Landscape is located approximately 550 m to the north of the EOS Scoping Boundary at its closest point (as represented by Viewpoint 22). The Suffolk and Essex Coast and Heaths National Landscape is located approximately 600 m to the north of the EOS Scoping Boundary at its closest point (as represented by Viewpoint 6).

21.2.1.5 It is considered that potential significant Landscape or Visual effects of the EOS would be unlikely beyond this Initial LVIA Study Area due to intervening distance, surface features such as landform, buildings and woodland, which would screen views and limit the perceptibility of the EOS.

21.2.1.6 The extent of the Initial LVIA Study Area has been informed by a review of the maximum parameters of the EOS, desk-based research, appraisal work

undertaken to date to inform routing and siting (see Section 21.5), knowledge of the area and professional judgement. The Initial LVIA Study Area represents the area within which potentially significant effects of the EOS may arise. Significant effects on Landscape and Visual receptors are anticipated to be more likely to occur within the EOS Scoping Boundary, with potential for significance reducing with distance towards the edges of the Initial Study Area. The Initial LVIA Study Area will be further refined as part of the assessment process to ensure a proportionate approach, focussed on potential significant effects.

TARCHON

# Tarchon Interconnector Project

Scoping Report

## Landscape Designations

605000 610000 615000 620000 625000

235000 230000 225000 220000

Parkland And Gardens Of Giffords Hall

Freston Park

Broke Hall Park

Dedham Vale

Suffolk & Essex Coast & Heaths

Wivenhoe Park

Beth Chatto Gardens

Thorpe Hall

COLCHESTER

TENDRING DISTRICT

BRIGHTLINGSEA

FRINTON-ON-SEA

### Legend

- English Onshore Scheme Scoping Boundary
- Initial LVIA Study Area
- UK Marine Scheme Scoping Boundary
- Parks & Gardens
- National Landscape




### Notes

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Coordinate System: British National Grid

0 2.5 5 km

N

| Scale | Date | Drawn By | Checked By | Approved By |
|---|---|---|---|---|
| 1:80,000 @A3 | 06/03/2026 | KW | GG | MB |

Riverview
A17 The Embankment Business Park
Heaton Mersey
Stockport
SK4 3GN
http://www.apemltd.com
+44 (0) 161 442 8938

APEM

Sheet 1 of 1

**Figure 21-1**

Figure Reference: 405.065965.00001.0003.0 Landscape Designations

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## 21.3 Relevant Legislation, Planning Policy and Guidance

21.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context provides an overview of all relevant legislation and planning policy context. This section refers to legislation, planning policy and guidance relating to the assessment of potential significant effects on Landscape and Visual amenity that may arise from the construction, operation, maintenance and decommissioning of the EOS.

21.3.1.2 The below legislation, policies and guidance were reviewed as part of the scoping exercise, the content and requirements of which have been used to shape and develop the proposed scope of the LVIA.

### 21.3.2 Legislation

21.3.2.1 At an international and national level, the following legislation relevant to Landscape and Visual matters will be referred to within the assessment in the Preliminary Environmental Impact Report (PEIR) and Environmental Statement (ES).

#### The European Landscape Convention

21.3.2.2 The European Landscape Convention (ELC) (Council of Europe, 2000) was signed by the UK Government in 2006 and came into effect in March 2007. The ELC recognises all landscape types, for example urban, rural, coastal, defining it as "*an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.*" It specifically highlights the importance of integrating landscape considerations into areas of policy, to promote protection, management and planning of all landscapes, and supports an appreciation and understanding of the existing landscape baseline. Such understanding is essential for the assessment of landscape effects and analysis of landscape change resulting from the EOS.

21.3.2.3 The ELC promotes an 'all-landscapes approach', founded on the recognition of value in all landscapes. It recognises that the landscape is important as a component of the environment and of people's surroundings in both town and country and whether it is an "*everyday*" landscape or "*outstanding*". The ELC considers landscape as a whole and promotes the equal value of all landscapes (land or marine) from urban to rural areas and whether "*outstanding*" or "*degraded*".

#### National Legislation

21.3.2.4 The applicable legislation includes:

- Section 85 of the Countryside and Rights of Way Act 2000 (HM Government, 2000) which outlines the general duty of public bodies in relation to National Landscapes (NLs), formerly Areas of Outstanding Natural Beauty (AONB), who must seek to further the purpose of conserving and enhancing the natural beauty of the designation;
- Section 89 of the Countryside and Rights of Way Act 2000 (HM Government, 2000) requires a Management Plan to be produced (usually the responsibility

of National Landscape Partnerships or National Landscape Conservation Boards with Local Planning Authorities (LPAs) as key partners) for each NL. Once adopted, these are statutory documents and make an important contribution in the decision-making process by supporting evidence-based decisions on the assessment of landscape effects and nature of change in relation to the EOS. The Suffolk and Essex Coast & Heaths Area of Outstanding Natural Beauty Management Plan 2023-28 (Suffolk Coast & Heaths AONB, 2023) and the Dedham Vale Area of Outstanding Natural Beauty and Stour Valley Project Area Management Plan 2021-26 (The Dedham Vale National Landscape and Stour Valley Partnership, 2025) are the currently adopted management plans;

Natural Environment and Rural Communities Act 2006 (HM Government, 2006) which reinforces the need for integrated assessments that reflect some of the factors which inform landscape value, such as biodiversity assets and the ecological function of a landscape; and

Wildlife and Countryside Act 1981 (as amended) (HM Government, 1981) which relates to the protection of species and habitats and outlines the requirements for mitigation strategies which would influence potential views and the design and visual character of the EOS.

### 21.3.3 National Policy Statements

#### Overarching Policy Statement for Energy NPS EN1 (2025)

21.3.3.1 Part 5.10 of the Overarching National Policy Statement (NPS) for Energy (EN-1) (NPS EN-1) (Department for Energy Security and Net Zero, 2026) refers to the landscape and visual effects of energy projects. The key national planning policy considerations with regards Landscape and Visual matters are summarised as follows.

21.3.3.2 Paragraph 3.1.2 of NPS EN-1 (Department for Energy Security and Net Zero, 2026) recognises that *"It will not be possible to develop the necessary amounts of such infrastructure without some significant residual adverse impacts".* This provides recognition that significant adverse impacts are expected for this kind of infrastructure.

21.3.3.3 Paragraph 5.10.5 of NPS EN-1 (Department for Energy Security and Net Zero, 2026) states that *"Virtually all nationally significant energy infrastructure projects will have adverse effects on the landscape, but there may also be beneficial landscape character impacts arising from mitigation"*. This provides recognition that virtually all NSIPs of this scale and nature are likely to have adverse effects on the landscape and recognises the potential benefits of landscape mitigation proposals.

21.3.3.4 Paragraph 5.10.6 of NPS EN-1 (Department for Energy Security and Net Zero, 2026) goes on to state "*Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate*". This provides

policy recognition that the aim is to minimise harm and provide mitigation through careful siting and design.

21.3.3.5 Paragraph 5.10.8 of NPS EN-1 (Department for Energy Security and Net Zero, 2026) states that: *"The duty to seek to further the purposes of nationally designated landscapes also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. In these locations, projects should be designed sensitively given the various siting, operational, and other relevant constraints. The Secretary of State should be satisfied that measures which seek to further the purposes of the designation are sufficient, appropriate and proportionate to the type and scale of the development"*.

21.3.3.6 Paragraph 5.10.34 of NPS EN-1 (Department for Energy Security and Net Zero, 2026) states that: *"The duty to seek to further the purposes of nationally designated landscapes 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 harming the purposes of designation or to minimise adverse effects on designated landscapes, and such projects should be designed sensitively given the various siting, operational, and other relevant constraints. The fact that a proposed project will be visible from within a designated area should not in itself be a reason for the Secretary of State to refuse consent"*. Both 5.10.8 and 5.10.34 recognise the duty to 'seek to further the purposes' of NLs, which also applies to applications for projects located outside the boundaries of these NLs, which may have impacts within them (i.e. through views/visibility of development in the setting of the NL). The Initial LVIA Study Area includes land within the Dedham Vale and Suffolk and Essex Coast and Heaths National Landscapes, located approximately 550 m and 600 m from the EOS Scoping Boundary, respectively (Figure 21-1). Crucially, paragraph 5.10.34 also makes it expressly clear that so long as the mitigation hierarchy has been applied appropriately in accordance with the national policy, consent may be granted even where a proposed project is visible from within a designated area.

21.3.3.7 Paragraph 5.10.14 of NPS EN-1 (Department for Energy Security and Net Zero, 2026) states that: *"The Secretary of State 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".* This refers specifically to visual effects on local residents and judgements about visual impacts on local residents must be weighed against the benefits of the project.

21.3.3.8 Paragraphs 5.10.16 to 5.10.25 of NPS EN-1 (Department for Energy Security and Net Zero, 2026) set out expectations of the Applicant's assessment of Landscape and Visual amenity. Of note, Paragraph 5.10.16 (Department for Energy Security and Net Zero, 2026) advises that "*The applicant should carry out a landscape and visual impact assessment and report it in the ES*". The LVIA will be carried out and reported in the ES, with due reference to published landscape character assessments, in order to assess the degree of change against the existing landscape baseline environment. The LVIA will also set out how Landscape and

Visual have been mitigated through siting, 'good design' and the use of landscape mitigation plans.

#### NPS for Electricity Networks Infrastructure (NPS EN-5) (2025)

*21.3.3.9* Paragraph 2.2.8 of NPS EN-5 (Department for Energy Security and Net Zero, 2025) states that *"There will usually be a degree of flexibility in the location of the development's associated infrastructure such as substations, and applicants should consider carefully their location, as well as their design".*

*21.3.3.10* Paragraph 2.2.9 of NPS EN-5 (Department for Energy Security and Net Zero, 2025) states that: *"In particular, the applicant should consider such characteristics as the local topography, the possibilities for screening of the infrastructure and/or other options to mitigate any impacts".*

*21.3.3.11* Paragraph 2.2.10 of NPS EN-5 (Department for Energy Security and Net Zero, 2025) states that applicants *must "have regard to the desirability of preserving natural beauty" …. and …do what [they] reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside".*

*21.3.3.12* Paragraph 2.9.9 of NPS EN-5 (Department for Energy Security and Net Zero, 2025) states that *"New substations, sealing end compounds (including terminal towers), and other above-ground installations that serve as connection, switching, and voltage transformation points on the electricity network may also give rise to adverse landscape and visual impacts."*

*21.3.3.13* Paragraph 2.11.5 of NPS EN-5 (Department for Energy Security and Net Zero, 2025) states that *"Nationally designated landscapes have specific statutory purposes. The Secretary of State should have special regard to nationally designated landscapes, where the general presumption in favour of overhead lines should be reversed to favour undergrounding. In addition, the Secretary of State must seek to further the purpose(s) of designated landscapes when making decisions which affect land within the designated area. EN-1 (Section 5.10) and paragraphs 2.9.7 to 2.9.26 above have further guidance on this requirement."*

### 21.3.4 National Planning Policy Framework (NPPF, February 2025)

21.3.4.1 Although the NPPF is not directly applicable to NSIPs, NPS EN-1 confirms that "The Secretary of State should consider the guidance in the NPPF… where appropriate".

21.3.4.2 Paragraph 11 of the NPPF (Ministry of Housing, Communities and Local Government, 2025) sets out the fundamental principle of this document: that there is a presumption in favour of sustainable development. All development that is in accordance with the development plan should be approved "*without delay*" and that "*where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date" permission should be granted for development "unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the*

*policies in the Framework taken as a whole, having particular regard to key policies for directing development to sustainable locations, making effective use of land, securing well-designed places and providing affordable homes, individually or in combination.*"

21.3.4.3 Paragraph 105 relates to rights of way and access, stating that these should be "*protected and enhanced*". It is noted that better facilities should be provided for users of rights of way, for example by "*adding links to existing rights of way including National Trails*".

21.3.4.4 Paragraph 131 also states that "*the creation of high quality, beautiful and sustainable buildings and places is fundamental to what the planning and development process should achieve*".

21.3.4.5 In relation to landscape, paragraph 135 of the NPPF states that "*Planning policies and decisions should ensure that developments (a) will function well and add to the overall quality of the area (b) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping; and (c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change"*.

21.3.4.6 Paragraph 187 (a) of the NPPF states that the planning system, "*should contribute to and enhance the natural and local environment by [inter alia] …(a) protecting and enhancing valued landscapes*"; and (b) by "*recognising the intrinsic character and beauty of the countryside*".

21.3.4.7 Paragraph 188 states that the planning system should "*distinguish between the hierarchy of international, national and locally designated sites*".

21.3.4.8 Paragraph 189 states that *"great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and National Landscapes which have the highest status of protection in relation to these issues*".

### 21.3.5 Guidance

21.3.5.1 In addition to the approach and guidance (of general relevance) outlined in Volume 01, Chapter 06: EIA Approach and Methodology, the assessment of effects on Landscape and Visual receptors will also comply with the following guidance:

- Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3) (Landscape Institute and IEMA, 2013);
- Visual Representation of Development Proposals Technical Guidance Note 06/19 (Landscape Institute, 2019);
- Assessing Landscape Value Outside National Designations Technical Guidance Note 02/21 (Landscape Institute, 2021);
- Visual Representation of Windfarms: Version 2.2 (NatureScot, 2017);
- An Approach to Landscape Character Assessment (Natural England, 2014a)

### 21.3.6 Local Planning Policy

21.3.6.1 Tendring District Council is in the process of reviewing the Local Plan and has published a Preferred Options Consultation Document (Tendring District Council, 2026), which is not yet adopted, however its progress will be monitored during the preparation of the LVIA.

21.3.6.2 The relevant local development plan policies for the LVIA are summarised as follows.

21.3.6.3 Within the Tendring District Local Plan 2013-2033 and Beyond (Section 1) North Essex Authorities' Shared Strategic Section 1 Plan (Tendring District Council, 2021), Policy SP7 – Place Shaping Principles is relevant to this Chapter as the policy ensures development responds positively to local character and context, to preserve and enhance the quality of existing places and their environments. The policy also seeks to make sure development protects and enhances assets of historical or natural value.

21.3.6.4 Within Tendring District Local Plan 2013-2033 and Beyond (Section 2) (Tendring District Council, 2021), the following policies are relevant to LVIA:

Policy SPL3 – 'Sustainable Design' requires new development to "*respect or enhance local landscape character, views, skylines, landmarks, existing streets, open spaces and other locally important features*". The policy also states that the design and layout of development should maintain or enhance "*important existing site features of landscape, ecological, heritage or amenity value*";

Policy HP3 – 'Green Infrastructure' seeks to ensure all new development includes and protects existing Green Infrastructure in the local area;

Policy PPL2 – 'Coastal Protection Belt' states that the Council will "*protect the open character of the undeveloped coastline and refuse planning permission for development which does not have a compelling functional or operational requirement to be located there*";

Policy PPL3 – 'The Rural Landscape' advises that "*The Council will protect the rural landscape and refuse planning permission for any proposed development which would cause overriding harm to its character or appearance*"; and

Policy PPL6 – 'Strategic Green Gaps' seeks to protect Strategic Green Gaps in order to retain the separate identity and prevent coalescence of settlements.

21.3.6.5 Within the Ardleigh Neighbourhood Plan 2020 – 2033 (Ardleigh Parish Council, 2024), the following policies are relevant to LVIA matters:

Policy EP – 'Natural, Built & Historic Environment' ensures that the design is of a high quality and pays particular attention to impact on important built and landscape features.

## 21.4 Consultation and Engagement

21.4.1.1 Non-statutory consultation was carried out between the 10 March and 07 April 2025. Responses on the non-statutory consultation (as described in Volume 01,

Chapter 04: Approach to Consultation) have been received from Babergh and Mid Suffolk District Councils, Essex County Council, Suffolk County Council and Tendring District Council. Where comments relevant to LVIA have been provided, these are summarised and responded to in Table 21-1.

Table 21-1: Non-Statutory Consultation Responses - Landscape and Visual Amenity

| Consultee | Summary of Comment | How Matter will be Addressed |
|---|---|---|
| Essex County Council | Essex County Council express concerns over the Converter Station in the Dedham Vale and advise that this is assessed along with a cumulative assessment.<br><br>Expectation that assessment considers Technical Guidance Note 02-21 ‘Assessing the Value of Landscape Outside National Designations’ and the landscape character baseline is informed by the Landscape Character Assessment of the Essex Coast (2002).<br><br>Essex County Council state that the assessment should consider sequential visual effects on the England Coast Path (Jaywick to Harwich).<br><br>Essex County Council also state that *“Essex LCA should provide overarching framework for the baseline study, with reference to Tendring Landscape Character Assessment Volume 1 and 2 and Landscape Character Assessment of the Essex Coast for additional local landscape characteristic and qualities. Localised landscape studies (1:2500 scale) to be undertaken for areas surrounding proposed substation.”* | The assessment will consider the effects from Dedham Vale and will include an assessment of representative viewpoints located within the NL. The ES will include a cumulative assessment which will include consideration of the combined impact of other developments/projects along with the EOS (see also Volume 05, Chapter 32: Approach to Cumulative Effects).<br><br>Consultation will be held with Essex District Council early in the assessment process to inform detailed baseline survey and data collection and refinement of the location of representative viewpoints that will form the basis of the visual assessment. This will include viewpoints chosen to represent potential views of the Converter Station from sensitive visual receptors. Initial representative viewpoint locations are provided in Figure 21-4.<br>The assessment will be carried out with due regard to Technical Guidance Note 02-21 ‘Assessing Landscape Value Outside National Designations’ (Landscape Institute, 2021) and relevant published landscape character assessments, including reference to the Landscape Character Assessment of the Essex Coast (SAIL (Schema d'Amenagement Integre du Littoral) and Essex County Council, 2005) and the Tendring Landscape Character Assessment Volume 1 and Volume 2 (Tendring District Council, 2001).<br><br>Work to establish the Jaywick to Harwich section of the King Charles III England Coast Path is currently taking place. The path will be assessed as part of Viewpoint 1 |

| Consultee | Summary of Comment | How Matter will be Addressed |
|---|---|---|
| | | (West End Promenade (PRoW Footpath 33 Harwich), Upper Dovercourt) as well as within sequential views.<br><br>The classifications within the Essex Landscape Character Assessment will be used as the basis of the landscape character assessment and will be supplemented where appropriate with reference to the Tendring District Landscape Character Assessment (Tendring District Council, 2001), the updated Tendring Landscape Character Assessment (if available in early 2026) and Landscape Character Assessment of the Essex Coast (SAIL (Schema d'Amenagement Integre du Littoral) and Essex County Council, 2005). In addition, site-based analysis will supplement the above character documents, enabling local landscape features to be identified and inform the baseline landscape character analysis. |
| Tendring District Council | Concern over the policies relating to the NLs and their setting, and no prior engagement with the National Landscape Partnership team.<br><br>Concerns over the size of the areas of land identified for the potential location of the Converter Station.<br><br>Tendring District Council also states that an updated landscape character assessment is due to be published and that the document is to be used within the assessment and site selection process. | The ES will include a cumulative assessment which will include consideration of the combined impact of developments/projects along with the EOS (see also Volume 05, Chapter 32: Approach to Cumulative Effects).<br><br>The assessment will consider the policies and special qualities of the two NLs identified within the Initial LVIA Study Area. The assessment will include a landscape assessment in relation to the special qualities of the NLs and a visual assessment including representative viewpoints located within each of the NLs.<br><br>Consultation will be held with Tendring District Council and National Landscape Partnerships early in the assessment process to inform detailed baseline survey and data collection and refinement of the location of |

| Consultee | Summary of Comment | How Matter will be Addressed |
|---|---|---|
| | | representative viewpoints that will form the basis of the visual assessment.<br><br>The assessment will consider the effects of the EOS, including the Converter Station, on Landscape and Visual amenity and include representative viewpoints from sensitive visual receptors, such as residential receptors and recreational receptors using the Public Rights of Way (PRoW) network, and also the effects on landscape character by due reference to the relevant published landscape character assessments.<br><br>It is acknowledged that Tendring District Council will be publishing an updated landscape character assessment and reference will be made to the document if available. |
| Babergh and Mid Suffolk District Councils | Concerns relating to the potential visual effects of the onshore elements of the EOS on the landscape of Babergh District Council, including the setting of a NL and the cumulative effects of the EOS with other projects in the area. | The LVIA will consider the effects on views from the two NLs identified within the Initial LVIA Study Area. The LVIA will include an assessment of representative viewpoints located within each of the NLs and relevant Special Qualities (including the setting) of each NLs.<br><br>Consultation will be held with Babergh District Council and Mid Suffolk District Council early in the assessment process to inform a detailed baseline survey and data collection and refinement of the location of representative viewpoints that will form the basis of the visual assessment.<br><br>The ES will include a cumulative assessment which will include consideration of the combined impact of |

| Consultee | Summary of Comment | How Matter will be Addressed |
|---|---|---|
| | | developments/projects along with the EOS (see also Volume 05, Chapter 32: Approach to Cumulative Effects). |

21.4.1.2 Consultation will be undertaken with Natural England, the relevant LPAs which fall within the Study Area and organisations representing the NLs. This will help to inform the detailed baseline survey and data collection; 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. This will include the following consultees:

- Natural England;
- Essex County Council and Tendring District Council;
- Suffolk County Council and Babergh and Mid Suffolk District Councils;
- Dedham Vale National Landscape Partnership; and
- Suffolk and Essex Coast and Heaths National Landscape Partnership.

## 21.5 Baseline Environment

### 21.5.1 Baseline Conditions

21.5.1.1 An initial study of the baseline environment has been undertaken through desk-based research to establish the existing conditions of the Landscape and Visual resources within the Initial LVIA Study Area. A walkover survey was conducted in September 2025 from publicly accessible locations, such as PRoW and roads to inform routing and siting and record the baseline Landscape and Visual context of the Initial LVIA Study Area. These data are therefore applicable to the associated parts of the Initial LVIA Study Area.

21.5.1.2 Desk-based research presented in this Chapter 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 within the Initial LVIA Study Area. Data will continue to be updated throughout the assessment process.

21.5.1.3 Key sources of information for the baseline environment studies include:

- Ordnance Survey (OS) mapping and aerial photography;
- OS Digital Terrain Model (DTM);
- National, regional and local planning policy;
- Published landscape character assessments at national, regional and local levels; and
- The NL management plans.

21.5.1.4 The description of the baseline environment within the assessment 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 EOS will be assessed.

### Landscape Character

#### *Landscape Designations*

21.5.1.5 The landscape designation context of the Initial LVIA Study Area is shown on Figure 21-4. The following designations lie partially within the Initial LVIA Study Area:

Dedham Vale National Landscape; and

Suffolk and Essex Coast and Heaths National Landscape.

21.5.1.6 Dedham Vale National Landscape is located approximately 550 m to the north of the Scoping Boundary. It is focussed on the River Stour and extends approximately 3 – 4 km on either side of the river, from Manningtree in the east to near Bures in the west. It is a landscape of *"gently rolling farmland, interspersed with ancient hedgerows, traditional wood pastures, lowland grazing meadows with the meandering River Stour and its tributaries cutting through the area. The farmed landscape, with its isolated farmsteads, is interspersed with small villages and hamlets with timber-framed cottages and grand historic churches."* (The Dedham Vale National Landscape and Stour Valley Partnership, 2025).

21.5.1.7 Suffolk and Essex Coast and Heaths National Landscape is located approximately 600 m to the north of the EOS Scoping Boundary. It extends across a varied landscape, from the Stour estuary in North Essex to Kessingland in North Suffolk, along the coast and adjacent landscape. Within the Initial LVIA Study Area, it extends across the north and south of the Stour Estuary. The National Landscape Management Plan describes the landscape as follows: *"Farmland dominates much of the AONB, interspersed with picturesque villages and the occasional small seaside town. There are forestry plantations, low lying freshwater marshes and extensive tracts of heathland. The coastal fringe is dominated by estuaries, grazing marshes and lowland heath."* (Suffolk Coast & Heaths AONB, 2023).

#### *National Landscape Character*

21.5.1.8 The NL character context of the Initial LVIA Study Area is shown on Figure 21-2. At a national level, the following National Character Areas (NCAs) as defined by Natural England (2014b) are located partially within the Initial LVIA Study Area:

NCA 82: Suffolk Coasts and Heaths;

NCA 86: South Suffolk and North Essex Clayland; and

NCA 111: Northern Thames Basin.

21.5.1.9 The EOS Scoping Boundary is primarily located within NCA 111: Northern Thames Basin. This NCA is described as follows: *"The Northern Thames Basin National Character Area (NCA) is a diverse area. It extends from Hertfordshire in the west to the Essex coast in the east. It is separated from the North Sea and Thames Estuary by the narrow Greater Thames Estuary (NCA81). This NCA contains the suburbs of North London and historic towns and cities including St. Albans and Colchester. It also includes new and planned towns such as Welwyn Garden City, Hatfield and Basildon. Arable agriculture is a large industry in the NCA, despite soil quality ranging from good to poor. London Clay is a poor quality soil that becomes waterlogged in winter and cracks and shrinks in summer. River deposits from the*

*Thames and other rivers create better quality soil. The Northern Thames Basin is rich in geology, archaeology and history. Its diverse landscapes include wooded plateaux and river valleys in Hertfordshire, and open and largely arable areas in the Essex heathlands."* (Natural England, 2014c)

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## National Landscape Character

**Legend**

- English Onshore Scheme Scoping Boundary
- Initial LVIA Study Area
- UK Marine Scheme Scoping Boundary

**National Landscape Character Areas (Natural England, 2014)**

- NCA 81: Greater Thames Estuary
- NCA 82: Suffolk Coast and Heaths
- NCA 86: South Suffolk and North Essex Clayland
- NCA 111: Northern Thames Basin




**Notes**

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Coordinate System: British National Grid

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**Figure 21-2**

Figure Reference: 405.065965.00001.0004.0 National Landscape Character

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### Regional Landscape Character

21.5.1.10 At a regional level, landscape character is defined by the East of England Landscape Character Typology (Landscape East, 2011). The landscape character typology is a broad spatial framework and will be used to inform the more detailed landscape character assessments which will be referred to within the assessment.

### County Landscape Character

21.5.1.11 The county-level landscape character context of the Initial LVIA Study Area is shown on Figure 21-3. The county-level character areas are classified into Landscape Character Types (LCTs) and Landscape Character Areas (LCAs) within the Essex Landscape Character Assessment (Chris Blandford Associates on behalf of Essex County Council and Southend on Sea Borough Council, 2003), and comprise the following:

LCT C: River Valley Landscapes:

- LCA C8: Stour Valley.

LCT E: London Clay Landscapes:

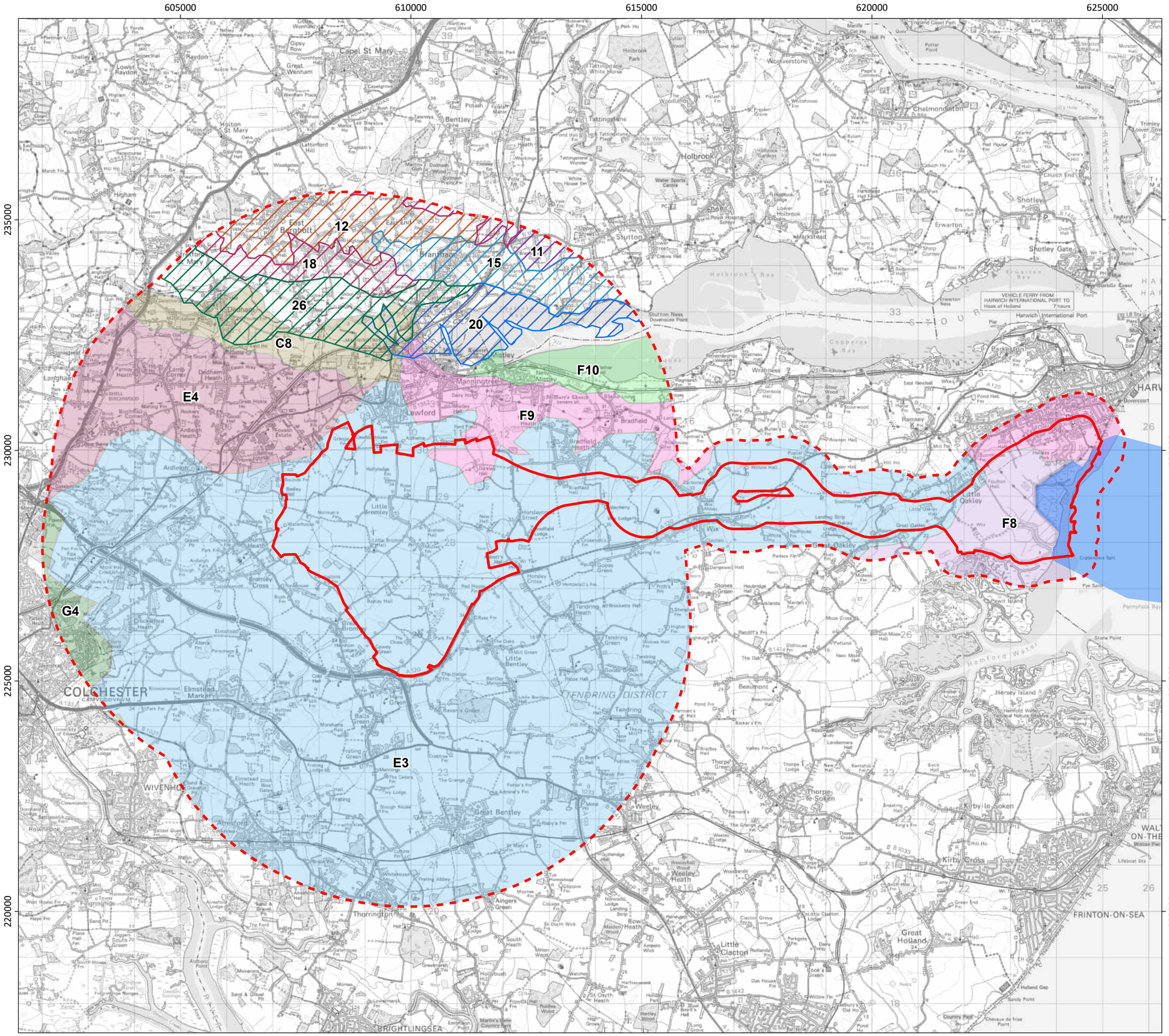
- LCA E3: Tendring Plain; and
- LCA E4: North Colchester Farmlands.

LCT F: Coastal Landscapes:

- LCA F8: Hamford Water;
- LCA F9: Stour Estuary Slopes; and
- LCA F10: Stour Estuary.

21.5.1.12 The Scoping Boundary falls primarily within LCA E3: Tendring Plain. The overall character of this area is described as follows: "*The Tendring Plain is a low, relatively flat plateau with extensive arable land use on loamy, sandy and clay soils. Typically the fields are large and regular. Apart from a few localised clusters of woodlands/copses they are very widely dispersed. As a result the area has a generally open character and there are frequent wide views in which the small settlements, scattered hedgerow trees, occasional lines of poplars punctuate the low horizons. Small river/stream valleys cutting through the broad plateau have a contrasting enclosed character and more intimate scale. Pylons, high masts and major roads visually interrupt the landscape in parts."* (Chris Blandford Associates on behalf of Essex County Council and Southend on Sea Borough Council, 2003).

21.5.1.13 The classifications within the Essex Landscape Character Assessment will be supplemented with reference to the Landscape Character Assessment of the Essex Coast (SAIL (Schema d'Amenagement Integre du Littoral) and Essex County Council, 2005).




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## County Landscape Character

**Legend**

- English Onshore Scheme Scoping Boundary
- Initial LVIA Study Area
- UK Marine Scheme Scoping Boundary

**Suffolk Landscape Character Areas (2008)**

- LCA 11,Plateau estate farmlands
- LCA 12,Plateau farmlands
- LCA 15,Rolling estate farmlands
- LCA 18,Rolling valley farmlands
- LCA 20,Saltmarsh and Inter-tidal Flats
- LCA 26,Valley meadowlands

**Essex Landscape Character Areas (2003)**

- LCA C8: Stour Valley
- LCA E3: Tendring Plain
- LCA E4: North Colchester Farmlands
- LCA F10: Stour Estuary
- LCA F8: Hamford Water
- LCA F9: Stour Estuary Slopes
- LCA G4: Colchester and Environs




**Notes**

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**Figure 21-3**

Figure Reference: 405.065965.00001.0005.0 County Landscape Character

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### *District Landscape Character*

21.5.1.14 At a district level the landscape character context of the Initial LVIA Study Area is defined by LCTs and LCAs within the Tendring District Landscape Character Assessment (Tendring District Council, 2001). As identified in Table 21-1, it is understood that an updated version of the Tendring District Landscape Character Assessment is due to be published.

21.5.1.15 At the time of writing, the classifications of the LCTs and LCAs identified within the Tendring District Landscape Character Assessment (Tendring District Council, 2001) predate the classifications within the county level assessment (Chris Blandford Associates on behalf of Essex County Council and Southend on Sea Borough Council, 2003). Therefore, the classifications within the county level assessment will be used as the basis of the landscape character assessment and will be supplemented where appropriate with reference to the Tendring District Landscape Character Assessment and observations recorded in the field. If the updated Tendring District Landscape Character Assessment is published prior to the LVIA being undertaken, the landscape character classifications within this District level LCA for Tendring, will be used to supplement the county level LCA.

### Visual Receptors – UK Landfall and Onshore HVDC and HVAC Cable Route

21.5.1.16 The visual assessment determines the degree of anticipated change to visual amenity experienced by people (visual receptor) that would occur as a result of the EOS. The visual assessment considers static and sequential effects through analysis of individual viewpoints, considered representative of the range of views within the Initial LVIA Study Area. Visual receptors that have potential to experience views of the construction of the proposed UK Landfall and/or the proposed Onshore HVDC and HVAC Cable Routes identified as part of the initial study of the baseline environment as described above include:

- Settlements including towns and villages: Dovercourt, Little Oakley, Great Oakley, Wix and Bradfield Heath;
- Isolated and small clusters of dwellings and farmsteads dispersed across the landscape, such as housing along Spinnels Lane and Clacton Road, Horsleycross Street;
- Recreational aspects of the coast, including beaches and foreshore, parking facilities for visitors to the coastal strip, caravan parks and holiday parks including Dovercourt Holiday Park, Low Road Recreation Ground, West End Promenade and Middle Beach;
- Areas of Open Access including Common Land such as Mistley Heath;
- Recreational routes including views from recreational users of the waterways, PRoW and Long-Distance Paths, some of which include West End Promenade (Footpath 33 Harwich), Essex Way (Footpath 43 Harwich), Footpath Little Oakley 13, Footpath Wix 1 and Footpath Wix 27 and Footpath Bradfield 16. Other recreational routes include National Cycle Network (NCN) routes, including NCN 51 and sequential views along the Jaywick to Harwich stretch of the England Coast Path; and

Occupiers of vehicles travelling on the A120, B-roads and unclassified roads within the Initial LVIA Study Area.

21.5.1.17 These receptors may also have potential to experience views of maintenance of the proposed UK Landfall or proposed Onshore HVDC and HVAC Cables. The potential for these receptors to experience views of maintenance works is dependent upon the location of the works, noting that these works (if required) will be small-scale, limited to discrete areas where maintenance is required, and temporary (typically of short duration).

21.5.1.18 As stated in Volume 01, Chapter 02: UK Project Description, currently the most environmentally acceptable option for EOS decommissioning is leaving the onshore cables in situ, however where cables are installed in ducting, they can be removed by opening the ground at regular intervals and pulling the cable through to an extraction point. Therefore, as a worst case, there is also potential for these receptors to experience views of decommissioning works at the proposed UK Landfall or proposed Onshore HVDC and HVAC Cable Route – again noting that this is dependent upon the location of the works and that, if undertaken, these works will be small-scale, limited to discrete areas and temporary.

### Visual Receptors – Converter Station

21.5.1.19 Visual receptors that have potential to experience views of either the construction, decommissioning or operation (including maintenance) of the Converter Station site and/or the proposed Onshore HVDC and HVAC Cable Route include:

Settlements including towns and villages: Little Bromley, Great Bromley, Ardleigh, Lawford, Manningtree and Mistley;

Isolated and small clusters of dwellings and farmsteads dispersed across the landscape;

Recreational users of the NLs, including Dedham Vale National Landscape and the Suffolk and Essex Coast and Heaths National Landscape;

Areas of Open Access including Common Land such as Mistley Heath;

Recreational routes including PRoW, some of which include: PRoW Mistley 14, PRoW Little Bromley 3, PRoW Little Bromley 8 and PRoW Little Bromley 14; and

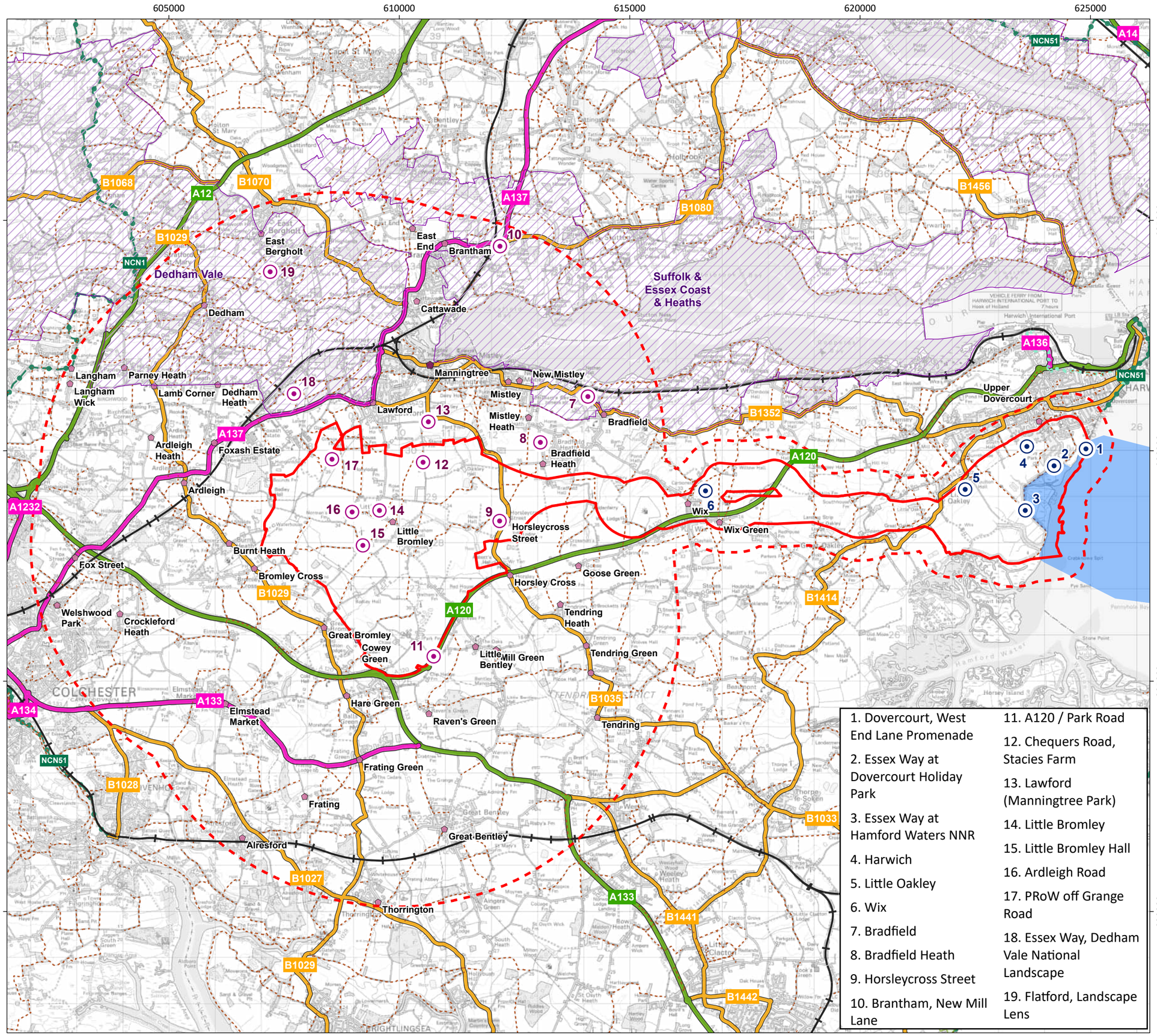
Occupiers of vehicles travelling on A-roads (A120 and A137), B-roads and unclassified roads within the Initial LVIA Study Area.

### Potential Viewpoint Locations

21.5.1.20 The visual assessment will be based on a series of representative viewpoints. Potential viewpoints have been chosen to provide a representative cross section of receptor types and locations within the Initial LVIA Study Area, focused on those with the potential for potential significant effects and drawing on viewpoints included in the assessments of the onshore substations for the Five Estuaries and North Falls projects. Figure 21-4 shows the location of the potential viewpoints for the EOS; and Table 21-2 details their locations and the reason for their inclusion in the assessment.

21.5.1.21 These viewpoints are referred to as ‘potential viewpoints’ at this stage, as it is anticipated that they will be refined further during the EIA, based on the Zone of Theoretical Visibility (ZTV) for the Converter Station when a preferred site has been selected and that the final list of viewpoints for the LVIA would be agreed in consultation with stakeholders.

21.5.1.22 Due to uncertainties regarding the location of the proposed UK Landfall and Converter Station Site, and the Onshore HVAC and HVDC Cable Routes, the Study Area and potential viewpoints have been defined at this stage based on the outer extents of the EOS Scoping Boundary, which represents the maximum possible scope in which the EOS will be sited. The Study Area and viewpoints for the LVIA will be refined following confirmation of the proposed UK Landfall, Onshore HVAC and HVDC Cable Routes and Converter Station Site.




1. Dovercourt, West End Lane Promenade
2. Essex Way at Dovercourt Holiday Park
3. Essex Way at Hamford Waters NNR
4. Harwich
5. Little Oakley
6. Wix
7. Bradfield
8. Bradfield Heath
9. Horsleycross Street
10. Brantham, New Mill Lane
11. A120 / Park Road
12. Chequers Road, Stacies Farm
13. Lawford (Manningtree Park)
14. Little Bromley
15. Little Bromley Hall
16. Ardleigh Road
17. PRoW off Grange Road
18. Essex Way, Dedham Vale National Landscape
19. Flatford, Landscape Lens

Figure Reference: 405.065965.00001.0006.0 Visual Receptors and Viewpoints

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# Tarchon Interconnector Project

Scoping Report

## Visual Receptors and Viewpoints

### Legend

- English Onshore Scheme Scoping Boundary
- Initial LVIA Study Area
- Converter Station Viewpoints
- Landfall and Cable Route Viewpoints
- Settlements Large
- Settlements Medium
- Railway Track
- Public Right of Way
- National Cycle Route
- National Cycle Line Route
- Primary Road
- A Road
- B Road
- UK Marine Scheme Scoping Boundary
- National Landscape

### Notes




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**Figure 21-4**

### Table 21-2: Potential Viewpoint Locations

| Viewpoint Reference | Grid Reference | Location Description | UK Scheme Element | Reason for Inclusion |
|---|---|---|---|---|
| 1 | 624901 230041 | Dovercourt, West End Lane Promenade | Landfall and Cable Corridor | Representative of recreational receptors using the promenade, visitors to Low Road recreation ground and recreational users of the beach and foreshore.<br>Located within LCA F9: Stour Estuary Slopes and adjacent to MCA Essex and South Suffolk Estuaries and Coastal Waters. |
| 2 | 624209 229673 | Essex Way, Dovercourt Holiday Park | Landfall and Cable Corridor | Representative of recreational receptors travelling along the Essex Way and England Coast Path, and visitors to Dovercourt Holiday Park.<br>Located within LCA F8: Hamford Water. |
| 3 | 623584 228705 | Essex Way, Hamford Waters NNR | Landfall and Cable Corridor. | Representative of recreational receptors travelling along the Essex Way and England Coast Path.<br>Located within LCA F8: Hamford Water. |
| 4 | 623619 230093 | Harwich | Landfall and Cable Corridor | Representative of residential receptors located along Low Road with views to the South.<br>Located within LCA F8: Hamford Water. |
| 5 | 622280 229161 | Little Oakley | Landfall and Cable Corridor | Representative of residential receptors located on the edge of Little Oakley and recreational users of Footpath 13 Little Oakley.<br>Located within LCA E3: Tendring Plain. |
| 6 | 616645 229130 | Wix | Cable Corridor | Representative of residential receptors located along Spinnels Lane and recreational receptors using PRoW Footpath 27 Wix.<br>Located within LCA E3: Tendring Plain. |
| 7 | 614092 231176 | Bradfield | Converter Station and Cable Corridor | Representative of views from the closest parts of the Suffolk and Essex Coast and Heaths NL. Motorists travelling on B1352 Station Road and residents of Bradfield. |

| Viewpoint Reference | Grid Reference | Location Description | UK Scheme Element | Reason for Inclusion |
|---|---|---|---|---|
| | | | | Located within LCA F9: Stour Estuary Slopes. |
| 8 | 613061 230182 | Bradfield Heath | Converter Station and Cable Corridor | Representative of residential receptors located along Straight Road with views to the South-West and West.<br>Located within LCA E3: Tendring Plain. |
| 9 | 612176 228476 | Horsleycross Street | Converter Station and Cable Corridor | Representative of residential receptors located along Clacton Road with views to the South-West and West and recreational receptors using Footpath 14 Mistley.<br>Located within LCA E3: Tendring Plain. |
| 10 | 612184 234438 | Brantham, Newmill Lane | Converter Station | Representative of views from the Suffolk and Essex Coast and Heaths NL.<br>Located at the boundary of LCA 11: Plateau estate farmlands and LCA 15: Rolling estate farmlands. |
| 11 | 610745 225538 | A120/Park Road | Converter Station | Representative of views experienced by road users on the A130.<br>Located within LCA E3: Tendring Plain. |
| 12 | 610515 229750 | Chequers Road (Stacies Farm) | Converter Station | Representative of road users and residents on Chequers Road.<br>Located within LCA E3: Tendring Plain. |
| 13 | 610630 230628 | Lawford (Manningtree Park) | Converter Station | Representative of residential receptors on the edge of Lawford with views to the south.<br>Located within LCA E3: Tendring Plain. |
| 14 | 609569 228704 | Little Bromley | Converter Station | Representative of residential receptors located within Little Bromley and recreational receptors using Footpath 14 Mistley.<br>Located within LCA E3: Tendring Plain. |

| Viewpoint Reference | Grid Reference | Location Description | UK Scheme Element | Reason for Inclusion |
|---|---|---|---|---|
| 15 | 609209 227946 | Little Bromley Hall | Converter Station | Representative of residential receptors located at Little Bromley Hall and recreational receptors using Footpath 14 Little Bromley.<br>Located within LCA E3: Tendring Plain. |
| 16 | 608976 228671 | Ardleigh Road | Converter Station | Representative of road users and residential receptors on Ardleigh Road to the west of Little Bromley.<br>Located within LCA (E3) Tendring Plain. |
| 17 | 608539 229816 | PRoW off Grange Road | Converter Station | Representative of recreational receptors using Byway 57 Lawford.<br>Located within LCA (E3) Tendring Plain. |
| 18 | 607713 231237 | Essex Way, Dedham Vale National Landscape | Converter Station | Representative of recreational receptors using Bridleway 32 Lawford and views from the Dedham Vale NL.<br>Located within LCA (E3) Tendring Plain. |
| 19 | 607197 233884 | Flatford, Landscape Lens | Converter Station | Representative of views from the Dedham Vale NL.<br>Located within LCA 18: Rolling valley farmlands. |

### 21.5.2 Future Baseline Conditions

21.5.2.1 The baseline environment is not static and is expected to change over time, irrespective of the EOS. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the EOS over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

21.5.2.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

### 21.5.3 Additional Proposed Data Sources

21.5.3.1 The data sources that will be used to inform the LVIA are presented within Table 21-3. These identified data sources will be taken forward and used to inform the subsequent EIA, alongside additional site-specific data that will be collected for the Project.

**Table 21-3: Data Sources**

| Data Source | Summary |
|---|---|
| Ordnance Survey/Walk Wheel Cycle Trust (formerly Sustrans) (2026) | Visual receptors mapping, of settlements, long distance recreational routes etc. |
| Ordnance Survey (2026) | Digital terrain model datasets. |
| Ordnance Survey (2026) | Topographical maps at a range of scales. |
| Google/Bing (2026) | Aerial and street-level photography available online. |
| Essex County Council and Schéma d'Aménagement Intègre du Littoral (2003) | Landscape Character Assessment of the Essex Coast. |
| Tendring District Council (2001) | Tendring District Landscape Character Assessment. |
| Natural England (2014) | National Character Area Profiles. |
| Landscape East (2011) | East of England Landscape Typology. |
| Essex County Council and Southend on Sea Borough Council, (2003) | Essex Landscape Character Assessment. |
| (Suffolk County Council, 2010) | Suffolk Landscape Character Assessment. |
| (North Falls Offshore Wind Farm, 2024) | North Falls Offshore Wind Farm Environmental Statement, Chapter 30 Landscape and Visual Impact Assessment |
| (Five Estuaries Wind Farm Ltd, 2024) | Five Estuaries Offshore Wind Farm Environmental Statement Volume 6, Part 3, Chapter 2: Onshore Landscape and Visual Impact Assessment |

| Data Source | Summary |
|---|---|
| (National Grid, 2025) | Norwich to Tilbury Volume 6: Environmental Statement Document: 6.13 Environmental Statement Chapter 13 – Landscape and Visual |

21.5.3.2 A thorough, desk-based collation and review of the relevant data will be undertaken to inform the subsequent assessment of effects on LVIA. In particular, landscape character assessments will be analysed along with ZTV mapping to inform the identification of landscape and visual receptors which require assessment. A preliminary assessment will be carried out to determine which receptors have the potential to experience significant effects as a result of the EOS. This will help to inform the mitigation offered by the EOS and the receptors will then be subject to detailed assessment.

21.5.3.3 Following desk-based review, those receptors which have the potential to undergo significant effects will then be subject to a series of surveys. This will include visits to CCAs and LCAs to verify the ZTV on site, visits to viewpoints and baseline panoramic photography. In relation to possible offshore receptors, it is considered that any change in views due to the EOS would be temporary due to the duration of the construction and decommissioning works, there being no visible infrastructure during the operational phase and the receptors' transient nature. Effects on offshore receptors are therefore proposed to be scoped out in Table 21-6. As such, sea-based offshore surveys are not proposed to be undertaken as part of the LVIA.

21.5.3.4 Detailed assessment methods will be based on quantifying impacts through modelling to enable prediction of Landscape and Visual effects. Assessment of the sensitivity of Landscape and Visual receptors will be undertaken, together with an assessment of the magnitude of change arising as a result of the EOS. Judgements on sensitivity and magnitude will be combined to arrive at an overall assessment as to whether the EOS will have an effect that is significant or not significant on each Landscape and Visual receptor.

## 21.6 Assessment Methodology

### 21.6.1 Overview

21.6.1.1 The methodology used in the LVIA will reflect the GLVIA3 (Landscape Institute and IEMA, 2013), which constitutes best practice guidance for LVIA. In accordance with this and with the EIA Regulations, the effects arising from the EOS on the Landscape and Visual resource will be assessed as either significant or not significant. Further guidance that is reflected in the LVIA methodology is described in Section 21.3 above.

21.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on Landscape and Visual receptors arising

from the construction, operational and decommissioning phases of the EOS. This approach defines:

**Sources and impacts:** The origin of a potential impact;

**Pathway**: The mechanism by which the impact may affect a receptor; and

**Receptor**: The component of the environment that may be affected.

21.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

21.6.1.4 The approach to the LVIA is summarised as follows:

Those features of the EOS that may result in Landscape and Visual effects will be described and a Maximum Design Scenario (MDS) will be defined to represent the basis for assessment of the EOS;

The overall scope of the LVIA will be defined, including the study area and range of possible Landscape and Visual effects;

The landscape baseline will be established, using landscape character assessment and the ZTV of the EOS to identify landscape receptors that may be affected and their key characteristics and value;

The visual baseline will be established by defining the ZTV, identifying the people who may be affected and identifying visual receptors and selecting representative viewpoints;

A preliminary assessment will be undertaken with reference to ZTVs and wirelines, in order to identify Landscape and Visual receptors with the potential to be significantly affected by the EOS, which will then be subject to detailed assessment. Those receptors which are considered unlikely to experience significant effects will not be subject to the detailed assessment;

Assessments of the sensitivity of each receptor and the magnitude of change experienced will be carried out. Judgements of the susceptibility of each receptor to change of the type proposed will be combined with judgements of the value of the receptor to determine the sensitivity of receptors to the EOS.

An assessment of the size/scale of landscape impact, the degree to which landscape elements are altered and the extent to which the impacts change the key characteristics of the landscape will be undertaken, combining these judgements to assess the magnitude of change on each landscape receptor.

An assessment of the size/scale of visual impact, the extent to which the change would affect views, whether this is unique or representative of a wider area and the position of the EOS in relation to the principal orientation of the view and activity of the receptor will be undertaken. These judgements are combined to assess the magnitude of change on the visual receptor.

The judgements relating to sensitivity and magnitude of change will then be combined to determine the significance of each seascape, landscape or visual effect. In accordance with GLVIA3 (Landscape Institute and IEMA, 2013), professional judgement will be applied in the determination of significant effects, but in general, the higher the sensitivity and higher the magnitude of change, the more likely that a significant effect will arise as a result of the EOS;

Primary mitigation will be defined and included as an inherent part of the project design, if required, to avoid, prevent, reduce or offset significance adverse effects through an iterative process. Secondary mitigation aims to avoid, prevent, reduce or offset significance adverse effects to achieve the anticipated outcomes described within the LVIA, which are likely to be secured through mitigation plans such as the outline Landscape and Ecological Mitigation Plan (LEMP) and Design Principles Converter Station Design Principles Document (Design Guide) (Table 21-6); and

A Cumulative Effects Assessment (CEA) will be undertaken to assess the likely additional significant effects arising from the EOS when considered together with other existing, consented or application stage developments and identify related significant effects arising. The CEA will focus on the potential significant effects and those which may influence the outcome of the consenting process in particular.

### 21.6.2 Sensitivity of Receptor

21.6.2.1 The sensitivity of a landscape element is an expression of its value and quality and susceptibility of the receptor to the type or nature of change proposed. An assessment of the sensitivity of the Landscape and Visual receptor will be made in the LVIA by combining the assessment of the value of the receptor and its susceptibility to change.

21.6.2.2 The evaluation of sensitivity will be described for each receptor in the assessment. Levels of sensitivity: high, high-medium, medium, medium-low and low, will be applied and the basis for the assessments will made clear using evidence and professional judgement in the evaluation of sensitivity for each receptor. Criteria that tend towards higher or lower sensitivity will set out in the LVIA methodology.

21.6.2.3 The sensitivity of a landscape receptor or visual receptor is an expression of the combination of the judgements made about the value of the receptor and the susceptibility of the receptor to the specific type of change arising from the EOS. An assessment of the sensitivity of each receptor to change will be made by combining the assessment of the value of the receptor and its susceptibility to change.

21.6.2.4 Landscape value is the relative value that is attached to different landscapes by society and may apply to areas of landscape as a whole, or to the individual elements, features and aesthetic/perceptual aspects that contribute to landscape character. Landscape susceptibility means the ability of the landscape receptor to accommodate the EOS and will be assessed in relation to the change arising from the specific development proposal (i.e. the EOS) in line with GLVIA3 (Landscape Institute and IEMA, 2013) and its clarifications in Landscape Institute Technical Guidance Note 2024 (LITGN-2024) (Landscape Institute, 2024).

21.6.2.5 The sensitivity of a visual receptor is also an expression of the combination of the judgements made about the value of the view/visual resource and the susceptibility of the receptor to the change in views and visual amenity. Value is the relative value that is attached to particular views by society. Visual susceptibility is a function of

the occupation or activity of people (visual receptors) experiencing the view, the extent to which their attention or interest may be focused on views and the visual amenity they experience. In line with the Landscape Institute GLVIA3 clarifications LITGN-2024 (Landscape Institute, 2024), visual susceptibility is not influenced by the type of development proposed.

21.6.2.6 An evaluation of sensitivity will be applied for each receptor – high, high-medium, medium, medium-low and low – by combining individual assessments of the value of the receptor and its susceptibility to change. The basis for the assessments will be made clear using evidence and professional judgement in the evaluation of sensitivity for each Landscape and Visual receptor, informed by criteria that tend towards higher or lower sensitivity, which will be set out in the LVIA.

21.6.2.7 Landscapes assessed to be of high sensitivity can broadly be defined as those of high value (such as designated landscapes with national policy level protection or defined for their natural beauty) and of high susceptibility to changes arising from the EOS.

21.6.2.8 Similarly, visual receptors assessed to be of high sensitivity are broadly those of high value (such as views afforded protection in planning policy, within or overlooking a designated landscape with high scenic quality) and of high susceptibility to change (residents or people whose attention is focused on the particular view).

21.6.2.9 Landscape and Visual receptors assessed as being of low sensitivity are likely to be those of low value (such as degraded landscapes/views with little or no evidence of being valued by the community) and of low susceptibility to change.

### 21.6.3 Magnitude of Impact

21.6.3.1 The magnitude of change affecting Landscape and Visual receptors is an expression of the scale of the change that will result from the EOS and is dependent on a number of variables regarding the size or scale of the change that will be experienced. The magnitude of change resulting from the UK Scheme is described as ‘High’, ‘High-medium’, ‘Medium’, ‘Medium-low’, ‘Low’ and ‘Negligible’ for Landscape and Visual receptors as defined in Table 21-4.

**Table 21-4: Definitions of Magnitude for Landscape and Visual Effects**

| Magnitude | Definition |
|---|---|
| High | Landscape: The EOS would result in a major alteration to the baseline characteristics of the landscape, providing the prevailing influence and/or introducing elements that are uncharacteristic in the receiving landscape. |
| | Visual: The EOS would result in a high-level of alteration to the baseline view, providing the prevailing influence and/or introducing elements that are substantially uncharacteristic in the receiving view. |
| High-medium | Intermediate rating with a combination of criteria from high magnitude (described above) and medium magnitude (described below). |

| Magnitude | Definition |
|---|---|
| Medium | Landscape: The EOS would result in a moderate alteration to the baseline characteristics of the landscape, providing a readily apparent influence and/or introducing elements potentially uncharacteristic in the receiving landscape. |
| | Visual: The EOS would result in a moderate alteration to the baseline view, providing a readily apparent influence and/or introducing elements potentially uncharacteristic in the receiving view. |
| Medium-low | Intermediate rating with combination of criteria from medium magnitude (described above) and low magnitude (described below). |
| Low | Landscape: The EOS would result in a minor alteration to the baseline characteristics of the landscape, providing a slightly apparent influence and/or introducing elements that are characteristic in the receiving landscape. |
| | Visual: The EOS would result in a minor alteration to the baseline view, providing a slightly apparent influence and/or introducing elements that are characteristic in the receiving view. |
| Negligible | Landscape: The EOS would result in a negligible alteration to the baseline characteristics of the landscape, providing a barely discernible influence and/or introducing elements that are substantially characteristic in the receiving landscape. |
| | Visual: The EOS would result in a negligible alteration to the baseline view, providing a barely discernible influence and/or introducing elements that are substantially characteristic in the receiving view. |

### 21.6.4 Significance of Effect

21.6.4.1 The significance of effects will be assessed through a combination of the sensitivity of the landscape receptor or view and the magnitude of change that would result from the addition of the EOS. While this methodology is not solely reliant on the use of a matrix to determine the conclusion of a significant or not significant effect, a matrix is included in Table 21-5 to illustrate how combinations of sensitivity and magnitude of change ratings can give rise to significant effects. On this basis potential impacts will be assessed as of Negligible, Minor, Moderate-Minor, Moderate, Major-Moderate and Major. In those instances where the magnitude is assessed as 'no change', the level of effect will be recorded as 'no effect'.

**Table 21-5: Significance Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | | | |
|---|---|---|---|---|---|---|
| | High | High-medium | Medium | Medium-low | Low | Negligible |
| High | Major | Major | Major-moderate | Moderate | Moderate-minor | Minor |
| High-medium | Major | Major-moderate | Moderate | Moderate | Moderate-minor | Minor |
| Medium | Major-moderate | Moderate | Moderate | Moderate-minor | Minor | Minor |
| Medium-low | Moderate | Moderate | Moderate-minor | Minor | Minor | Negligible |
| Low | Moderate | Moderate-minor | Minor | Minor | Negligible | Negligible |

21.6.4.2 For the purposes of the assessment, any effects with a significance level of Major and Major-Moderate are deemed significant in EIA terms. Moderate levels of effect have the potential, subject to the assessor's professional judgement, to be considered as significant or not significant, depending on the sensitivity and magnitude of change factors evaluated. GLVIA3 clarification note 3(5) supports this approach and states that "*moderate effects may or may not be significant and justification would be needed in the methodology or receptor assessment as to whether a moderate effect is significant or not.*" The assessments of significance for Moderate levels of effect will therefore be explained as part of the assessment, where they occur.

## 21.7 Potential Effects and Mitigation

21.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the MDS parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 21.7.2 Embedded Mitigation and Good Practice Measures

21.7.2.1 The EOS will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as *"mitigation measures that have been incorporated into a project's description and form an inherent part of the project's design"* (ISEP, 2024). The embedded mitigation measures which are relevant to this Chapter are presented in the table below (Table 21-6).

**Table 21-6: Embedded Mitigation Measures of Importance to LVIA**

| Measure Proposed | Rationale |
|---|---|
| Outline Landscape and Ecological Management Plan (LEMP) | The outline LEMP will set out an outline of measures proposed to avoid or mitigate ecological and landscape impacts during the pre-construction, construction and operational phases of the EOS, as identified through the EIA. The outline LEMP will form the basis for a final LEMP, which will both be prepared and submitted to the LPA (Essex County Council) for approval prior to construction of the Project. |
| Converter Station Design Principles Document (Design Guide) | A Design Principles Document (or 'Design Guide') will be prepared to set out the approach to the design of the Converter Station, in accordance with the design guidance contained in Overarching NPS for Energy (NPS EN-1), the NPS for Renewable Energy Infrastructure (EN-3) and the NPS for Electricity Networks Infrastructure (EN-5). The document title and format may be refined as the Project design develops; however, the commitment is to produce a design principles document to guide the Converter Station design and inform the EIA and Development Consent Order (DCO) application. |

21.7.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed EOS development and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

21.7.2.3 As the EOS advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective and compliant with regulatory standards and stakeholder input.

21.7.2.4 Embedded mitigation measures are identified during the iterative design phase to minimise potential significant effects, based on key sensitivities, constraints and opportunities identified within the baseline. Landscape and Visual considerations have and will continue to inform the site selection process for the proposed Converter Station Site and proposed UK Landfall, and in identifying potential cable route corridor options and will inform the form, location and routing of the various elements throughout the design process. Any such mitigation measures will be embedded into the UK Scheme design and secured as part of the DCO application to give certainty that the mitigation measures relied upon for the purposes of the LVIA will be implemented as part of the EOS.

21.7.2.5 Additional mitigation measures are those that seek to further reduce potential significant effects which may be identified in the LVIA notwithstanding the embedded mitigation measures. These include landscape reinstatement, potential woodland screening along with the use of earthworks to reduce the extent or significance of negative effects in the long term. In relation to the EOS, to the extent potential significant effects are identified, additional mitigation measures relating to Landscape and Visual amenity are likely to include reinstatement of hedgerows

and other vegetation along the working widths of the proposed HVAC and HVDC Cable Corridors and temporary access tracks and landscape integration of the proposed Converter Station through planting and landform design. If the LVIA identifies any significant effects remaining after the assessment considers both the embedded mitigation and additional mitigation, any such effects will be considered residual effects.

21.7.2.6 Details of embedded and additional mitigation, including reinstatement planting will be presented in an outline LEMP which will be submitted with the DCO application and secured through DCO Requirements (refer to Volume 01, Chapter 02: UK Project Description for further details).

21.7.2.7 Landscape mitigation measures will be developed to support the landscape strategies and guidelines identified in published landscape character assessments listed in Section 21.7.2 of this Scoping Chapter. Details of landscape mitigation measures, such as planting types and species, will be submitted as part of the outline LEMP. These will be developed in consultation with LPAs and will evolve and adapt through each stage of the EIA process as well as through the EOS's optioneering and iterative design processes. Opportunities will also be sought to integrate ecological and other mitigation measures into an overall landscape and environmental mitigation strategy and masterplan, which will be set out in the outline LEMP for the proposed Converter Station.

### 21.7.3 Scoping Assessment

21.7.3.1 Elements Scoped In and Scoped Out of the LVIA are set out in Table 21-7 with appropriate justification.

Table 21-7: Elements Scoped In and Out for LVIA

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction, Operational and Decommissioning | UKMS – installation of the proposed HVDC Subsea Cabling and the subtidal UK Landfall breakout point. Operation of the proposed HVDC Subsea Cabling. Removal of the proposed HVDC Subsea Cabling and any external protection at decommissioning (as a worst case). | Impacts on landscape and seascape character, special qualities of designated landscapes. Impacts on views/visual amenity. | Landscape and seascape character types and landscape designations (such as NLs). Onshore visual receptors such as residents, walkers, cyclists, motorists. Offshore visual receptors such as users of vessels including ferries. | Scoped Out | Construction activities associated with the UKMS are assumed to be limited to the presence and movement of offshore cable laying vessels associated with the installation of onshore/offshore ducting and cables in the nearshore area, anticipated to be of short duration. The standard/typical vessels used for subsea cable installation are expected to be visually similar to the types of vessels routinely visible in the vicinity of the Harwich Harbour. UK Landfall construction and cable installation through the intertidal area will be assessed as part of the EOS.<br><br>There will be no permanent structures above the sea surface during the operational phase. Operational effects of the installed subsea cable and |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | occasional vessel movements associated with monitoring and maintenance works will not result in potential significant effects to landscape/seascape character or visual amenity and is scoped out of the assessment in the LVIA.<br><br>Activity during decommissioning is anticipated to be similar in scope to construction and is therefore also scoped out. |
| Construction, Operational and Decommissioning | UKMS and EOS | Impacts on views/visual amenity. | Offshore visual receptors, such as users of vessels, including ferries. | Scoped Out | In relation to possible offshore receptors, it is considered that any change in views due to the UKMS would be temporary due to the duration of the construction and decommissioning works, there being no visible infrastructure during the operational phase and the receptors' transient nature. Potential views looking inland towards the EOS (for example, from ferries |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | approaching or leaving Harwich ferry terminal) would be oblique and experienced with a degree of separation from the foreshore. Significant visual effects on offshore receptors are therefore unlikely to occur and is scoped out of the assessment in the LVIA. |
| Operational and Decommissioning | EOS – Landfall and Onshore HVAC and HVDC Cable Routes | Impacts on landscape elements, landscape character and special qualities of designated landscapes. Impacts on views/visual amenity. | Landscape elements (such as hedgerows, trees etc.), LCTs and designations (such as NLs). Visual receptors such as residents, walkers, cyclists and motorists. | Scoped Out | The only above ground infrastructure associated with the operational phase at the proposed UK Landfall and proposed Onshore HVAC and HVDC Cable Routes, will be a series of manhole covers set at or just above ground level and low-level marker-posts (Volume 01, Chapter 02: UK Project Description). Maintenance and decommissioning works in respect of the proposed UK Landfall and Onshore HVAC and HVDC Cable Routes, where/if required, will be small-scale, limited to discrete areas. As a result, |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | operational and decommissioning phase effects of the UK Landfall and Onshore HVAC and HVDC Cable Routes will not result in potential significant effects and are scoped out of the LVIA. This is underpinned by professional judgement and past experience of similar HVDC link projects. The assessment of the proposed UK Landfall and Onshore HVAC and HVDC Cable Routes will be focused on the construction phase. |
| Construction, Operational and Decommissioning | EOS - Landfall, Onshore HVAC and HVDC Cable Routes and Converter Station | Transboundary effects of the EOS on landscape elements, landscape character and special qualities of designated landscapes; and transboundary effects on views/visual amenity. | Landscape elements (such as hedgerows, trees etc.), LCTs and designations (such as NLs). Visual receptors such as residents, walkers, cyclists, motorists. | Scoped Out | There is no likelihood of significant transboundary effects due to the limited intervisibility and/or perceptibility of the EOS beyond the identified Initial LVIA Study Area. Transboundary effects are therefore scoped out of further assessment in the LVIA. |
| Construction, Operational and Decommissioning | EOS - Landfall, Onshore | Impacts beyond the Initial LVIA Study Area on landscape elements, | Landscape and Visual receptors outside the 5km | Scoped Out | The Initial LVIA Study Area is defined to an outer limit within which significant |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | HVAC and HVDC Cable Routes and Converter Station | landscape character and special qualities of designated landscapes; and impacts on views/visual amenity. | radius Initial LVIA Study Area, including landscape elements (such as hedgerows, trees etc.), LCTs and designations (such as NLs). Visual receptors such as residents, walkers, cyclists, motorists. | | effects could occur. It is based on the anticipated extent of visibility, informed by site survey, beyond which there will be no opportunity for significant effects to occur. Effects occurring outside the Initial LVIA Study Area are therefore scoped out of further assessment in the LVIA. |
| Construction | EOS - Landfall and Onshore HVAC and HVDC Cable Routes | Impacts on landscape elements, landscape character and special qualities of designated landscapes. Impacts on views/visual amenity. | Landscape elements (such as hedgerows, trees etc.), LCTs and designations (such as NLs). Visual receptors such as residents, walkers, cyclists, motorists. | Scoped in | Potential for potential significant effects on landscape elements (such as agricultural land, hedgerows and trees), effects on landscape character and views/visual amenity experienced by visual receptors during construction of UK Landfall and onshore HVAC and HVDC cable routes, which is scoped into the LVIA. |
| Construction, Operational and Decommissioning | EOS - Converter Station | Impacts on landscape elements and landscape character. | Landscape elements (such as hedgerows, trees etc.) and LCTs. | Scoped In | The construction and operation of the Converter Station is anticipated to result in potential significant direct and |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | indirect effects on landscape character receptors within the initial LVIA Study Area requiring further assessment and is scoped into the assessment in the LVIA. |
| Construction, Operational and Decommissioning | EOS - Converter Station | Impacts on special qualities of designated landscapes. | Landscape designations including NLs | Scoped In | Visibility of Converter Station may result in potential for potential significant effects on landscape designations including the Suffolk and Essex Coast and Heaths National Landscape and Dedham Vale National Landscape requiring further assessment and is scoped into the assessment in the LVIA. |
| Construction, Operational and Decommissioning | EOS - Converter Station | Impacts on views/visual amenity. | Onshore visual receptors such as residents, walkers, cyclists, motorists. | Scoped In | Activity associated with the construction of the Converter Station and its presence in views experienced by visual receptors during the operational phase are considered to have potential to result in significant visual effects requiring further assessment and is scoped |

| EOS Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | into the assessment in the LVIA. |

### 21.7.4 Transboundary Effects

21.7.4.1 As noted in Table 21-6, there is no likelihood of significant transboundary effects due to the limited intervisibility and/or perceptibility of the EOS beyond the identified Initial LVIA Study Area. Transboundary effects are therefore scoped out of further assessment in the LVIA.

### 21.7.5 Cumulative Effects

21.7.5.1 The assessment will also consider the potential for cumulative Landscape and Visual effects resulting from the addition of the EOS in relation to 'other developments', for elements of the EOS scoped into the LVIA in Table 21-6. 'Other developments' will include schemes of a similar type, nature and scale and agreed in advance with relevant consultees. The cumulative assessment will be based on consideration of the EOS in combination with other developments where there is likely to be intervisibility and potentially significant cumulative Landscape and Visual effects within a defined Zone of Influence (see Volume 05, Chapter 32: Approach to Cumulative Effects for the proposed approach to the assessment of cumulative effects).

21.7.5.2 In particular, the Landscape and Visual effects of the EOS with other developments are likely to include the National Grid Norwich to Tilbury 400 kilovolt (kV) electricity transmission connection, the East Anglia Connection Node (EACN) substation and the onshore substations for the Five Estuaries and North Falls offshore wind farm projects, all of which are located within the Initial LVIA Study Area. Norwich to Tilbury is a proposal to build a new 400 kV electricity transmission connection for approximately 180 km from the Norwich Main substation via Bramford substation and a new EACN Substation, located to the east of Hungerdown Lane and west of Grange Lane, between Ardleigh and Little Bromley. This substation is proposed by National Grid to support the wider Norwich to Tilbury electricity transmission connection. The Five Estuaries and North Falls onshore substations are co-located on land to the west of Little Bromley and north of Ardleigh Road, in relatively close proximity to EACN substation.

21.7.5.3 Adverse cumulative Landscape and Visual impacts that may arise as a result of the addition of the EOS with other energy transmission developments in the area have potential to be significant and are scoped into the LVIA.

## 21.8 Assumptions, Limitations and Uncertainties

21.8.1.1 The assessment will be undertaken using available data and design details at the time of writing. At this stage, there is optionality retained in respect of some infrastructure forming part(s) of the EOS, such as the proposed Converter Station Site, proposed UK Landfall and the proposed Onshore HVDC and HVAC Cable Route. Volume 01, Chapter 06: EIA Approach and Methodology outlines the general approach to assessments in relation to the Rochdale Envelope approach and aspects of the EOS which require a degree of design flexibility. The assessment will be focussed on an 'envelope' within which the works will take place

and will be based on maximum parameters. This ensures that any ultimate decision on final design choices will have been scoped in and assessed, as appropriate.

21.8.1.2 The Landscape and Visual baseline conditions will continue to be refined and updated following confirmation and further details of the EOS elements and further site survey. This will include the production of a ZTV which will be run to model theoretical visibility of the proposed Converter Station site as the assessment and EOS design progress.

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TARCHON

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# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 04, Chapter 22: Noise and Vibration

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00028 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Acronyms and Abbreviations

| Acronym | Definition |
|---|---|
| BPM | Best Practicable Means |
| BS | British Standard |
| CEA | Cumulative Effects Assessment |
| CEMP | Construction Environmental Management Plan |
| CRTN | Calculation of Road Traffic Noise |
| dB | Decibel, a logarithmic unit used to express sound level |
| dBA | A-weighted decibel, adjusted to reflect human hearing response |
| DCO | Development Consent Order |
| DMRB | Design Manual for Roads and Bridges |
| EIA | Environmental Impact Assessment |
| END | Environmental Noise Directive (2002/49/EC) |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| HDD | Horizontal Directional Drilling |
| HGV | Heavy Goods Vehicle |
| ISEP | Institute of Sustainability and Environmental Professionals |
| ISO | International Organisation for Standardisation |
| $L_{Aeq}$ | A-weighted equivalent continuous sound level representing average sound energy over a defined period |
| $L_{Afmax}$ | Maximum A-weighted sound level measured with fast time weighting |
| LOAEL | Lowest Observed Adverse Effect Level |
| LPA | Local Planning Authority |
| MDS | Maximum Design Scenario |
| mm/s | Millimetre per Second |
| NOEL | No Observed Effect Level |
| NPPF | National Planning Policy Framework |
| NPPG | National Planning Practice Guidance |
| NPSE | Noise Policy Statement for England |
| PPV | Peak Particle Velocity |
| PRoW | Public Right of Way |
| SPA | Special Protection Area |
| SOAEL | Significant Observed Adverse Effect Level |
| SSSI | Site of Special Scientific Interest |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| WHO | World Health Organization |

# 22. Noise and Vibration

## 22.1 Introduction

22.1.1.1 This Chapter presents the Noise and Vibration assessment which will consider the potential significant effects on noise and vibration receptors during the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). Due to the Study Areas used and receptors considered in this Chapter, only the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description) is considered relevant for inclusion in this Chapter. The UK Marine Scheme (UKMS) (as described in Volume 01, Chapter 02: UK Project Description) is therefore not considered further for Noise and Vibration.

22.1.1.2 This Chapter of the Scoping Report:

- Provides an initial overview of the existing noise and vibration context to inform the scope of the assessment;
- Sets out the proposed assessment methodology, including the standards, guidance and criteria that will be applied within the Environmental Impact Assessment (EIA);
- Identifies noise and vibration sensitive receptors and potential impact pathways associated with the construction, operational and decommissioning phases of the EOS; and
- Defines the potential noise and vibration effects to be considered within the EIA, including those scoped in and scoped out at this stage.

22.1.1.3 This Chapter should be read alongside the following Chapters and Annex for a broader understanding of the EOS Scheme and noise and vibration interactions:

- Volume 01, Chapter 02: UK Project Description;
- Volume 02, Chapter 10: Onshore Biodiversity;
- Volume 02, Chapter 12: Traffic and Transport;
- Volume 04, Chapter 25: Health and Wellbeing; and
- Volume 06, Annex 22-1: Indicative Receptor Identification.

22.1.1.4 Offshore noise is considered separately within each of the following relevant offshore topic chapters:

- Volume 03, Chapter 14: Benthic and Intertidal Ecology;
- Volume 03, Chapter 15: Fish and Shellfish Ecology;
- Volume 03, Chapter 16: Marine Mammal Ecology; and
- Volume 06, Annex 22-2: Underwater Sound Assessment Methodology.

22.1.1.5 The Scoping approach has been prepared on the basis that the design retains flexibility and the potential development options are still being refined. The Scoping stage sets out to identify all noise and vibration effects with the potential to be significant, to assess these proportionately.

22.1.1.6 The assessment of noise and vibration will consider effects on human receptors, vibration-sensitive structures and, where relevant, protected biodiversity sites that may be sensitive to noise and vibration. The Scoping outcomes presented in this Chapter will inform the detailed Noise and Vibration Chapter in the Environmental Statement (ES), where the final Study Area, assessment scope and mitigation measures will be confirmed.

### 22.1.2 Study Area

22.1.2.1 The Study Area for the noise and vibration assessments has been defined to reflect both the design flexibility at this Scoping stage and an effects-led approach capable of identifying all significant effects. At this stage, the EOS Scoping Boundary represents the anticipated maximum extent of land required to accommodate the range of potential development options currently under consideration. It reflects current working assumptions for the purposes of this Scoping Report and does not represent the final limits of the EOS, which will be continually assessed as the design develops. The final Study Area will be confirmed through the assessment process and reported in the Noise and Vibration Chapter in the ES.

22.1.2.2 The Study Area is therefore defined on a source-specific basis, recognising that the spatial extent of noise and vibration effects varies with the nature of the activity and local conditions. Initial scoping extents and the EOS Scoping Boundary have been used to identify receptors potentially affected by construction activities, construction traffic, operational sources and decommissioning of the EOS. These extents are informed by relevant standards, guidance and professional judgement and are intended to support proportionate scoping rather than to prescribe fixed limits to assessment.

22.1.2.3 The assessment will then be undertaken such that the predicted extent of significant effects determines the effective Study Area. Noise and vibration modelling will be used to establish where significant effects are predicted to occur and the extent at which they cease to occur. Where reportable effects are identified beyond the initial scoping extents, the assessment area will be extended accordingly to capture all relevant receptors. Where reportable effects are not predicted, this will be demonstrated through the assessment results.

22.1.2.4 The Study Area for the construction, operational and decommissioning phases will be refined iteratively as the design evolves, the EOS Scoping Boundary is updated and further assessment outputs become available. This approach will be progressed through ongoing dialogue with the relevant consultees throughout the assessment process.

### 22.1.3 Relevant Legislation, Planning Policy and Guidance

22.1.3.1 Volume 01, Chapter 05: Legislative and Policy Context of this Scoping Report contains a summary of the relevant legislation and planning policy context referring to the EOS. The following Section contains specific legislation, policy and guidance relating to the assessment of potential noise and vibration effects arising from construction, operational and decommissioning phases of the EOS.

### 22.1.4 Legislation

22.1.4.1 The following legislation applies to the EOS and has been considered at the Scoping stage for the noise and vibration assessments.

22.1.4.2 The Control of Pollution Act (HM Government, 1974) empowers Local Planning Authorities (LPAs) to control construction noise and vibration through notices under Sections 59A, 60 and 61, which can impose conditions on how works are carried out. Breaching such notices is a criminal offence unless works are undertaken in accordance with a Section 61 consent granted in advance. In addition, LPAs may designate noise and vibration abatement zones within their area, requiring noise and vibration levels to be monitored, recorded on a public register and kept within prescribed limits unless prior consent is obtained.

22.1.4.3 The Environmental Noise (England) Regulations 2006 (as amended 2008, 2009, 2010 and 2018) (HM Government, 2006) implement the Assessment and Management of Environmental Noise Directive 2002/49/EC (END). The END requires:

- The use of harmonised noise indicators and computational measures so that data can be collected and compared in a standardised way;
- Common protocol for noise mapping;
- The drawing-up of noise maps;
- Making information available to the public;
- The drawing-up of local action plans to strategically manage environmental noise; and
- Collection of environmental noise data by the Commission to inform future community policy.

22.1.4.4 The Environmental Protection Act 1990 (HM Government, 1990) prescribes noise and vibration emitted from premises (including land) so as to be prejudicial to health or a nuisance as a statutory nuisance.

### 22.1.5 Policy Context

22.1.5.1 The following planning policy documents have been reviewed at the Scoping stage for the noise and vibration assessments.

22.1.5.2 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2024a) sets out the Government's planning requirements. While it does not define specific noise or vibration criteria, the NPPF

requires planning policies and decisions to ensure that new development is appropriate for its location, taking account of the likely and cumulative effects of pollution, including noise, on health, living conditions and the natural environment, and of the sensitivity of the site or wider area. It requires that potential adverse noise and vibration impacts from new development are mitigated and reduced to a minimum, that significant adverse effects are avoided and that tranquil areas valued for their amenity and recreational importance are identified and protected. The NPPF also introduces the 'agent of change' principle, whereby new development must be integrated effectively with existing businesses and community facilities, with the responsibility placed on the applicant to provide suitable mitigation where existing activities could otherwise give rise to significant adverse effects.

22.1.5.3 A revised NPPF is currently out for consultation (December 2025); however, at the time of drafting this Scoping report, it has not been adopted and therefore the above NPPF (Ministry of Housing, Communities and Local Government, 2024a) remains the statutory policy basis for this assessment. The draft consultation does not introduce specific additional noise or vibration policies beyond those in the adopted Framework.

22.1.5.4 The National Planning Practice Guidance (NPPG) (Ministry of Housing, Communities and Local Government, 2024b) provides further context to the NPPF and the two documents should be read together. The document provides guidance on how to recognise when noise could be a concern and the factors that influence this, along with outline guidance on noise mitigation through engineering and design. It also recognises that vibration may give rise to adverse effects and should be considered within the planning process where relevant.

22.1.5.5 The Noise Policy Statement for England (NPSE) (Defra, 2010) sets out the Government's long-term vision for managing environmental noise within the context of sustainable development. Its aims are to avoid significant adverse impacts on health and quality of life, to mitigate and minimise adverse impacts where they occur and, where possible, to improve health and quality of life through proactive noise management. The NPSE (Defra, 2010) introduces the concepts of No Observed Effect Level (NOEL), Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Level (SOAEL) to describe increasing levels of noise impact, noting that SOAEL is context-specific and varies by source, receptor and time of day. Where noise effects fall between LOAEL and SOAEL, reasonable mitigation should be applied and, although research has sought to define these levels for certain noise sources, no formal guidance has been issued.

### 22.1.6 Guidance

22.1.6.1 The following technical noise and vibration guidance has been considered at the Scoping stage.

22.1.6.2 British Standard (BS) 7445 ‘Description and Measurement of Environmental Noise. Part 1 – Guide to Quantities and Procedures’ (British Standards Institute, 2003) defines the parameters, procedures and instrumentation requirements for noise measurement and analysis.

22.1.6.3 BS 5228-1 ‘Code of practice for noise and vibration control on construction and open sites – Part 1: Noise’ (British Standards Institute, 2009a) provides a framework for the assessment and management of construction noise, including guidance on measurement, prediction methods, example source sound power levels for typical plant and activities, and good practice mitigation.

22.1.6.4 BS 5228-2 ‘Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration’ (British Standards Institute, 2009b) provides guidance on the assessment, monitoring and control of construction vibration, including prediction approaches, recommended measurement methods, and criteria for evaluating the risk of building damage and human response.

22.1.6.5 BS 6472 ‘Guide to evaluation of human exposure to vibration in buildings’ (British Standards Institute, 2008) provides methods for measuring and evaluating vibration within buildings and guidance on how occupants may perceive and respond to vibration, supporting assessment of potential adverse effects such as annoyance and disturbance.

22.1.6.6 The Waterbird Disturbance Mitigation Toolkit (Cutts, Hemingway, & Spencer, 2013) (hereafter referred to as the ‘Toolkit’) provides guidance on the assessment of noise disturbance effects on waterbirds associated with construction and development activities. The Toolkit (Cutts, Hemingway, & Spencer, 2013) identifies indicative noise thresholds linked to low, moderate and high disturbance responses, emphasises the importance of noise character (e.g. impulsive versus regular noise), and highlights the role of baseline context and habituation in determining likely behavioural responses. It supports the use of professional judgement in assessing disturbance effects.

22.1.6.7 The noise assessment outputs will inform the biodiversity assessments where relevant to ensure a consistent and integrated approach across technical topics. The Toolkit (Cutts, Hemingway, & Spencer, 2013) is applied within this Chapter to inform the characterisation of potential noise disturbance pathways only. The determination of ecological significance for biodiversity receptors will be undertaken within Volume 02, Chapter 10: Onshore Biodiversity in accordance the guidance contained within it.

22.1.6.8 BS: 4142 ‘Methods for rating and assessing industrial and commercial sound’ (British Standards Institute, 2014a) provides a method for assessing the likely significance of sound from industrial and commercial sources by comparing the rating level of the specific sound with the existing background sound level. The standard includes corrections for acoustic characteristics such as tonality, impulsivity and intermittency, and provides guidance on interpreting the resulting difference in the context of potential adverse impact. It is commonly applied to

assess operational noise from fixed plant and industrial activities at residential receptors.

22.1.6.9 BS 8233 ‘Guidance on sound insulation and noise reduction for buildings’ (British Standards Institute, 2014b) provides guideline internal and external noise levels to support the assessment of noise effects on amenity at noise-sensitive receptors. The standard is commonly used to evaluate the suitability of existing or proposed noise environments for residential and other sensitive uses, based on recommended ambient noise criteria, and to inform the interpretation of potential adverse effects on occupants.

22.1.6.10 The Design Manual for Roads and Bridges (DMRB) LA 111 ‘Noise and Vibration’ (National Highways, 2020) sets out the requirements for assessing and reporting the effects of highways noise and vibration from construction, operation and maintenance projects.

22.1.6.11 Calculation of Road Traffic Noise (CRTN) (Department for Transport, 1988) provides a standardised methodology for predicting road traffic noise levels based on traffic flow, composition, speed and road characteristics. The method is commonly used to assess operational road traffic noise and to inform the evaluation of potential effects at noise-sensitive receptors.

22.1.6.12 Institute of Sustainability and Environmental Professionals Guidelines for Environmental Noise Impact Assessment (ISEP Guidelines) (ISEP, 2020) establishes good-practice principles for assessment of noise impacts.

22.1.6.13 The World Health Organization’s (WHO) ‘Community Noise Guidelines’ (World Health Organization, 1999) provides health-based recommendations for noise levels in various environments to prevent adverse effects such as annoyance and sleep disturbance.

22.1.6.14 The International Organisation for Standardisation (ISO) 9613 part 2 ‘Attenuation of sound during propagation outdoors’ (ISO, 1996) specifies a method for predicting environmental noise levels outdoors.

### 22.1.7 Local Planning Policy

22.1.7.1 Essex County Council does not have adopted planning policies or technical guidance that set noise or vibration assessment criteria applicable to this type of development. The Tendring District Local Plan 2013–2033 and Beyond (Tendring District Council, 2022) establishes requirements to manage noise impacts through both its strategic and development management policies. Within Section 1, Policy SP7 (Place Shaping Principles) requires development to achieve high standards of design and environmental sustainability, including the protection of amenity and environmental quality, which encompasses the avoidance of adverse noise effects. At the local level, Section 2 Policy SPL3 (Sustainable Design) requires development to be appropriately located, designed and operated so that it does not result in unacceptable impacts from pollution, including noise, on amenity, health or the environment. Where potential noise impacts may arise, the Local Plan

expects these to be identified, assessed and mitigated to ensure compatibility with surrounding land uses and the wider area.

22.1.7.2 Several settlements in and close to the EOS Scoping Boundary also have Neighbourhood Plans or are in the process of developing a Neighbourhood Plan or similar at the time of writing. These include Ardleigh (Ardleigh Parish Council, 2024) and Little Bromley (currently in development). The Neighbourhood Plans contain reference to areas of amenity, which will be considered when identifying sensitive receptors and significant effects. However, they do not contain policy or technical guidance with regards to noise and vibration.

## 22.2 Consultation and Engagement

22.2.1.1 No topic-specific consultation has been undertaken to date. Consultation will be undertaken with Essex County Council and Tendring District Council on the noise and vibration assessment Study Area, baseline sound monitoring locations, sensitive receptors and scope of assessment.

22.2.1.2 Responses on the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council, Tendring District Council and Babergh and Mid Suffolk district councils.

22.2.1.3 Essex County Council provided a comment requesting that a noise assessment be undertaken, and that construction and operational noise should be assessed both on their own and in combination. By response, it was confirmed to Essex County Council that the construction phase and operational phase would not overlap and would therefore be assessed individually.

22.2.1.4 It was also confirmed by response that the methodology of the survey and assessment will be agreed with the local authorities and statutory consultees once specific details of the approach have been confirmed, and that cumulative effects would be considered during both construction and operation.

## 22.3 Baseline Environment

### 22.3.1 Baseline Conditions

22.3.1.1 A survey of available aerial imagery of the EOS Scoping Boundary and surrounding area identifies that the existing land use is primarily agricultural with some small conurbations. The noise climate in the area is likely to be dominated by traffic on local roads and, particularly, the A120 to the south. No other A-class roads or major roads are considered likely to affect the EOS. Noise and vibration from railways is also likely to be non-audible, non-perceptible and negligible for the assessments, with the nearest line being the Mayflower Branch Line of the Great Eastern Railway which is at least 1km to the north of all points of the EOS Scoping Boundary. No other sources of significant existing vibration are considered likely to affect the EOS.

22.3.1.2 Some areas within the EOS Scoping Boundary may be affected by noise from plant, operations and servicing activity at Wix Lodge Solar Farm, and from Wix and Lawford substations. Noise from these facilities will likely be localised and limited to a small number of existing receptors around Wix and Lawford parishes (refer to Volume 06, Annex 22-1: Indicative Receptor Identification for notes on receptor context). Agricultural machinery and operations may affect other parts of the site, though these noise sources are also likely to be limited, localised and also non-continuous (i.e. lasting for a few hours at a time at any one location) in nature.

### 22.3.2 Future Baseline Conditions

22.3.2.1 It is not currently expected that there would be any material change in ambient noise or vibration levels during the lifespan of the EOS. Traffic flows may increase over time in line with typical background growth trends; however, such changes are not anticipated to result in a material change in the prevailing noise environment. The future baseline will be reviewed as the EOS design and assessment progress, taking account of cumulative development and committed schemes where sufficient information is available.

## 22.4 Assessment Methodology

### 22.4.1 Assessment Approach

22.4.1.1 The approach adopted recognises that the spatial extent and nature of noise and vibration effects vary depending on the activity, source characteristics and local environmental conditions. Accordingly, the Study Area is not defined as a fixed boundary, but with initial Scoping extents used to identify receptors that may be affected by potential sources. The effective Study Area will ultimately be defined by the predicted extent of reportable effects arising from the modelled sources. This will be established through the modelling outputs.

22.4.1.2 At this Scoping stage, the identification of sensitive receptors, baseline conditions and assessment extents is indicative and based on currently available information and professional judgement. These assumptions reflect the anticipated maximum extent of the EOS Scoping Boundary and current working design assumptions. The Study Area, receptor selection and assessment methodology will be refined iteratively as the design develops and will be discussed and agreed with relevant consultees throughout the assessment process. Baseline noise surveys will be undertaken as part of the assessment.

22.4.1.3 The Chapter summarises (using aerial imagery only) the existing baseline environment relevant to noise and vibration, identifies the legislation, policy and guidance that inform the assessment, and sets out the proposed methodology for any baseline noise surveys that are deemed necessary as part of the assessment, and for evaluating effects during the construction, operational and decommissioning phases. Significance will be determined using a matrix-based approach that combines receptor sensitivity and magnitude of impact, enabling judgements to be made across different receptor types and sources.

### 22.4.2 Baseline Noise Survey

22.4.2.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the construction, operational and decommissioning phases of the EOS Scheme. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

22.4.2.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on noise and vibration receptors arising from the construction, operational and decommissioning phases of the UK Scheme. This approach defines:

- **Sources and impacts:** The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

22.4.2.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

22.4.2.4 At the time of preparing this Scoping report, baseline surveys have not been undertaken. Baseline noise surveys will be undertaken in and around the EOS Scoping Boundary at selected locations representative of sensitive receptors and other locations that will guide the assessment. The survey locations and methodology will be agreed with Essex County Council, Tendring District Council and other relevant consultees.

22.4.2.5 Sound monitoring will consist of a combination of long-term unattended measurements (typically up to one week) and short-term attended measurements of appropriate duration at receptors. At this Scoping stage, a detailed monitoring plan has not been defined. This will be produced as the EOS design develops, receptors are identified in more detail (see Volume 06, Annex 22-1: Indicative Receptor Identification for current information on receptor context) and consultation is undertaken with the relevant parties. The monitoring procedures will follow guidance from BS 7445-1:2003 and BS 4142:2014+A1:2019.

22.4.2.6 Measured sound data will be considered representative of baseline ambient sound conditions. This will be subject to review in light of any relevant cumulative schemes or changes to the local noise environment identified as the assessments progress, with updates made where necessary to ensure the assessment reflects reasonably foreseeable future conditions.

22.4.2.7 A separate baseline vibration survey is not proposed. Operational vibration effects are not anticipated and are therefore not subject to detailed assessment. Construction and decommissioning vibration will be assessed against relevant absolute criteria for human response and building damage, rather than by reference to existing baseline vibration levels. In addition, there are no known sources of significant vibration within or in close proximity to the EOS Scoping

Boundary that would materially influence the assessment. On this basis, characterisation of a baseline vibration environment is not considered necessary.

### 22.4.3 Identification of Receptors

22.4.3.1 The noise and vibration assessment considers receptors where people may experience effects on health, wellbeing or quality of life, structures that are potentially sensitive to vibration and important protected biodiversity sites where ecological receptors may be sensitive to noise and vibration. At this stage of the assessment, the identification of sensitive receptors is indicative and based on currently available information.

22.4.3.2 At this Scoping stage, a full and formal identification of all noise and vibration sensitive receptors has not been undertaken. Given the geographic extent of the EOS and the current level of design definition, receptor identification has been undertaken at a high level to inform the proposed scope of assessment. As the assessment progresses, the EOS will be considered in manageable geographic sections, within which receptor identification will be refined in greater detail. This approach will enable proportionate assessment and, where necessary, targeted review of parish level information to better understand local receptor types, patterns of use and relative sensitivity. An overview of the parish boundaries intersected by or in proximity to the EOS is provided in Volume 06, Annex 22-1: Indicative Receptor Identification, alongside indicative information on the current understanding of receptor distribution.

22.4.3.3 Designated ecological sites that may be sensitive to noise disturbance, including Sites of Special Scientific Interest (SSSIs), Ramsar sites and Special Protection Areas (SPAs), have been identified at this Scoping stage using available spatial data. These sites are presented in Volume 06, Annex 22-1: Indicative Receptor Identification to illustrate the location of potentially sensitive ecological receptors in relation to the EOS and to inform consideration of construction-related noise disturbance pathways. The ecological significance of any effects will be determined within the Onshore Biodiversity Chapter, informed by the noise assessment outputs. The receptor list and assessment scope will be reviewed, discussed and agreed with Essex County Council, Tendring District Council and other relevant consultees as the assessment process progresses.

### 22.4.4 Sensitivity of Receptor

22.4.4.1 Receptors will be assigned sensitivity categories, depending on their usage and professional judgement. The types of permanent noise-sensitive receptors considered are identified in Table 22-1.

22.4.4.2 Permanent noise-sensitive receptors include residential dwellings and other occupied buildings where noise exposure may affect health or quality of life. These receptors form the primary focus of the assessment and are attributed “High” sensitivity, reflecting their continuous or regular occupancy and the policy emphasis within the NPSE.

22.4.4.3 Other receptors, such as schools, community facilities, Public Rights of Way and leisure areas, are also considered where relevant. These receptors differ from residential receptors in terms of sensitivity and patterns of use, for example being occupied or used only during specific periods of the day. Their assessment therefore reflects the timing, duration and nature of use rather than assuming residential-equivalent sensitivity in all assessment cases.

22.4.4.4 Locations where no noise or vibration-sensitive human activity takes place, or where noise from the EOS would not reasonably affect the use of the location, are not considered sensitive receptors. These include barns, agricultural outbuildings and industrial or utility facilities with no routine human occupancy. Such locations are not assessed further within the noise assessment.

**Table 22-1: Definitions of Sensitivity for Noise and Vibration**

| Sensitivity | Definition |
|---|---|
| High | Residential, SSSI, Ramsar and SPA sites (during Construction only)*, Primary Schools (Daytime only), Public Right of Way (ProW) (Daytime only); Healthcare facilities with wards or residential facilities |
| Medium | Places of worship, Offices, Healthcare facilities without wards or residential facilities; Hotels, inns and guesthouses |
| Low | Commercial, Industrial, Logistic |
| Negligible | Unoccupied buildings |

*For SSSI, Ramsar and SPA receptors, this Chapter considers noise disturbance pathways only; ecological significance is determined within the Onshore Biodiversity Chapter.

### 22.4.5 Magnitude of Impact

22.4.5.1 The magnitude of impact shall be defined in accordance with recognised noise and vibration guidance, as referenced in the following sections and corresponding EIA terminology – Large, Medium, Small or Very Small.

### 22.4.6 Magnitude of Impact (Construction and Decommissioning phases)

22.4.6.1 Modelling will be undertaken to predict noise and vibration generated (impact magnitude) during each principal phase of the construction and decommissioning works, following technical guidance contained in BS 5228-1 (noise) and BS 5228-2 (vibration) and other relevant documents. Estimated levels will then be assessed with regards to the likely effects on surrounding sensitive receptors pre-mitigation.

22.4.6.2 The assessment criteria will also be based on methodology set out in BS 5228-1 (noise) and BS 5228-2 (vibration). For construction noise affecting human receptors, the *"ABC Method"* contained in BS 5228-1 will be used to set thresholds for defining significance based on the existing ambient sound level at the receptor(s). Table 22-2 presents the magnitude based on the current assumption that ambient noise levels will be low across the whole Study Area (i.e. Category A) due to the absence of major noise sources in and close to the EOS Scoping Boundary. Following the site-based noise survey, these thresholds will be reviewed

for each individual receptor to determine the correct magnitude thresholds. Moreover, the following is based on daytime construction levels (for Category A). Out of hours construction works will be subject to alternative, more stringent thresholds that will be assessed as required.

22.4.6.3 Noise affecting protected nature sites (SSSI, Ramsar and SPA) will be characterised with reference to the Toolkit (Cutts, Hemingway, & Spencer, 2013) to inform the identification of potential disturbance pathways. The ecological significance of any effects will be determined within the Onshore Biodiversity Chapter, drawing upon the outputs of the noise assessment.

**Table 22-2: Definitions of Magnitude for Construction Noise at Human Receptors**

| Magnitude | Definition (Daytime Noise Level)[1] |
|---|---|
| Large | Greater than $L_{Aeq,10h}$ 70 decibels (dB) |
| Medium | Between $L_{Aeq,10h}$ 66-69 dB |
| Small | Between $L_{Aeq,10h}$ 60-65 dB |
| Very Small | Less than $L_{Aeq,\ 10h}$ 60 dB and not exceeding the prevailing ambient noise level, whichever is the lower threshold. |

22.4.6.4 The response of birds to noise levels can vary, with research (Barber, Crooks, & Fristrup, 2010) suggesting animal responses to anthropogenic noise are likely to depend on the intensity of perceived threats rather than on the intensity or level of noise. Irregular or impulsive noise is generally of greater concern in respect to bird response rather than more regular noise, with the Toolkit (Cutts, Hemingway, & Spencer, 2013) providing the following descriptions of noise level effects on birds:

- High Noise Level Effects: sudden A-weighted noise event of over 60 dB or a more prolonged A-weighted noise of over 72 dB;
- Moderate Noise Level Effects: occasional A-weighted noise events above 55 dB, regular A-weighted noise 60-72 dB and long-term regular A-weighted noise above 72 dB, where birds have become habituated. There is a cross-over in moderate and high-level noise thresholds, although the lower band can be assumed unless the species is particularly sensitive;
- Low Noise Level Effects: A-weighted noise of less than 55 dB at the bird location are included in this category, with the effects likely to be masked by background inputs in all but the least disturbed areas and thus would not disturb the birds close by. A-weighted noise between 55-72 dB in some highly disturbed areas, e.g. industrial or urban areas and adjacent to roads, may feature a low-level disturbance, provided the noise level was regular as birds will often habituate to a constant noise level.

22.4.6.5 It is worth noting that due to the guidance, the nature of noise affecting waterbirds is only likely to occur during the construction and decommissioning phases of the EOS, arising from sudden higher energy sound events such as percussive

[1] *Definition based on Category A level thresholds for daytime construction noise in BS 5228-1*

concrete breaking and piling. Operational noise is not proposed to be assessed as a significant source affecting waterbirds at ecologically protected receptors.

22.4.6.6 This guidance has been considered to develop the following thresholds for impacts affecting waterbirds at designated ecological sites, contained in Table 22-3. This approach will be reviewed following baseline noise surveys, as consideration of existing ambient noise levels may lead to an adjusted, more appropriate approach.

**Table 22-3: Definitions of Magnitude for Construction Noise Affecting Waterbirds at Designated Ecological Sites (SSSI, Ramsar and SPA Sites)[2]**

| Magnitude | Definition (Daytime Noise Level) |
|---|---|
| Large | Sudden/impulsive noise ($L_{Afmax}$) >60 dB or; prolonged noise ($L_{Aeq,12h}$) >72 dB |
| Medium | Sudden/impulsive noise ($L_{Afmax}$) >55 dB or; prolonged noise ($L_{Aeq,12h}$) 60-72 dB |
| Small | Sudden/impulsive noise ($L_{Afmax}$) <55 dB or; prolonged noise ($L_{Aeq,12h}$) between measured baseline and 55 dB |
| Very Small | Sudden/impulsive noise ($L_{Afmax}$) <55 dB and prolonged noise ($L_{Aeq,12h}$) below measured baseline |

22.4.6.7 BS 5228-2 provides guidance on the perception of vibration within occupied buildings. This provides a simple method of assessing annoyance associated with vibration.

22.4.6.8 Table 22-4 details Peak Particle Velocity (PPV) measured in millimetres per second (mm/s), which represents the maximum instantaneous ground vibration level at a receptor and is the standard metric used to assess human perception and potential building response to construction and decommissioning vibration.

**Table 22-4: Definitions of Magnitude for Construction Vibration[3]**

| Magnitude | Definition (PPV) |
|---|---|
| Large | >10.0 mm/s |
| Medium | 1.0 – 10.0 mm/s |
| Small | 0.30 – 1.0 mm/s |
| Very Small | ≤0.30 mm/s |

22.4.6.9 Significance criteria for assessing construction and decommissioning road traffic noise associated with the EOS has been taken from guidance within CRTN and DMRB, as presented in Table 22-5. For assessment of construction traffic and decommissioning associated with the EOS, the short-term assessment thresholds are considered appropriate. The short-term thresholds represent a sustained change in predicted traffic noise over the defined construction or decommissioning period, rather than a one-off noise event.

[2] *Definitions derived from the guidance levels provided in the Waterbird Disturbance Mitigation Toolkit* (Cutts, Hemingway, & Spencer, 2013)
[3] *Definitions based on Table B.1 in BS 5228-2*

22.4.6.10 As further information becomes available about construction traffic volumes and routing, this assessment may be reviewed and screened out of the Chapter, following appropriate consultation with the relevant parties.

**Table 22-5: Definitions of Magnitude for Construction and Decommissioning Traffic[4]**

| Magnitude | Definition (Short-Term Increase in Noise Level (A-weighted decibel (dBA))) | Description |
|---|---|---|
| Large | >5.0 | Increase in noise levels is likely to be clearly perceptible and could have a significant effect on the continued use of a building. |
| Medium | 3.0 – 4.9 | Increase in noise levels is likely to be noticeable in affected buildings and outdoor recreational areas. |
| Small | 1.0 – 2.9 | A slight increase in noise levels may be perceived in affected buildings and outdoor recreational areas. |
| Very Small | <1.0 | Noise increase is unlikely to be discernible. |

### 22.4.7 Magnitude of Impact (Operational Phase)

Noise levels from fixed plant and building services associated with the operation of the Converter Station, including (but not limited to) cooling systems, auxiliary power supply, lighting columns and heating, ventilation and air conditioning systems, will need to be controlled so that they will not have an impact on nearby noise sensitive receptors relative to the background sound level. Criteria for the assessment are set in accordance with BS 4142, as detailed in Table 22-6. The assessment period defined in BS 4142 is typically 1 hour during the day and 15 minutes during the night.

[4] *Derived from guidance contained in DMRB and CRTN*

**Table 22-6: Definitions of Magnitude for Operational Noise from Converter Station (Fixed Plant and Services)[5]**

| Magnitude | Definition (Increase in Background Sound Pressure Level (dBA)) | Description |
|---|---|---|
| Large | >5.0 | Increase in noise levels is likely to be clearly perceptible and could have a significant effect on the continued use of a building. |
| Medium | 3.0-4.9 | Increase in noise levels is likely to be noticeable in affected buildings and outdoor recreational areas. |
| Small | 1.0-2.9 | A slight increase in noise levels may be perceived in affected buildings and outdoor recreational areas. |
| Very Small | <1.0 | Noise increase is unlikely to be discernible. |

22.4.7.1 Other operational noise sources may not comprise fixed or continuous plant and may therefore be more appropriately assessed using ISEP guidance for the assessment of environmental noise impacts. The full range and characteristics of operational noise sources are not yet defined and will be confirmed as the design and operational strategy develops. Such noise sources would be more appropriately assessed by the guidance contained in Table 22-7. Assessment periods may vary depending on the character, source or timings of the noise.

**Table 22-7: Definitions of Magnitude for Operational Noise from Other Sources[6]**

| Magnitude | Definition (Change in Noise Level) | Description |
|---|---|---|
| Large | Change in ambient sound level is greater than 5.0 dBA. | Increase in ambient sound level is likely to be clearly perceptible and could have a significant effect on the continued use of a building. |
| Medium | Change in ambient sound level is 3.0-5.0 dBA. | Increase in ambient sound level is likely to be noticeable in affected buildings and outdoor recreational areas. |
| Small | Change in ambient sound level is 1.0-2.9 dBA. | A slight increase in ambient sound level may be perceived in affected buildings and outdoor recreational areas. |
| Very Small | Change in ambient sound level is less than 1.0 dBA. | Increase in ambient sound level is unlikely to be discernible. |

### 22.4.8 Significance of Effect

22.4.8.1 A matrix approach has been adopted to present judgements made on the significance of an effect. This terminology is outlined in Table 22-8 below.

[5] *Derived from guidance in BS 4142*
[6] *Derived from ISEP guidance*

**Table 22-8: Significance Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Very Small |
| High | Major | Moderate | Minor | Negligible |
| Medium | Moderate | Minor | Negligible | Negligible |
| Low | Minor | Negligible | Negligible | Negligible |
| Negligible | Negligible | Negligible | Negligible | Negligible |

22.4.8.2 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

22.4.8.3 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UK Scheme design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UK Scheme.

## 22.5 Potential Effects and Mitigation

22.5.1.1 To inform identification of potential effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 22.5.2 Embedded Mitigation and Good Practice Measures

22.5.2.1 The EOS Scheme will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as *"mitigation measures that have been incorporated into a project's description and form an inherent part of the project's design"* (IEMA, 2024). The embedded mitigation measures which are relevant to this Chapter are presented in Table 22-9 below.

**Table 22-9: Embedded Mitigation Measure of Importance to Noise and Vibration**

| Measure Proposed | Rationale |
|---|---|
| Good practice construction noise and vibration management in accordance with BS 5228. | The EOS Scheme will be designed and constructed applying recognised good practice measures for control of construction noise and vibration, including appropriate plant selection, layout, maintenance, programming, working methods and barriers, thereby reducing noise and vibration emissions at source. |

| Measure Proposed | Rationale |
|---|---|
| Design-led control of operational plant noise. | Operational plant associated with the converter station will be specified, located and designed to achieve appropriate noise limits as far as practicable at nearby receptors through inherent design measures such as plant selection, enclosure, orientation and building design. |
| Design development informed by environmental assessment. | Noise and vibration assessment outputs will inform iterative design development, allowing potential effects to be avoided or reduced through embedded design decisions before detailed mitigation is required. |
| Design-led control of operational vibration. | Operational vibration will be limited to fixed plant and services associated with the converter station, which will be selected, designed and controlled to ensure vibration is maintained within levels prescribed in the Control of Vibration at Work Regulations. This embedded design approach controls vibration at the source and prevents perceptible ground-borne vibration at off-site receptors. |

22.5.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UK Scheme development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

22.5.2.3 As the UK Scheme advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective and compliant with regulatory standards and stakeholder input.

22.5.2.4 Embedded mitigation and good practice measures will form the basis for the control of noise and vibration effects associated with the construction, operational and decommissioning phases of the EOS. These measures represent industry practice and are assumed to be inherent to the design, construction and operation of the EOS. They are therefore embedded within the assessment assumptions and have been taken into account when defining the scope of the noise and vibration assessment.

22.5.2.5 During the construction and decommissioning phases, the principal sources of noise and vibration are expected to arise from construction plant and equipment. Sources of noise will include site preparation works, cable installation activities (including trenching, as well as, trenchless techniques (e.g. Horizontal Directional Drilling (HDD))), Convertor Station construction and construction-related vehicle movements. Embedded mitigation for these activities will be informed by the principles of Best Practicable Means (BPM), as defined under the Control of Pollution Act 1974, and by relevant guidance within BS 5228.

22.5.2.6 Standard BPM assumed to be implemented during the construction and decommissioning phases include the selection of appropriate plant for the task, the

use of modern, well-maintained equipment and the avoidance of unnecessary engine revving or idling.

22.5.2.7 Plant will also be located strategically where possible to maximise distance to sensitive receptors and to make use of screening, from both natural sources (e.g. bunds, embankments, hills) and site structures (such as welfare cabins, large containers, crane bases and stockpiles). Where it is not safe or feasible to locate items strategically, higher noise plant items will be screened using enclosures or barriers, where practicable.

22.5.2.8 Activities that may generate elevated noise levels at nearby receptors will be programmed to minimise duration and, following engagement with the local community, to avoid sensitive periods. Such measures will depend on the affected receptors and safety and engineering constraints. Any works outside of standard hours will be subject to appropriate management controls and consultation with the relevant local authority, with the need for such works, their duration and associated mitigation considered on a case-by-case basis and through appropriate consenting processes.

22.5.2.9 Construction traffic is anticipated to be a source of temporary noise effects along access routes. Embedded mitigation measures include the use of established road networks, adherence to designated construction routes and compliance with normal highway operating conditions. These measures will reduce excessive noise arising from vehicle movements on public roads.

22.5.2.10 Noise and vibration control measures during the construction phase will be secured and implemented through a Construction Environmental Management Plan (CEMP), with a similar process for the decommissioning phase. The CEMPs will set out the approach to applying BPM and relevant good practice, including the above listed measures, to manage noise and vibration from construction and decommissioning activities. An outline CEMP will be prepared for the Development Consent Order (DCO) Application and a detailed CEMP will be prepared and agreed with the relevant local authority prior to the commencement of construction and decommissioning, ensuring that appropriate controls, monitoring and management procedures are in place for the duration of the works.

22.5.2.11 During the operational phase, the primary source of airborne noise is expected to be fixed plant and building services associated with the Converter Station, including cooling systems, auxiliary power supply equipment, lighting columns and heating, ventilation and air conditioning systems. Embedded mitigation at this stage includes the inherent design requirement for plant and equipment to operate without prominent tonal, impulsive or intermittent characteristics at nearby sensitive receptors, consistent with good practice and the principles of BS 4142.

22.5.2.12 Operational plant will be assumed to be installed and maintained in accordance with manufacturers' specifications and relevant standards, with routine inspection and maintenance undertaken to prevent deterioration in acoustic performance over time. Plant will be integrated into the site layout to minimise noise emissions

beyond the site boundary, with enclosure, orientation and spacing of equipment considered as part of standard design practice.

22.5.2.13 Vibration from the operation of the completed scheme will be limited to fixed plant and services associated with the Converter Station. Fixed plant and services will be selected, designed and controlled to ensure that vibration will be within levels prescribed in the Control of Vibration at Work Regulations (HM Government, 2005). The operational elements of the EOS are therefore not expected to generate perceptible ground-borne vibration beyond the site boundary. This assumption forms part of the embedded mitigation approach and has been considered in the Scoping out of operational vibration effects.

22.5.2.14 The embedded mitigation and good practice measures described above represent the baseline level of control assumed within the assessment. The need for any additional or enhanced mitigation will be identified, where necessary, through the detailed assessment reported in the Noise and Vibration ES Chapter.

### 22.5.3 Potential Effects

22.5.3.1 The potential noise and vibration effects described in this Section are identified with regard to the nature of the EOS and the sources outlined in this Chapter. At this Scoping stage, it is recognised that, in the absence of mitigation, certain construction and operational activities would have the potential to give rise to significant adverse effects. The assessment approach therefore assumes the implementation of the embedded mitigation and BPM described above as a baseline, rather than measures to be applied to mitigate noise and vibration only when significant effects occur.

22.5.3.2 During the construction and decommissioning phases, unmitigated airborne noise and ground-borne vibration generated by construction plant, site preparation works, cable installation activities (including trenching and trenchless techniques) and convertor station construction could result in significant adverse effects at nearby noise and vibration-sensitive receptors. These activities represent the principal sources of potential significant effects during these phases.

22.5.3.3 With the implementation of embedded mitigation and BPM and adherence to BS 5228 guidance, construction and decommissioning noise and vibration effects are expected to be reduced. The detailed assessment reported in the ES Chapter will confirm the magnitude of residual effects and identify any additional mitigation where necessary.

22.5.3.4 Noise and vibration monitoring may be required during the construction and/or decommissioning phases to verify compliance with agreed working methods and to manage potential effects at nearby sensitive receptors. The requirement for monitoring, including the need for attended or unattended measurements, monitoring locations and trigger levels, will be determined as the EOS design and construction methodology are refined, and will be agreed with the relevant local authority. Monitoring would be implemented where considered necessary to inform

management of construction activities and to respond to any substantiated complaints.

22.5.3.5 Due to the size of the EOS, it is not envisioned that site-based construction noise and vibration monitoring would be required at all sensitive receptors or indeed for all construction or decommissioning activities. The requirements for site-based construction noise and vibration monitoring will be determined on a case-by-case basis during the relevant consenting processes with the relevant local authority.

22.5.3.6 During the operational phase, the principal potential source of noise effects is expected to be fixed plant and building services associated with the Converter Station, including cooling systems, auxiliary power supply equipment, lighting columns and heating, ventilation and air conditioning systems. In the absence of appropriate design control, noise from such fixed installations could result in significant adverse effects at nearby sensitive receptors.

22.5.3.7 The embedded mitigation measures described in the Section above form the basis for the operational noise assessment, which will be undertaken in accordance with BS 4142 and reported in the Noise and Vibration ES Chapter.

22.5.3.8 Temporary noise effects associated with operational traffic on public roads are expected to be limited in magnitude and duration. Given the anticipated traffic levels, use of the existing highway network, significant adverse effects from operational traffic noise are not anticipated.

22.5.3.9 Operational vibration will be limited to fixed plant and services associated with the converter station, which will be selected and designed to control vibration at source as per the Control of Vibration at Work Regulations. As a result, vibration levels are not expected to be perceptible beyond the site boundary and no pathway to significant off-site effects has been identified. Operational vibration effects are therefore scoped out of further assessment.

22.5.3.10 A summary of the elements scoped into and out of the noise and vibration assessment, based on the considerations above, is presented in Table 22-10.

**Table 22-10: Elements Scoped In and Out for Noise and Vibration**

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction | Construction works noise (site preparation, trenching, trenchless techniques for example, HDD, converter station construction, other plant and equipment). | Airborne noise generated by construction plant and activities may increase ambient sound levels and give rise to temporary disturbance and loss of amenity at nearby receptors. | Residential and other noise-sensitive human receptors. | Scoped In | Unmitigated airborne noise from construction activities could result in significant adverse effects at nearby sensitive receptors; effects will be assessed in the ES in accordance with BS 5228-1 and relevant policy concepts. |
| Construction | Construction works vibration (ground-borne vibration from plant and activities). | Ground-borne vibration from construction activities may be perceptible within nearby buildings and could give rise to annoyance, disturbance or risk of cosmetic building effects. | Residential receptors and vibration-sensitive receptors/structures. | Scoped In | Unmitigated ground-borne vibration from construction activities could be perceptible and lead to complaint at nearby sensitive receptors; effects will be assessed in the ES using BS 5228-2 and other relevant guidance. |
| Construction | Construction noise disturbance at protected/designated biodiversity sites. | Construction noise may result in behavioural disturbance to qualifying species, including temporary displacement or disruption of feeding, | SSSI, Ramsar and SPA sites (construction only). | Scoped In (noise pathway assessed; ecological significance determined in Onshore | Construction noise may give rise to disturbance pathways at protected sites where qualifying features are noise-sensitive. The assessment will be undertaken proportionately with reference to the Toolkit (Cutts, Hemingway, & Spencer, 2013), with ecological significance determined |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | roosting or breeding activity. | | Biodiversity Chapter | within the Onshore Biodiversity Chapter. |
| Construction | Construction traffic noise on public roads | Increased traffic flows associated with construction may elevate road traffic noise levels along affected routes, resulting in temporary changes to the acoustic environment. | Receptors adjacent to construction traffic routes. | Scoped In | Temporary changes in road traffic noise may result from construction vehicles due to the high proportion of Heavy Goods Vehicles (HGVs); effects will be assessed using CRTN, DMRB and/or ISEP principles as traffic data become available. |
| Construction | Construction traffic vibration on public roads. | Heavy vehicle movements may generate vibration within buildings adjacent to affected roads where surface conditions or proximity allow transmission. | Receptors adjacent to public highways. | Scoped Out | Public highways are assumed to be maintained and free of significant irregularities; construction traffic-induced vibration would not be expected to lead to significant adverse effects. |
| Operational | Operational noise from Converter Station fixed plant and building services (cooling, auxiliary power, lighting columns, heating, ventilation and air conditioning). | Continuous or intermittent operational plant noise may increase background sound levels and affect residential amenity in the absence of appropriate design control. | Nearby noise-sensitive receptors. | Scoped In | Noise from fixed installations could result in significant adverse effects in the absence of appropriate design control; assessment will be undertaken in accordance with BS 4142 (with supporting reference to BS 8233 and/or WHO as relevant). |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Operational | Operational noise from other intermittent/variable sources (if applicable). | Intermittent or non-steady operational activities may introduce audible noise events that could give rise to disturbance depending on operational characteristics. | Nearby noise-sensitive receptors. | Scoped In | The full range of operational noise sources is not yet defined; where sources are not appropriately assessed under BS 4142, they will be assessed using ISEP guidance, with scope confirmed as the design and operational strategy develops. |
| Operational | Operational traffic noise. | Operational vehicle movements may increase road traffic noise levels along access routes, resulting in changes to the existing acoustic environment and potential effects on acoustic conditions where receptors are located close to affected roads. | All receptors | Scoped Out | Operational traffic flows are expected to be low; significant adverse effects from operational traffic noise are not anticipated and will be kept under review as operational assumptions are refined. |
| Operational | Operational vibration. | Operation of fixed infrastructure may generate low-level vibration, though effects are not expected to be perceptible beyond the site boundary. | All receptors | Scoped Out | Operational vibration will be limited to fixed plant and services associated with the converter station, which will be selected, designed and controlled to ensure vibration is maintained within levels prescribed in the Control of Vibration at Work Regulations. Perceptible ground-borne vibration |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | beyond the site boundary is therefore not anticipated. |
| Decommissioning | Decommissioning works noise (activities similar to construction). | Noise from dismantling and removal activities may temporarily elevate ambient sound levels and affect nearby receptors. | Residential and other noise-sensitive receptors. | Scoped In | Decommissioning activities may generate temporary airborne noise with potential for significant adverse effects if unmitigated; effects will be assessed using BS 5228-1 and relevant criteria. |
| Decommissioning | Decommissioning works vibration. | Ground-borne vibration from removal works may be perceptible and cause temporary disturbance or cosmetic damage at nearby receptors. | Residential receptors and vibration-sensitive receptors/structures | Scoped In | Decommissioning activities may generate temporary ground-borne vibration; potential effects will be assessed using BS 5228-2 and other relevant guidance. |
| Decommissioning | Decommissioning traffic noise on public roads. | Traffic associated with removal activities may temporarily increase road traffic noise levels along affected routes. | Receptors adjacent to decommissioning traffic routes. | Scoped in | Temporary changes in road traffic noise may result from construction vehicles due to the high proportion of HGVs; effects will be assessed using CRTN, DMRB and/or ISEP principles as traffic data become available. |
| Marine and Offshore (all phases) | Noise and vibration effects. | Noise and vibration effects arising from offshore elements are outside the scope of the EOS assessment. | All receptors | Scoped Out | The current assessment refers to the EOS and will not consider effects from wider elements of the Tarchon Interconnector Project (except where these may be included in Cumulative Schemes). Note, offshore noise is |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | considered within each of the relevant offshore topic-specific chapters (see Paragraph 22.1.1.4). |
| Transboundary | Noise and vibration effects. | Noise and vibration effects are localised and would not extend beyond the UK Study Area. | Receptors outside the UK. | Scoped Out | Noise and vibration effects are localised within the defined Study Area and would not be experienced beyond the UK. |

### 22.5.4 Cumulative and Transboundary Effects

22.5.4.1 Volume 05, Chapter 32: Approach to Cumulative Effects details how potential cumulative effects will be assessed through the Cumulative Effects Assessment (CEA) and gives examples of those projects likely to be assessed.

22.5.4.2 Potential cumulative Noise and Vibration effects may arise where emissions from the EOS interact with those from other committed developments within the noise and vibration assessment Study Area. Construction and operational phases are not anticipated to overlap and operational traffic flows are expected to be sufficiently low such that cumulative traffic noise increases with other schemes would not be significant as a result. Operational plant associated with the EOS will be designed and controlled to avoid significant adverse noise effects at nearby sensitive receptors. On this basis, cumulative operational noise effects are not considered likely at any single receptor. This would specifically include “background creep”, which refers to the gradual increase in existing background noise levels over time due to the incremental addition of multiple small noise sources, each individually compliant but collectively raising ambient noise levels. While considered unlikely, cumulative effects will be reviewed as the assessment progresses, taking account of other committed developments where sufficient information is available, and assessed where there is potential for combined effects to occur.

22.5.4.3 Noise and Vibration effects from the EOS will be assessed within the defined Study Area and assessment will not extend beyond the UK. Transboundary noise and vibration effects are therefore scoped out of further assessment.

## 22.6 Assumptions, Limitations and Uncertainties

22.6.1.1 Predictions of sound levels are subject to an inherent degree of uncertainty. Modelling and measurement will be undertaken in accordance with recognised standards and guidance to minimise uncertainty; however, some residual uncertainty is unavoidable. A precautionary approach will therefore be adopted when interpreting predicted noise and vibration levels.

22.6.1.2 Measured ambient and background sound levels are also subject to variability due to temporal changes in source activity, meteorological conditions and seasonal influences. Baseline monitoring provides a representative sample of prevailing conditions rather than an absolute characterisation of the noise environment and a limited degree of uncertainty will therefore remain in the measured data.

22.6.1.3 Baseline surveys will be designed to reduce uncertainty as far as reasonably practicable, including the avoidance of periods of atypical conditions, such as adverse weather or school holiday periods where these could influence sound levels. This approach will help ensure that the baseline data are suitably representative for the purposes of the assessment.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 04, Chapter 23: Ornithology

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00030 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM Group |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| AoS | Area of Search |
| BAP | Biodiversity Action Plan |
| BBS | Breeding Bird Survey |
| BTO | British Trust for Ornithology |
| BWI | BirdWatch Ireland |
| CEA | Cumulative Effects Assessment |
| CEMP | Construction Environmental Management Plan |
| CIEEM | Chartered Institute of Ecology and Environmental Management |
| DCO | Development Consent Order |
| DEMP | Decommissioning Environmental Management Plan |
| ECoW | Ecological Clerk of Works |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| HDD | Horizontal Directional Drilling |
| HRA | Habitat Regulations Assessment |
| JNCC | Joint Nature Conservation Committee |
| km | Kilometres |
| m | Metres |
| MAGIC | Multi-Agency Geographic Information for the Countryside |
| MDS | Maximum Design Scenario |
| MLWS | Mean Low Water Springs |
| MPA | Marine Protected Area |
| MPS | Marine Policy Statement |
| NERC Act | Natural Environment and Rural Communities Act 2006 |
| NPPF | National Planning Policy Framework |
| NPS | National Policy Statement |
| NSIP | Nationally Significant Infrastructure Project |
| OEMP | Operational Environmental Management Plan |
| RSPB | Royal Society for the Protection of Birds |
| SNCB | Statutory Nature Conservation Body |
| SoS | Secretary of State |
| SPA | Special Protection Area |
| SSSI | Site of Special Scientific Interest |
| TTTCC | Through The Tidal Cycle Count |
| UK | United Kingdom |
| VMP | Vessel Management Plan |
| VP | Vantage Point |
| WeBS | Wetland Bird Survey |
| ZoI | Zone of Influence |

# 23. Ornithology

## 23.1 Introduction

23.1.1.1 This Chapter presents the ornithology assessment which will consider the potential significant effects on ornithological receptors during the construction, operational, and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). The UK Scheme is formed of both the UK Marine Scheme (UKMS) and the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description), both of which are relevant to this Chapter. As a result, this Chapter is split where relevant between the UKMS and EOS.

23.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current ornithological baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated ornithological receptors from the proposed components of the UKMS and EOS (as described in Volume 01, Chapter 02: UK Project Description); and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

23.1.1.3 Ornithology is defined as ornithological receptors relevant to the (UK) Scheme, and is inclusive of:

- Terrestrial and intertidal ornithology (collectively referred to as “onshore ornithology”, covering all areas landward of Mean Low Water Springs (MLWS)) relevant to components of the EOS; and
- Offshore ornithology (all areas seaward of MLWS to the extent of the UK’s Exclusive Economic Zone (EEZ)) relevant to components of the UKMS.

23.1.1.4 Key ornithological receptors at the time of writing have been identified using site-specific survey data, regional and local datasets and appropriate guidance and literature (Section 23.4). An evaluation of the potential for significant impacts on these receptors, focusing on key impact pathways, has then been carried out.

23.1.1.5 This Chapter should be read alongside the following Chapters for a broader understanding of the UK Scheme and ornithological interactions:

- Volume 01, Chapter 02: UK Project Description;
- Volume 02, Chapter 10: Onshore Biodiversity;
- Volume 03, Chapter 14: Benthic and Intertidal Ecology;
- Volume 03, Chapter 15: Fish and Shellfish Ecology; and
- Volume 04, Chapter 29: Carbon and Climate Change.

## 23.2 Study Areas

23.2.1.1 Two Study Areas are used for this Chapter, which are defined by the distinctive environments encompassed within each (the offshore environment within the UKMS Study Area, and the terrestrial and intertidal environment within the EOS Study Area). The different environments within these Study Areas will support differing key receptor groups. Presenting the Study Areas in this manner allows for clearer identification and subsequent assessment of key ornithological receptors and effect pathways relevant to the UK Scheme. The two ornithological Study Areas considered for this Chapter are:

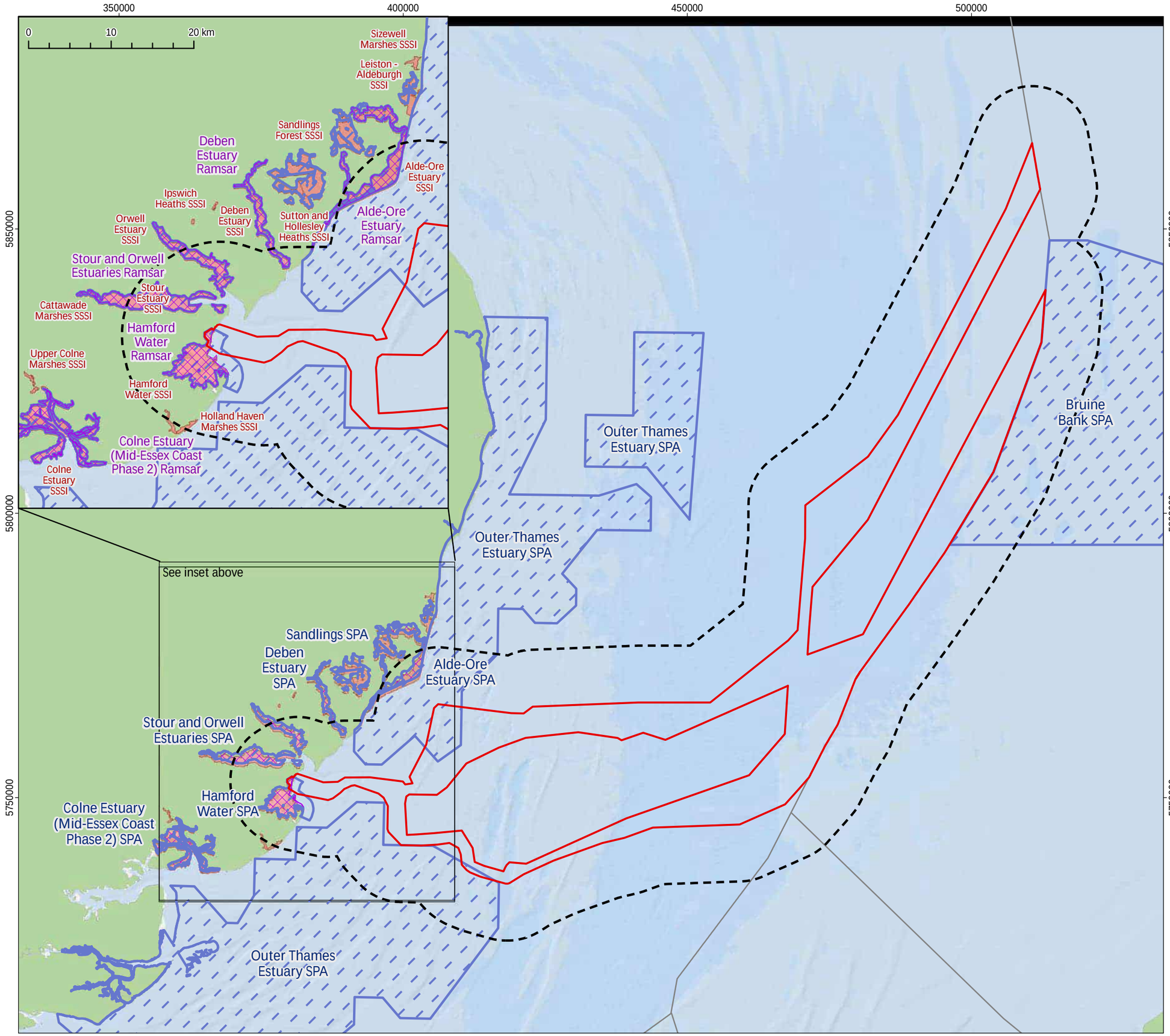
- The UKMS Study Area; and
- The EOS Study Area.

### 23.2.2 UKMS Study Area

23.2.2.1 The UKMS Study Area (Figure 23-1) is focused on characterising potential interaction with offshore ornithology receptors, and is made up of an Area of Search (AoS) that extends 10 kilometres (km) from the UKMS Scoping Boundary. A 10 km buffer has been selected based on the maximum expected displacement Zone of Influence (ZoI) from proposed works to offshore ornithological receptors (particularly, divers and sea ducks). This is based on advice provided by the Joint Statutory Nature Conservation Bodies (SNCBs, 2022) for other marine developments in the absence of marine cable installation specific advice. This ZoI also accounts for specific advice (SNCBs, 2022) when a project is within close proximity to a site designated for wintering red-throated diver (such as the Outer Thames Estuary SPA).

### 23.2.3 EOS Study Area

23.2.3.1 The EOS Study Area (Figure 23-2) is focused on characterising potential interaction with onshore ornithology receptors, and is made up of a separate AoS that extends 20 km from the EOS Scoping Boundary. This is based on the maximum stated core foraging range of 20km for geese (based on maximum cited distance which relates to pink-footed goose (*Anser brachyrhynchus*) and greylag goose (*Anser anser*)) provided within NatureScot guidance (Scottish Natural Heritage, 2016).




TARCHON

# Tarchon Interconnector Project

Scoping Report

## UKMS Ornithology Study Area (and Associated Designated Sites)

Legend

- UK Marine Scheme Scoping Boundary
- UKMS Ornithology Study Area
- Exclusive Economic Zones (EEZ) Boundaries
- Special Protection Area (SPA)
- Ramsar Site
- Sites of Special Scientific Interest (SSSI)



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:650,000 @A3 | 02/03/2026 | BPHB | EH | MB |


Riverview
A17 The Embankment Business Park
Heaton Mersey
Stockport
SK4 3GN
http://www.apemltd.com
+44 (0) 161 442 8938


APEM



Figure 23-1

Figure Reference: Tarchon_Scoping_ORN_Fig23-1_DesignatedSitesOffshore_v2

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590000 600000 610000 620000 630000 640000

250000 240000 230000 220000 210000

A134 A12 A120 A14 A133

Market Sandlings SPA
Sandlings Forest SSSI
Sandlings SPA
Alde-Ore Estuary SPA
Deben Estuary SPA
Alde-Ore Estuary Ramsar
Alde-Ore Estuary SSSI
Hintlesham Woods SSSI
Kesgrave
Ipswich
Ipswich Heaths SSSI
Deben Estuary SSSI
Sutton and Hollesley Heaths SSSI
Hollesley Bay
Acton
Hadleigh
Sudbury
Stour and Orwell Estuaries Ramsar
Stour and Orwell Estuaries SPA
Orwell Estuary SSSI
Deben Estuary Ramsar
Alde-Ore Estuary SPA
Outer Thames Estuary SPA
Stour and Orwell Estuaries Ramsar
Stour and Orwell Estuaries SPA
Felixstowe
Stour Estuary SSSI
Cattawade Marshes SSSI
Harwich
Landguard Common SSSI
Manningtree
Hamford Water SPA
Hamford Water SSSI
Colchester
Colne Estuary (Mid-Essex Coast Phase 2) Ramsar
Abberton Reservoir Ramsar
Upper Colne Marshes SSSI
Abberton Reservoir SSSI
Colne Estuary (Mid-Essex Coast Phase 2) SPA
Hamford Water Ramsar
Coggeshall
Walton-On-The-Naze
Frinton-on-Sea
Abberton Reservoir SPA
Holland Haven Marshes SSSI
Colne Estuary SSSI
Clacton-on-Sea
Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar
Outer Thames Estuary SPA
Colne Estuary (Mid-Essex Coast Phase 2) Ramsar
Blackwater Estuary (Mid-Essex Coast Phase 4) SPA
Dengie SSSI
Blackwater Estuary SSSI
Dengie (Mid-Essex Coast Phase 1) Ramsar
Ray Sand Channel
Dengie (Mid-Essex Coast Phase 1) SPA
Whitaker

# TARCHON

## Tarchon Interconnector Project
Scoping Report

## EOS Ornithology Study Area (and Associated Designated Sites)

**Legend**

- English Onshore Scheme Scoping Boundary
- EOS Ornithology Study Area
- Special Protection Area (SPA)
- Ramsar Site
- Sites of Special Scientific Interest (SSSI)




**Notes**

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Coordinate System: British National Grid

0 5 10 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:200,000 @A3 | 02/03/2026 | BPHB | EH | MB |

Riverview
A17 The Embankment Business Park
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Figure 23-2

Figure Reference: Tarchon_Scoping_ORN_Fig23-2_DesignatedSitesOnshore_v1

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## 23.3 Relevant Legislation, Planning Policy and Guidance

23.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context provides an overview of all relevant legislation and planning policy context for the UK Scheme. This Section refers to legislation, planning policy and guidance relating to the assessment of likely significant effects on birds, including sites designated for their ornithological value, that may arise from the construction, operation and maintenance, and decommissioning of the UK Scheme.

23.3.1.2 The below legislation, policies and guidance were reviewed as part of the scoping exercise, the content and requirements of which have been used to shape and develop the proposed scope of the ornithology assessment.

### 23.3.2 Legislation

23.3.2.1 The applicable legislation considered as part of this assessment includes:

- The Infrastructure Planning (EIA) Regulations 2017;
- The Conservation of Habitats and Species Regulations 2017 (as amended) (which transposes Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds into UK law (the Birds Directive) into UK legislation out to the 12 nautical mile (nm) limit) (HMSO, 2017);
- The Conservation of Offshore Marine Habitats and Species Regulations 2017, which applies within the UK Offshore Marine Area (beyond the 12 nm limit);The Wildlife and Countryside Act 1981 (as amended) (HMSO, 1981);
- Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat (the Ramsar Convention) (United Nations Educational, 1971);
- Countryside and Rights of Way Act 2000 (HMSO, 2000);
- Natural Environment and Rural Communities Act 2006 (HMSO, 2006);
- Marine and Coastal Access Act 2009 (HMSO, 2009); and
- The Marine Strategy Regulations 2010 (HMSO, 2010)

### 23.3.3 Marine Policy Statements

23.3.3.1 The UK Marine Policy Statement (updated in September 2020) aims to contribute to the achievement of sustainable development in the UK marine area. Section 2.6.1 discusses marine ecology and biodiversity, and section 3.1 on marine protected areas (MPAs). Sections 2.5.1 and 3.3 provide information on environmental decision-making principles (Defra, 2011).

### 23.3.4 National Planning Policy Framework

23.3.4.1 The National Planning Policy Framework (NPPF) is primarily relevant through its policies on conserving and enhancing the natural environment (Ministry of Housing, Communities & Local Government, 2024). Paragraphs 187–201 emphasise the need to protect valued landscapes and biodiversity, minimise ecological effects and secure net gains for nature, including maintaining coherent

ecological networks and supporting priority species. These policies also require planning decisions to distinguish the hierarchy of designated sites and take a strategic approach to habitat protection, ensuring that development avoids unacceptable environmental harm and enhances ecological resilience. Collectively, these provisions establish the need for robust assessment of potential effects on designated bird features, including disturbance, displacement and habitat-related effects, and for decisions to be informed by the best available evidence.

23.3.4.2 Under Section 104 (3) of the Planning Act 2008, the Secretary of State (SoS) is required to decide applications for development consent in accordance with the relevant National Policy Statements (NPS). The relevant NPSs have therefore been considered in this preparing this Chapter and include:

- Overarching NPS for Energy (EN-1) (DESNZ, 2026);
- NPS for Renewable Energy Infrastructure (EN-3) (DESNZ, 2026); and
- NPS for Electricity Networks Infrastructure (EN-5) (DESNZ, 2026).

### 23.3.5 Guidance

23.3.5.1 For the assessment of potential ornithological effects, the following relevant guidance will be considered as issued from the relevant Statutory Nature Conservation Bodies (SNCB) and statutory advisors:

- Natural England Offshore wind cabling: ten years' experience and recommendations (Natural England 2018)
- Natural England and JNCC advice on key sensitivities of habitats and Marine Protected Areas in English Waters to offshore wind farm cabling within Proposed Round 4 leasing areas (Natural England & JNCC, 2019)
- Nature conservation considerations and environmental best practise for subsea cables for English Inshore and UK offshore waters (Natural England & JNCC, 2022)
- Natural England's Best Practice Protocol for Vessels in Red-throated Diver SPAs (Natural England, 2025)
- Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2024)

23.3.5.2 The following additional guidance has been used to determine the survey approach and has been cited within Section 23.4.1 for the relevant survey:

- British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) (BTO, 2026)
- Raptors: A Field Guide to Survey and Monitoring (Hardey, et al., 2013)
- Bird Monitoring Methods: A Manual of Techniques for Key UK Species (Gilbert, Gibbons, & Evans, 1998)
- Bird Survey Guidelines (Bird Survey & Assessment Steering Group, 2026)
- Bird Census Techniques (Bibby, Burgess, Hill, & Mustoe, 2000)

- Changes in the status of waders breeding on wet lowland grasslands in England and Wales between 1982 and 1989 (O'Brien & Smith, 1992) NatureScot Research Report 1283 - Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species (Goodship & Furness, 2022)

### 23.3.6 Local Planning Policy (EOS)

23.3.6.1 Local planning policy only relates to the EOS elements of the UK Scheme, and no local planning policy is applicable to the UKMS.

23.3.6.2 The relevant administrative areas to consider for the EOS include Tendring District Council and Essex County Council.

23.3.6.3 Development associated with infrastructure within the Tendring District Council is considered in the context of the Tendring District Local Plan 2013–2033 and Beyond, adopted by Tendring District Council as the local planning authority (North Essex Authorities, 2021). The Local Plan provides the policy framework for considering onshore elements of a development, such as landfall works, cable routes, substations, and port-related infrastructure. Relevant policies support infrastructure and employment use in principle, subject to the protection of the coastal environment, designated habitats, landscape and seascape character, flood risk management, and the avoidance or mitigation of cumulative effects, particularly along the district's sensitive coastline and internationally designated sites.

23.3.6.4 Development associated with infrastructure within the administrative area of Essex County Council is considered in the context of the County Council's role as Minerals and Waste Planning Authority, Highway Authority and statutory consultee, rather than as the local planning authority for general development (Essex County Council, 2026). Essex County Council provides the relevant policy framework for assessing onshore elements of developments, particularly in relation to highway effects, construction activities, minerals safeguarding and waste management, as set out in the Essex Minerals Local Plan and associated waste planning policy. Essex County Council is also a statutory consultee for Nationally Significant Infrastructure Projects (NSIP), with a specific focus on mitigating construction and cumulative effects arising from major infrastructure development.

### 23.3.7 Consultation and Engagement

23.3.7.1 Consultation relating to ornithology has been undertaken with the following statutory consultee:

- **Natural England:** An initial meeting was held with Natural England on 20th November 2025 to introduce the UK Scheme. The scope of ornithology surveys undertaken to date was outlined to Natural England alongside those proposed for the 2026 breeding season. In Natural England's formal response letter received on 17th December 2025, a number of comments regarding ornithology were received. This included identification of impacts on red-throated diver, common tern and little tern within the Outer Thames Special

Protection Area (SPA) as key offshore ornithology risks. Also identified in this letter were potential impacts on Hamford Water SPA, Ramsar site and SSSI, Stour and Orwell SPA and Ramsar site and Outer Thames SPA at the UK Landfall locations. Regarding onshore ornithology, additional information was requested on the ornithology surveys to date, including any limitations, and proposed survey methodologies.

- **Natural England:** A specific ornithology consultation letter responding to Natural England's comments was issued on 4th March 2026. This letter detailed the methods and results of field surveys undertaken to date, as well as proposed methods for upcoming field surveys during the breeding season.
- **Natural England:** A second meeting was held with Natural England on 5th March 2026 to provide an update on the project. During this meeting it was confirmed that the Project has committed to an embedded seasonal restriction for Red Throated Diver between 01 November to 31 March for any works within the Outer Thames Estuary SPA plus a 2k m buffer. Natural England had no specific comments on the proposed onshore survey methods presented within the consultation letter.

23.3.7.2 Consultation will continue with statutory consultees following Scoping, as detailed within Volume 01, Chapter 04: Approach to Consultation.

## 23.4 Baseline Environment

### 23.4.1 Baseline Conditions

23.4.1.1 The known or predicted ornithological baseline conditions are summarised in the following sections. These will be fully defined as further detailed bird surveys and assessments are undertaken.

#### Identification of Relevant Desk-based Studies

23.4.1.2 To ensure appropriate characterisation of all potential ornithological receptors with theoretical connectivity to the UK Scheme, a literature-based search was undertaken. The literature search focussed on identification of:

- Other recent proposed marine developments within the Southern UK North Sea Region;
- Academic studies related to ornithological receptors behavioural responses to relevant effect pathways (see Section 23.6.3);
- Academic studies of ornithological distribution overlapping with the UKMS and EOS Study areas; and
- Relevant biological record centre and citizen science data which overlaps with the UKMS and EOS Study areas.

23.4.1.3 A summary of the key literature identified to aid identification of baseline conditions is provided in Section 23.4.3. The desk study will be updated throughout the development of the UK Scheme to ensure that the most up-to-date information is available to inform the design and impact assessment.

### Identification of Key Statutory Sites

23.4.1.4 A focussed initial search was conducted to identify ornithological features of key statutory sites (Section 23.4.1) to inform the scope of the baseline ornithology survey requirements for the UK Scheme. This search focussed on identification of statutory sites with direct overlap of both the UKMS and EOS Study areas, in order to identify key statutory sites with potential connectivity. This includes Hamford Water SPA, Ramsar site and SSSI, Stour and Orwell SPA and Ramsar site and Outer Thames SPA which were referenced by Natural England in consultation.

23.4.1.5 It is acknowledged that potential connectivity may occur with ornithological qualifying features beyond the UKMS and EOS Study areas, particularly seabird qualifying features based on their large foraging ranges (Woodward, Thaxter, Owen, & Cook, 2019). However, it is expected that sites within the UKMS and EOS Study Areas will be the focus of subsequent appropriate assessment requirements, based on greater potential for overlap between proposed works and bird species core foraging ranges (Woodward, Thaxter, Owen, & Cook, 2019). Nevertheless, appropriate consideration for the potential for a likely significant effect on all ornithological qualifying features with theoretical connectivity will be undertaken as part of the Habitat Regulations Assessment (HRA) Screening Report, which will be prepared at a later point in the EIA process.

23.4.1.6 A total of 18 SPA and Ramsar (National Site Network) sites designated for their ornithological value have been identified within the UKMS and/or EOS Study Areas. The locations of these are presented in Figure 23-1 and Figure 23-2. A further SPA outside of the UK was also identified as having overlap with the UKMS Study Area as presented in Figure 23-1.`

23.4.1.7 Three of these (Hamford Water SPA, Hamford Water Ramsar site and the Outer Thames Estuary SPA) are located within the UKMS/EOS Scoping Boundaries. A description of these National Site Network sites and their qualifying species are presented in Table 23-1.

23.4.1.8 A further 18 SSSIs, which contain ornithological features within their citation, have been identified within the UKMS and EOS Study Areas. Descriptions of these are presented in Table 23-2 with details taken from citation documents, published online by the JNCC (JNCC, 2026).

**Table 23-1: National Site Network and Natura 2000 Sites Designated for Ornithological Interest Overlapping with the UKMS and/or EOS Study areas**

| Statutory Site Name and Designation | Qualifying Species[1] | Approximate Distance and Direction from the Closest Point of the Site |
|---|---|---|
| Hamford Water SPA | **Breeding**<br>• Little Tern (*Sternula albifrons*)<br><br>**Non-breeding**<br>• Avocet (*Recurvirostra avosetta*)<br>• Dark-bellied brent goose (*Branta bernicla bernicla*)<br>• Shelduck (*Tadorna tadorna*)<br>• Teal (*Anas crecca*)<br>• Ringed plover (*Charadrius hiaticula*)<br>• Grey plover (*Pluvialis squatarola*)<br>• Black-tailed godwit (*Limosa limosa*)<br>• Redshank (*Tringa totanus*) | Within the EOS and UK Marine Scheme Scoping Boundaries |
| Hamford Water Ramsar | **Breeding**<br>• Ringed plover<br>• Redshank<br><br>**Non-breeding**<br>• Dark-bellied brent goose<br>• Black-tailed godwit | Within the EOS and UK Marine Scheme Scoping Boundaries |
| Stour and Orwell Estuaries SPA | **Breeding**<br>• Avocet<br><br>**Non-breeding** | 1.64 km north of the EOS Scoping Boundary |

[1] Qualifying species are as stated by Natural England. (2026) from https://designatedsites.naturalengland.org.uk/ (2026) from https://designatedsites.naturalengland.org.uk/

| Statutory Site Name and Designation | Qualifying Species[1] | Approximate Distance and Direction from the Closest Point of the Site |
|---|---|---|
| | • Redshank<br>• Dark-bellied brent goose<br>• Pintail (*Anas acuta*)<br>• Grey plover<br>• Knot (*Calidris canutus islandica*)<br>• Dunlin (*Calidris alpina alpina*)<br>• Black tailed Godwit<br>• Redshank | |
| Stour and Orwell Estuaries Ramsar | **Breeding**<br>• Redshank<br><br>**Non-breeding**<br>• Dark-bellied brent goose<br>• Pintail<br>• Grey plover<br>• Knot<br>• Dunlin<br>• Black tailed godwit<br>• Redshank | 1.64 km north of the EOS Scoping Boundary |
| Deben Estuary SPA | **Non-breeding**<br>• Dark-bellied brent goose<br>• Shelduck<br>• Grey plover<br>• Black-tailed godwit<br>• Redshank | 10.5 km north-east of the EOS Scoping Boundary |
| Deben Estuary Ramsar | **Non-breeding**<br>• Dark-bellied brent goose | 10.5 km north-east of the EOS Scoping Boundary |

| Statutory Site Name and Designation | Qualifying Species[1] | Approximate Distance and Direction from the Closest Point of the Site |
|---|---|---|
| | • Shelduck<br>• Avocet<br>• Grey plover<br>• Black-tailed godwit<br>• Redshank | |
| Outer Thames Estuary SPA | **Breeding**<br>• Little tern<br>• Common tern (*Sterna hirundo*)<br><br>**Non-breeding**<br>• Red-throated diver (*Gavia stellata*) | Within the EOS and UK Marine Scheme Scoping Boundaries |
| Sandlings SPA | **Breeding**<br>• Nightjar (*Caprimulgus europaeus*)<br>• Woodlark (*Lullula arborea*) | 16.7 km north-east of the EOS Scoping Boundary |
| Alde-Ore Estuary SPA | **Breeding**<br>• Avocet<br>• Lesser black-backed gull (*Larus fuscus*)<br>• Little tern<br>• Marsh harrier (*Circus aeruginosus*)<br>• Sandwich tern (*Thalasseus sandvicensis*)<br><br>**Non-breeding**<br>• Avocet<br>• Redshank<br>• Ruff (*Philomachus pugnax*) | 7.0 km north-west of the UK Marine Scheme Scoping Boundary |

| Statutory Site Name and Designation | Qualifying Species[1] | Approximate Distance and Direction from the Closest Point of the Site |
|---|---|---|
| Alde-Ore Estuary Ramsar | **Breeding**<br>• Lesser black-backed gull<br><br>**Non-breeding:**<br>• Avocet<br>• Redshank | 7.0 km north-west of the UK Marine Scheme Scoping Boundary |
| Abberton Reservoir SPA | **Breeding**<br>• Cormorant (*Phalacrocorax carbo*)<br><br>**Non-breeding**<br>• Wigeon<br>• Gadwall (*Anas strepera*)<br>• Great crested grebe (*Podiceps cristatus*)<br>• Mute swan (*Cygnus olor*)<br>• Shoveler (*Anas clypeata*)<br>• Teal<br>• Pochard (*Aythya farina*)<br>• Tufted duck (*Aythya fuligula*)<br>• Goldeneye (*Bucephala clangula*)<br>• Coot (*Fulica atra*) | 12.4 km south-west of the EOS Scoping Boundary |
| Abberton Reservoir Ramsar | **Breeding**<br>• Cormorant<br><br>**Non-breeding**<br>• Wigeon<br>• Gadwall<br>• Great crested grebe | 12.4 km south-west of the EOS Scoping Boundary |

| Statutory Site Name and Designation | Qualifying Species[1] | Approximate Distance and Direction from the Closest Point of the Site |
|---|---|---|
| | • Mute swan<br>• Shoveler<br>• Teal<br>• Pochard<br>• Tufted duck<br>• Goldeneye<br>• Coot | |
| Colne Estuary (Mid-Essex Coast Phase 2) SPA | **Breeding**<br>• Pochard<br>• Ringed plover<br>• Little tern<br><br>**Non-breeding**<br>• Dark-bellied brent goose<br>• Redshank<br>• Hen harrier (*Circus cyaneus*) | 7.75 km south of the EOS Scoping Boundary |
| Colne Estuary (Mid-Essex Coast Phase 2) Ramsar | **Non-breeding**<br>• Dark-bellied brent goose<br>• Black-tailed godwit | 7.75 km south of the EOS Scoping Boundary |
| Blackwater Estuary (Mid-Essex Coast Phase 4) SPA | **Breeding**<br>• Little tern<br>• Pochard<br>• Ringed plover<br>• Waterbird assemblage<br><br>**Non-breeding**<br>• Dark-bellied brent goose | 15.3 km south-west of the EOS Scoping Boundary |

| Statutory Site Name and Designation | Qualifying Species[1] | Approximate Distance and Direction from the Closest Point of the Site |
|---|---|---|
| | • Black-tailed godwit<br>• Dunlin<br>• Grey plover<br>• Hen harrier<br>• Waterbird assemblage | |
| Blackwater Estuary (Mid-Essex Coast Phase 4) Ramsar | **Breeding**<br>• Little tern<br>• Pochard<br>• Ringed plover<br><br>**Non-breeding**<br>• Cormorant<br>• Shelduck<br>• Gadwall<br>• Teal<br>• Goldeneye<br>• Ringed plover<br>• Curlew<br>• Redshank | 15.3 km south-west of the EOS Scoping Boundary |
| Dengie (Mid-Essex Coast Phase 1) SPA | **Non-breeding**<br>• Hen harrier<br>• Dark-bellied brent goose<br>• Grey plover<br>• Knot<br>• Dunlin<br>• Black-tailed godwit<br>• Bar-tailed godwit (*Limosa lapponica*) | 19.8 km south-west of the EOS Scoping Boundary |

| Statutory Site Name and Designation | Qualifying Species[1] | Approximate Distance and Direction from the Closest Point of the Site |
|---|---|---|
| Dengie (Mid-Essex Coast Phase 1) Ramsar | **Non-breeding**<br>• Dark-bellied brent goose<br>• Knot<br>• Grey plover | 19.8 km south-west of the EOS Scoping Boundary |
| Bruine Bank SPA | **Non-breeding**<br>• Gannet (*Morus bassanus*)<br>• Great skua (*Stercorarius skua*)<br>• Little gull (*Hydrocoloeus minutus*)<br>• Great black-backed gull (*Larus marinus*)<br>• Guillemot (*Uria aalge*)<br>• Razorbill (*Alca torda*) | 0.0 km at the eastern edge of the UKMS Scoping Boundary and EEZ |

**Table 23-2: Nationally Significant Sites Designated for Ornithological Interest Overlapping with the UKMS and/or EOS Study areas**

| Statutory Site Name and Designation | Species listed in the SSSI citation[2] | Approximate Distance and Direction from the Closest Point of the Site |
|---|---|---|
| Deben Estuary SSSI | **Non-breeding:**<br>• Black-tailed godwit<br>• Dark-bellied brent goose<br>• Redshank<br>• Shelduck | 10.5 km north-east of the EOS Scoping Boundary |
| Colne Estuary SSSI | **Breeding:**<br>• Little tern<br><br>**Non-breeding:**<br>• Black-tailed godwit<br>• Dark-bellied brent goose<br>• Dunlin<br>• Grey plover<br>• Redshank<br>• Ringed plover<br>• Sanderling (*Calidris alba*) | 7.75 km south of the EOS Scoping Boundary |
| Hamford Water SSSI | **Breeding:**<br>• Little tern<br>• Ringed plover<br><br>**Non-breeding:**<br>• Black-tailed godwit<br>• Dark-bellied brent goose<br>• Curlew | Within the EOS and UK Marine Scheme Scoping Boundaries |

[2] Qualifying species are as stated by Natural England. (2026) from https://designatedsites.naturalengland.org.uk/(2026) from https://designatedsites.naturalengland.org.uk/

| Statutory Site Name and Designation | Species listed in the SSSI citation[2] | Approximate Distance and Direction from the Closest Point of the Site |
|---|---|---|
| | • Dunlin<br>• Grey plover<br>• Pintail<br>• Redshank<br>• Ringed plover<br>• Sanderling<br>• Shelduck<br>• Teal<br>• Wigeon | |
| Stour Estuary SSSI | **Non-breeding**:<br>• Black-tailed godwit<br>• Dark-bellied brent goose<br>• Cormorant<br>• Curlew<br>• Dunlin<br>• Great crested grebe<br>• Grey plover<br>• Knot<br>• Mute swan<br>• Pintail<br>• Redshank<br>• Ringed plover<br>• Shelduck | 1.20 km north of the EOS Scoping Boundary |
| Cattawade Marshes SSSI | **Breeding:**<br>• Redshank<br>• Lapwing (*Vanellus vanellus*) | 2.00 km north-west of the EOS Scoping Boundary |

| Statutory Site Name and Designation | Species listed in the SSSI citation[2] | Approximate Distance and Direction from the Closest Point of the Site |
|---|---|---|
| | • Oystercatcher (*Haematopus ostralegus*)<br>• Ringed plover<br>• Shelduck<br>• Shoveler<br>• Teal<br>• Tufted duck<br>• Water rail (*Rallus aquaticus*) | |
| Orwell Estuary SSSI | **Breeding:**<br>• Avocet<br><br>**Non-breeding:**<br>• Black-tailed godwit<br>• Dark-bellied brent goose<br>• Cormorant<br>• Dunlin<br>• Gadwall<br>• Grey plover<br>• Pintail<br>• Redshank<br>• Shelduck | 3.10 km north of the EOS Scoping Boundary |
| Sandlings Forest SSSI | **Breeding**<br>• Nightjar<br>• Woodlark | 18.8 km north-east of the EOS Scoping Boundary |
| Sizewell Marshes SSSI | **Breeding**<br>• Shoveler<br>• Gadwall<br>• Teal | 18.5 km north of the UK Marine Scheme Scoping Boundary |

| Statutory Site Name and Designation | Species listed in the SSSI citation[2] | Approximate Distance and Direction from the Closest Point of the Site |
|---|---|---|
| | • Snipe (*Gallinago gallinago*)<br>• Lapwing | |
| Sutton and Hollesley Heaths SSSI | **Breeding**<br>• Woodlark | 16.8 km north-east of the EOS Scoping Boundary |
| Leiston - Aldeburgh SSSI | **Breeding**<br>• Gadwall<br>• Marsh harrier<br>• Woodlark<br><br>**Non-breeding**<br>• Gadwall<br>• Shoveler<br>• White-fronted goose (*Anser albifrons*) | 12.5 km north of the UK Marine Scheme Scoping Boundary |
| Hintlesham Woods SSSI | **Breeding**<br>• Woodcock (*Scolopax rusticola*)<br>• Nightingale<br>• Tawny owl (*Strix aluco*)<br>• Nuthatch (*Sitta europaea*)<br>• Whitethroat | 12.5 km north of the EOS Scoping Boundary |

### Site-specific Surveys – EOS Study Area/Onshore Ornithology

23.4.1.9 The survey programme for the EOS has been developed considering qualifying features of nearby designated sites and habitats, and likely species presence within the EOS Scoping Boundary alongside professional judgement. The previous results of surveys undertaken for the UK Scheme and the survey effort to date were also key considerations in the refinement of the methodology.

#### *Field Survey Methods*

23.4.1.10 This section outlines the proposed approach to ornithological surveys, considering best practice, the results of existing survey data and the approaches employed to date on the UK Scheme. Surveys commenced in October 2024, and two years of survey data will be collected alongside desk study data to establish a robust baseline dataset in line with best practice. This approach is considered suitable to inform an impact assessment and Natural England have been consulted for specific comment on the proposed survey methods. Survey methods varied between years and are detailed below. No further surveys beyond those listed are proposed.

### Year One Survey Methods

23.4.1.11 Surveys were undertaken for the UK Scheme between October 2024 and September 2025 using the methodologies outlined below. The location of the year one surveys is shown in Figure 23-3 and Figure 23-4.

#### *Intertidal Bird Surveys*

23.4.1.12 Intertidal bird surveys were undertaken between October 2024 and May 2025, and between August and September 2025 at the Landfall Zones and a surrounding 500 metres (m) buffer. These surveys recorded waterbirds present within foreshore and intertidal habitats. Survey methods followed the WeBS methodology (BTO, 2026) and as described by (Gilbert, Gibbons, & Evans, 1998). Surveys covered high and low tides to determine usage of the intertidal zone at different tidal states and allow for the identification of high and low tide roosts.

23.4.1.13 During October 2024 two survey visits were undertaken (one high-tide and one low-tide visit), with additional survey effort during November 2024 (a total of seven visits, four at low tide and three at high-tide). Thereafter, all months had four visits with the exception of February (five visits), with at least one low-tide and one high-tide visit per month.

23.4.1.14 At high tide, all areas of the landfall site and adjacent foreshore/intertidal area were visited sequentially, and a single count of all species present was undertaken within the two-hour period either side of high water. At low tide all areas were again visited sequentially and counts of waterbirds feeding on the foreshore/intertidal area was undertaken, with birds and their numbers recorded on both the rising and falling tide, where possible.

23.4.1.15 The survey area extended to a minimum of 500 m beyond the Landfall Zones and adjacent foreshore/intertidal area to record waterbird species, while other non-waterbird species of conservation concern were recorded incidentally.

#### *Wintering Bird Surveys*

23.4.1.16 Additional wintering bird surveys were undertaken between October 2024 and March 2025. Surveys followed ‘look-see’ methods (Bibby, Burgess, Hill, & Mustoe, 2000), with surveyors walking transect routes and stopping to scan for birds present for up to 15-minute intervals.

23.4.1.17 Surveys were undertaken during early morning or prior to dusk with one visit each month. Any wintering birds present were recorded on field maps to identify key foraging locations.

23.4.1.18 These surveys did not cover the entirety of the EOS Scoping Boundary and although this created some limitations during the first year of surveys, the methodology has been adapted for the second year of surveys, and a comprehensive desk study will be undertaken to support field survey data. It is considered that this will provide a suitable baseline to undertake a robust impact assessment and allow interpretation of interannual variation.

#### *Breeding Bird Surveys and Saltmarsh Breeding Bird Surveys*

23.4.1.19 Breeding Bird Surveys (BBS) were undertaken following Bird Survey Guidelines (Bird Survey & Assessment Steering Group, 2026) in line with best practice, with six visits between March and July and a further survey in September. March to July surveys were undertaken between 06:00 and 12:00, with no evening survey visit undertaken contrary to guidance. Surveys were undertaken following eight transects which covered representative habitats across the cable route corridor rather than full coverage of the EOS Scoping Boundary, with all species of conservation concern present recorded.

23.4.1.20 Following conclusion of all surveys, territory analysis was completed following standard guidance (Bibby, Burgess, Hill, & Mustoe, 2000). Although specific raptor surveys were not completed, an additional survey was completed in September to record any breeding hobby (*Falco subbuteo*).

23.4.1.21 Additional BBS were undertaken within saltmarsh habitats in the south-east of the Scoping Boundary to determine breeding wader species present within the Hamford Water SPA and Ramsar Site at and immediately adjacent to the Landfall Zones. Surveys were undertaken using the O’Brien and Smith (1992) methodology (O'Brien & Smith, 1992), with three visits undertaken between mid-April and mid-June 2025. Territory analysis was completed on the conclusion of all survey visits.

#### *Little Tern Foraging Surveys*

23.4.1.22 Additional Little Tern Foraging Surveys were undertaken within nearshore waters surrounding the Landfall Zones to determine any areas used by foraging little tern associated with the Hamford Water SPA breeding little tern population. Four surveys were undertaken during July 2025 from a single vantage point (VP) with methods adapted from standard guidance. The survey method used consisted of

a six-hour watch covering high and low tide, with any tern activity recorded. Initially three survey visits were proposed, however the survey on 24/07/25 was halted after 3 hours and 16 minutes, and therefore an additional survey lasting 2 hours and 40 minutes was completed on 29/07/25 to achieve the required survey effort.

### Year Two Survey Methods

23.4.1.23 The location of the year two surveys is shown on Figure 23-5.

#### *Year Two Intertidal Bird Surveys*

23.4.1.24 Further intertidal bird surveys are currently being undertaken for the UK Scheme, commencing in October 2025 and concluding in September 2026. A full year of surveys will cover the non-breeding season, breeding season, and spring and autumn passage periods to establish a robust baseline. Intertidal Bird Surveys will be undertaken covering intertidal and nearshore habitats at the Landfall Zones, with birds recorded from appropriate VPs. Surveys will cover all areas considered within the ZoI of the Landfall Zones.

23.4.1.25 Surveys are being undertaken using the Through The Tidal Cycle Count (TTTCC) method, which is based upon ‘look-see’ methods (Bibby, Burgess, Hill, & Mustoe, 2000). The TTTCC method is considered the most appropriate approach to determine usage of the intertidal zone by waterbirds and has been used in previous similar projects.

23.4.1.26 Surveys will census and map waterbirds and other species of interest within the survey area. Six hourly counts will be undertaken from each VP to census bird species present, their abundance and behaviour as well as any potential disturbance events to understand the level of baseline disturbance within the survey area. The target species are all waterbirds as defined by BTO WeBS (swans, geese, ducks, divers, grebes, cormorant, shag, herons, rails, crakes, waders and kingfisher). In addition, any gull or tern species along with any SPA qualifying species with potential connectivity to the survey area will be recorded. Any notable (Schedule 1 or Annex I) raptor species will be recorded incidentally.

23.4.1.27 This method deviates from that used in surveys undertaken previously for the UK Scheme; however, TTTCC is the standard methodology used for intertidal surveys (including similar projects such as Cenos Offshore Wind Farm, Berwick Bank Offshore Wind Farm and Morgan and Morecombe Offshore Wind Farm) and is considered best practice. It allows collection of data throughout the tidal cycle, identifying the locations of roosts at high, mid- and low tide and any differences in activity across rising and falling tides.

#### *Year Two Wintering Bird Surveys*

23.4.1.28 Monthly wintering bird surveys are being undertaken between October 2025 and March 2026 to record any foraging goose, swan or wader species.

23.4.1.29 Surveys are being undertaken diurnally within the EOS Scoping Boundary and a 500 m buffer following look-see methods (Bibby, Burgess, Hill, & Mustoe, 2000). Due to the size of the survey area, the surveys are being undertaken using a driven

transect, which was designed to ensure visibility of the entirety of the survey area, with one surveyor driving while the second scans for flocks. Suitable VPs were also identified where surveyors could scan for flocks. Where land is not visible from the driven transect, surveyors will access land on foot ensuring full visibility of the survey area.

#### *Year Two Breeding Bird Surveys (BBS)*

23.4.1.30 A second year BBS will be undertaken following the methods outlined by the Bird Survey Guidelines (Bird Survey & Assessment Steering Group, 2026). Due to habitats encountered within the EOS Scoping Boundary, and particularly the lack of complex habitats such as woodland or large wetlands, it is proposed that a reduced four visit survey programme would be undertaken, which would comprise of three diurnal survey visits and a single dusk visit to survey for nocturnal and crepuscular species.

23.4.1.31 The survey area will include all habitats within the EOS Scoping Boundary and a surrounding 250 m buffer. The survey area will be extended if sensitive species could be present, and urban habitats (existing housing, roads etc) will be excluded. Visits will be undertaken between late-March and early-July 2026.

23.4.1.32 Diurnal surveys will begin half an hour prior to sunrise and will be completed by 11:00 on each survey day. Surveyors will approach all suitable habitat within the survey area to within a distance of 50 m, where possible. Should close approach not be possible to all areas due to access restrictions, a telescope will be used to locate birds in those areas. The identity and activity of all bird species other than green-listed bird of conservation concern will be recorded using standard BTO notation. Territory Analysis will be undertaken at the baseline reporting stage following standard methods (Bibby, Burgess, Hill, & Mustoe, 2000).

#### *Year Two Breeding Raptor Surveys*

23.4.1.33 Breeding raptor surveys will be undertaken between March and August 2026 (inclusive) to record any Schedule 1 or Annex I species within the EOS Scoping Boundary and an additional 1 km buffer. The survey area has been determined considering disturbance distances of raptor species in line with NatureScot guidance (Goodship & Furness, 2022).

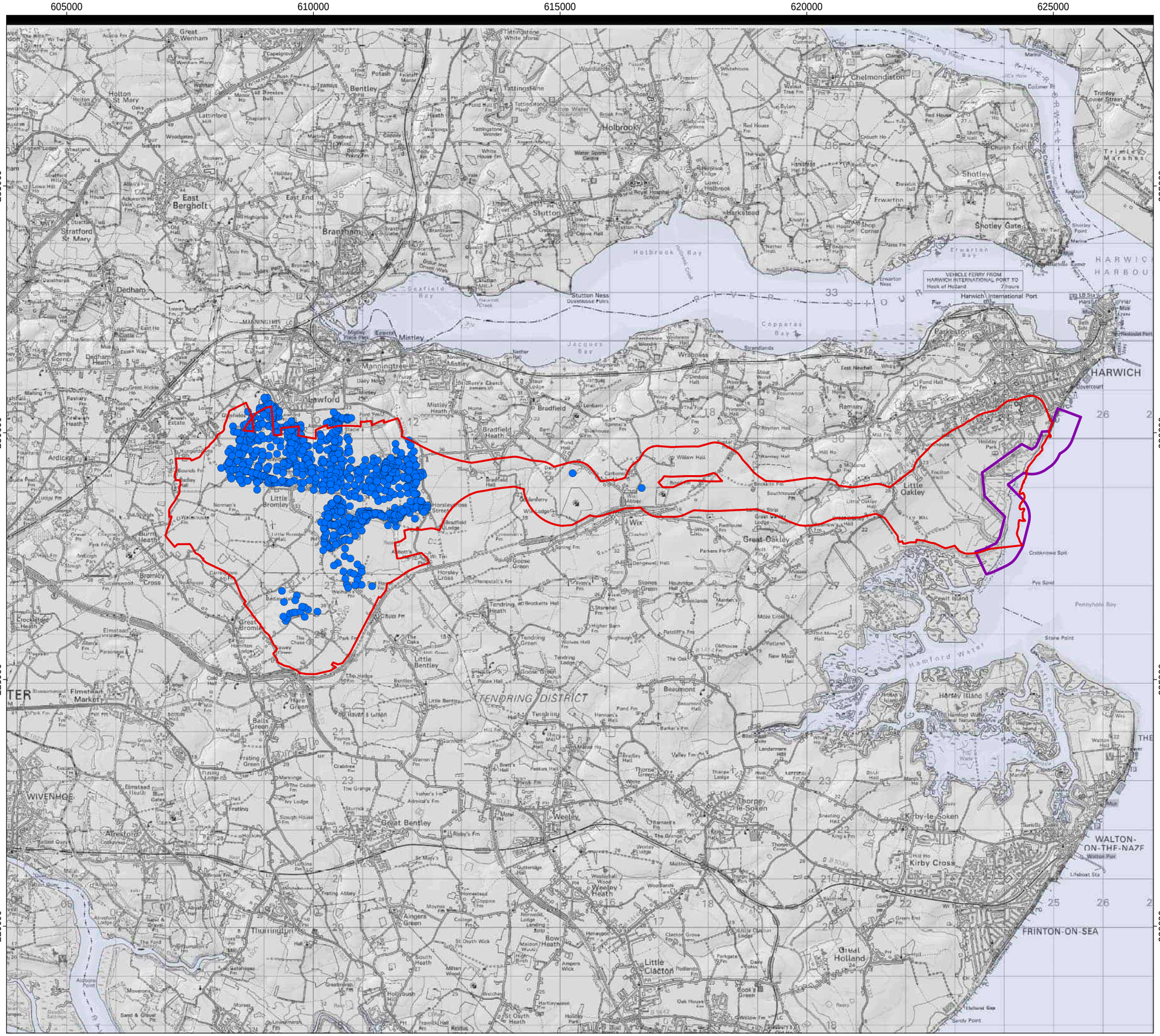
23.4.1.34 Four visits will be undertaken in 2026 using standard methods (Hardey, et al., 2013) and will involve completing a series of watches over areas of suitable breeding habitat from suitable ad-hoc VPs, and walkover surveys to identify any evidence of breeding.

#### Additional Surveys

23.4.1.35 Little tern foraging surveys were previously undertaken to determine potential connectivity to designated sites with tern qualifying features. The need for additional little tern surveys will be determined during the desk study and review of existing data, however it is considered that as the Intertidal Bird survey area extends into the nearshore, that this survey method will be suitable to record any foraging terns present.

23.4.1.36 It is not anticipated that any additional survey methods will be required, however there is the potential that specific barn owl surveys will be undertaken if suitable nesting habitat is identified.

23.4.1.37 Figure 23-5 shows the survey areas relating to the UK Scheme between October 2025 and September 2026.




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## Tarchon Interconnector Project
Scoping Report

## Year 1 Wintering Bird Survey Areas

**Legend**

- English Onshore Scheme Scoping Boundary
- Intertidal Bird Survey Area
- Year 1 Wintering Bird Survey Results




**Notes**

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Coordinate System: British National Grid

0 2.5 5 km

N

| Scale | | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|---|
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Figure 23-3

Figure Reference: Tarchon_Scoping_ORN_Fig23-3_Year1WinteringSurveyAreas_v1

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# Tarchon Interconnector Project

Scoping Report

## Year 1 Breeding Season Survey Areas

### Legend

- English Onshore Scheme Scoping Boundary
- Intertidal Bird Survey Area
- Little Tern Vantage Point
- Breeding Bird Survey Transects




### Notes

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Figure 23-4

Figure Reference: Tarchon_Scoping_ORN_Fig23-4_Year1WBreedingSurveyAreas_v1

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# Tarchon Interconnector Project

Scoping Report

## EOS Year 2 Ornithology Survey Areas

**Legend**

- English Onshore Scheme Scoping Boundary
- Breeding Bird Survey Area
- Wintering Bird Survey Area
- Raptor Survey Area
- Intertidal Survey Area




**Notes**

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Figure 23-5

Figure Reference: Tarchon_Scoping_ORN_Fig23-5_SurveyAreas_v3

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### Field Survey Limitations

23.4.1.38 It is acknowledged that there were some limitations with the first year of surveys undertaken as follows:

- The BBS did not cover an area within the south-west of the Onshore Scoping Boundary, and the year one surveys covered “representative habitats” rather than the full EOS Scoping Boundary. Due to this approach taken, there are some gaps in the coverage of the BBS, and therefore the total number of breeding territories present within the EOS Scoping Boundary during the 2025 breeding season will be an underestimate. The 2026 breeding season surveys will provide coverage of the entirety of the Scoping Boundary plus a 250 m buffer.
    - No evening BBS visit was undertaken, which is recommended in Bird Survey Guidelines (Bird Survey & Assessment Steering Group, 2026). This is considered a minor limitation, and an evening survey visit will be undertaken during the 2026 BBS programme to identify crepuscular/nocturnal breeding species.No specific surveys for breeding raptors were undertaken in 2025, with breeding raptors recorded during the BBS. During 2026, specific breeding raptor surveys will be undertaken to ensure comprehensive coverage of the survey area to support impact assessment.
- Intertidal birds surveys were not undertaken during June and July 2025, and covered two-hour periods around high and low tides, rather than full rising and falling tidal cycles. In addition, surveys recorded limited behavioural information to characterise usage of the Site by species. The 2025-2026 surveys will cover the full tidal cycle, capture all behavioural information and any sources of disturbance.
- Wintering bird surveys were only undertaken covering a limited area rather than the entirety of the EOS Scoping Boundary, and therefore there will only be data covering the whole EOS Scoping Boundary for a single non-breeding season. The 2025-2026 non-breeding season surveys will provide coverage of the entirety of the EOS Scoping Boundary plus a 500 m buffer.
- Access was restricted to a limited number of land parcels and Public Rights of Way, and therefore there is a risk that less easily detected species species may have been under-recorded.

23.4.1.39 Although limitations during the first year of surveys have been acknowledged, the methodology has been adapted for the second year of surveys, and a comprehensive desk study will be undertaken to support field survey data. It is considered that this will provide a suitable baseline to undertake a robust impact assessment.

### Baseline Conditions – EOS Study Area/Onshore Ornithology

#### *Field Survey Results*

23.4.1.40 Outlined below is a brief summary of the key results of surveys completed between October 2024 and September 2025. Current survey data is still to be analysed, however a brief summary is provided for wintering bird surveys.

### Intertidal Bird Survey Results

23.4.1.41 Records of ornithological receptors recorded during intertidal bird surveys are summarised in the following section.

23.4.1.42 A number of wader species were regularly recorded during surveys, including those which are qualifying species of the Hamford Water SPA and Ramsar site which falls within the survey area.

23.4.1.43 Avocet was regularly recorded, largely during the breeding season, with locations consistent with breeding colonies present. In addition, dunlin, redshank, ringed plover and grey plover were frequently recorded during surveys. Occasional black-tailed godwit and knot flocks were also recorded. All species were widely distributed across saltmarsh and intertidal habitat

23.4.1.44 Wildfowl species were also regularly recorded during surveys with brent goose recorded during the non-breeding season both within intertidal habitats and foraging inland. Other wildfowl species recorded regularly include shelduck which was frequently present at a pool inland of the Landfall Zones as well as utilising intertidal habitats. Occasional flocks of teal were also recorded within the survey area.

23.4.1.45 Gulls and terns recorded during surveys include regular records of Mediterranean gull, herring gull, black-headed gull, lesser black-backed gull and Sandwich tern.

23.4.1.46 Raptor species included regular marsh harrier records with occasional peregrine, red kite and short-eared owl.

### Wintering Bird Survey Results

23.4.1.47 Wintering bird surveys have recorded just two wader species, oystercatcher and lapwing, with one flock of approximately 450 lapwing notable. Mute swan and greylag goose were the only goose or swan species recorded, with small numbers of birds recorded. It is possible that greylag geese recorded are feral rather than migratory birds and therefore not considered a constraint.

23.4.1.48 Although these surveys only covered a small part of the EOS Scoping Boundary, transect surveys across the full EOS Scoping Boundary during Year 2 have only recorded one key species to date, with small numbers of oystercatcher using fields just inland from the Landfall Zones. There is therefore no evidence from surveys to date that indicates that the area within the EOS Scoping Boundary is of importance for wintering waders, geese or migratory swans.

### Breeding Bird Surveys and Saltmarsh Breeding Bird Surveys

23.4.1.49 Surveys identified 28 avocet territories in 2025 within the survey area. Avocet is a non-breeding feature of nearby SPA's and a breeding species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) with a small UK population.

23.4.1.50 Other waders recorded during BBS include seven lapwing territories, ten redshank territories, four ringed plover territories and two oystercatcher territories.

23.4.1.51 The BBS identified 38 Cetti's warbler territories, a Schedule 1 species. Red and amber-listed farmland birds recorded across the BBS survey area included 231 skylark territories, 180 whitethroat territories, 78 yellowhammer territories, 32 corn bunting territories, 22 yellow wagtail territories, 14 grey partridge territories and one turtle dove territory. One nightingale territory was also identified.

23.4.1.52 Raptor territories identified during the 2025 breeding season included two barn owl territories, three hobby nests and three marsh harrier territories.

23.4.1.53 Three black-headed gull colonies were present in 2025 within intertidal habitat at and adjacent to the Landfall Zones. This included one colony of 150 pairs west of the southern landfall location.

#### *Little Tern Foraging Surveys*

23.4.1.54 Little tern was recorded during two of the four survey visits undertaken. Although there was no evidence of breeding little tern, birds were recorded foraging within nearshore habitats, with a peak count of 50 birds recorded during a survey on 16/07/25 and 29 birds on 29/07/25.

23.4.1.55 All birds recorded were adults, and it was considered that these were likely birds which failed to breed elsewhere. In addition to little tern, groups of common tern and Sandwich tern were also recorded during surveys.

### Site-specific Surveys – UKMS Study Area/Offshore Ornithology

23.4.1.56 No dedicated site-specific surveys are proposed for the UKMS Study Area to characterise potential offshore ornithology receptors presence. Instead, the UKMS Study Area will be characterised using the wealth of pre-existing data available within the Southern North Sea region. A summary of available pre-existing data sources is provided within Table 23-4.

23.4.1.57 The approach to utilise solely pre-existing data sources for the UKMS Study Area, is consistent with other recent projects seeking to install cabling in the offshore environment (RPS, 2025; Royal HaskoningDHV, 2024; APEM, 2024; National Grid, 2025). This approach to baseline characterisation is considered proportionate given the temporary and spatially limited nature of works (Section 23.6.1) within the marine environment (Section 23.6.1), with effects primarily arising during subsea cable installation works. In addition, the availability of ornithological data for the Southern North Sea region is considered sufficient to characterise the baseline robustly, ensuring the assessment of effects on offshore ornithology receptors is based on a comprehensive understanding of the existing environment.

23.4.1.58 This approach was communicated to Natural England during the introductory meeting on 20th November 2025, who did not disagree with the rationale for scoping out offshore surveys.

### Baseline Conditions – UKMS Study Area/Offshore Ornithology

23.4.1.59 Potential offshore ornithological receptors likely to be present within the UKMS Study Area is summarised seasonally in Table 23-3. these receptors have been

concluded based on the desk study and statutory site information contained within Table 23-1 and Table 23-4, including information on their seasonal presence based on the relevant Biologically Defined Minimum Population Scales (BDMPS) bio-seasons recommended by Natural England (Parker *et al.*, 2025), for which the UKMS Study Area is known to reside.

**Table 23-3: Expected Offshore Ornithological Receptors Present within the UKMS Ornithological Study Area**

| Receptor | Seasonal Presence within the UKMS Study Area | | | |
|---|---|---|---|---|
| | Return migration | Breeding | Post-breeding migration | Migration-free winter/non-breeding |
| Eider (*Somateria mollissima*)* | N/A | N/A | N/A | Yes |
| Common scoter (*Melanitta nigra*)* | N/A | N/A | N/A | Yes |
| Red-breasted merganser (*Mergus serrator*)* | N/A | N/A | N/A | Yes |
| Great crested grebe* | N/A | N/A | N/A | Yes |
| Little gull | Yes | No | Yes | Yes |
| Kittiwake (*Rissa tridactyla*) | Yes | Yes | Yes | N/A |
| Common gull | N/A | No | N/A | Yes |
| Herring gull | N/A | Yes | N/A | Yes |
| Lesser black-backed gull | Yes | Yes | Yes | Yes |
| Great black-backed gull | N/A | Yes | N/A | Yes |
| Little tern | Yes | Yes | Yes | N/A |
| Arctic tern (*Sterna paradisaea*) | Yes | No | Yes | N/A |
| Common tern | Yes | Yes | Yes | N/A |
| Sandwich tern | Yes | Yes | Yes | N/A |
| Arctic skua (*Stercorarius parasiticus*)** | Yes | No | Yes | N/A |
| Great skua** | Yes | No | Yes | No |
| Little auk (*Alle alle*)** | No | NA | NA | Yes |
| Puffin (*Fratercula arctica*) | N/A | Yes | N/A | Yes |
| Razorbill | Yes | Yes | Yes | N/A |
| Common guillemot | N/A | Yes | N/A | Yes |
| Red-throated diver* | Yes | No | Yes | Yes |
| Great northern diver (*Gavia immer*)* | N/A | No | N/A | Yes |
| Black-throated diver (*Gavia arctica*)* ** | Yes | No | Yes | Yes |
| European storm petrel (*Hydrobates pelagicus*)** | Yes | No | Yes | N/A |

| Receptor | Seasonal Presence within the UKMS Study Area | | | |
|---|---|---|---|---|
| | Return migration | Breeding | Post-breeding migration | Migration-free winter/non-breeding |
| Leach's storm petrel (*Hydrobates leucorhous*)** | Yes | No | Yes | N/A |
| Fulmar (*Fulmarus glacialis*) | Yes | Yes | Yes | Yes |
| Manx shearwater** | Yes | No | Yes | N/A |
| Gannet | Yes | Yes | Yes | N/A |
| Cormorant* | Yes | Yes | Yes | Yes |
| Shag (*Phalacrocorax aristotelis*)* | Yes | No | Yes | Yes |

Table note: * These species are only expected to be present in the nearshore environment. ** These species are expected to occur infrequently and in very low numbers.

### 23.4.2 Future Baseline Conditions

23.4.2.1 The baseline environment is not static and is expected to change over time, irrespective of the UK Scheme. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UK Scheme over its operational lifetime. This future baseline will be defined for the purposes of the EIA in relation to the years of construction and operational period of the UK Scheme.

23.4.2.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised

### 23.4.3 Additional Proposed Data Sources

23.4.3.1 Alongside site-specific data that will be collected for the UK Scheme, additional data sources that will be used to support assessments are presented Table 23-4.

**Table 23-4: Additional Sources of Ornithological Data**

| Source | Summary and Relevance | Reference |
|---|---|---|
| Sea Link | The Environmental Statement (ES) for the Sea Link Project can be used to infer the likely ornithological receptors within the Study Areas for the UK Scheme, as well as the relevant impact pathways. This is due to the similarities between the projects and the location of Sea Link, as it involves the construction of a subsea cable between Suffolk and Kent. | (National Grid, 2025; BTO, 2026) |
| North Falls Offshore Wind Farm and Five Estuaries Offshore Wind Farm | Baseline characterisation for these wind farm projects in the southern North Sea was informed by 24 months of site-specific digital aerial surveys (DAS). These surveys captured the abundance, frequency and density of ornithological receptors within the ZoI of each project. Given the proximity of these projects, the data collected can be used to infer the likely presence of ornithological receptors within the UKMS Study Area. | (Royal HaskoningDHV, 2024; MacArthur Green, 2024) |
| Natural England Designated Sites View | Natural England's repository for data and information relating to designated sites in England: https://designatedsites.naturalengland.org.uk/<br><br>This data source has been used to characterise potential qualifying features of statutory sites within the ZoI of the UK Scheme (Table 23-1 & Table 23-2), including identification of potential effect pathways for consideration using the 'Advice on Operations' page. | (Natural England, 2026) |
| Digital Aerial Survey data of the Outer Thames Estuary SPA | Two digital Aerial surveys of the Outer Thames Estuary SPA completed in 2018 with the primary objective of recording the population and distribution of red-throated diver wintering within the SPA boundary. The surveys also recorded the abundance and distribution of other seabird species.<br><br>The results of these surveys can be used to infer the likely presence of offshore ornithology receptors within the UKMS Study Area based on the proximity of the Outer Thames Estuary SPA (Figure 23-1). | (Irwin, Scott, Humphries, & Webb, 2019) |

| Source | Summary and Relevance | Reference |
|---|---|---|
| BTO Seabird Monitoring Programme | Repository of breeding UK seabird colony census data. This data source can be used to inform the size and condition status of seabird colonies with theoretical connectivity to the UK Scheme. | (BTO, 2026) |
| Seabirds Count – A Census of Breeding Seabirds in Britain and Ireland (2015 – 2021) | A summary of the latest census counts of breeding seabird populations monitored within the UK which was conducted between 2015 – 2021. Individual species accounts are provided contextualising the likely drivers of population changed compared to previous national censuses. This information can be used to inform expected future baseline conditions for key receptors. | (Burnell, et al., 2023) |
| Seabird Tracking Data | Tracking data can be used to confirm connectivity with breeding seabird colonies where tracks intersect the UK Scheme. | (BirdLife International, 2026) |
| Literature informing on potential effects of offshore infrastructure on birds | A collection of peer-reviewed scientific literature regarding the potential effects from marine activity on offshore ornithology receptors in the UK and Northwestern Europe. These publications mostly focus on disturbance and displacement of ornithological receptors due to the presence of vessel activities, which is a key effect pathway for the UK Scheme (Table 23-9). | (Furness, Wade, & Masden, 2013; Dierschke, et al., 2017; Jarrett, et al., 2018; Mendel, et al., 2019; Fliessbach, et al., 2019; Goodship & Furness, 2022) |
| Literature informing on seabird distribution | Publicly available reports and scientific literature providing information on seabird distribution and density in UK waters. Each of these publications cover the southern North Sea, therefore they can be used to infer the distribution and density of offshore ornithology receptors in the UKMS Study Area. | (Stone, et al., 1995; Brown & Grice, 2005; Kober, et al., 2010; Bradbury, et al., 2014; Waggitt, et al., 2019; Cleasby, et al., 2020) |
| Literature informing on seabird breeding ecology | Publicly available information on the breeding ecology of various seabird species. All potential receptors are covered in these sources, and they can be used to determine whether receptors are likely to be impacted during their breeding season as well as likely effect pathways. | (Cramp & Simmons, 1977 - 1994; Del Hoyo, Elliott, & Sargatal, 1992-2011; Robinson, 2005). |
| Literature informing on seabird population estimates and demographic rates | Publicly available reports and scientific literature on seabird populations and demographic rates. These data can support assessment conclusions by providing context of potential ecological consequences of potential effects. | (Mitchell, Newton, Ratcliffe, & Dunn, 2004; BirdLife International, 2004; Hollings, 2011; Musgrove, et al., 2013; |

| Source | Summary and Relevance | Reference |
|---|---|---|
| | | Horswill, O'Brien, & Robinson, 2017; Frost, et al., 2019; JNCC, 2020) |
| Literature informing on seabird migration and foraging movements | Publicly available reports of seabird movements during breeding season foraging trips and migration. These studies will be used to determine whether different offshore and intertidal ornithological receptors have connectivity to the UK Scheme based on expected breeding season foraging ranges, foraging behaviour and migratory movements. | (Wernham, et al., 2002; Thaxter, et al., 2012; Wright, et al., 2012; Wakefield, et al., 2017; Woodward, Thaxter, Owen, & Cook, 2019; Eglington & Perrow, 2014; Wilson, et al., 2014; O'Hanlon, et al., 2025) |
| BTO WeBS data | WeBS data will be requested to collect additional intertidal and nearshore data to support the field survey data collected. | (BTO, 2026) |
| RSPB data | The RSPB will be contacted to request records of birds present within the Scoping Boundary, particularly Schedule 1/Annex I breeding territories and SPA qualifying species records. | N/A |
| Data collected for other nearby projects | Any publicly available data from surveys undertaken for nearby projects relevant to the UK Scheme will be used to provide additional context. | N/A |

## 23.5 Assessment Methodology

23.5.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the construction, operational, and decommissioning phases of the UK Scheme. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

23.5.1.2 A separate HRA Screening Report will be prepared at a later point in the EIA process. Undertaking this HRA Screening after the EIA Scoping will benefit the assessment from early feedback on the EIA.

23.5.1.3 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on ornithological receptors arising from the construction, operational, and decommissioning phases of the UK Scheme. This approach defines:

- **Sources and impacts**: The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

23.5.1.4 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

23.5.1.5 Receptors will be assessed against relevant effect pathways, with receptor sensitivity and magnitude of impacts being defined. This section describes the criteria that will be applied to assign values to the sensitivity of receptors and the magnitude of potential impacts.

### 23.5.2 Offshore Ornithology

23.5.2.1 For offshore ornithology, a matrix approach will be utilised to determine the environmental significance of each effect pathway (further information is provided in Volume 01, Chapter 06: Approach and Methodology), taking into consideration sensitivity and magnitude of impacts being defined.

#### *Sensitivity of Receptor*

23.5.2.2 The overall sensitivity of an offshore ornithology receptor will be determined based on their vulnerability to an effect pathway in conjunction with their conservation value.

23.5.2.3 The level of vulnerability for each receptor is informed by understanding of species ecology and known behavioural responses previously recorded to potential effect pathways. The overall confidence of the information used to define the vulnerability of each receptor will be critically appraised, following a method adapted from (Pérez-Domínguez, et al., 2016), accounting for the quality, applicability and concordance of available evidence.

23.5.2.4 Conservation value of a receptor will also be used to provide additional context to the overall sensitivity of a receptor, and refine predictions, as appropriate.

Conservation value and sensitivity are not necessarily linked for a particular impact. Therefore, each receptor's conservation value is considered using reasoned judgement when determining their overall sensitivity to any potential effect. As an example, a receptor could be classified as high conservation value (for example, all birds affected are expected to be qualifying feature of a SPA) but have a low or very low sensitivity to an effect (or vice-versa), thus leading to an overall sensitivity value of low at most. Such reasoned judgement is an important part of the overall narrative proposed to determine potential effect significance and will be used, where relevant, as a mechanism for modifying the sensitivity of an effect assigned to a specific receptor.

23.5.2.5 The conservation value of ornithological receptors is based on the population from which individuals are predicted to originate from. This is determined from current understanding of the movements of receptors based on relevant literature or recorded from tracking studies (Table 23-4). Population status will also be accounted for. For example, effects on a declining species may be of more concern than those on an increasing species.

23.5.2.6 Proposed definitions of both vulnerability and conservation value for offshore ornithology receptors are provided in Table 23-5.

**Table 23-5: Definitions of Sensitivity for Offshore Ornithology Receptors**

| Sensitivity | Definition |
|---|---|
| Very High | Vulnerability - Receptor has very limited tolerance to the potential effect pathway.<br><br>For example, receptor is expected to exhibit an exceptionally large Flight Initiation Distance (FID) to potential noise and visual presence of vessels, with limited to no alterative suitable habitat to occupy outside of the ZOI of works vessels based on receptors ecology. |
| | Conservation value – All receptors recorded expected to be qualifying features of an internationally designated site classified as being in unfavourable condition (for example, SPA or Ramsar).<br><br>Receptor also listed under the UK Birds of Conservation Concern 5 (BoCC5) Red List (Stanbury, et al., 2021; Stanbury, et al., 2024) or afforded special protection under Schedule 1 of Wildlife and Countryside Act 1981 or Annex 1 of Birds Directive.<br><br>For example, a receptor for which all individuals at risk can be clearly connected to a particular statutory site of international importance and current condition status is classified as unfavourable. |
| High | Vulnerability - Receptor has limited tolerance to the potential effect pathway.<br><br>For example, receptor is expected to exhibit a large FID to potential noise and visual presence of vessels. |
| | Conservation value – All receptors recorded expected to be qualifying features of an internationally designated site though feature is classified as being in favourable condition (for example, SPA or Ramsar). |

| Sensitivity | Definition |
|---|---|
| | Receptor also listed under the UK Birds of Conservation Concern 5 (BoCC5) Red List (Stanbury, et al., 2021; Stanbury, et al., 2024) or afforded special protection under Schedule 1 of Wildlife and Countryside Act 1981 or Annex 1 of Birds Directive.<br><br>For example, a receptor for which all individuals at risk can be clearly connected to a particular statutory site of international importance and current condition status is classified as favourable. |
| Medium | Vulnerability – Receptor has some tolerance to the potential effect pathway.<br><br>For example, receptor is expected to exhibit a moderate FID to potential noise and visual presence of vessels. |
| | Conservation value – Receptors recorded expected to be notified feature of a nationally designated site (for example, SSSI).<br><br>Receptor also listed under BoCC5 Red or Amber List (Stanbury, et al., 2021; Stanbury, et al., 2024) or afforded special protection under Schedule 1 or Annex 1 of Birds Directive.<br><br>For example, a receptor for which individuals at risk may be drawn from a mixture of statutory sites of international, national importance and other populations which may also contribute to individuals at risk. |
| Low | Vulnerability – Receptor is generally tolerant to the potential effect pathway.<br><br>For example, receptor is expected to exhibit a small FID or swim away from potential noise and visual presence of vessels but remain within the general vicinity of the vessel and proposed works. |
| | Conservation value – Receptors not associated with a statutory site or occurring within SPAs, Ramsar sites and SSSIs, but not crucial to the integrity of the site.<br><br>Receptor may also be listed either as Amber or Green Listed under BoCC5 (Stanbury, et al., 2021; Stanbury, et al., 2024) or afforded special protection under Schedule 1 or Annex 1 of Birds Directive but not present in locally important numbers. |
| Negligible | Vulnerability – Receptor is not expected to exhibit a behavioural response to an effect pathway.<br><br>For example, receptor is expected to show no response to the vessel presence unless at risk of direct collision. |
| | Conservation value – Very small number of individuals expected to be present infrequently within the UKMS Study Area.<br><br>Receptor may also be listed either as Amber or Green Listed under BoCC5 (Stanbury, et al., 2021; Stanbury, et al., 2024) or afforded special protection under Schedule 1 or Annex 1 of Birds Directive but not present in locally important numbers. |

### *Magnitude of Impact*

23.5.2.7 The magnitude of potential impacts will be determined by a series of factors, including the spatial extent of any interaction and the likelihood, frequency and duration of the potential impact. Magnitude definitions to be applied in the assessment are set out in Table 23-6. Potential impacts will be assessed in terms of whether they are permanent or temporary, and adverse or beneficial.

**Table 23-6: Definitions of Magnitude for Offshore Ornithology Receptors**

| Magnitude | Definition |
|---|---|
| Large | A change in the size or extent of distribution of the relevant regional population or the population that is the interest feature of a specific statutory site that is predicted to irreversibly alter the population in the short to long-term and to alter the long-term viability of the population and/or the integrity of the statutory site.<br><br>Recovery from that change predicted to be achieved in the long-term (for instance, more than five years) following completion of proposed works activity. |
| Medium | A change in the size or extent of distribution of the relevant regional population or the population that is the interest feature of a specific statutory site that occurs in the short and long-term, but which is not predicted to alter the long-term viability of the population and/or the integrity of the statutory site.<br><br>Recovery from that change predicted to be achieved in the medium-term (for instance, no more than five years) following completion of proposed works. |
| Small | A change in the size or extent of distribution of the relevant regional population or the population that is the interest feature of a specific statutory site that is sufficiently small-scale or of short duration to cause no long-term harm to the feature/population.<br><br>Recovery from that change predicted to be achieved in the short-term (for instance, no more than one year) following cessation of proposed works activity. |
| Negligible | Limited to no change of the size or extent of distribution of the relevant regional population or the population that is the interest feature of a specific statutory site.<br><br>Recovery from that change is predicted to be rapid (for instance, no more than c. six months) following completion of proposed works activity. |

### *Significance of Effect*

23.5.2.8 To ensure consistency across topics, a matrix approach has been adopted to present judgements made on the significance of an effect. This terminology is outlined in Table 23-7 below. The combination of the magnitude of the impact (Table 23-6) with the sensitivity of the receptor (Table 23-5) will determine the assessment of significance of effect.

23.5.2.9 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

23.5.2.10 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UK Scheme design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UK Scheme.

**Table 23-7: Significance Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Negligible |
| Very High | Major | Major | Moderate | Minor |
| High | Major | Moderate | Moderate | Minor |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

### 23.5.3 Onshore Ornithology

23.5.3.1 For onshore ornithology the assessment approach will differ to that of offshore ornithology in order to align with Chartered Institute of Ecology and Environmental Management (CIEEM) guidance (CIEEM, 2024). Rather than implementing a matrix approach to determine significance, the onshore assessment will consider the importance and sensitivity of receptors, characteristics and magnitude of potential effects and apply professional judgement to determine whether the integrity of the receptor would be affected and the potential for significant effexts..

23.5.3.2 Onshore receptors to be included within the impact assessment will be determined within the EIA in line with CIEEM guidance (CIEEM, 2024) and consider all field survey and desk-based study data..

23.5.3.3 Ornithological receptors will be assigned importance on the basis of their abundance, recognised status (such as through published lists of species of conservation concern and designation of Biodiversity Action Plan (BAP) status) and legal protection within their defined geographic context (CIEEM, 2024). For example, bird populations exceeding 1% of published data for national populations are considered to be of national importance. Sensitivity for each receptor will be assessed separately, as different species have different sensitivity to a particular impact dependent on their ecology.

## 23.6 Potential Effects and Mitigation

### 23.6.1 Maximum Design Scenario (MDS)

23.6.1.1 To inform identification of potential effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 23.6.2 Embedded Mitigation and Good Practice Measures

23.6.2.1 The UK Scheme will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of impacts. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as "*mitigation measures that have been incorporated into a project's description and form an inherent part of the project's design'* (ISEP, 2024). The embedded mitigation measures which are relevant to this Chapter are presented in the table below (Table 23-8).

**Table 23-8: Embedded Mitigation Measures of Importance to Ornithology**

| Measure Proposed | Rationale |
|---|---|
| Development and Implementation of a Vessel Management Plan (VMP) | A VMP specifically for red-throated diver is proposed based on the following consultation feedback received by Natural England (See Section 23.3.7):<br><br>*"A long stretch of the interconnector route lies within SPA waters used by non-breeding RTD. As advised to all other developers seeking to install cables within RTD SPAs, we advise Tarchon to commit to a seasonal restriction during the most sensitive period for RTD (01 November to 31 March inclusive) for the construction phase (see RTD Best Practice Protocol in Annex 1 to this letter)."*<br><br>The VMP will adopt the vessel protocols recommended within the Red-throated Diver Best Practice Protocol as requested for any vessel activity within the Outer Thames Estuary SPA and a surrounding 2km buffer (See Section 23.3.7). This includes a seasonal restriction on proposed works within proximity of the Outer Thames Estuary SPA and a surrounding 2km buffer from the 01 November to 31 March inclusive. Additionally the VMP will:<br>• Set out the types and numbers of vessels engaged in the works;<br>• Define project vessel coordination measures and interactions with SUNK VTS/HHA Harbour Control;<br>• Include indicative transit routes;<br>• Give detail on concurrent working procedures which will set out details of the project vessels and their movements during |

| Measure Proposed | Rationale |
|---|---|
| | the survey, seabed preparation, construction and O&M phases in sensitive area; and<br>• Detail specific navigational safety hazards such as the DWRs and how they will be managed. |
| Appointment of an Ecological Clerk of Works (ECoW) | To oversee and ensure compliance with environmental mitigation and management measures throughout the onshore construction and decommissioning phases. |
| Sensitive cable routing and/or trenchless techniques | Sensitive cable routing will be used to avoid or minimise effects on habitats and Onshore Biodiversity receptors where practicable. Where this is not possible trenchless techniques will be considered. In addition, the footprint of temporary working areas will be designed to minimise the extent of habitat loss as far as is practicable. This is the preferred measure and may develop alongside the design. |
| Timing of works | The timing of specific elements of works will be sensitively timed to avoid or reduce effects (e.g. avoiding bird breeding season for vegetation clearance) where practicable.<br><br>For the construction phase, this includes a seasonal restriction on proposed works within proximity of the Outer Thames Estuary SPA and a surrounding 2km buffer from the 01 November to 31 March inclusive. This restriction is proposed to avoid significant disturbance of the red-throated diver qualifying feature of Outer Thames Estuary SPA (See Section 23.3.7). |
| Outline Construction Environmental Management Plan (CEMP) | To reduce the effect of potentially significant harmful effects on birds in compliance with environmental legislation. The outline CEMP will detail and formalise measures that will be implemented prior to and during construction of the UK Scheme to mitigate construction-related effects on birds. Effects on birds would be mitigated through implementation of a Bird Protection Plan, which would be included within the outline CEMP. The Bird Protection Plan would include pre-construction surveys and a range of typical mitigation measures and good practice to protect breeding and wintering species and comply with relevant legislation. The outline CEMP will include pollution control measures to avoid impacts on birds.<br><br>A detailed CEMP will be produced in accordance with the outline CEMP following the Development Consent Order (DCO) to implement the measures listed in the outline CEMP for the UK Scheme. Further details are provided in Volume 01, Chapter 02: UK Project Description. |
| Outline Operational Environmental Management Plan (OEMP) | An outline version of the OEMP will be included within the DCO application providing details of specific commitments and how these will be secured. |
| Outline Decommissioning Environmental | The outline DEMP will set out the general principles to be followed in the decommissioning of the UK Scheme. A detailed DEMP will be prepared and agreed with the relevant authorities |

| Measure Proposed | Rationale |
|---|---|
| Management Plan (DEMP) | at the time of decommissioning. The detailed DEMP would ensure that decommissioning was undertaken safely and with regard to the environmental legislation at the time of decommissioning. |

23.6.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UK Scheme development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

23.6.2.3 As the UK Scheme advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective, and compliant with regulatory standards and stakeholder input. The need for species-specific mitigation will be determined following completion of baseline surveys, and dependent on the potential for effects on species.

### 23.6.3 Scoping Assessment

23.6.3.1 There are several potential effects on receptors that are identified that are likely to be present throughout the lifetime of the UK Scheme.

23.6.3.2 Adverse effects with the potential for significant effects have been scoped in for further assessment, with a rationale provided. Conversely, adverse effects with no potential for significant effect, based on current baseline data and the UK Scheme description in Volume 01, Chapter 02: UK Project Description, are proposed to be scoped out. Both categories are outlined in Table 23-9 with supporting justification.

Table 23-9: Elements Scoped In and Out for Ornithology

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction, operational, and decommissioning phases (UKMS) | Vessel activity within the UKMS Scoping Boundary | Temporary disturbance and displacement (above water noise and physical presence) | Red-throated diver | Scoped out | Increased vessel presence throughout the duration of the UKMS, particularly for cable installation, may cause short-term disturbance and displacement to red-throated diver from key foraging areas. However, the implementation of a VMP and seasonal restrictions will mitigate this effect pathway. The details of these are detailed below:<br><br>• The UKMS is committing to seasonal restrictions during the most sensitive periods (01 November to 31 March inclusive) for the construction phase for work occurring within the Outer Thames Estuary SPA and associated 2 km buffer.<br><br>• During the shoulder months of October and April, and for vessel movements through the |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | Outer Thames Estuary SPA, vessel activity will follow the Red-throated Diver Best Practice Protocol (as advised by Natural England). |
| Construction, operational, and decommissioning phases (UKMS) | Vessel activity within the UKMS Scoping Boundary | Temporary disturbance and displacement (above water noise and physical presence) | All other offshore ornithology receptors | Scoped in | Increased vessel presence throughout the duration of the UKMS, particularly for cable installation, may cause short-term disturbance and displacement to offshore ornithology receptors from areas utilised for foraging and loafing. |
| Construction, operational, and decommissioning phases (UKMS) | Offshore cable installation, or removal activities (laying, burial and protection) | Indirect effects on prey and habitat | All offshore ornithology receptors | Scoped in | Activities that are associated with the installation or removal of UKMS cables and cable protection may cause indirect effects to receptors via alterations to prey species composition and habitat alteration. |
| Construction, operational, and decommissioning phases (UKMS) | General use of plant, vessels and equipment. | Accidental pollution (inclusive of indirect effects) | All offshore ornithology receptors | Scoped out | Although pollution incidents could directly harm birds or reduce prey availability, the implementation of a CEMP greatly minimises this risk. Previous assessments for |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | comparable projects have found that any pollution-related effects would be localised, short-term, and not significant in EIA terms. The same conclusion is anticipated for the UKMS, given its similar scale and environmental context. |
| Construction, operational, and decommissioning phases (EOS) | Construction of infrastructure | Habitat loss | Receptors included in the assessment will be confirmed following conclusion of field surveys and final design and will include breeding and wintering bird species listed in Section 23.4.1, particularly SPA qualifying species, waterbirds, Schedule 1 and Annex I raptors, breeding waders and farmland birds of conservation concern. | Scoped in | Habitat loss as a result of construction of permanent infrastructure, namely the Convertor Station, would result in permanent habitat loss, including potential loss of breeding sites and foraging habitat. There may also be long-term habitat loss associated with the EOS cable if there is removal of trees or hedgerows, although the majority of habitat lost would be reinstated and thus reversible. Decommissioning phase effects would be equivalent to those during the construction phase. |
| Construction, operational, and | General works/activity across entire UK Scheme | Disturbance and displacement of onshore | Receptors included in the assessment will be confirmed | Scoped in | Noise and visual disturbance associated with the construction and |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| decommissioning phases (EOS) | | breeding and non-breeding birds | following conclusion of field surveys and final design and will include breeding and wintering bird species listed in Section 23.4.1, particularly SPA qualifying species, waterbirds, Schedule 1 and Annex I raptors, breeding waders and farmland birds of conservation concern. | | decommissioning phases are likely to result in short-term, reversible disturbance and displacement of breeding and wintering birds. It is considered that the potential for operational disturbance is negligible as activities would be limited to very minor and short-term maintenance. |
| Construction operational, and decommissioning phases (EOS) | General use of plant and equipment. | Accidental pollution (inclusive of indirect effects) | Receptors included in the assessment will be confirmed following conclusion of field surveys and final design and will include breeding and wintering bird species listed in Section 23.4.1, particularly SPA qualifying species, waterbirds, Schedule 1 and Annex I raptors, breeding waders | Scoped out | Although pollution incidents could directly harm birds or reduce prey availability, the implementation of standard mitigation and best practice greatly minimises this risk. It is therefore considered that the risk of pollution effects is negligible. |

| Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | and farmland birds of conservation concern. | | |
| Construction, operational, and decommissioning phases (EOS) | All activities | All impacts | Green-listed species of conservation concern (which are not listed on Schedule 1 or Annex I). | Scoped out | As green-listed species of conservation concern are common and widespread, considering the nature of the proposed development, there is no potential for significant effects on these species, and it is proposed that they are scoped out of the assessment. |
| Construction, operational, and decommissioning phases (EOS) | All activities | All impacts | Nightjar, woodlark | Scoped out | These species are features of designated sites within 20 km but are scoped out as it is considered unlikely that there will be any connectivity between these sites and the UK Scheme, and they have not been recorded within the EOS Scoping Boundary during surveys to date. |

### 23.6.4 Cumulative and Transboundary Effects

23.6.4.1 Volume 01, Chapter 06: EIA Approach and Methodology details how potential cumulative effects will be evaluated through a Cumulative Effects Assessment (CEA). Examples will also be given of other projects likely to be included within that assessment. With regard to offshore ornithology, cumulative interactions may occur with other marine activities within the region, such as other cable installation activities, or with the whole Tarchon Project in combination with the UK Scheme.

23.6.4.2 A CEA for ornithology will consider the MDS for each considered project, plan or activity. This will be in line with the methodology outlined within Volume 05, Chapter 32: Approach to Cumulative Effects.

#### Offshore Ornithology Transboundary Effects

23.6.4.3 No transboundary effects have been identified for offshore ornithology from the UKMS activities. Any potential effects are anticipated to remain localised within the UK Study Area and are unlikely to extend beyond UK waters or affect the wider marine environment. Therefore, transboundary effects in relation to offshore ornithology are proposed to be scoped out of the assessment.

23.6.4.4 Potential transboundary effects on offshore ornithology receptors may arise during the construction, operational and decommissioning phases as the UKMS Study Area is located at, and intersects, the boundaries of multiple Exclusive Economic Zones (EEZs), including those of Belgium and the Netherlands. In particular, impact pathways associated with the following may extend into the ZoI which crosses international maritime boundaries:

- Temporary disturbance and displacement (above water noise and physical presence); and
- Indirect effects on prey and habitat.

23.6.4.5 Given the proximity of the UKMS to adjacent EEZs, the potential for effects extending beyond UK waters cannot be discounted at this stage. The likelihood and spatial extent of any such effects will therefore be assessed as part of the EIA, with the relevant impact pathways that have been scoped in considered further (see Table 23-9).

23.6.4.6 Further detail on the methodology for identifying and assessing potential transboundary effects is provided in Volume 05, Chapter 32: Approach to Cumulative Effects. Potential transboundary effects on offshore ornithology receptors and statutory sites located outside UK waters will be considered, where relevant, within the ES.

#### Onshore Ornithology Transboundary Effects

23.6.4.7 No transboundary effects on onshore ornithological receptors are anticipated as a result of the UK Scheme activities. Any potential effects are anticipated to remain localised within the ZoI, and there is no potential for connectivity to onshore

ornithological receptors beyond the EOS Study Area. As this area does only covers land within the UK, transboundary effects in relation to onshore ornithology are proposed to be scoped out of the assessment.

## 23.7 Assumptions, Limitations and Uncertainties

### 23.7.1 Offshore Ornithology

23.7.1.1 Baseline offshore ornithological conditions have been characterised using a combination of relevant published literature, existing regional survey data, and information relating to the qualifying interests and conservation objectives of designated sites. No new bespoke offshore surveys have been undertaken as part of this assessment; therefore, the baseline assumes that these data sources provide a representative overview of species presence, abundance, distribution and seasonal use of the offshore environment. While this approach is consistent with established practice for early-stage assessment, it is acknowledged that reliance on secondary data introduces uncertainties relating to temporal variability, survey methodologies, and data resolution.

### 23.7.2 Onshore Ornithology

23.7.2.1 The onshore ornithology baseline has been characterised using the results of baseline field surveys and desk study to date, and this will be updated as the project progresses. Limitations regarding field surveys undertaken have been outlined within Section 23.4.1.

## 23.8 References

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# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 04, Chapter 24: Socio-economics and Land Use

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00016 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| ASEC | Asset Skills Enhancement and Capability |
| BRES | Business Register and Employment Survey |
| CEA | Cumulative Effects Assessment |
| CEMP | Construction Environmental Management Plan |
| CITB | Construction Industry Training Board |
| CLMA | Construction Labour Market Area |
| COP26 | Conference of the Parties 2021 |
| CTMP | Construction Traffic Management Plan |
| DCO | Development Consent Order |
| Defra | Department of Environment, Food and Rural Affairs |
| DMRB | Design Manual for Roads and Bridges |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| EV | Electric Vehicle |
| ha | Hectare |
| FEMA | Functional Economic Market Area |
| FTE | Full-Time Equivalent |
| GVA | Gross Value Added |
| HCA | Homes and Communities Agency |
| IMD | Index of Multiple Deprivation |
| LSA | Local Study Area |
| LSOA | Lower-Layer Super Output Areas |
| km | Kilometre |
| m | Metre |
| MAGIC | Multi-Agency Geographic Information for the Countryside |
| MDS | Maximum Design Scenario |
| NNR | National Nature Reserve |
| NPS | National Policy Statement |
| NSIP | Nationally Significant Infrastructure Project |
| ONS | Office for National Statistics |
| PEIR | Preliminary Environmental Information Report |
| PPG | Planning Practice Guidance |
| PRoW | Public Rights of Way |
| Ramsar | International Wetland Designation |
| SDB | Settlement Development Boundary |
| SPA | Special Protection Area |
| SSSI | Site of Specific Scientific Interest |
| UK | United Kingdom |

| | |
|---|---|
| UKMS | United Kingdom Marine Scheme |
| UKPN | UK Power Networks |
| WCH | Walking, Cycling and Horse-riding |
| WSA | Wider Study Area |

# 24. Socio-economics and Land Use

## 24.1 Introduction

24.1.1.1 This Chapter presents the Socio-economic and Land Use assessment approach, which will consider the potential significant effects on Socio-economic and Land Use receptors during the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme, as described in Volume 01, Chapter 02: UK Project Description. The UK Scheme comprises both the UK Marine Scheme (UKMS) and the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description), both of which are relevant to this Chapter.

24.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Socio-economics and Land Use baseline;
- Describes the proposed assessment methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Socio-economics and Land Use receptors from the proposed components of the UKMS and EOS; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

24.1.1.3 This Chapter considers land use effects where they relate to socio-economic receptors, including residential, commercial and development land, community facilities, and Public Rights of Way (PRoW). These elements are included because changes to land availability, access or amenity can influence local economic activity, community wellbeing and service use. Detailed assessment of agricultural land quality and soils is presented separately in Volume 02, Chapter 09: Land Use, Soils and Agriculture, which should be read alongside this Chapter to provide a complete understanding of land-related effects.

24.1.1.4 This Chapter should be read in conjunction with the following Scoping Report Chapters:

- Volume 01, Chapter 02: UK Project Description;
- Volume 01, Chapter 05: Legislative and Planning Policy Context;
- Volume 01, Chapter 06: EIA Approach and Methodology;
- Volume 02, Chapter 09: Land Use, Soils and Agriculture;
- Volume 02, Chapter 12: Traffic and Transport;
- Volume 03, Chapter 17: Commercial Fisheries;
- Volume 03, Chapter 18: Shipping and Navigation;
- Volume 03, Chapter 20: Offshore Infrastructure and Other Sea Users;

- Volume 04, Chapter 22: Noise and Vibration;
- Volume 04, Chapter 25: Health and Wellbeing;
- Volume 04, Chapter 27: Tourism and Recreation; and
- Volume 04, Chapter 28: Air Quality.

24.1.1.5 Five figures accompany this Chapter. Reference is also made to Figure 12-2 in Volume 02, Chapter 12: Traffic and Transport, which presents PRoW.

24.1.1.6 In line with guidance outlined in Section 24.3.4, the assessment will consider likely significant Socio-economic and Land Use effects on the following onshore receptors:

- The national, regional and sub-regional economy;
- Local businesses and development land;
- Local PRoW and their users; and
- Local (District) public services and community facilities.

24.1.1.7 Socio-economic effects on fisheries are considered in Volume 03, Chapter 17: Commercial Fisheries.

24.1.1.8 Socio-economic effects on tourism, the tourist economy and its components, and the effects of non-local construction workforce on local visitor accommodation are considered in Volume 04, Chapter 27: Tourism and Recreation.

## 24.2 Study Areas

24.2.1.1 Due to the varying types of effects and scale of sensitive receptors for Socio-economics and Land Use, a number of different Study Areas will be used within this assessment. These are generally determined by the extent of the potential effect and the sensitivity and scale of the receptor.

24.2.1.2 While there is no single specific guidance or requirement for the consideration of the effects assessed in this Chapter, in some cases, the spatial scale of the assessment will be driven by the location and number of receptors, and the physical extent of environmental change to these individual receptors (for example, in terms of environmental amenity effects on community facilities).

24.2.1.3 Study Areas are also determined or influenced by

- the scale of administrative geography for baseline data collection;
- the footprint, reach or catchment of community facilities;
- the existing access requirements for commercial operations and businesses; the status of individual receptors in policy terms (such as PRoW which may be locally important and/or regionally significant in policy terms);
- sector-specific levels of statutory planning; and

- Functional Economic Market Areas (FEMAs)[1].

24.2.1.4 As such, effects are considered in some cases at the 'economic' or 'population' scale, and in some cases at the 'community' scale (which may be determined by very local characteristics and the distribution of residential, neighbourhood or parish definitions, and community stakeholder feedback).

### Local Study Area

24.2.1.5 In line with guidance set out within the Design Manual for Roads and Bridges (DRMB) LA 112 (Highways England, 2020), the assessment of potential effects on local businesses and development, local PRoW and their users and local public services and community facilities is based on where users are likely to experience disruption in terms of travel time and/or routing. The Local Study Area (LSA) is therefore confined to the EOS Scoping Boundary plus a 500 metres (m) radius in all directions from the edge of the EOS Scoping Boundary.

24.2.1.6 The LSA includes local receptors with the potential to be directly impacted (e.g. land take) by the EOS based on professional judgement and experience from other electricity network schemes in England.

24.2.1.7 The LSA is defined using local administrative and community geographies which align with the spatial resolution of publicly available datasets. These are as follows (see Figure 24-1 and Figure 24-2):

- **Ward level** (for demographic and economic baseline data): Alresford and Elmstead; Ardleigh and Little Bromley; Dovercourt All Saints; Dovercourt Bay; Dovercourt Tollgate; Lawford, Manningtree and Mistley; Stour Valley; The Bentleys and Frating; and The Oakleys and Wix.
- **Parish level** (for demographic and economic baseline data): Ardleigh; Bradfield; Great Bromley; Great Oakley; Harwich; Lawford; Little Bentley; Little Bromley; Little Oakley; Mistley; Ramsey and Parkeston; Wix; and Wrabness.
- **Community facilities**: for the community facilities audit within 500 m of the EOS Scoping Boundary.

24.2.1.8 Where relevant, data will also be presented for the region (East of England) and at the national scale (England).

### Construction Labour Market Area

24.2.1.9 Construction employment is highly mobile, and travel-to-work patterns are far wider than average (i.e. for all sectors) with Construction Industry Training Board (CITB) surveys (2023a; 2023b) showing workers travelling up to 50 miles/90-minutes daily on a regular basis.

[1] In general, socio-economic assessments are considered in terms of the effect of an intervention on an appropriate spatial scale of economy. When planning for economic growth, the Government's Planning Practice Guidance (PPG) states that economic needs should be assessed in relation to FEMAs. There is no standard practice to defining a FEMA, however Planning Policy Guidance considers that it is possible to define them taking account of factors including commuting patterns, the extent of any (former) LEP, the flow of goods, services or information within a local economy and administrative areas.

24.2.1.10 In the East of England, 66% of workers travel more than 20 miles to work (35% travel more than 50 miles) (CITB, 2023a). As such, it is anticipated that the Scheme would draw construction labour from a substantial Construction Labour Market Area (CLMA) within 50 miles (c. 80 kilometres (km)). This CLMA is defined as Suffolk and Essex counties.

### Wider Study Area

24.2.1.11 A Wider Study Area (WSA) (defined as Suffolk and Essex Counties) is proposed to consider the labour market, supply chain and effects on the wider economy (such as those relating to tourism).

### Summary of Study Areas

24.2.1.12 The following are considered appropriate 'economic' or 'population' scale study/assessment areas:

- LSA (administrative geography that represents a 'best fit' for the area within 500 m from the EOS Scoping Boundary);
- CLMA (administrative geography that represents a 'best fit' for the area within 50 miles from the EOS Scoping Boundary (defined as Essex and Suffolk));
- Local Authority (Tendring);
- WSA (Essex and Suffolk);
- Regional (East of England); and
- National (England).

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240000 237000 234000 231000 228000 225000 222000 219000 216000

Ipswich

East Suffolk

Babergh

Colchester

Tendring

TARCHON

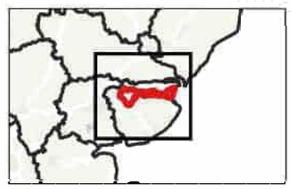
**Tarchon Interconnector Project**

Scoping Report

## Local Study Area - Local Wards

**Legend**

- English Onshore Scheme Scoping Boundary
- Local Authority Districts
- Study Area (500m from English Onshore Scoping Boundary)
- Wards within 500m of the English Onshore Scoping Boundary



**Notes**

Coordinate System:
OSGB36 / British National Grid

0 1 2 km

N

| Scale: | Date: | Drawn by: | Checked by: | Approved by: |
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| 1:100000 @ A3 | 18/03/2026 | BPHB | GB | CC |

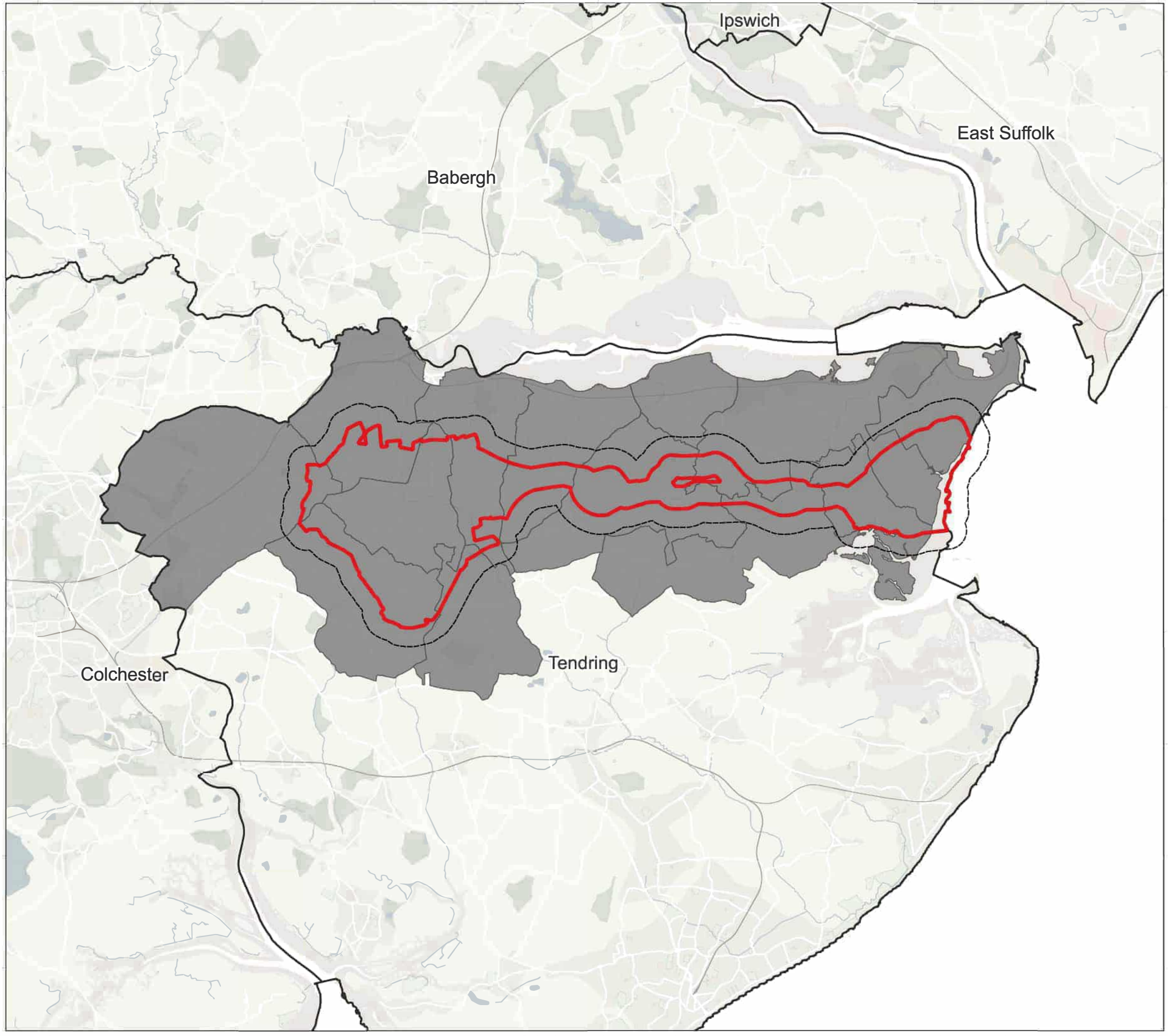
Riverview
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SK4 3GN
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**Figure 24-1**

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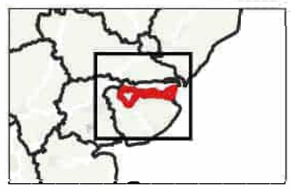
**Tarchon Interconnector Project**

Scoping Report

**Local Study Area - Local Parishes**

**Legend**

- English Onshore Scheme Scoping Boundary
- Local Authority Districts
- 500m from English Onshore Scheme Scoping Boundary
- Parishes within 500m of the English Onshore Scheme Scoping Boundary



**Notes**

Coordinate System:
OSGB36 / British National Grid

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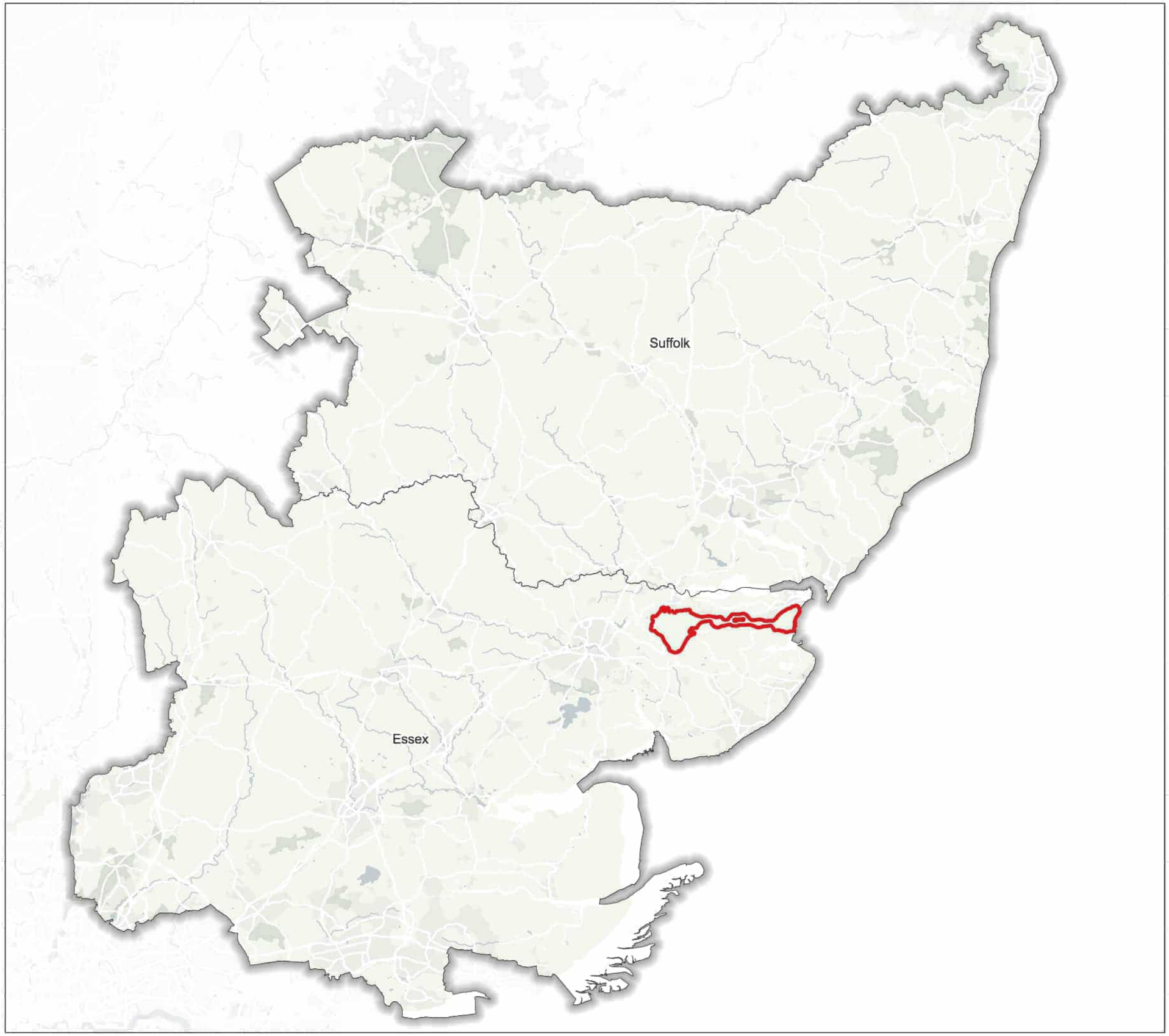
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**Figure 24-2**

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**Tarchon Interconnector Project**

Scoping Report

**County & Construction Labour Market Area (CLMA) (Essex and Suffolk)**

**Legend**

- English Onshore Scheme Scoping Boundary
- Essex and Suffolk




**Notes**

Coordinate System:
OSGB36 / British National Grid

0 15 30 km

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**Figure 24-3**

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## 24.3 Relevant Legislation, Planning Policy and Guidance

24.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context provides an overview of all legislation and planning policy framework relevant to the UK Scheme. This Section refers to legislation, planning policy, and guidance relating to the assessment of potential effects on Socio-economics and Land Use that may arise from the construction, operational and decommissioning phases of the EOS.

24.3.1.2 The below legislation, policies and guidance were reviewed as part of the scoping exercise, the content and requirements of which have been used to shape and develop the proposed scope of the Socio-economics and Land Use assessment.

### 24.3.2 Legislation

24.3.2.1 Regulation 5(2)(a) of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (HM Government, 2017) requires that the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect likely significant effects of the proposed development on the population, which are assessed in Section 24.7.3 ‘Scoping Assessment’ of this scoping Chapter, and human health which are assessed within Volume 04, Chapter 25: Health and Wellbeing.

### 24.3.3 National Planning Policy Framework

24.3.3.1 Section 5.13 of the Overarching National Policy Statement for Energy (EN-1) (NPS EN-1) (DESNZ, 2026) discusses the socio-economic impacts from the construction, operation (including maintenance), and decommissioning of energy infrastructure. It sets out the primary policy tests against which the application for a Development Consent Order (DCO) for the UK Scheme would be considered. The following outlines the elements of the NPS EN-1 that are relevant to this Chapter.

24.3.3.2 Paragraph 5.13.2 sets out that *“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”.*

24.3.3.3 Paragraph 5.13.3 encourages engagement with relevant local authorities during early stages of project development so that the applicant can gain a better understanding of local or regional issues and opportunities.

24.3.3.4 Paragraph 5.13.4 sets out the following socio-economic considerations that the Applicant’s assessment may include:

- *“The creation of jobs and training opportunities. Applicants may wish to provide information on the sustainability of the jobs created, including where they will help to develop the skills needed for the UK’s transition to Net Zero;*
- *The contribution to the development of low-carbon industries at the local and regional level as well as nationally;*

- *The provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities;*
- *Any indirect beneficial impacts for the region hosting the infrastructure, in particular in relation to use of local support services and supply chains;*
- *Effects (positive and negative) on tourism and other users of the area impacted;*
- *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 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".*

24.3.3.5 Paragraph 5.13.5 requires applicants to *"describe the existing socio-economic conditions in the areas surrounding the proposed development and should also refer to how the development's socio-economic impacts correlate with local planning policies".*

24.3.3.6 The above requirements and considerations within NPS EN-1 have been reviewed and accounted for when developing the proposed scope of the Socio-economics and Land Use assessment.

In addition to the energy NPSs, the NPS for Ports (Department for Transport, 2012) contains information relevant to this Chapter. The NPS for Ports states that applicants should consider all relevant socio-economic impacts of an application, which may include any reductions in port access resulting from an applicant's development. It is noted that there is a draft NPS for Ports, published in June 2025 (UK Government, 2025), currently under consultation, which will be considered as the application progresses.

### 24.3.4 Guidance

24.3.4.1 Relevant guidance and standards that have informed the scoping process and will be considered as part of the assessment are outlined below.

- Institute of Sustainability and Environmental Professionals (ISEP) (2025) Guidance – Social Impact Assessment in Environmental Impact Assessment in the UK
- DMRB LA 112 (Highways England, 2020)
- Homes and Communities Agency (HCA) (2014) Additionality Guide
- HM Treasury's (2026) Green Book for Economic Appraisal and Evaluation

- UK Working Day Spending Report (Visa Europe, 2014)
- Workforce Mobility and Skills in the UK Construction Sector (East of England) (CITB, 2023a)
- Focusing on the Skills Construction Needs – Labour Market Intelligence – East of England (Construction Skills Network, 2023)
- National Planning Policy Guidance (Ministry of Housing, Communities and Local Government, 2024)

### 24.3.5 Local Planning Policy

24.3.5.1 Relevant local policies, and strategies supporting these, have been reviewed as part of the scoping exercise to determine those which may be of relevance to the Socio-economic and Land Use assessment. Local policies and strategies that will inform the assessment are outlined below.

24.3.5.2 The Tendring District Local Plan 2013-2033 and Beyond (Section 1) (Tendring District Council, 2021) outlines strategic policies that support growth and development in North Essex. The following policies are relevant to Socio-economics and Land Use:

- Policy SP1: Presumption in Favour of Sustainable Development;
- Policy SP5: Employment;
- Policy SP6: Infrastructure and Connectivity; and
- Policy SP7: Place Shaping Principles.

24.3.5.3 The Tendring District Local Plan 2013-2033 and Beyond (Section 2) (Tendring District Council, 2022) sets out the following policies of relevance to Socio-economics and Land Use:

- Policy HP 2: Community Facilities;
- Policy PP12: Improving Education and Skills; and
- Policy SPL 3: Sustainable Design.

24.3.5.4 Tendring District Council (2026a) have also produced a draft local plan which sets out the following policies of relevance to Socio-economics and Land Use:

- Policy SPL1a: Presumption in Favour of Sustainable Development;
- Policy SPL3: Sustainable Design;
- Policy HP2: Community Facilities;
- Policy PP7: Employment Allocations;
- Policy PP13: The Rural Economy;
- Policy PP12: Improving Education and Skills;
- Policy PP13: The Rural Economy.

24.3.5.5 The Tendring Economic Strategy 2020-2024 (Tendring District Council, 2019) is relevant to the socio-economic assessment, particularly Paragraphs 5.16 to 5.18,

which outline the district's vision for clean energy. Of particular note is Objective 3: 'Ensure residents have the skills and information to participate', which promotes connecting local residents to the labour market through skills development and education initiatives.

24.3.5.6 In The Ardleigh Neighbourhood Plan (Ardleigh Parish Council, 2024) Policy CFP – Community Facilities is of relevance to Socio-economics and Land Use.

24.3.5.7 Essex County Council (2021) presented 20 commitments within Everyone's Essex report , focusing on four key areas: economy, environment, health and family. The commitments of particular relevance to Socio-economics and Land Use are presented below:

- Good Jobs - working hard to address the impacts of the Covid pandemic on unemployment by supporting business recovery and building a stronger economy for the future, enabling people to build the skills they need to be part of it;
- Infrastructure – delivering and maintaining high quality infrastructure to improve opportunities for people in Essex as well as supporting a growing economy;
- Future growth and investment – helping grow existing businesses and the economic sectors of the future in Essex;
- Green growth – developing Essex as a centre for innovation, supporting new technologies and business models to enable our economy to transition to net zero and secure green jobs for the future;
- Levelling up the economy – working to level up the economy by addressing the drivers of socioeconomic inequality (including income, education, employment, health and housing);
- Net Zero – working across the council and the county to hit net zero targets in addition to supporting progress towards sustainable housing and energy; and
- Green communities – working with communities and businesses, in addition to providing advice and support in order to reduce greenhouse gas emissions.

24.3.5.8 The Essex Sector Development Strategy (Essex County Council, 2022) identifies key growth sectors across the county, including the construction and retrofit sector and the clean energy sector.

24.3.5.9 The Essex County Council (2025) Annual Plan sets out the four main strategic aims, with the following being of particular relevance to Socio-economics and Land Use:

- A strong, inclusive and sustainable economy - Focuses on boosting productivity, supporting businesses, improving skills, and ensuring economic growth benefits all communities; and
- A high quality environment – prioritising climate action, sustainable transport, cleaner places, and protecting natural assets across the county.

24.3.5.10 The North Essex Economic Board's (2024) 'Delivering for North Essex' Strategy sets out key objectives of relevance to this assessment:

- 1A: Delivering Businesses and Skilled Residents;
- 1D: Agree International Partnerships; and
- 2D: Leading Essex's Green Jobs Delivery.

24.3.5.11 The Suffolk County Council's (2024) Economic Strategy and Growth Plan identifies the clean energy sector as a high growth area – characterised by strong economic contribution and significant projected expansion – and the construction sector as a value growth area, offering substantial employment.

24.3.5.12 The Suffolk County Council's (2019) Climate Emergency Declaration highlights the county's commitments to reducing environmental impacts while setting the ambition of becoming net zero by 2030. The declaration pledges to set up a policy development panel, work with partners across the county and region to make the county of Suffolk Carbon neutral by 2030.

24.3.5.13 The Suffolk County Council's (2021) Climate Emergency Plan was initially agreed in June 2021. The plan detailed further actions to support Suffolk's contribution to reducing emissions and identified four goals and five priority actions in enabling cleaner power:

- Goal one: Grow renewable energy capacity;
- Goal two: A smart and flexible grid;
- Goal three: National low carbon power infrastructure;
- Goal four: Public sector leadership on renewable electricity
- Priority Action one: Set ambitious and supportive renewable energy planning policies in updated local plans;
- Priority Action two: Work with UK Power Networks (UKPN) to accelerate the deployment of flexibility mechanisms to make network capacity available;
- Priority Action three: Actively support companies in local supply chains through targeted economic programmes;
- Priority Action four: Host renewables installations on public buildings, as well as public land holdings and brownfield land; and
- Priority Action five: Deliver opportunities for on-site or near-site renewable schemes to serve large energy users like hospitals, universities and transport infrastructure.

24.3.5.14 The latest Suffolk Climate Emergency Plan (Suffolk County Council, 2023)produced in 2023, set out a vision for a greener Suffolk with ambitious goals and helped to energise the county following the global pandemic, and the plan being developed against a backdrop of economic and social recovery. The main sector goals and actions are as follows:

- Collaborative Action – maximising opportunities to build on local expertise, leveraging public and private sector investment to support innovation and

business growth, working with central government to develop strategies to support ambitions for the future and creating opportunities for people to be involved and informed;

- Sustainable Homes – improving the energy efficiency of homes;
- Low Carbon Transport – increasing sustainable transport readiness, introducing more efficient freight, reducing demand for car use and making a transition to a zero-emission fleet;
- Industrial and Commercial Energy Use – improving carbon literacy and carbon management, and encouraging decarbonisation in the industrial, commercial and public sectors;
- Cleaner Power – growing Suffolk's low carbon energy production capacity, supporting the development of a smart and flexible grid, developing Suffolk's low carbon economy and ensuring that the public sector leads the way with renewable energy production.

24.3.5.15 The Suffolk County Council's (2022) Corporate Strategy focuses on a clear set of priorities designed to support recovery, strengthen communities, and deliver efficient public services. The main objectives set out within the strategy of direct relevance to Socio-economics and Land Use are as follows:

- To strengthen our local economy – stimulating a stronger, fairer local economy by promoting procurement opportunities for Suffolk's businesses, helping young and older people into work, promoting economic growth that strengthens communities and reduces inequalities and maximising growth through decisions/actions to support more people and help people do well; and
- Protecting and enhancing our environment - expanding clean energy, low-carbon transport, and energy-efficient homes, while protecting nature, improving air quality, installing EV (Electric Vehicle) chargers, and working with partners through the county's Climate Emergency Action Plan and Conference of the Parties 2021 (COP26) legacy.

24.3.5.16 It is important to note that the aims and objectives of local planning policies and strategies have been given due regard and consideration, where relevant, when developing the proposed scope of the Socio-economics and Land Use assessment.

## 24.4 Consultation and Engagement

24.4.1.1 No consultation has taken place as part of the preparation of the Socio-economic and Land Use Chapter of the Scoping Report. However, future engagement will be undertaken during the EIA process on all EIA topics during Statutory Consultation.

24.4.1.2 Responses on the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council, Tendring District Council, and Mid Suffolk and Babergh District Councils.

24.4.1.3 Where comments relevant to the assessment of Socio-economics and Land Use have been provided, these are summarised and responded to in Table 24-1.

### Table 24-1: Non-statutory Consultation Responses: Socio-economics and Land Use

| Consultee | Summary of Comment | How the matter will be addressed |
|---|---|---|
| Essex County Council | The Tendring peninsula has lots of residential settlements, businesses, farms and is a flat open rural landscape. Therefore, the impacts of the development are significant and potentially injurious to the communities it would affect and should not be underestimated. | The Socio-economics and Land Use assessment reported in the ES will consider the likely significant effects on residential properties, local businesses, community facilities and development land. |
| Tendring District Council | Tendring District Council is concerned that both the cumulative impact of construction traffic from this and the three other infrastructure projects proposed in the district will be considerable, and the effect of the work to deliver this project (both on the strategic highway network and on local roads) will be highly detrimental – not only to the day to day lives of those living in affected communities, but to the economy of the wider area. | The Socio-economics and Land Use assessment reported in the ES will consider the potential effects on the viability of rural land-based businesses, drawing on other assessments within the ES that might affect such commercial operation (including traffic and access). |
| Essex County Council | Essex County Council expects the Environmental Statement (ES) for the Scheme to reference local benefits including jobs, benefits to the local economy and community involvement.<br><br>Essex County Council seeks integration of the Scheme into the existing network of skills partnerships in Essex, including Tendring Future Skills Programme. Essex County Council would expect commitment from applicants to develop an initial Skills and Employment Strategy, after engagement with relevant and adjoining authorities, education partners and stakeholders.<br><br>Applicants must also show how local businesses will be supported in the supply chain during both construction and operation of the Scheme. | The Socio-economics and Land Use assessment reported in the ES will consider the impacts of the EOS on the local economy and local employment. The ES will also outline a Skills and Employment Strategy that can be secured through the DCO and informed by ongoing engagement with relevant stakeholders.<br><br>Engagement with Essex County Council will be undertaken to explore the potential for the EOS to be integrated into and contribute towards the aims of existing skills partnerships and programmes. |
| Suffolk County Council | The applicant must collaborate with Suffolk County Council's Regional Skills Coordination Function to identify labour gaps, match skills demand to local training capacity and coordinate | The Socio-economics and Land Use assessment reported in the ES will consider the impacts of the EOS on the local economy and local employment. |

| Consultee | Summary of Comment | How the matter will be addressed |
|---|---|---|
| | with existing initiatives such as the Asset Skills Enhancement and Capability (ASEC) Fund, Annual Skills Implementation Plan and local Further Education and Higher Education providers. | The ES will also outline a Skills and Employment Strategy that can be secured through the DCO and informed by ongoing engagement with relevant stakeholders.<br><br>Engagement with Suffolk County Council will be undertaken where considered relevant to explore the potential for the EOS to be collaborative with the aims of existing skills partnerships and programmes. |
| Suffolk County Council | Suffolk County Council wish for their new Economic Strategy to be considered by the applicant in the development of the Scheme and would like to see any new initiative making a positive contribution to the Economic Strategy.<br><br>Suffolk County Council would expect the applicant to outline what actions and mitigations would occur and how the county economy could benefit. | The Socio-economics and Land Use assessment reported in the ES will consider the Suffolk County Council Economic Strategy. In addition, the assessment will consider the impacts of the EOS on the local economy and employment opportunities. |
| Suffolk County Council | Proximity to other projects raises concern regarding cumulative workforce and supply chain impacts which must be robustly addressed at the earliest stages of project development. | An assessment of potential cumulative effects will be carried out as part of the Socio-economics and Land Use assessment reported in the ES; this will consider potential interactions with other developments identified as part of a wider cumulative effects assessment.<br><br>Other developments requiring consideration will be identified and shortlisted using the proposed methodology outlined in Volume 05, Chapter 32: Approach to Cumulative Effects.<br><br>Where necessary, measures will be identified to mitigate significant effects of cumulative workforce and supply chain demands resulting from the EOS and other developments. |

| Consultee | Summary of Comment | How the matter will be addressed |
|---|---|---|
| Suffolk County Council | Suffolk County Council expect the applicant to provide a detailed and granular temporal labour model that identifies:<br>• Workforce demand by phase;<br>• Skill types and levels required; and<br>• Duration of each workforce phase.<br>This model should be cross-referenced against anticipated demand from other projects to identify and mitigate cumulative pressures on the local labour market. | The Socio-economics and Land Use assessment reported in the ES will consider workforce demands for the construction, operational and decommissioning phases of the EOS, including average and peak construction workforce requirements. This will include an overview of the roles and skillsets to be required within the construction workforce for the EOS.<br>The assessment of cumulative Socio-economics and Land Use effects will consider the anticipated demand from other developments and potential impacts on the local labour market. |
| Suffolk County Council | The applicant should define the anticipated geography of labour sourcing, distinguishing between:<br>• Home based workers; and<br>• Non-home-based workers likely requiring temporary accommodation.<br>This should include worst-case scenario modelling to inform downstream assessments on housing, transport and public services. The applicant should define different sourcing geographies for skilled and unskilled labour and plan mitigation for potential strain on accommodation, health services and road networks. | The Socio-economics and Land Use assessment (and Volume 04, Chapter 27: Tourism and Recreation) reported in the ES will evaluate the likely significant effects of home-based workers on the labour market and non-home-based workers on public services. The assessments will also consider effects on the local accommodation sector, as well as impacts on residential properties, local businesses, and community facilities.<br>Mitigation will be identified in relation to these effects, where necessary. |
| Suffolk County Council | Supply Chain Development: The applicant should undertake a three-tier geographic assessment of supply chain opportunities (in supplementary guidance) and consider:<br>• Existing supplier capability and capacity;<br>• Ability to meet demand in each project phase; and<br>• Probabilistic scenario modelling to understand likely uptake. | The Socio-economics and Land Use assessment reported in the ES will account for supply chain impacts through its consideration of additionality factors based on established guidance. |

## 24.5 Baseline Environment

24.5.1.1 This section describes the baseline environmental characteristics with specific reference to Socio-economics and Land Use. The likely significant effects arising from the EOS will be assessed relative to the baseline conditions and consider an assessment of the existing site and its surroundings.

24.5.1.2 Various data sources will be used within the ES Socio-economics and Land Use Chapter in order to set the context before the assessment of likely significant effects on Socio-economics and Land Use for the construction, operational and decommissioning stages of the EOS is undertaken. These data will be collected from publicly accessible sources which are as follows:

- Office for National Statistics (ONS) (2025a) Population estimates – local authority based by single year of age;
- Ministry of Housing, Communities & Local Government (2025) Index of Multiple Deprivation 2025;
- ONS (2025b) UK Business Counts;
- ONS (2025c) Annual Population Survey (January 2024 to December 2024);
- ONS (2021) Census 2021;
- ONS (2025d) Claimant count by sex and age (December 2025);
- ONS (2025e) Business Register and Employment Survey (BRES) 2023;
- ONS (2025f) Estimates for Regional Gross Value Added (GVA);
- ONS (2025g) Subnational population projections for England: 2022-based;
- Interactive Map Multi-Agency Geographic Information for the Countryside (MAGIC), Natural England (Defra, 2025);
- Tendring District Council (2026b) Interactive Local Plan Allocations Map;
- Experian Limited (2023a) Experian workforce jobs based employment projections; and
- Experian Limited (2023b) Experian Gross Value Added (GVA).
- Desk-based study and collation of Book of Reference informing existing commercial / economic, community land and residential interests within the Order Limits when determined.

24.5.1.3 The list above is intended to provide an outline of sources however, additional or more up-to-date datasets may be utilised in the preparation of the ES Socio-economics and Land Use Chapter.

24.5.1.4 The baseline will draw upon published economic and population forecasts at a UK-wide, national (England), and local scale to inform assumptions on localised and national trends in productivity, sectoral change and overall employment and output growth.

24.5.1.5 An assessment will be made using public resources including planning history (via Tendring District Council) to ascertain the current and planned development within and in the vicinity of the EOS in order to identify any socio-economic uses.

24.5.1.6 A desk-based assessment using publicly available data will be undertaken to identify community resources, facilities and social infrastructure within the LSA that may have the potential to interact with the footprint of the EOS, or its environmental and accessibility effects.

24.5.1.7 Land referencing will be undertaken to ascertain the location, nature and scale of development land or commercial activity and interests interacting with the EOS.

24.5.1.8 The potential impacts arising from the EOS are assessed relative to the baseline condition and benchmarked against regional and national standards where appropriate.

24.5.1.9 Key indicators and measures for the Study Areas will be established for:

- Demographics;
- Socio-economic inequality and deprivation;
- Employment, sectors, skills and economic activity;
- Community facilities, community access and social infrastructure; and
- Land use and local business and development.

### 24.5.2 Baseline Conditions

#### Demographics

24.5.2.1 According to the latest ONS mid-year population estimates for 2024, the resident population of the *Ward Level* LSA is c.44,770. The population in Tendring is c.156,800, while the population in Essex is c.1,563,000.

24.5.2.2 58% of the *Ward Level* LSA's residents are of working age (between the ages of 16 and 64), which is slightly higher than the proportion in Tendring (55%), but lower than proportions across Essex (60%), the East of England (61%) and England (60%). Children aged 16 and under accounted for 17% of the *Ward Level* LSA, which is higher than the proportion in Tendring (16%), but lower than proportions at the county (21%), regional (20%) and national (19%) levels.

#### Socio-economic Inequality and Deprivation

24.5.2.3 The's Government Index of Multiple Deprivation (IMD) (Ministry of Housing, Communities and Local Government, 2025) measures deprivation in England by combining social, environmental, economic, and housing indicators to produce a single deprivation score for Lower-Layer Super Output Areas (LSOAs). Areas are then ranked relative to other areas according to their score.

24.5.2.4 The seven domains used in the IMD are as follows:

- Income;

- Employment;
- Education, skills and training;
- Health deprivation and disability;
- Crime;
- Barriers to housing and services; and
- Living environment.

24.5.2.5 IMD 2025 data (Ministry of Housing, Communities and Local Government, 2025) shows that a portion of the EOS Scoping Boundary in Dovercourt is within an area that is amongst the top 20% most deprived in the country, with this deprivation being driven by employment, education, skills and training, crime and barriers to housing services.

### Employment, Sectors, Skills and Economic Activity

24.5.2.6 According to the 2021 Census, the collective economic activity rates for the *Ward Level* LSA (57%) and Tendring (50%) are both lower than rates at the county (61%), regional (61%) and national (62%) levels.

24.5.2.7 Retirement was recorded to be the main reason for economic inactivity in both the *Ward Level* LSA and Tendring, with retired individuals accounting for 69% and 68% of the total resident populations, respectively. These proportions are greater than the proportions of retired individuals at the county, regional and national levels (at 62%, 55% and 60%, respectively).

24.5.2.8 The collective unemployment rate in the *Ward Level* LSA (4.2%) is recorded to be lower than rates in Tendring (6.2%), Essex (4.9%), the East of England (5.7%) and England (4.8%).

24.5.2.9 Data from the Annual Population Survey (October 2024 to September 2025) suggests that 30.6% of Tendring's economically inactive population would be willing to work, which is higher than proportions in Essex (20.8%), the East of England (21.5%) and England (20.8%).

24.5.2.10 Claimant count data (ONS, 2025d) provides the most recent information on the number of people claiming unemployment-related benefits in a particular spatial area, which includes Jobseekers' Allowance and Universal Credit. The count is calculated for all working age residents aged between 16 and 64 years. This dataset is unable to capture all unemployed individuals as some local residents may not claim these benefits or may be ineligible. This dataset is not considered to be a national statistic.

24.5.2.11 Claimant count data from December 2025 (ONS, 2025d) reveals the claimant rate (as a proportion of all working age residents aged 16 to 64) of 4% in Tendring, which is higher than rates within Essex (3%), the East of England (3.2%) and England (3.9%).

24.5.2.12 The latest employment estimates are for 2024, published in 2025 (ONS, 2025e). At that time, there were an estimated 12,770 jobs in the collective *Ward Level* LSA, 42,100 jobs in Tendring, 632,000 in Essex, 2,984,000 in the East of England and 28,413,000 in England.

24.5.2.13 The largest broad industrial group in the *Ward Level* LSA is Health, which accounts for 14% of total employment, which is higher than proportions within Essex (12%) and England (13%), but lower than the proportion in Tendring (15%).

### Community Facilities, Community Access and Social Infrastructure

24.5.2.14 There are a number of community facilities within the 500 m of the EOS Scoping Boundary, with these facilities being predominantly located in the following local settlements.

- Little Bromley;
- Wix;
- Great Oakley;
- Dovercourt;
- Little Oakley;
- Lawford; and
- Bradfield Heath

24.5.2.15 These community facilities are highlighted within Table 24-2.

### Table 24-2: Community Facilities within 500 m of the EOS Scoping Boundary

| Name of Facility | Type of Facility | Postcode |
|---|---|---|
| Wix and Wrabness Primary School | State-funded primary | CO11 2RS |
| St George's Church of England Primary School, Great Bromley | State-funded primary | CO7 7HX |
| St Joseph's Catholic Primary School | State-funded primary | CO12 3SU |
| All Saints' Church of England Voluntary Aided Primary School, Dovercourt | State-funded primary | CO12 4HT |
| Chase Lane Primary School and Nursery | State-funded primary | CO12 4NB |
| Harwich and Dovercourt High School | State-funded secondary | CO12 3TG |
| Wix and Wrabness Pre-School | Early Years Facility | CO11 2RS |
| Little Pumpkins Pre-School | Early Years Facility | CO11 2FR |
| Lime Trees Residential Home | Care Home | CO12 5AD |
| Don Thomson House Residential Care Home | Care Home | CO12 3TS |
| Rowland House Care Home | Care Home | CO12 4ND |
| Phoebe House Care Home | Care Home | CO12 5JU |
| Cook Close (Dovercourt Care Home (Brain Injury Rehabilitation Trust)) | Care Home | CO12 3UE |
| Waters View Residential Home | Care Home | CO12 5JA |
| St Mary the Virgin, Wix | Place of Worship | CO11 2SH |
| Our Lady Queen of Heaven Roman Catholic Church | Place of Worship | CO12 4EF |
| Dovercourt Cemetery Chapel | Place of Worship | CO12 6GG |
| All Saints' Church | Place of Worship | CO12 4LN |
| Kingsway Community Church Harwich | Place of Worship | CO12 4HZ |
| St Georges Church | Place of Worship | CO7 7TS |
| St Mary the Virgin, Little Bromley | Place of Worship | CO11 2PP |
| Fronks Road Family Surgery | GP Surgery | CO12 3RS |
| Harewood Surgery | GP Surgery | CO12 5AD |
| Mayflower Medical Centre | GP Surgery | CO12 4EX |
| Fryatt Hospital | Hospital | CO12 4EX |
| Oakley Pharmacy | Pharmacy | CO12 4QZ |
| Clearsprings Dental Practice | Dentist | CO12 3TS |
| MyDentist, Fronks Road, Harwich | Dentist | CO12 4EQ |

| Name of Facility | Type of Facility | Postcode |
|---|---|---|
| The Wix Village Hall | Community Asset | CO11 2RY |
| Long Meadow Community Centre | Community Asset | CO12 4US |
| Dovercourt Bay Lifestyles Leisure Centre | Community Asset | CO12 3TA |
| Harwich and Dovercourt Cricket Club | Community Asset | CO12 3FA |
| Football Fun Factory Harwich, Football Club | Community Asset | CO12 3TG |
| Little Oakley Football Club | Community Asset | CO12 5ED |
| Ogilvie Hall, Village Hall | Community Asset | CO11 2JG |
| Lawford House Pool | Community Asset | CO11 2JD |
| Lawford Football Club | Community Asset | CO11 2HZ |
| Dovercourt Fire Station | Fire Station | CO12 4XS |

24.5.2.16 Essex County Council publish publicly accessible data on PRoW, which is updated on a quarterly basis, in addition to an interactive map which updated slightly more frequently. It is important to note that these maps are not equivalent to the statutory Definitive Map which is held at the Essex County Hall.

24.5.2.17 According to the PRoW interactive map published by Essex County Council (Essex County Council, 2026), there are a total of 169 PRoW that fall within 500 m of the EOS Scoping Boundary and 91 PRoW that fall within the EOS Scoping Boundary. The majority of these PRoW are footpaths (84 footpaths within the EOS Scoping Boundary and 156 footpaths within 500 m of the EOS Scoping Boundary).

#### Land Use and Local Business and Development

24.5.2.18 There are a number of businesses located within the LSA, including, but not limited to, C & W Fencing Essex and PMC Landscaping & Fencing located in Wix, Hearts Delight Home & Garden Centre in Lawford, and Dairy House Farm Bed and Breakfast near Bradfield Heath.

24.5.2.19 The Great Oakley Airfield GB-0177 air strip and Flight Training Essex are located within the LSA.

24.5.2.20 As outlined in Volume 04, Chapter 27: Tourism and Recreation, there are a number of tourism and recreation businesses located within the LSA, including visitor accommodation, recreational facilities and dive clubs.

24.5.2.21 As outlined in Volume 03, Chapter 17: Commercial Fisheries, Volume 03, Chapter 18: Shipping and Navigation, and Volume 03, Chapter 19: Offshore Infrastructure and Other Sea Users, there are a number of businesses which have offshore activities within the LSA.

24.5.2.22 These include commercial fisheries and aquaculture, users of ports, users of mineral aggregate extraction areas, and vessels including cargo vessels and fishing vessels.

24.5.2.23 A full review of the landholdings, commercial activities and operations will be completed as part of the collation of baseline information for the ES.

### Land Use (Allocations)

24.5.2.24 There are a number of land allocations and land uses protected by legislation and policy for economic/employment, commercial, residential, development or public/community use as determined through local and national legislation and policy within the EOS Scoping Boundary. A full analysis of this land will be included within the ES where there is potential for this land to act as a socio-economic receptor. Section 24.7.3 and Table 24-6 provide an initial, desk-based review of such land uses for the purposes of scoping.

24.5.2.25 As shown in Figure 24-4, a portion of Hamford Water National Nature Reserve (NNR) is located within the EOS Scoping Boundary to the northeastern boundary of Tendring. Hamford Water NNR is recorded to be approximately 7.78 hectares (ha) in size and acts as a coastal embayment, providing a flood buffer, natural shelter for marine life, and providing a vital habitat for birds and fish (Woodland Trust, 2026). The NNR is known for its large population of over-wintering birds (including dark-bellied Brent geese and redshanks) and is recognised as a location to spot common and grey seals. This NNR is identified as a Site of Specific Scientific Interest (SSSI), Special Protection Area (SPA) and International Wetland Designation (Ramsar) site.

24.5.2.26 As highlighted in the Tendring District Local Plan 2013-2033 and Beyond Section 2 (Tendring District Council, 2022), Tendring established out Settlement Development Boundaries (SDBs) which serve the purpose of focusing growth in existing towns and villages, with developments in these areas being favoured and supported. Portions of both the Harwich, Dovercourt, Parkeston and Little Oakley SDB, the Great Oakley SDB and Wix SDB fall within the EOS Scoping Boundary, while the entirety of the Little Bromley SDB falls within the EOS Scoping Boundary.

24.5.2.27 There are also safeguarded open spaces (in line with Tendring District Local Plan 2013-2033 and Beyond Section 2 (Tendring District Council, 2022)) that fall within the EOS Scoping Boundary, including Low Recreation Ground, Park and Greensward, and open space adjacent to Harwich and Dovercourt High School. The ‘Land South of Church Hill (B1352), Ramsey’ is recorded to be the only strategic green gap that falls within the EOS Scoping Boundary.

24.5.2.28 When looking at housing allocations identified within the Tendring District Local Plan 2013-2033 and Beyond Section 2 (Tendring District Council, 2022), a portion of Strategic Allocation H1 ‘Low Road, Dovercourt’ falls within the EOS Scoping Boundary.

24.5.2.29 There are also a cluster of safeguarded holiday parks that also fall within the EOS Scoping Boundary, including Dovercourt Bay and New Hall Lodge Park.

24.5.2.30 There are no employment sites or employment allocations that have been identified within the EOS Scoping Boundary.

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237000 234000 231000 228000 225000 222000

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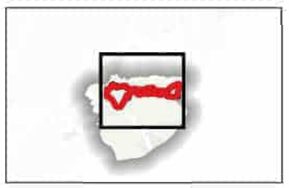
# Tarchon Interconnector Project

Scoping Report

## Land Uses within the English Onshore Scheme Scoping Boundary (Part 1)

**Legend**

- English Onshore Scheme Scoping Boundary
- 500m from English Onshore Scheme Scoping Boundary
- Tendring
- Areas of Outstanding Natural Beauty (AONB)
- Local Nature Reserves
- Ramsar
- Sites of Specific Scientific Interest (SSSI)
- Special Areas of Conservation
- Special Protection Areas



**Notes**

Coordinate System:
OSGB36 / British National Grid

0 2 4 km

N

| Scale: | Date: | Drawn by: | Checked by: | Approved by: |
|---|---|---|---|---|
| 1:65000 @ A3 | 18/03/2026 | BPHB | GB | CC |

Riverview
A17 The Embankment Business Park
Heaton Mersey
Stockport
SK4 3GN
http://www.apemltd.com
+44 (0) 161 442 8938

APEM

**Figure 24-4**

Figure Reference:

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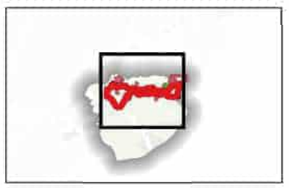
# Tarchon Interconnector Project

Scoping Report

## Land Uses within the English Onshore Scheme Scoping Boundary (Part 2)

**Legend**

- English Onshore Scheme Scoping Boundary
- 500m from English Onshore Scheme Scoping Boundary
- Tendring
- Tendring Housing Allocations
- Settlement Development Boundaries
- Strategic Green Gaps
- Safeguarded Holiday Parks
- Safeguarded Open Space



**Notes**

Coordinate System:
OSGB36 / British National Grid

0 2 4 km

N

| Scale: | Date: | Drawn by: | Checked by: | Approved by: |
|---|---|---|---|---|
| 1:65000 @ A3 | 18/03/2026 | BPHB | GB | CC |

Riverview
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**Figure 24-5**

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### 24.5.3 Future Baseline Conditions

24.5.3.1 The baseline environment is not static and is expected to change over time, irrespective of the UK Scheme. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UK Scheme over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

24.5.3.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised

#### Demographics

24.5.3.3 ONS population projections (ONS, 2025g) show that over the 10-year period between 2026 and 2036, the overall population within Tendring is projected to grow by 9.4% to c.173,100 people. This percentage growth is higher than the projected rates of increase in Essex (5.6%), the East of England (5.3%) and England (4.5%) over the same period.

24.5.3.4 2022-based population projections (ONS, 2025g) also show that the elderly population (individuals aged 65 years and above) is projected to grow by 23% in Tendring, which is greater than rates of growth at the county (17%), regional (19%) and national (20%) levels.

#### Employment, Sectors, Skills and Economic Activity

24.5.3.5 The Experian Regional Planning Service data provides employment projections up to 2043 (Experian Limited, 2023a). According to 2023-based workforce job projections, workforce jobs in Tendring are projected to grow from 51,900 jobs in 2026 to 54,500 jobs in 2036, representing a growth rate of 5.0%. This rate of growth is greater than total workforce growth at the regional level (4.9%), equal to the growth rate at the national level, and marginally lower than the growth rate at the county level (5.2%). The jobs growth is calculated over the base of 2023 workforce jobs data from Experian.

24.5.3.6 When looking at workforce job projections for sectors of relevance to the EOS, workforce jobs within the construction sector are expected to grow from 4,900 in 2026 to 5,200 in 2036, representing a growth rate of 6.1%. This was greater than projected construction workforce growth rates at the county (3.8%), regional (4.5%) and national (4.3%) levels. When looking at the ‘utilities’ sector, there is no projected growth in this sector between 2026 and 2036 in Tendring, while growth rates for workforce in the ‘utilities’ sector are recorded to be at 1.3%, 0.4% and 1.4% at the county, regional and national levels, respectively.

24.5.3.7 Experian's Regional Planning Service also records GVA data (Experian Limited, 2023b) at the local authority, county, regional and national levels. Between 2026 and 2036, overall GVA in Tendring is projected to grow from c.£2,060 million to c.£2,490 million, representing a growth rate of 21%. This was marginally greater than GVA growth rates at the county, regional and national levels (at 20%, 19% and 19%, respectively).

24.5.3.8 When looking at GVA by broad sector, construction GVA within Tendring is projected to grow from c.£190 million in 2026 to c.£230 million in 2036. The growth rate is the projected construction GVA between 2026 and 2036 (21%) was also recorded to be greater than rates at the county, regional and national levels (all at 20%). The projected growth rate in GVA from the 'utilities' sector between 2026 to 2036 was recorded to be 18%, which was also greater than rates at the county, regional and national levels.

24.5.3.9 According to the latest CITB Labour Market Intelligence Report for the East of England (Construction Skills Network, 2023), the level of output growth in the East of England forecasts an annual average increase of 0.8% in the construction workforce, which is higher than the UK figure of 0.6%. The CITB forecast East of England construction workforce to reach 258,680 by 2028.

#### Land Use and Local Business and Development

24.5.3.10 There is a high level of uncertainty with respect to the future baseline of existing local land uses, even where future planned uses are known (such as future developments, where planning applications, permissions, and local plan allocations have been considered) as it is not certain whether developments will be operational before the construction of the EOS starts.

24.5.3.11 Therefore, for the purposes of this assessment, the future baseline with respect to local land uses (including agricultural land, residential properties, local businesses, community facilities, and development land) is expected to be in line with the existing baseline conditions set out above.

## 24.6 Assessment Methodology

24.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the construction, operational and decommissioning phases of the UK Scheme. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

24.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on Socio-economics and Land Use receptors arising from the construction, operational, and decommissioning phases of the UK Scheme. This approach defines:

- **Sources and impacts**: The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and

- **Receptor**: The component of the environment that may be affected.

24.6.1.3 The Socio-economics and Land Use assessment will consider the construction, operational and decommissioning phases of the EOS. Details of each of these phases are set out in Volume 01, Chapter 02: UK Project Description.

24.6.1.4 Relevant policy will be reviewed at the local, regional, and national levels to identify the key issues of relevance to the EOS.

24.6.1.5 A full, detailed baseline assessment will be undertaken using a range of sources to provide a description of the Socio-economics and Land Use conditions within the Study Areas outlined above. This will be done using established statistical sources and desk-based research.

24.6.1.6 An assessment of likely significance will be undertaken to determine the effect of the EOS on the baseline Socio-economic and Land Use conditions. There is currently no statutory guidance on the methodology for undertaking assessments of socio-economic effects, however the methodology will align with the requirements set out in NPS EN-1.

24.6.1.7 The methodology for the assessment of likely significant Socio-economic and Land Use effects will entail:

- An assessment of the likely scale, permanence and significance of effects associated with socio-economic receptors; and
- An assessment of the potential cumulative impacts with other developments within the surrounding area.

24.6.1.8 The assessment of likely significant Socio-economics and Land Use effects will use policy, guidance and expert judgment to assess the scale and nature of the impacts of the EOS against baseline conditions.

24.6.1.9 For Socio-economics and Land Use, there is no single accepted definition of what constitutes a significant (or not significant) Socio-economic and Land Use 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.

### 24.6.2 Sensitivity of Receptor

24.6.2.1 In general, the sensitivity of the Socio-economics and Land Use receptors takes account of the importance attached to each receptor in policy terms and the characteristic of the baseline environment and ability of the receptor to absorb or respond to change, and where practicable draws on measurable indicators such as the scale of these receptors identified in the baseline, to gauge the receptor’s sensitivity.

Table 24-3: Definitions of Sensitivity for Socio-economics and Land Use

| Sensitivity | Definition |
|---|---|
| Very High | **For private property and housing land (allocations):**<br>• Existing private property or land allocated for housing located in a local authority area where the number of households are expected to increase by >25% by 2041; and/or<br>• Existing housing and land allocated for housing (e.g. strategic housing sites) covering >5 ha and/or>150 houses.<br><br>**For development land (including allocations) and business:**<br>• Existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites covering >5 ha.<br><br>**For commercial operations and businesses:**<br>• The operation of the enterprise is wholly dependent on the spatial relationship of elements within the land affected such that viability may be affected.<br><br>**For socio-economic receptors (the economy, the agricultural sector and the labour market):**<br>• The socio-economic receptor has no capacity to absorb or respond to change without noticeable socio-economic loss or gain.<br><br>**For community receptors (community land and assets, community facilities and PRoW and their users):**<br>• Receptor is of very high importance (for example, as dictated by national policy or providing a statutory service), used very frequently by the community, with no potential to substitute with other options; or experiencing environmental or access change as to render impossible its intended use and therefore substantially disadvantage users. |
| High | **For private property and housing land (allocations):**<br>• Existing private property or land allocated for housing located in a local authority area where the number of households are expected to increase by 16-25% by 2041; and/or<br>• Existing housing and land allocated for housing (e.g. strategic housing sites) covering >1 ha - 5 ha and/or>30-150 houses.<br><br>**For development land (including allocations) and business:** |

| Sensitivity | Definition |
|---|---|
| | • Existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering >1 ha - 5 ha.<br><br>**For commercial operations and businesses:**<br>• The operation of the enterprise is dependent on the spatial relationship of elements within the land affected such that viability may be affected to some extent.<br><br>**For socio-economic receptors (business, development land, the economy and labour market):**<br>• The socio-economic receptor has limited capacity to absorb or respond to change without noticeable socioeconomic loss or gain.<br><br>**For community receptors (community facilities, and PRoW and their users):**<br>• Receptor is of high importance (for example, as dictated by local policy, usage and accessibility), used frequently by the community, with limited potential to substitute with other options; or experiencing environmental or access change as to substantially alter its intended use and therefore disadvantage users. |
| Medium | **For private property and housing land (allocations):**<br>• Existing private property or land allocated for housing located in a local authority area where the number of households are expected to increase by >6-15% by 2041; and/or<br>• Existing housing and land allocated for housing (e.g. strategic housing sites) covering <1 ha and/or <30 houses.<br><br>**For development land (including allocations) and business:**<br>• Existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering <1 ha.<br><br>**For commercial operations and businesses:**<br>• The operation of the enterprise is dependent on the spatial relationship of elements within the land affected but that viability is unlikely to be affected.<br><br>**For socio-economic receptors (business, development land, the economy and labour market):** |

| Sensitivity | Definition |
|---|---|
| | • The socio-economic receptor has some capacity to absorb or respond to change and may result in some perceptible socio-economic loss or gain.<br><br>**For community receptors (community facilities, and PRoW and their users):**<br>• Receptor is of medium importance (for example, as dictated by local policy, usage and accessibility), used reasonably frequently by the community, with moderate potential to substitute with other options or experiencing little environmental or access change as to slightly alter its intended use and therefore moderately disadvantage users. |
| Low | **For private property and housing land (allocations):**<br>• Proposed development on unallocated sites providing housing with planning permission/in the planning process.<br><br>**For development land (including allocations) and business:**<br>• Proposed development on unallocated sites providing employment with planning permission/in the planning process.<br><br>**For commercial operations and businesses:**<br>• The operation of the enterprise is not dependent on the spatial relationship of elements within the land affected and/or viability is not affected.<br><br>**For socio-economic receptors (business, development land, the economy and labour market):**<br>• The socio-economic receptor has capacity to absorb or respond to change and may result in hardly perceptible socioeconomic loss or gain<br><br>**For community receptors (community facilities, and PRoW and their users):**<br>• Receptor is of low importance (for example, as dictated by local policy, usage and accessibility), used infrequently by the community, with strong potential to substitute with other options or experiencing little environmental or access change as to hardly perceptibly alter its intended use and therefore slightly disadvantage users. |
| Negligible | **For private property and housing land (allocations); development land (including allocations) and business; commercial operations and businesses commercial operations and businesses; and socio-economic receptors (business, development land, the economy and labour market):**<br>• The receptor has the capacity to absorb or respond to change with no socio-economic loss or gain. |

| Sensitivity | Definition |
|---|---|
| | **For community receptors (community facilities, and PRoW and their users):**<br>• Receptor is of low importance (for example, as dictated by local policy, usage and accessibility), used rarely by the community, can easily be substituted with other options or experiencing no environmental or access change as to alter its intended use and therefore not disadvantage users. |

### 24.6.3 Magnitude of Impact

24.6.3.1 The magnitude of change upon each receptor will be determined by considering the change experienced from the baseline conditions, subject to the consideration of embedded mitigation. The criteria for the assessment of magnitude of change, which can either be positive (beneficial) or negative (adverse) is set out below in Table 24-4.

### Table 24-4: Definitions of Magnitude for Socio-economics and Land Use

| Magnitude | Definition |
|---|---|
| Large | **For private property and housing land (allocations); commercial operations and businesses; and development land (including allocations) and business and community receptors (community facilities and PRoW and their users):**<br>• Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements. e.g. direct acquisition and demolition of buildings and direct development of land; and/or introduction (adverse) or removal (beneficial) of complete severance with no/full accessibility provision.<br>• Potential for in-combination multiple significant residual environmental effects on existing private property or land allocated for housing that would result in inhabitability.<br>• Potential for in-combination multiple significant residual environmental effects on existing or allocated operations that would result in operations becoming unviable.<br>• Loss without replacement, or substantial change in accessibility to or amenity of community infrastructure.<br>• For PRoW, where diversion results in a >500 m increase (adverse) / decrease (beneficial) in walking, cycling and horse-riding (WCH) journey length.<br>• Potential for multiple, in-combination significant residual environmental effects that would result in operations becoming unviable.<br>• For commercial operations and businesses - >20% of all land is lost; no access available to severed land; direct loss of critical, building or structure.<br><br>**For socio-economic receptors (business, development land, the economy and labour market):**<br>• Substantial change to the socio-economic receptor in terms of employment levels, output or productivity. |
| Medium | **For private property and housing land (allocations); commercial operations and businesses; and development land (including allocations) and business and community receptors (community facilities and PRoW and their users):**<br>• Partial loss of/damage to key characteristics, features or elements, e.g. partial removal or substantial amendment to access or acquisition of land compromising viability of property, businesses or community assets; and/or introduction (adverse) or removal (beneficial) of severe severance with limited / moderate accessibility provision.<br>• Potential for significant residual environmental effects on existing private property or land allocated for housing. |

| Magnitude | Definition |
|---|---|
| | • Potential for significant residual environmental effects on existing or allocated operations that would result in operations becoming unviable.<br>• Notable change in capacity of, accessibility to or amenity of community infrastructure.<br>• For PRoW, where diversion results in a >250 m - 500 m increase (adverse)/decrease (beneficial) in WCH journey length.<br>• Potential for significant residual environmental effects that would result in operations experiencing a significant reduction in viability.<br>• For commercial operations and businesses – 10-20% of all land is lost; severance occurs but access remains available to severed land via the public highway; loss of or damage to infrastructure affecting use.<br><br>**For socio-economic receptors (business, development land, the economy and labour market):**<br>• Noticeable change to the socio-economic receptor in terms of employment levels, output or productivity. |
| Small | **For private property and housing land (allocations); commercial operations and businesses; and development land (including allocations) and business and community receptors (community facilities and PRoW and their users):**<br>• A minor to discernible change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements, e.g., amendment to access or acquisition of land resulting in changes to operating conditions that do not compromise overall viability of property, businesses or community assets; and/or introduction (adverse) or removal (beneficial) of severance with adequate accessibility provision.<br>• Slight/hardly perceptible change in capacity of or accessibility to or amenity of community infrastructure.<br>• For PRoW, where diversion results in a 50 m - 250 m increase (adverse)/decrease (beneficial) in WCH journey length.<br>• For commercial operations and businesses – 5-10% of all land is lost; severance occurs but access remains available to severed land via a private way; loss of or damage to infrastructure does not affect use.<br><br>**For socio-economic receptors (business, development land, the economy and labour market):**<br>• Slight/hardly perceptible change to the socio-economic receptor in terms of employment levels, output or productivity. |
| Negligible | **For private property and housing land (allocations); development land (including allocations) and business; and commercial operations and businesses:** |

| Magnitude | Definition |
|---|---|
| | • No change or effect for commercial operations and businesses – less than 5% of all land is lost; no new severance; no impact on infrastructure; no disruption on land use or enterprise.<br><br>**For socio-economic receptors (business, development land, the economy and labour market):**<br>• No perceptible change to the socio-economic receptor in terms of employment levels, output or productivity.<br><br>**For community receptors (community facilities and PRoW and their users):**<br>• No perceptible change in capacity of, accessibility to or amenity of community infrastructure.<br>• For PRoW, where diversion results in a <50 m increase (adverse)/decrease (beneficial) in WCH journey length. |

### 24.6.4 Significance of Effect

24.6.4.1 To ensure consistency across topics, a matrix approach has been adopted to present judgements made on the significance of an effect. This terminology is outlined in Table 24-5 below.

**Table 24-5: Significance Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Negligible |
| Very High | Major | Major | Moderate | Minor |
| High | Major | Moderate | Moderate | Minor |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

24.6.4.2 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 operational phase.

24.6.4.3 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

24.6.4.4 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UK Scheme design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UK Scheme.

## 24.7 Potential Effects and Mitigation

24.7.1.1 To inform identification of potential effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 24.7.2 Embedded Mitigation and Good Practice Measures

24.7.2.1 The UK Scheme will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as *“mitigation measures that have*

*been incorporated into a project's description and form an inherent part of the project's design"* (ISEP, 2024).

24.7.2.2 Mitigation measures set out in the following chapters are also likely to be relevant for minimising effects on local receptors associated with Socio-economics and Land Use:

- Volume 02, Chapter 12: Traffic and Transport;
- Volume 03, Chapter 17: Commercial Fisheries;
- Volume 03, Chapter 18: Shipping and Navigation;
- Volume 03, Chapter 19: Offshore Infrastructure and Other Sea Users;
- Volume 04, Chapter 22: Noise and Vibration;
- Volume 04, Chapter 25: Health and Wellbeing;
- Volume 04, Chapter 27: Tourism and Recreation; and
- Volume 04, Chapter 28: Air Quality.

24.7.2.3 An outline Construction Traffic Management Plan (CTMP) will be submitted with the DCO application. This document will detail measures to regulate construction traffic. Currently, the proposals for vehicular access are unknown, although it is expected that construction vehicles will use the A12(T) and A120(T) to travel to/from the EOS. A detailed CTMP would then be agreed with the Local Highway Authority prior to starting the construction phase.

24.7.2.4 An outline Construction Environmental Management Plan (CEMP) will accompany the DCO Application. The outline CEMP will outline measures relevant to the control and mitigation of effects that have a relationship to, or bearing on, receptors and interests scoped into the Socio-economic and Land Use assessment. These measures are likely to focus on: minimising community disruption and severance during construction works; maintaining access to residential dwellings, commercial properties and community facilities; minimising temporary land take during construction

24.7.2.5 A detailed CEMP, based upon this outline document, will be produced by the appointed construction contractor and agreed with the local planning authorities following the award of the DCO and prior to the start of construction.

24.7.2.6 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UK Scheme development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

24.7.2.7 The Applicant will prepare an Outline Skills and Employment Strategy, informed by ongoing engagement with relevant local authorities, skills bodies and education providers, and this can be secured through the DCO. The Outline Skills and Employment Strategy will set out the proposed framework and governance for

workforce and skills initiatives; however, the detailed measures and commitments (including specific training, employment or apprenticeship opportunities) will be defined at a later stage as the design and delivery approach is refined.

24.7.2.8 As the UK Scheme advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective, and compliant with regulatory standards and stakeholder input.

### 24.7.3 Scoping Assessment

#### Direct On-site Employment

24.7.3.1 The EOS has the potential to support construction employment in a range of skills during the construction phase, which would result in access to work and training for local residents who may or may not be in employment. This would be considered and assessed in the context of the scale of employment supported within the local economy, using information on the mobility and characteristics of the prevailing construction sector.

24.7.3.2 In general, it is anticipated that the construction phase would require a mix of occupational skills within various construction industry sub-sectors, but predominantly civil engineering/civils construction roles including earth moving, ground preparation, cable laying and plant operative roles, skilled mechanical and engineering trades and vehicle operation and electrical installation.

24.7.3.3 These construction roles would be supported by non-construction and relatively unskilled construction roles including security, maintenance, banksmen, traffic management, administration and site management and operation roles.

24.7.3.4 An assessment of additionality will be applied to identify the net Full-Time Equivalent (FTE) employment supported by the EOS over the temporary construction period, with an assessment of the type and nature of employment and an estimate of the residual ‘non-local’ element (see Volume 04, Chapter 27: Tourism and Recreation).

24.7.3.5 During the operational phase of the EOS, the proposed Converter Station will be remotely monitored and operated, and there will be no staff permanently based on site. During normal operational periods there will be occasional visitors to site (for example, to undertake general maintenance) and ad-hoc deliveries via Light Goods Vehicles (LGVs).

#### Indirect/Wider Economic Effects (Including on Supply Chain and GVA)

24.7.3.6 Production of materials, and their installation in the EOS, along with goods and labour associated with the construction activity, will result in indirect economic effects. These effects would largely be determined by where the contracts for materials are procured. As the direct effects of employment and indirect effects of GVA related to worker output and spending are addressed above, the remaining element is expenditure on supply chain activities.

24.7.3.7 Multiplier effects (the net additional economic benefit that will be created as a direct result of the income earned and spent and output produced by the employment supported, and as an indirect result of spend on materials in the supply chain) would effectively be considered under the benefits accrued by a combination of assessment of effects of workforce spending, contribution to construction output, and construction supply chain effects. It is noted that there is some overlap in how these elements are measured and so it is not appropriate to sum them to an overall gross total.

### Effects on the Agricultural Economy

24.7.3.8 Effects on the agricultural economy will be determined by the extent to which the EOS changes the indicative capacity for agricultural employment, and production and land availability in the agricultural economy at county, regional and national scales.

24.7.3.9 The baseline would be informed by data on the structure of the agricultural industry in England published by the Department of Environment, Food and Rural Affairs (Defra), which provides an overview of the UK's agricultural economy by region including data relating to land use, yields and employment.

24.7.3.10 The assessment will consider the potential for the effect of temporary land and employment reduction in the EOS in agricultural uses relative to the scale of the regional agricultural economy.

### Land Take or Amenity Effects on Business and Development Land

24.7.3.11 The construction and operational phases of the EOS will mean a change to the land use and the commercial operators that use land within the EOS for their business (as tenants or freeholders). As a result, the operation of these businesses or development land may be altered.

24.7.3.12 Further effects may be related to the change in availability, use or amenity of land allocated for commercial or economic purposes including strategic employment sites or land allocated or proposed for residential development in planning policy.

24.7.3.13 At a local scale, baseline information gained through engagement with landowners and tenants of land within the EOS will be used to consider construction and operational effects from the EOS related to the commercial activity and businesses operating within or relying upon access to the EOS for their operations.

24.7.3.14 Where relevant, this will include a summary analysis of land changes and (in some cases) significant effects (and embedded and additional mitigation) reported in the following chapters of the ES where relevant:

- Volume 02, Chapter 09: Land Use, Soils and Agriculture;
- Volume 02, Chapter 12: Traffic and Transport;

- Volume 04, Chapter 22: Noise and Vibration; and
- Volume 04, Chapter 28: Air Quality.

### Land Take or Amenity Effects on Community Land and Assets and Community Facilities

24.7.3.15 Effects on community facilities are determined by the extent to which there are local community and commercial facilities, landscape or cultural heritage receptors in the area likely to be affected by the construction, operational and decommissioning phases of the EOS in terms of accessibility and changes to environmental amenity.

24.7.3.16 Further effects may be related to the change in availability, use or amenity of land allocated for community purposes including strategic development sites or land allocated or protected in planning policy and legislation for public access including public open space and recreational areas, and Common Land.

24.7.3.17 Where relevant, this will include a summary analysis of land changes and (in some cases) significant effects (and embedded and additional mitigation) reported in the following chapters of the ES where relevant:

- Volume 02, Chapter 12: Traffic and Transport;
- Volume 04, Chapter 21: Landscape and Visual Impact Assessment;
- Volume 04, Chapter 22: Noise and Vibration; and
- Volume 04, Chapter 28: Air Quality.

### Effects on Community Accessibility

24.7.3.18 The approach to assessments of potential significant effects on PRoWs and access, and users of those routes/links considered relevant legislation, policy and guidance referred to in this Chapter.

24.7.3.19 A link-level assessment will be undertaken to assess the potential for changes to each individual PRoW link (as determined by the Essex County Council Definitive Map) where links interact with or are affected by the EOS for any part of its length.

24.7.3.20 This will be considered in the context of embedded mitigation (via potential diversions, new or alternative links, crossing and management) that may be provided as part of the EOS such as diverted/replacement PRoW.

24.7.3.21 The assessment would primarily consider where connectivity in terms of journey distance via PRoW is changed as a result of the EOS, in the context of replacement and alternative access – assessments of severance, pedestrian delay, non-motorised user amenity, fear and intimidation (created by traffic movements), landscape and visual impacts and noise and vibration on PRoW users would be considered in respective chapters:

- Volume 02, Chapter 12: Traffic and Transport;

- Volume 04, Chapter 21: Landscape and Visual Impact Assessment; and
- Volume 04, Chapter 22: Noise and Vibration.

#### Effects on Public Services

24.7.3.22 There is potential for the ‘non-local’ element of the construction workforce staying temporarily in the area to increase demand for public services, however this is likely to be limited in the context of the type of work required, the accommodation choices of the workers, and the net additionality to be applied through accounting for general taxation and the itinerant, mobile and short-term nature of construction employment.

#### Contribution to Renewable Energy Security

24.7.3.23 The EOS will support national policy objectives that promote the security and resilience of energy in the UK.

#### Potential Decommissioning Phase Effects

24.7.3.24 Given timescales for the decommissioning phase, there is a level of uncertainty about the potential for significant effects relating to that phase. However, it is likely that decommissioning activity will be broadly of the same type as construction activity, with proportionate industry-standard mitigation in-place, and therefore effects (e.g. employment and GVA) would likely be of the same type.

24.7.3.25 Sensitive receptors may change over time as a result of labour market change, productivity and output, and demand for labour as a result of automation. To be precautionary, it will be assumed that socio-economic receptors would be no less sensitive during the decommissioning phase than during the construction phase, resulting in similar types of effects.

24.7.3.26 Table  below summarises the Socio-economic and Land Use topics that have been scoped into and out of the EIA, together with the justification for each decision. This reflects the outcomes of the scoping exercise described above.

**Table 24-6: Elements Scoped In and Out for Socio-Economics and Land Use**

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction and Decommissioning | Direct, on-site employment | Employment and skills opportunities supported | Sub-regional and Regional Labour Market | Scoped In | The EOS will generate direct, temporary employment during the construction, including demand for construction skills within the existing labour market. |
| Operational | | | | Scoped In (maintenance) | The scale of operational employment at the proposed Converter Station is likely to be limited and accordingly effects are expected to be negligible; however, maintenance works are expected to generate employment opportunities of a magnitude that warrant consideration in the assessment. |
| Construction and Decommissioning | Indirect / Wider Economic Effects (Including on Supply Chain and GVA) | Addition of economic value to the economy | Sub-regional, Regional and National Economy | Scoped In | The employment and wider economic activity created during the construction and decommissioning phases of the EOS will generate workforce spending, supply chain opportunities and GVA. |
| Operational | | | | Scoped Out | The scale of operational employment and supply chain effects generated from the EOS is likely to be limited and therefore any effect on GVA will be small. |
| Construction and Decommissioning | Effects on the Agricultural Economy | Changes to the employment capacity of the agricultural sector | Sub-regional Agricultural Economy | Scoped In | Construction and decommissioning activity may result in temporary reduction in agricultural capacity, subject to development of the construction methodology. |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Operational | | | | Scoped Out | During the operational phase the onshore infrastructure (cable) would be buried and would therefore not disrupt agricultural activity. Residual land take is negligible in the context of the agricultural economy of the sub-region. |
| Construction and Decommissioning | Land Take or Amenity Effects on Business and Development Land | Effects on the viability of business and development land as a result of land use change or environmental change | Local businesses and development land | Scoped In | There are a number of businesses and commercial operations, and potential development land within the Study Areas which could be affected by land take or amenity impacts. |
| Operational | | | | Scoped Out | During the operational phase the onshore infrastructure (cable) would be buried and would therefore not disrupt commercial activity. |
| Construction, Operational and Decommissioning | Effects on Community Accessibility | Changes to the connectivity between communities and community resources via PRoW | Local PRoW and their users | Scoped In | The EOS could result in the need for management of PRoW which may affect community accessibility during the construction phase, subject to development of the construction methodology. |
| Construction and Decommissioning | Effects on Public Services | Changes in the capacity of public services | Local (District) public services and community facilities | Scoped In | The EOS's non-local workforce may present some net additional demand for public services and community facilities during the construction and decommissioning phases. |
| Operational | | | | Scoped Out | The EOS's operational workforce would be limited and remotely based, and maintenance activity would be |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | intermittent, resulting in negligible additional demand for public services and community facilities |
| Operational | Contribution to Renewable Energy Security | Changes to the resilience of the national energy supply | National economy | Scoped In | The EOS will support national policy in the provision of energy security and resilience |
| Construction, Operational and Decommissioning | Transboundary Effects | Socio-economic effects (above) with the potential for international scope | International | Scoped Out | Potential for likely impacts on Socio-economics and Land Use are only considered in a national, local or regional and therefore impacts to Socio-economics and Land Use in the UK are not relevant within other European States. Transboundary effects are therefore scoped out of further assessment in relation to Socio-economics and Land Use. |

### 24.7.4 Cumulative and Transboundary Effects

#### Cumulative Effects

24.7.4.1 Volume 05, Chapter 32: Approach to Cumulative Effects details how potential cumulative effects will be assessed through the Cumulative Effects Assessment (CEA) and gives examples of those projects likely to be assessed. For Socio-economics and Land Use, cumulative interactions may occur with the whole Tarchon Project in combination with the UK Scheme and other planned developments within the Socio-economics and Land Use Study Areas.

24.7.4.2 A cumulative impact assessment will be undertaken using public datasets and available or modelled information about Nationally Significant Infrastructure Projects (NSIPs) and prevailing construction employment information within the Study Areas.

24.7.4.3 Socio-economic effects differ from other environmental effects in that there are fewer defined thresholds for assessment, and far less available, detailed information from other projects relating to economic effects. Socio-economic effects are not limited to set standard assessment methodologies and are also far more likely to be influenced by economic cycles and uncertainty. As such, as well as using standard EIA approaches to short- and long-listing relevant projects, the assessment will draw on datasets such as economic forecasts and sectoral growth estimates which will provide a future baseline for elements like construction employment.

24.7.4.4 Cumulative Socio-economics and Land Use effects may include:

- Direct Construction Employment: Cumulative demand and opportunity for construction workforce and effects on the labour market from NSIPs (above-trend demand) in the context of wider forecast construction activity;
- Indirect/Wider Economic Effects (Including on Supply Chain and GVA): Cumulative demand and opportunity for construction supply chain spend and GVA on the construction economy;
- Effects on the Agricultural Economy: As a result of land-take and amenity/accessibility changes affecting the employment capacity of the agricultural sector during the construction phase;
- Land Take or Amenity Effects on Business and Development Land: As a result of land-take and amenity/accessibility changes affecting the employment capacity of existing commercial activity, and the development capacity of allocated land;
- Land Take or Amenity Effects on Community Land and Assets and Community Facilities: As a result of land-take and amenity/accessibility changes affecting community land and assets (including the sufficiency of allocated and protected publicly accessible land);

- Effects on Community Accessibility: As a result of wider changes to the PRoW network affecting the ability for communities to access residential, commercial, recreational or community resources; and
- Effects on Public Services: As a result of wider projects' non-local workforce demand for temporary accommodation resulting in the use of public resources during the construction phase.

#### Transboundary Effects

24.7.4.5 As set out in Volume 01, Chapter 06: EIA Approach and Methodology, transboundary effects are defined as effects that would affect the environment in another state within the European Economic Area (EEA), i.e. effects which would be experienced beyond the borders of the UK.

24.7.4.6 Potential impacts on Socio-economics and Land Use will only occur where there is direct disturbance to communities or within the local labour market and as such will not be experienced beyond the EOS Scoping Boundary.

24.7.4.7 Potential impacts on Socio-economics and Land Use are only considered in a local, regional or national context and therefore impacts to Socio-economics and Land Use in the UK are not relevant within other European States.

24.7.4.8 Transboundary effects are therefore scoped out of further assessment in relation to Socio-economics and Land Use.

### 24.8 Assumptions, Limitations and Uncertainties

24.8.1.1 The Socio-economics and Land Use assessment will be based on professional judgment and best practice methodology and will consider both the negative and positive impacts that the EOS may have upon existing and surrounding receptors. It will provide a broad, high-level indication of effects, reporting on the likely significant effects to tourism and recreation receptors impacting people and the local community.

24.8.1.2 The assessment of the significance of effects will be carried out against a benchmark of current Socio-economic and Land Use baseline conditions prevailing around the EOS, as far as is possible within the limitations of such a dataset. The most recently available data sources will be used in the PEIR (Preliminary Environmental Information Report) and ES Chapters, although it should be noted that baseline data can be subject to a time lag between collection and publication. As with any dataset, these conditions may be subject to change over time which may influence the findings of the assessment.

24.8.1.3 As set out in Volume 01, Chapter 02: UK Project Description, the precise methodology for decommissioning is not currently known, however impacts are expected to be similar to, or of a lesser magnitude than, construction effects. Therefore, decommissioning effects will not be specifically assessed within the ES, but to represent a worst-case, decommissioning effects will be considered to be the same as construction phase effects.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 04, Chapter 25: Health and Wellbeing

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00017 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| CEA | Cumulative Effects Assessment |
| CEMP | Construction Environmental Management Plan |
| CMD | Common Medical Disorders |
| CTMP | Construction Traffic Management Plan |
| DEMP | Decommissioning Environmental Management Plan |
| dB(A) | A-weighted Decibel |
| DCO | Development Consent Order |
| Defra | Department for Environment, Food and Rural Affairs |
| DHSC | Department of Health and Social Care |
| DMRB | Design Manual for Roads and Bridges |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| EMF | Electromagnetic Field |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| HSE | Health and Safety Executive |
| ICNIRP | International Commission on Non-Ionizing Radiation Protection |
| IDACI | Income Deprivation Affecting Children Index |
| IDAOPI | Income Deprivation Affecting Older People Index |
| IEMA | Institute of Environmental Management and Assessment |
| ISEP | Institute of Sustainability and Environmental Professionals |
| LSA | Local Study Area |
| m | Metres |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| MHCLG | Ministry of Housing, Communities and Local Government |
| NHS | National Health Service |
| $NO_2$ | Nitrogen Dioxide |
| NPPF | National Planning Policy Framework |
| NPS | National Policy Statement |
| OHID | Office for Health Improvement and Disparities |
| ONS | Office for National Statistics |
| PHE | Public Health England (legacy organisation—functions now held by OHID and UKHSA) |
| PINS | Planning Inspectorate |
| PM | Particulate Matter |
| $PM_{2.5}$ | Particulate Matter 2.5 Micrometres (or smaller) |
| PRoW | Public Rights of Way |
| UK | United Kingdom |
| UKHSA | United Kingdom Health Security Agency |
| UKMS | United Kingdom Marine Scheme |

| Acronym | Definition |
|---|---|
| WHO | World Health Organization |

# 25. Health and Wellbeing

## 25.1 Introduction

25.1.1.1 This Chapter presents the Health and Wellbeing assessment which will consider the potential significant effects on Health and Wellbeing receptors during the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). The UK Scheme is formed of both the UK Marine Scheme (UKMS) and the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description), both of which are relevant to this Chapter. As a result, this Chapter is split where relevant between the UKMS and EOS.

25.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Health and Wellbeing baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated health and wellbeing receptors from the proposed components of the UKMS and EOS; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

25.1.1.3 The EOS Scoping Boundary is illustrated in Figure 2-2 and the UKMS Scoping Boundary is illustrated within Figure 2-3 within Volume 01, Chapter 02: UK Project Description. The components of the Tarchon Interconnector Project (the Tarchon Project) are presented in Figure 2-1 within Volume 01, Chapter 02: Project Description.

25.1.1.4 This Chapter should be read in conjunction with:

- Volume 01, Chapter 02: UK Project Description;
- Volume 01, Chapter 06: EIA Approach and Methodology;
- Volume 02, Chapter 08: Water Environment;
- Volume 02, Chapter 11: Onshore Archaeology and Cultural Heritage;
- Volume 02, Chapter 12: Traffic and Transport;
- Volume 04, Chapter 21: Landscape and Visual Impact Assessment;
- Volume 04, Chapter 22: Noise and Vibration;
- Volume 04, Chapter 24: Socio-economics and Land use;
- Volume 04, Chapter 27: Tourism and Recreation;
- Volume 04, Chapter 28: Air Quality;
- Volume 04, Chapter 29: Carbon and Climate Change;

- Volume 04, Chapter 30: Risk of Major Accidents and Disasters; and
- Volume 04, Chapter 31: Other Environmental Topics.

25.1.1.5 There are no accompanying Annexes for this Chapter.

## 25.2 Study Area

25.2.1.1 The Study Areas for the assessment of potential likely significant Health and Wellbeing effects have been defined to include human populations likely to be at risk from the possible direct and indirect health impacts that might arise from the UK Scheme. The Study Areas for human health are therefore based both on the extent and characteristics of the UK Scheme and the populations assessed to be likely directly and indirectly affected by it. Therefore, the Study Areas for the health assessment vary by the type of impact being assessed.

25.2.1.2 The assessment of Health and Wellbeing considers users of Public Rights of Way (PRoW), recreational routes, active travel networks and local community services (e.g. healthcare, education facilities and open space), up to 500 metres (m) from the EOS. This includes local receptors with the potential to be directly impacted by the EOS, based on professional judgement and experience from other electricity network schemes in England, including interconnectors.

25.2.1.3 For Health and Wellbeing effects influenced by the assessments reported in other technical chapters, the Study Area may vary and may be influenced by the geographic extent of the relevant technical chapters. This ensures that the health assessment captures the full spatial extent of environmental changes that may influence health. The Study Areas for these topics are set out in the relevant chapters, including:

- Volume 02, Chapter 08: Water Environment;
- Volume 02, Chapter 11: Onshore Archaeology and Cultural Heritage;
- Volume 02, Chapter 12: Traffic and Transport;
- Volume 04, Chapter 21: Landscape and Visual Impact Assessment;
- Volume 04, Chapter 22: Noise and Vibration;
- Volume 04, Chapter 24: Socio-economics and Land use;
- Volume 04, Chapter 27: Tourism and Recreation;
- Volume 04, Chapter 28: Air Quality; and
- Volume 04, Chapter 29: Carbon and Climate Change

25.2.1.4 For the purposes of the baseline, a Local Study Area (LSA) has been identified which includes the nine ward areas that fall fully or partially within 500 m of the EOS Scoping Boundary:

- Alresford and Elmstead;
- Ardleigh and Little Bromley;
- Dovercourt All Saints;

- Dovercourt Bay;
- Dovercourt Tollgate;
- Lawford, Manningtree and Mistley;
- Stour Valley;
- The Bentleys and Frating; and
- The Oakley's and Wix.

25.2.1.5 The LSA is shown in Figure 25-1.

25.2.1.6 For the baseline, Comparator data is also provided for Tendring District, Essex County, East of England and England as a whole, where available and relevant.

25.2.1.7 Where baseline data is not available at the ward level, local authority level data (Tendring District) is used instead to inform this baseline.

600000 603000 606000 609000 612000 615000 618000 621000 624000 627000 630000

240000 237000 234000 231000 228000 225000 222000 219000 216000

Ipswich

East Suffolk

Babergh

Colchester

Tendring

# TARCHON

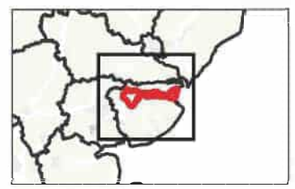
## Tarchon Interconnector Project

Scoping Report

## Local Study Area - Local Wards

**Legend**

- English Onshore Scheme Scoping Boundary
- Local Authority Districts
- Study Area (500m from English Onshore Scoping Boundary)
- Wards within 500m of the English Onshore Scoping Boundary



**Notes**

Coorcinate System:
OSGB36 / British National Grid

0 1 2 km

N

| Scale: | Date: | Drawn by: | Checked by: | Approved by: |
|---|---|---|---|---|
| 1:100000 @ A3 | 27/02/2026 | BPHB | GB | CC |

Riverview
A17 The Embankment Business Park
Heaton Mersey
Stockport
SK4 3GN
http://www.apemltd.com
+44 (0) 161 442 8938

APEM

**Figure 25-1**

Figure Reference:

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## 25.3 Relevant Legislation, Planning Policy and Guidance

### 25.3.1 Introduction

25.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context provides an overview of the regulatory and planning policy framework that is relevant to the UK Scheme.

25.3.1.2 This section refers to legislation, planning policy and guidance relating to the assessment of potential significant effects on Health and Wellbeing that may arise from the construction, operational and decommissioning phases of the UK Scheme.

### 25.3.2 Legislation

25.3.2.1 The Infrastructure Planning (EIA) Regulations 2017 (HM Government, 2017a) and The Marine Works (EIA) Regulations 2007 (HM Government, 2007) require the EIA for infrastructure projects to consider potential impacts on Health and Wellbeing.

25.3.2.2 The following legislation is also of relevance to this Chapter:

- International Convention for the Prevention of Pollution from Ships (MARPOL) 1973 (International Maritime Organisation (IMO), 1973);
- Health and Safety at Work etc. Act 1974 (HM Government, 1974)
- Environmental Protection Act 1990 (HM Government, 1990)
- Clean Air Act 1993 (HM Government, 1993)
- Environment Act 1995 (HM Government, 1995)
- Countryside and Rights of Way Act 2000 (HM Government, 2000)
- Health Protection (Notification) Regulations 2010 (HM Government, 2010)
- The Bathing Water Regulations 2013 (HM Government, 2013)
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (HM Government, 2017b);
- The Control of Electromagnetic Fields at Work Regulations 2016 (HM Government, 2016); and
- The Equality Act 2010 (HM Stationery Office, 2010).

### 25.3.3 National Planning Policy

25.3.3.1 Part 4.4 of the Overarching National Policy Statement for Energy (EN-1) (NPS EN-1) (DESNZ, 2026a) refers to health and wellbeing impacts of energy infrastructure projects such as the UK Scheme. Specifically:

- Paragraph 4.3.4 of NPS EN-1 (DESNZ, 2026a) states: *"To consider the potential effects, including benefits, of a proposal for a project, the applicant must set out information on the likely significant environmental, social and economic effects of the development, and show how any likely significant negative effects would be avoided, reduced, mitigated or compensated for, following the mitigation hierarchy. This information could include matters such*

*as employment, equality, biodiversity net gain, community cohesion, health and well-being".*

- Paragraph 4.4.1 of NPS EN-1 (DESNZ, 2026a) advises *that "Energy infrastructure has the potential to impact on the health and well-being ("health") of the population. Access to energy is clearly beneficial to society and to our health as a whole. However, the construction of energy infrastructure and the production, distribution and use of energy may have negative impacts on some people's health".*
- Paragraph 4.4.2 of NPS EN-1 (DESNZ, 2026a) advises that *"The direct impacts on health may include: increased traffic, air or water pollution, dust, odour, hazardous waste and substances, noise, exposure to radiation, and increases to pests".*
- Paragraph 4.4.3 of NPS EN-1 (DESNZ, 2026a) states: *"New energy infrastructure may also affect the composition and size of the local population, and in doing so have indirect health impacts, for example if it in some way affects access to key public services, transport, or the use of open space for recreation and physical activity".*
- Paragraph 4.4.4 of NPS EN-1 (DESNZ, 2026a) states: *"As described in the relevant sections of this NPS and in the technology specific NPSs, where the proposed project has an effect on humans, the Environmental Statement (ES) should assess these effects for each element of the project, identifying any potential adverse health impacts, and identifying measures to avoid, reduce or compensate for these impacts as appropriate".*
- Paragraph 4.4.5 of NPS EN-1 (DESNZ, 2026a) states: *"The impacts of more than one development may affect people simultaneously, so the applicant should consider the cumulative impact on health in the ES where appropriate".*
- Paragraph 4.4.6 of NPS EN-1 (DESNZ, 2026a) states: *"Opportunities should be taken to mitigate indirect impacts, by promoting local improvements to encourage health and wellbeing, this includes potential impacts on vulnerable groups within society and impacts on those with protected characteristics under the Equality Act 2010, i.e. those groups which may be differentially impacted by a development compared to wider society as a whole".*
- Paragraph 4.4.7 of NPS EN-1 (DESNZ, 2026a) advises that the aspects of energy infrastructure which are *"most likely to have a significantly detrimental impact on health are subject to separate regulation (for example air pollution) which will constitute effective mitigation of them, so that it is unlikely that health concerns will either by themselves constitute a reason to refuse consent or require specific mitigation".*
- Paragraph 4.12.2, paragraph 5.12.6, paragraph 5.15.1 and paragraph 5.16.2 of the NPS EN-1 (DESNZ, 2026a) are relevant to the technical chapters on which this assessment of health and wellbeing draws upon.

25.3.3.2 The above requirements and considerations within NPS EN-1 (DESNZ, 2026a) have been reviewed and accounted for when developing the proposed scope of the Health and Wellbeing assessment.

25.3.3.3 National Policy Statement (NPS EN-3) (DESNZ, 2026b) sets various requirements that a development is expected to meet in order to progress through the planning

process and gain consent from the Planning Inspectorate (PINS). These include several aspects that are relevant to determinants and pathways for health effects, including PRoW and access, design and visual amenity, and agriculture.

25.3.3.4 National Policy Statement (NPS EN-5) (DESNZ, 2026c) was drafted to support the transition to clean power by 2030 and to ensure the security and reliability of the UK's electricity supply.

25.3.3.5 When looking at components of the policy statement of relevance to health, the policy highlights the direct and indirect electromagnetic fields (EMFs) can have on human health, aquatic and terrestrial organisms. In order to prevent these effects, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) created health protection guidelines to protect the public and occupational workers from exposure (ICNIRP, 2020). All new electricity infrastructure is expected to comply with these guidelines.

*25.3.3.6* The National Planning Policy Framework (NPPF) (MHCLG, 2024) sets out the government's planning policies for England. Chapter 8 'Promoting Healthy and Safe Communities' sets out a planning policy framework of direct relevance to human health, emphasising that planning and development should aim to *"achieve healthy, inclusive and safe places".*

25.3.3.7 The Ministry of Housing, Communities and Local Government (MHCLG) produced a draft version of the NPPF (MHCLG, 2025) in December 2025, which seeks views on the proposed approach to revising the NPPF. Chapter 16 'Promoting healthy communities' sets out a planning policy framework of direct relevance to human health, suggesting that planning policies should promote the creation of healthy and inclusive places.

### 25.3.4 Local Planning Policy

25.3.4.1 The relevant Local policies and strategies supporting these have been reviewed as part of the scoping exercise to determine those which may be of relevance to the human health and wellbeing assessment. Local policies and strategies which will inform the Health and Wellbeing assessment are outlined below.

25.3.4.2 Within Tendring District Local Plan 2013-2033 and Beyond (Section 2) (Tendring District Council, 2022) Policy HP1 (Improving Health and Wellbeing) is relevant to this assessment. The policy aims to improve the health and wellbeing of Tendring residents by working in partnership with the National Health Service (NHS) and Public Health England (PHE) (now replaced by the Office for Health Improvement and Disparities (OHID) and UK Health Security Agency (UKHSA) to ensure the provision of high-quality healthcare services, support vulnerable groups, encourage healthier communities by targeting unhealthy lifestyles and offer greater opportunities for access to open space to promote physical activity.

25.3.4.3 Tendring District Council have also produced a draft local plan (Tendring District Council, 2026) which sets out an overarching vision of Tendring becoming a 'vibrant, healthy and attractive place to work and visit'. Non-strategic Policy HP1 'Improving

Health and Wellbeing' is of relevance to this assessment, with the council committed to promoting and encouraging healthy lifestyles and ensuring that the people of Tendring have the opportunity to be as healthy as possible.

25.3.4.4 Policy HP1 requires new development to create healthy environments by following recognised healthy-place design principles, supporting active travel, improving access to open space and services, enhancing the natural environment and promoting long-term wellbeing.

25.3.4.5 Tendring District Council have also adopted a new Corporate Plan (Tendring District Council, 2024) which sets out six key themes. The following themes are of direct relevance to health and wellbeing:

- Pride in our area and services to residents – a need to promote clean and tidy communities, while tackling things that make a big difference to the local community; and
- Working with partners to improve quality of life – promoting safer, healthier, well-connected and inclusive communities by working with partners, in addition to striving to build on firm foundations that have been developed over time.

25.3.4.6 Within the Essex Joint Health and Wellbeing Strategy 2022-2026 (Essex County Council, 2022), the following strategic priorities are of relevance to health and wellbeing matters of the EOS:

- Improving Mental Health and Wellbeing;
- Physical Activity and Healthy Weight;
- Supporting Long-term Independence; and
- Health Inequalities and The Wider Determinants of Health.

25.3.4.7 The Essex Healthy Weight Strategy 2024 to 2034 (Essex County Council, 2024a) promotes access to open space and the provision of infrastructure which supports physical activity and is therefore of relevance to the UK Scheme's Health and Wellbeing considerations.

25.3.4.8 The Southend, Essex and Thurrock Mental Health Strategy (Essex County Council, 2024b) sets out its vision to *"promote good emotional and mental health for everyone, reduce health inequalities and to improve life outcomes for those with mental ill health, enabling them to recover and live well".*

25.3.4.9 Within Everyone's Essex: Our plan for levelling up the county: 2021–2026 (Essex County Council, 2026), health is identified as one of the four focus areas that seek to improve the quality of life for all local residents. In relation to health, the following aims and deliverables are set within the plan:

- Healthy Lifestyles – aiming to increase the proportion of people able to live healthy lifestyles by adopting a 'community-first' approach, helping people overcome social isolation, mental illness and substance misuse;
- Promoting Independence – working with key partners and the adult safeguarding board to help individuals live free from abuse and neglect;

- Place-based working – delivering better care that meets the needs of residents by joining up care and support with local partners in a place, including with district councils, health partners and the local voluntary and community sector;
- Carers – helping carers of all ages whose caring duties are impacting their wellbeing by achieving a step change in the advice, guidance and support provided; and
- Levelling up health – reducing health inequalities by bringing together partners and communities to address the socio-economic drivers that underpin poor health outcomes (e.g. poor housing, poverty, economic insecurity and low skills).

### 25.3.5 Guidance

25.3.5.1 Relevant guidance, policy statements and codes of practice that have informed the scoping process and which will be considered as part of the Health and Wellbeing assessment comprise the following:

- Design Manual for Roads and Bridges (DMRB) Document LA112: Population and Human Health (Standards for Highways, 2020);
- Institute of Environmental Management and Assessment (IEMA) Guide to: Effective Scoping of Human Health in Environmental Impact Assessment 2022 (IEMA, 2022a);
- IEMA Guide to: Determining Significance for Human Health in EIA Guidance (IEMA, 2022b);
- Institute of Sustainability and Environmental Professionals (ISEP) (2025) Social Impact Assessment in Environmental Impact Assessment in the UK and Ireland (ISEP, 2025);
- PHE Spatial Planning for Health: An Evidence resource for designing healthier places (PHE, 2017a);
- PHE Health and Environmental Impact Assessment: A Briefing for Public Health Teams in England (PHE, 2017b);
- Institute of Public Health: Impact Assessment Guidance: A Manual. Standalone Health Impact Assessment and health in environmental assessment. Health Impact Assessment Guidance (Institute of Public Health, 2021);
- Nationally Significant Infrastructure Projects: Advice on Preparing Applications for Linear Projects (2025) - Health and Wellbeing of Local Communities (PINS, 2025);
- UKHSA Electric and magnetic fields: health effects of exposure (UKHSA, 2013);
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) (2020). Guidelines for limiting exposure to EMFs (100 kHz to 300 GHz). National Radiological Protection Board Review of the scientific evidence for limiting exposure to EMFs (0-300 GHz) (ICNIRP, 2020);
- UK Stakeholder Advisory Group on Extremely Low Frequency Electric and Magnetic Fields (DHSC, 2011);

- Department of Energy and Climate Change Power Lines: Demonstrating compliance with EMF public exposure guidelines: voluntary code of practice (Department of Energy and Climate Change, 2012); and
- Department for Environment, Food and Rural Affairs (Defra) Noise Policy Statement for England (Defra, 2010).

25.3.5.2 Collectively, the above will guide the assessment of effects by providing advice and direction on appropriate methods, significance criteria and the parameters relevant to Health and Wellbeing.

25.3.5.3 The following additional reports provide context for undertaking a Health and Wellbeing assessment:

- PHE Strategy 2020 to 2025 (PHE, 2019);
- The Marmot Review: Fair Society Healthy Lives (Institute of Health Equity, 2010);
- Health Equity in England: The Marmot Review 10 Years On (2020) (Institute of Health Equity, 2020a);
- Build Back Fairer: The Covid-19 Marmot Review (2020) (Institute of Health Equity, 2020b); and
- NHS 10 Year Health Plan for England: Fit for the future (DHSC, 2025).

25.3.5.4 These additional reports will be referenced in the assessment, where relevant, to assist in the definition of the health evidence base and the identification of social determinants relevant to Health and Wellbeing.

## 25.4 Consultation and Engagement

25.4.1.1 No consultation has taken place as part of the preparation of this Chapter of the Scoping Report. It is expected that engagement with health stakeholders including, but not limited to the Health and Safety Executive (HSE), the UKHSA and local stakeholders, including Essex County Council and regional NHS and emergency services, will be undertaken during the assessment process to ensure that potential health and safety risks associated with the construction and operational phases of the UK Scheme are properly identified, assessed and mitigated.

25.4.1.2 Responses on the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council.

25.4.1.3 Where comments relevant to the assessment of Health and Wellbeing have been provided, these are summarised and responded to in Table 25-1.

### Table 25-1: Non-Statutory Consultation Responses: Human Health and Wellbeing

| Consultee | Summary of Comment | How matter will be addressed |
|---|---|---|
| Essex County Council | Essex County Council consider a detailed Construction Management Plan to be necessary to mitigate and compensate against the | An outline Construction Environmental Management Plan (CEMP) will accompany the Development Consent Order (DCO) application, which will |

| Consultee | Summary of Comment | How matter will be addressed |
|---|---|---|
| | impact of proposed construction on health and wellbeing. | describe the framework of mitigation measures identified to be followed and carried forward to a detailed CEMP prior to construction of the UK Scheme. |
| Essex County Council | Current consultation is insufficient in providing details on how Tarchon would affect blue light services or access to NHS services within Tendring. A Health Impact Assessment should be undertaken. | A Health and Wellbeing Chapter, including impact on healthcare services, is scoped into the EIA. |

## 25.5 Baseline Environment

### 25.5.1 Baseline Conditions

25.5.1.1 This section describes the baseline environmental characteristics with specific reference to Health and Wellbeing. The potential for significant effects arising from the UK Scheme will be assessed relative to the baseline conditions and will be benchmarked against regional and national standards where appropriate.

25.5.1.2 It is noted that relevant baseline information to this assessment is also included in the following Chapters of this Scoping Report:

- Volume 02, Chapter 08: Water Environment;
- Volume 02, Chapter 12: Traffic and Transport;
- Volume 04, Chapter 21: Landscape and Visual Impact Assessment;
- Volume 04, Chapter 22: Noise and Vibration;
- Volume 04, Chapter 24: Socio-economics and Land use; and
- Volume 04, Chapter 28: Air Quality.

25.5.1.3 Baseline data has been collected through a desk-based research exercise using publicly available sources, documents and web-based applications. The following overview of baseline Health and Wellbeing indicators is based on the following data sources:

- Office for National Statistics (ONS) 2021 Census Data (ONS, 2022a);
- Mid-Year Population Estimates (2024) (ONS, 2024a);
- ONS Annual Population Survey (September 2025 to September 2025) (ONS, 2024b);
- ONS Claimant Count: December 2025 (ONS, 2025a);
- Department for Health and Social Care (DHSC) (2025). PHE Fingertips (DHSC, 2025);
- ONS Population projections – local authority based by single year of age (2022) (ONS, 2025b); and
- ONS National population projections: 2022-based (ONS, 2022b).

### 25.5.2 Existing Baseline

25.5.2.1 Table 25-2 and Table 25-3 set out a summary of key Health and Wellbeing indicators across the nine local wards and the local district authority (Tendring District Council) compared to, the local unitary authority (Essex County Council), regional (East of England) and national (England) averages.

Table 25-2: Health Profile Summary (DHSC, 2025)

| Health Indicator | Alresford and Elmstead | Ardleigh and Little Bromley | Dovercourt All Saints | Dovercourt Bay | Dovercourt Tollgate | Lawford, Manningtree and Mistley | Stour Valley | The Bentleys and Frating | The Oakley's and Wix | Tendring | Essex | East | England |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Health Outcomes** | | | | | | | | | | | | | |
| Life Expectancy at Birth (years) 1-year range (2023) (Male) | - | - | - | - | - | - | - | - | - | 77.4 | 80.1 | 80.1 | 79.3 |
| Life Expectancy at Birth (years) 1-year range (2023) (Female) | - | - | - | - | - | - | - | - | - | 81.5 | 83.5 | 83.8 | 83.2 |
| Under 75 mortality rate from all causes considered preventable (2024) (Directly standardised rate per 100,000) | - | - | - | - | - | - | - | - | - | 160.3 | 122.4 | 125.6 | 145.8 |
| Under 75 mortality rate from cardiovascular disease (2024) (Directly standardised rate per 100,000) | - | - | - | - | - | - | - | - | - | 75.1 | 62.6 | 63.4 | 74.3 |
| Under 75 mortality rate from cancer (2024) (Directly standardised rate per 100,000) | - | - | - | - | - | - | - | - | - | 131.5 | 111.8 | 113.7 | 117.9 |
| Under 75 mortality rate from respiratory disease (2024) (Directly standardised rate per 100,000) | - | - | - | - | - | - | - | - | - | 40.3 | 28.0 | 27.9 | 32.7 |
| Suicide rate, directly standardised rate per 100,000 population (2022 – 24) | - | - | - | - | - | - | - | - | - | 14.5 | 9.1 | 10.0 | 10.9 |
| Depression: QOF prevalence (+18 years) (2024/25) | - | - | - | - | - | - | - | - | - | - | 12.8% | 13.0% | 14.3% |
| Emergency hospital admissions for coronary heart disease, standardised admission ratio (2016/17 – 2020/21) | - | - | - | - | - | - | - | - | - | 111.7 | 92.7 | - | 100.0 |
| Emergency hospital admissions for myocardial infarction (heart attack), | - | - | - | - | - | - | - | - | - | 97.2 | 85.5 | - | 100.0 |

| Health Indicator | Alresford and Elmstead | Ardleigh and Little Bromley | Dovercourt All Saints | Dovercourt Bay | Dovercourt Tollgate | Lawford, Manningtree and Mistley | Stour Valley | The Bentleys and Frating | The Oakley's and Wix | Tendring | Essex | East | England |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| standardised admission ratio (2016/17 – 2020/21) | | | | | | | | | | | | | |
| Emergency hospital admissions for intentional self-harm, standardised admission ratio (2023/24) | - | - | - | - | - | - | - | - | - | - | 19.2 | 18.7 | 17.9 |
| Percentage of adults meeting the '5-a-day' fruit and vegetable consumption recommendations (new method) (2023/24) (Persons, 16+ years) | - | - | - | - | - | - | - | - | - | - | 31.2% | 32.2% | 31.3% |
| **Risk Factors** | | | | | | | | | | | | | |
| Overweight (including obesity) prevalence in adults, (using adjusted self-reported height and weight) (2023/24) | - | - | - | - | - | - | - | - | - | 71.6% | 66.7% | 65.9% | 64.5% |
| Excess weight (overweight and obese) prevalence in children (3 years data combined from 2021/2022 - 2023/2024) in Year 6 | 13.3% | 12.5% | 27.7% | 36.0% | 30.0% | 17.4% | 14.3% | 13.6% | 29.4% | 23.7% | 19.9% | 20.3% | 22.3% |
| Excess weight (overweight and obese) prevalence in children (3 years data combined from 2021/2022 - 2023/2024) in Reception | 8.7% | - | 9.5% | 12.5% | 11.8% | 7.5% | - | 8.3% | 13.3% | 10.9% | 8.6% | 17.1% | 9.8% |
| Percentage of physically active adults (2023/24) | - | - | - | - | - | - | - | - | - | 63.0% | 68.1% | 68.2% | 67.4% |
| Percentage of physically active children and young people (2023/24) | - | - | - | - | - | - | - | - | - | 45.8% | 51.1% | 49.8% | 47.8% |
| **Wider Determinants** | | | | | | | | | | | | | |
| Proportion living in fuel poverty (low income, low energy efficiency methodology) (2023) | - | - | - | - | - | - | - | - | - | 12.6% | 9.0% | - | 11.4% |
| Child poverty, income deprivation affecting children index (IDACI) (2019) (%) | - | - | - | - | - | - | - | - | - | 25.0% | 14.4% | - | 17.1% |

| Health Indicator | Alresford and Elmstead | Ardleigh and Little Bromley | Dovercourt All Saints | Dovercourt Bay | Dovercourt Tollgate | Lawford, Manningtree and Mistley | Stour Valley | The Bentleys and Frating | The Oakley's and Wix | Tendring | Essex | East | England |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Older people in poverty, income deprivation affecting older people Index (IDAOPI) (2019) (%) | - | - | - | - | - | - | - | - | - | 15.0% | 11.3% | - | 14.2% |
| 16 to 17 year olds not in education, employment or training or whose activity is not known (2022/23) | - | - | - | - | - | - | - | - | - | - | 7.3% | 5.1% | 5.4% |
| 19 to 24 year olds not in education, employment or training (%) (2021) | - | - | - | - | - | - | - | - | - | - | - | 13.1% | 13.2% |
| Average attainment 8 score (2023/24) | - | - | - | - | - | - | - | - | - | - | 45.0 | 45.9 | 45.9 |
| Violent Crime (violent offenses per 1,000 population) (2024/25) | - | - | - | - | - | - | - | - | - | 37.3 | 28.0 | 26.8 | 31.4 |
| Pollution: fine PM (concentration of $PM_{2.5}$) (2023) | - | - | - | - | - | - | - | - | - | 6.6 | 7.1 | 7.2 | 7.0 |
| Fraction of mortality attributable to particulate air pollution (2023) | - | - | - | - | - | - | - | - | - | 5.3% | 5.0% | 5.4% | 5.2% |
| The percentage of the population exposed to road, rail and air transport noise of 65 A-weighted decibel (dB(A)) or more during daytime (2021) | - | - | - | - | - | - | - | - | - | 2.0% | 1.6% | 2.5% | 4.3% |
| The rate of complaints about noise (per 1,000 population) (2023/24) | - | - | - | - | - | - | - | - | - | 3.4% | 5.1% | 4.1% | 5.9% |

Table 25-3: Self-Reported Health and Disability Summary (ONS, 2022a)

| Health Indicator | Alresford and Elmstead | Ardleigh and Little Bromley | Dovercourt All Saints | Dovercourt Bay | Dovercourt Tollgate | Lawford, Manningtree and Mistley | Stour Valley | The Bentleys and Frating | The Oakley's and Wix | Local Wards | Tendring | Essex | East | England |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Self-Reported General Health** | | | | | | | | | | | | | | |
| 'Very Good' and 'Good' | 81% | 85% | 76% | 78% | 79% | 82% | 82% | 83% | 80% | 80% | 75% | 83% | 83% | 82% |
| 'Fair' | 13% | 11% | 18% | 15% | 15% | 13% | 14% | 13% | 15% | 14% | 17% | 12% | 12% | 13% |
| 'Bad' and 'Very Bad' | 5% | 4% | 6% | 7% | 6% | 5% | 4% | 4% | 6% | 5% | 8% | 5% | 5% | 5% |
| **Disability** | | | | | | | | | | | | | | |
| Disabled under the Equality Act: Day-to-day activities limited a lot | 8% | 6% | 10% | 11% | 8% | 8% | 7% | 7% | 8% | 8% | 11% | 7% | 7% | 7% |
| Disabled under the Equality Act: Day-to-day activities limited a little | 11% | 9% | 13% | 12% | 13% | 11% | 12% | 11% | 12% | 12% | 13% | 10% | 10% | 10% |

### Health Outcomes

25.5.2.2 Data from OHID Public Health Profiles (DHSC, 2025) on life expectancies presented in Table 25-2 are collected from 2023. These data are currently not available at the ward level. Life expectancy at birth for men in Buckinghamshire (77.4 years) is recorded to be lower than rates across Essex (80.1 years), the East of England (80.1 years) and England (79.3 years). When looking at females, Tendring was also recorded to have the lowest life expectancy when compared to county, regional and national averages.

25.5.2.3 In addition to this, Tendring is also recorded to have the highest under 75 years mortality rates from all causes considered preventable, respiratory disease, cancer and cardiovascular disease when compared to comparative rates at the county, regional and national levels. This suggests that mortality under 75 years from causes considered preventable is an area of concern in Tendring.

25.5.2.4 The 2021 Census (ONS, 2022a) asked residents to self-assess their health and the results suggest that collectively, individuals residing in the Local Ward area have slightly better self-perceived health than residents in Tendring (with 80% of residents reporting health to be ‘very good’ or ‘good’ in the Local Ward area compared to 75% in Essex), but worse self-perceived health when compared to rates at the county, regional and national levels. When dissecting the Local Ward area, residents in Ardleigh and Little Bromley are recorded to have the highest self-perceived health, with 85% of residents reporting their health to be ‘very good’ or ‘good’.

25.5.2.5 Data from the 2021 Census (ONS, 2022a) on disability suggests that the Local Ward area and Tendring are all recorded to have a higher proportion of individuals that have their day-to-day activities limited (a little or a lot) as a result of a disability or long-term health problem. Residents in Dovercourt All Saints and Dovercourt Bay are recorded to be driving high rates in the Local Ward area, with 23% of all residents in each of these areas being recorded to have their day-to-day activities limited due to a disability.

### Risk Factors

25.5.2.6 As highlighted within Section 25.3.4 of this Chapter, the Essex Joint Health and Wellbeing Strategy 2022-2026 (Essex County Council, 2022) sets out the aims and priorities in terms of local health, focusing on making a visible difference to health and reducing inequalities across Essex. The key strategic priorities are of relevance to health and wellbeing matters of the EOS are as follows:

- Improving Mental Health and Wellbeing;
- Physical Activity and Healthy Weight;
- Supporting Long-term Independence; and
- Health Inequalities and The Wider Determinants of Health.

25.5.2.7 Data from PHE (DHSC, 2025) reiterates the need for Essex to prioritise healthy weight, with 71.6% of adults in Tendring and 66.7% of adults in Essex being

overweight. These proportions were greater than proportions at both the regional (65.9%) and national (64.5%) levels. Significant inequalities exist across the county, with a disproportionate number of those living in the more deprived communities more likely to be affected by obesity.

25.5.2.8 In addition to this, 26.7% of Year 6 children in Tendring are recorded to be obese, which is also higher than rates at the county (19.9%), regional (20.3%) and national (22.3%) levels. When looking at the local ward area, four out of the nine local wards are recorded to have higher proportions of overweight Year 6 children when compared to the national average. Dovercourt Bay is recorded to have the highest prevalence of excess weight within Year 6 children at 36%.

25.5.2.9 Data from PHE (DHSC, 2025) also suggests that Tendring has lower proportions of physically active adults and children when compared to county, regional and national averages.

### Mental Health

25.5.2.10 Mental health and physical health are intricately linked: poor physical health can cause mental health problems and vice versa. Those that suffer from obesity, substance misuse, smoking, cancer and cardiovascular disease are particularly likely to also have a mental health problem (WHO, 2026a).

25.5.2.11 Having a chronic physical condition was also associated with having a lower level of mental wellbeing. Chronic health conditions (including, but not limited to asthma, cancer, high blood pressure) have a strong association with mental ill-health (Adult Psychiatric Morbidity Survey, 2014). In people with severe *“common medical disorders (CMD)”,* 37% reported a chronic physical condition (Adult Psychiatric Morbidity Survey, 2014).

25.5.2.12 Improving mental health and wellbeing has also been identified as a priority within the Essex Joint Health and Wellbeing Strategy 2022-2026 (Essex County Council, 2022), with the strategy highlighting the need to address mental health inequalities.

25.5.2.13 Suicide is a significant cause of death in young adults (when considering the overall mortality rate of this group) and is an indicator of underlying rates of mental ill-health. The suicide rate within Tendring is recorded to be at 14.5 per 100,000 population, which is higher than rates at the county, regional and national levels (at 9.1, 10 and 10.9 suicides per 100,000 population, respectively).

25.5.2.14 Despite this, the prevalence of depression within Essex (12.8%) is slightly lower than regional (13%) and national (14.3%) rates.

### Air Quality

25.5.2.15 Poor air quality and air pollution can be recognised as contributing factors towards cancer, heart disease, increases in hospital admissions, exacerbation of asthma and mortality. Air pollution is known to have a particular effect on the elderly population, children and those with preexisting health conditions, with air pollution expected to

be responsible for a reduction in healthy life expectancy equivalent to 29,000 to 43,000 deaths per year in the UK (Defra, 2025).

25.5.2.16 The Essex Air Quality Strategy (Essex County Council (Essex Air), 2025) was developed by district, borough, and city councils within Essex, with air quality recognised as an important issue and growing evidence of the adverse impacts that poor air quality can have on human health. Air quality hotspots (specific localised areas where pollutant levels exceed national safety objectives, such as busy junctions or town centres) in Essex are currently linked to nitrogen dioxide ($NO_2$), with high levels mainly caused by emissions from road transport.

25.5.2.17 The main pollutants of concern are particulate matter (PM) and $NO_2$, with concentrations of $NO_2$ having historically exceeded relevant air quality standards in urban areas.

25.5.2.18 The fraction of mortality attributable to air pollution in Essex (5.3%) is recorded to be higher than rates in Tendring (5.0%) and England (5.2%), but slightly lower than the rate at the regional level (5.4%) (DHSC, 2025).

25.5.2.19 When looking at the site-specific population, emergency hospital admissions for coronary heart disease and myocardial infarction (heart attack) are significantly higher in Tendring when compared to county and national levels, noting that air quality is only one contributing factor to these admissions.

#### Noise and Vibration

25.5.2.20 Very high noise levels can have direct impacts on health (hearing loss or tinnitus). Lower levels (nuisance or annoyance levels) have indirect health effects, including stress-related illness and disturbances in sleep. These nuisance levels do not affect people equally. Nuisance and annoyance can have higher or lower relative importance assigned by those affected by them. Such importance varies within and across populations, and this importance or variability can be uncertain. As such, it is challenging to predict with any certainty the degree to which nuisance and annoyance from noise will affect people at an individual level.

25.5.2.21 When looking at environmental health factors, only 1.6% of Tendring residents and 2% of Essex residents were recorded to have been exposed to road, rail and air transport noise of 65 dB(A) or more during the daytime – this was lower than the regional (2.5%) and national (4.3%) averages (DHSC, 2025).

25.5.2.22 The rate of complaints about noise per 1,000 population in Essex (5.1) was recorded to be higher than rates in Tendring (3.4) and the East of England (4.1), but lower than the national rate (5.9) (DHSC, 2025).

#### Other Wider Determinants

25.5.2.23 Data from the Department for Health and Social Care (DHSC, 2025) indicates that Tendring has higher rates of children in poverty and older people in poverty when compared to rates at the county and national levels. A similar pattern is seen with

fuel poverty, where 12.6% of households in Tendring are affected. This is lower than proportions at the county level (9.0%) and across England as a whole (11.4%).

25.5.2.24 In addition to this, the proportion of 16 to 17 years that were not in education, employment or training in 2023/24 was recorded to be higher in Essex (7.3%) when compared to regional (5.1%) and national (5.4%), highlighting the challenges that Essex currently faces in keeping young people engaged in learning mechanisms and employment.

25.5.2.25 The rates of violent offences per 1,000 people in 2023/24 were reported to be higher in Tendring (37.3) when compared to rates at the regional (26.8) and national (31.4) levels (DHSC, 2025).

### 25.5.3 Future Baseline Conditions

25.5.3.1 The baseline environment is not static and is expected to change over time, irrespective of the UK Scheme. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UK Scheme over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

25.5.3.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

25.5.3.3 ONS population projections (ONS, 2025b) show that over the 10-year period between 2026 and 2036 (which covers the construction phase and commencement of the operational phase of the UK Scheme), the overall population within Tendring is projected to grow by 9.4% to c.173,100 people. This percentage growth is higher than the projected rates of increase in Essex (5.6%), the East of England (5.3%) and England (4.5%) over the same period.

25.5.3.4 2022-based population projections (ONS, 2025b) also show that the elderly population (individuals aged 65 years and above) is projected to grow by 23% in Tendring, which is greater than rates of growth at the county (17%), regional (19%) and national (20%) levels.

### 25.5.4 Additional Proposed Data Sources

25.5.4.1 The Applicant will engage with Essex County Council and Tendring District Council to ensure that any additional information held by those bodies relating to the Health and Wellbeing baseline is captured within the ES.

## 25.6 Assessment Methodology

25.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the

construction, operational and decommissioning phases of the UK Scheme. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

25.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on Health and Wellbeing receptors arising from the construction, operational and decommissioning phases of the UK Scheme. This approach defines:

- **Sources and impacts**: The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

25.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

25.6.1.4 The Health and Wellbeing assessment will consider the construction, operational and decommissioning phases of the UK Scheme. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

25.6.1.5 The Health and Wellbeing assessment follows the general assessment methodology set out in Volume 01, Chapter 06: EIA Approach and Methodology. However, the specific magnitude and impact sensitivity criteria for this assessment have been set out in this Section.

25.6.1.6 The assessment will set out the potentially significant effects relevant to Health and Wellbeing reported within the ES and other relevant application documents during the construction, operational and decommissioning phases with regards to health determinants, pathways and the characteristics of receptors within the baseline context and policy and strategy environment.

25.6.1.7 There is no single consolidated methodology or practice for the assessment of potentially significant effects on Human Health and Wellbeing, though there are widely accepted guidance and best practice principles (as outlined in Section 25.3.5 ‘Guidance’) used to determine potential effects which will form the basis of the approach to assessing the impacts on both physical and mental health arising from the UK Scheme.

25.6.1.8 The World Health Organization (WHO) Europe defines health *as “a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity”* (WHO, 2026b). Public health, therefore, encompasses general wellbeing, not just the absence of illness.

25.6.1.9 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 (IEMA, 2022a).

25.6.1.10 Dahlgren and Whitehead’s model (Dahlgren & Whitehead, 2021) of the main determinants of health illustrates the breadth of possible influences on health. Some

factors are largely fixed, including individual age, sex, constitutional and genetic factors. Beyond this, there are also wider or broader determinants of health.

25.6.1.11 This model has been developed to show elements of the built environment and communities that are the key determinants of health, which will inform the scope of the Health and Wellbeing assessment.

25.6.1.12 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"* (WHO, 2018). The assessment of health and wellbeing effects, therefore, will consider the significance of effects in relation to vulnerable groups.

25.6.1.13 Sub-populations(s) are identified in the ISEP (formerly known as IEMA) guidance as those with vulnerability due to:

- Young age;
- Older age;
- Income or unemployment;
- Health status;
- Social disadvantage; and
- Access or geographic factors.

25.6.1.14 In general, populations and sub-populations are considered to have greater sensitivity if they experience higher levels of deprivation and wider pre-existing health inequalities, shared resources, higher levels of anxiety, uncertainty or concern relating to an intervention and poor health indicators with an overall limited capacity to adapt to change.

25.6.1.15 Within a defined population, individuals will range in their levels of sensitivity to health outcomes due to factors such as age, socio-economic deprivation and pre-existing health conditions. It is clear that some groups may be particularly vulnerable to changes whereby they could experience differential or disproportionate effects when compared to the general population.

25.6.1.16 ISEP guidance (IEMA, 2022b) considers the following health determinants of relevance to the assessment:

- Access to healthcare services and other social infrastructure;
- Access to open space, leisure and play;
- Air quality;
- Noise and vibration;
- Transport modes, access, connections and physical activity;

- Employment and income; and
- Social cohesion and community identity.

### 25.6.2 Assessment of Potential Effects

25.6.2.1 The assessment will aim to quantify effects on Health and Wellbeing as far as possible. However, some effects can only be evaluated on a qualitative basis. The classification and significance of an effect reflect the relationship between the sensitivity of the affected receptor and the scale of the potential impact (magnitude).

25.6.2.2 As such, the significance of Health and Wellbeing effects will be assessed based on expert judgement and professional experience and relies on the following considerations:

- Sensitivity of human health receptors, including general populations and potentially vulnerable sub-populations: The assessment will take account of the qualitative sensitivity of relevant populations and sub-populations and their ability to respond to change as applicable to each determinant; and
- Magnitude of impact: This entails consideration of the scale of the exposure of the population to an impact; whether the impact is one-off or continuous; the likely nature of the impact; the permanence of the change; and the proportion of the relevant Study Area population that would be affected.

### 25.6.3 Sensitivity of Receptor

25.6.3.1 The sensitivity of a population's Health and Wellbeing is driven by a number of factors which are set out in Table 25-4 below and are based on guidance set out by ISEP (IEMA, 2022b).

25.6.3.2 In line with ISEP Guidance (IEMA, 2022a), the effect magnitude is influenced by the levels and spatial scale of exposure to an effect, the frequency of the effect, the demonstrable relationship to mortality or changes in morbidity (physical or mental health) and change in quality of life.

25.6.3.3 In following the ISEP guidance (IEMA, 2022b), the sensitivity criteria deviate from those presented in Volume 01, Chapter 06: EIA Approach and Methodology, as no 'Very High' criterion is presented.

**Table 25-4: Definitions of Sensitivity for Health and Wellbeing**

| Sensitivity | Definition |
|---|---|
| High | High levels of deprivation (including pockets of deprivation); reliance on shared resources; existing wide inequalities between the most and least healthy; a community whose outlook is predominantly anxiety or concern; people who are prevented from undertaking daily activities; dependants; people with very poor health status; and/or people with a very low capacity to adapt. |
| Medium | Moderate levels of deprivation; few alternatives to shared resources; existing widening inequalities between the most and least healthy; a community whose outlook is predominantly uncertain, with some concern; people who are highly limited from undertaking daily activities; people providing or requiring a lot of care; people with poor health status; and/or people with a limited capacity to adapt. |
| Low | Low levels of deprivation; many alternatives to shared resources; existing narrowing inequalities between the most and least healthy; a community whose outlook is predominantly ambivalent with some concern; people who are slightly limited from undertaking daily activities; people providing or requiring some care; people with fair health status; and/or people with a high capacity to adapt. |
| Very Low | Very low levels of deprivation; no shared resources; existing narrow inequalities between the most and least healthy; a community whose outlook is predominantly support with some concern; people who are not limited from undertaking daily activities; people who are independent (not a carer or dependent); people with good health status; and/or people with a very high capacity to adapt. |

### 25.6.4 Magnitude of Impact

25.6.4.1 Magnitude of impact is driven by a number of factors, which are set out in Table 25-5 and are based on ISEP guidance (IEMA, 2022b). Duration of effect is also considered, with more weight given to long-term or permanent changes than to shorter-term or temporary ones, see also Volume 01, Chapter 06: EIA Approach and Methodology.

**Table 25-5: Definitions of Magnitude for Health and Wellbeing**

| Magnitude | Definition |
|---|---|
| Large | High exposure or scale; long-term duration; continuous frequency; severity predominantly related to mortality or changes in morbidity (physical or mental health) or very severe illness or injury outcomes; majority of population affected; permanent change; substantial service quality implications. |
| Medium | Low exposure or medium scale; medium-term duration; frequent events; severity predominantly related to moderate changes in morbidity (physical or mental health) or moderate change in quality of life; large minority of the population affected; gradual reversal; small service quality implications. |
| Small | Very low exposure or small scale; short-term duration; occasional events; severity predominantly related to minor change in morbidity (physical or mental health) or moderate change in quality of life; small minority of population affected; rapid reversal; slight service quality implications. |
| Negligible | Negligible exposure or small scale; very short-term duration; one-off frequency; severity predominantly relates to minor change in quality of life; very few people affected; immediate reversal once activity is complete; no service quality implications. |

### 25.6.5 Significance of Effect

25.6.5.1 The significance of Health and Wellbeing effects reflects the relationship between the sensitivity of the relevant population's health and the magnitude of the impact, as set out in Table 25-6. Where two options are shown for the classification of effect (e.g. minor/negligible), professional judgement will be used to determine which of the two options is most appropriate.

25.6.5.2 This presentation of two options also deviates from the single classification approach presented in those presented in Volume 01, Chapter 06: EIA Approach and Methodology, Table 6-3, the approach is however, considered appropriate, as based upon the ISEP guidance (IEMA, 2022b) and set out in Table 25-4Table 25-6.

**Table 25-6: Significance Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Negligible |
| High | Major | Major/Moderate | Moderate/Minor | Minor/Negligible |
| Medium | Major/Moderate | Moderate | Minor | Minor/Negligible |
| Low | Moderate/Minor | Minor | Minor | Negligible |
| Negligible | Minor/Negligible | Minor/Negligible | Negligible | Negligible |

25.6.5.3 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

25.6.5.4 In line with ISEP guidance (IEMA, 2022b) 'significant' (i.e. moderate or greater) health effects would generally mean that:

- Changes, due to the project, have an influential or substantial effect on the ability to deliver current health policy and/or the ability to narrow health inequalities, including as evidenced by referencing relevant policy and effect size (magnitude and sensitivity levels) and as informed by consultation themes among stakeholders, particularly public health stakeholders, that show mixed views or consensus on the importance of the effect.
- Change, due to the project, could result in a regulatory threshold or statutory standard being approached or crossed (if applicable).
- There is likely to be a small or substantial change in the health baseline of the population, showing there is a clear or causal relationship between changes that would result from the project and changes to health outcomes.
- In addition, health priorities for the relevant Study Area are of general or specific relevance to the determinant of health or population group affected by the project.

25.6.5.5 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UK Scheme design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UK Scheme.

25.6.5.6 The assessment will draw on the findings of related technical assessments. The geographical extent of health effects will be determined by the assessments set out in the related chapters.

## 25.7 Potential Effects and Mitigation

### 25.7.1 Embedded Mitigation and Good Practice Measures

25.7.1.1 Mitigation measures for the construction, operational and decommissioning phases of the UK Scheme include steps taken to influence the design of the UK Scheme to minimise potential significant effects based on key sensitivities, constraints and opportunities identified as part of an iterative process of design and assessment (such as avoiding local receptors through design options).

25.7.1.2 Embedded mitigation measures set out in Volume 02, Chapter 12: Traffic and Transport, Volume 04, Chapter 21: Landscape and Visual Impact Assessment, Volume 04, Chapter 22: Noise and Vibration, Volume 04, Chapter 24: Socio-economics and Land Use and Volume 04, Chapter 28: Air Quality are also likely to be relevant for minimising effects on local receptors associated with Health and Wellbeing.

25.7.1.3 All phases of the UK Scheme will be designed and managed to be fully compliant with guidelines and limits pertaining to EMF. No overhead electricity cables will be used or constructed as part of the EOS. All cables will be buried underground.

25.7.1.4 The UK Scheme will comply with the UK public exposure limits for EMF (HM Government, 2016) and an Electromagnetic Compatibility assessment will be conducted for the proposed Converter Station to identify where shielding techniques, such as using materials with high magnetic permeability, will be required to contain EMFs within the proposed Converter Station buildings.

25.7.1.5 An outline Construction Traffic Management Plan (CTMP) will be submitted with the DCO application. This document will detail measures to regulate construction traffic associated with the EOS and will be agreed with the Local Highway Authority prior to starting the construction phase.

25.7.1.6 An outline CEMP will accompany the DCO application, which will describe the framework of mitigation measures identified to be followed and carried forward to a detailed CEMP prior to construction of the UK Scheme. It will outline mitigation measures to reduce potential construction impacts on Health and Wellbeing from traffic, noise and vibration and dust generation.

25.7.1.7 A Decommissioning Environmental Management Plan (DEMP) will be developed prior to the commencement of decommissioning works and agreed with the relevant authorities. The DEMP will set out the environmental management measures, working practices and controls to be implemented during the decommissioning of the UK Scheme. This will include procedures for the safe removal of infrastructure, management of noise, dust, waste and traffic and measures to minimise potential pathways of impact to Health and Wellbeing receptors. The DEMP will ensure that decommissioning activities are undertaken safely, in accordance with prevailing environmental legislation and best practice and in a manner that protects the local community and environment.

25.7.1.8 ISEP guidance makes specific reference to good practice in considering mental health and wellbeing in developing EIA (which is defined as the *“state in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community”*), noting that engagement can act as primary mitigation, by helping to improve community understanding of the project and practitioner understanding of the community.

25.7.1.9 Engagement can also actively alleviate particular impacts upon mental health, by providing a sense of control, inclusion and participation. As such, the UK Scheme places high importance on clear and transparent community engagement and consultation, which will be embedded in the pre-application process and secured in relevant management plans within the DCO consent.

### 25.7.2 Scoping Assessment

25.7.2.1 This Section identifies the sources of impacts that could occur as a result of the construction, operational and decommissioning phases of the UK Scheme, as well as the likelihood of significant effects occurring. This is outlined in Table 25-7 with supporting justification.

25.7.2.2 The sources of decommissioning impacts are assessed to be the same as those listed as during the construction phase.

#### Potential changes to air quality, noise, and vibration and landscape and visual amenity

25.7.2.3 The UK Scheme may impact human Health and Wellbeing through temporary or permanent changes to air quality, noise and vibration, landscape and visual amenity and traffic and transport.

25.7.2.4 The assessment would draw upon the assessments (most of which inherently consider health and wellbeing within standards and thresholds used for the assessment of significant effects) to consider the potential for effects to influence health and wellbeing in the resident population and sub-populations:

- Volume 02, Chapter 12: Traffic and Transport;
- Volume 04, Chapter 21: Landscape and Visual Impact Assessment;
- Volume 04, Chapter 22: Noise and Vibration; and
- Volume 04, Chapter 28: Air Quality.

#### Potential changes to traffic and transport and the accessibility of Public Rights of Way (PRoW), recreational routes and active travel networks

25.7.2.5 The EOS may impact human Health and Wellbeing through temporary or permanent changes to the accessibility of PRoW, recreational routes and active travel routes.

25.7.2.6 The assessment would draw upon the assessments within Volume 04, Chapter 24: Socio-economics and Land use, Volume 04, Chapter 27: Tourism and Recreation and Volume 02, Chapter 12: Traffic and Transport to consider the potential for effects to influence health and wellbeing in the resident population and sub-populations.

#### Potential impacts on access to and capacity of local community services

25.7.2.7 The presence of a temporary, non-local construction workforce may result in changes in access or capacity of local public services and community facilities (including healthcare, education facilities and open space).

25.7.2.8 The assessment would draw upon the assessments within Volume 04, Chapter 24: Socio-economics and Land use, Volume 02, Chapter 12: Traffic and Transport and Volume 04, Chapter 21: Landscape and Visual Impact Assessment to consider the potential for effects to influence health and wellbeing in the resident population and sub-populations.

#### Potential impacts on social cohesion and community identity

25.7.2.9 The EOS may impact human Health and Wellbeing through changes to social cohesion as a result of severance (for example, from temporary diversions and closures of PRoW and roads) and changes in population, and landscape and visual amenity.

25.7.2.10 The assessment would draw upon the assessments within Volume 04, Chapter 24: Socio-economics and Land use and Volume 04, Chapter 27: Tourism and Recreation to consider the potential for effects to influence health and wellbeing in the resident population and sub-populations.

#### Potential effects on employment, training and business activity

25.7.2.11 Employment and income are intrinsically linked to health, with good-quality employment leading to positive impacts on Health and Wellbeing, and the availability of high-quality jobs being key to achieving inclusive economic growth.

25.7.2.12 In the same way, employment can also be associated with health inequality, with adverse physical and psychological conditions of work, the risk of job loss or redundancy and poor pay having the potential to have an adverse impact of human health (Wilkinson & Pickett, 2006).

25.7.2.13 The UK Scheme will generate temporary, short-term employment during construction and decommissioning and low levels of operational employment. There may also be effects on existing businesses, commercial activity and the wider economy as a result of changes to the environment, access and construction activity, reducing land availability in the agricultural sector.

25.7.2.14 The assessment would draw upon the assessments within Volume 04, Chapter 24: Socio-economics and Land use to consider the potential for socio-economic effects to influence health and wellbeing.

#### Potential impacts on residents and workers associated with the generation of electromagnetic fields (EMFs)

25.7.2.15 As highlighted by the World Health Organization (WHO), EMFs can be defined as physical fields that represent both the electric (created through differences in voltage) and magnetic (created when electric current flows) influences.

#### Potential effects relating to land and water contamination

25.7.2.16 Volume 02, Chapter 08: Water Environment presents an assessment of the likely significant effects arising during the construction, operational and decommissioning phases of the UK Scheme on the water environment.

25.7.2.17 The potential for human health to be affected by contamination of land and water (for example, from spills, refuelling or mobilisation of contamination during construction, operational and decommissioning activities) is reported in Volume 02, Chapter 07: Ground Conditions and Contamination.

25.7.2.18 The assessment would draw upon these assessments to consider the potential for socio-economic effects to influence Health and Wellbeing.

**Table 25-7: Elements Scoped In and Out for Health and Wellbeing**

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction and Decommissioning | Potential changes to air quality, noise and vibration and landscape and visual amenity | Effects on physical or mental health and wellbeing linked to changes in the visual environment. | Local Populations and Sub-populations | Scoped In | Construction of the UK Scheme may impact human Health and Wellbeing through temporary or permanent changes to air quality, noise and vibration, landscape and visual amenity and traffic and transport. |
| Operational | | Effects on physical or mental health and wellbeing linked to changes in Air quality arising from the Converter Station. | | Scoped In | As set out in Volume 04, Chapter 28: Air Quality, operational effects on human health receptors within 500m of the EOS scoping boundary in relation to increased emissions from the back-up plant at the Converter Station have been scoped in. |
| | | Effects on physical or mental health and wellbeing linked to operational noise from other intermittent or variable sources (if applicable). | | Scoped In | As set out in Volume 04, Chapter 22: Noise and Vibration, operational noise from other intermittent or variable sources has been scoped in. |
| | | Effects on physical or mental health and wellbeing linked to effects on landscape character receptors and onshore visual receptors generated by the Converter Station. | | Scoped In | As set out in Volume 04, Chapter 21: Landscape and Visual Impact Assessment, impacts on landscape character receptors have been scoped in. |
| | | Effects on physical or mental health and wellbeing linked to changes to Traffic | | Scoped In | As set out in Volume 02, Chapter 12: Traffic and Transport, potential impacts in the form of additional severance to |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | and Transport arising from the Converter Station. | | | pedestrians and cyclists, additional delay to pedestrians, decline in pedestrian and cyclist amenity and additional fear and intimidation to pedestrians and cyclists may arise as a result of the Converter Station. |
| | | Effects on physical or mental health and wellbeing linked to vibration. | | Scoped Out | Permanent impacts of operational effects associated with vibration have been scoped out of the health and wellbeing assessment.<br><br>As set out in Volume 04, Chapter 22: Noise and Vibration, no plant that would generate perceptible levels of ground-borne vibration are part of the UK Scheme and therefore operational vibration is not expected to result in significant effects. |
| Construction and Decommissioning | Potential changes to traffic and transport and the accessibility of PRoW, recreational routes and active travel networks. | Effects on physical or mental health and wellbeing linked to changes in community accessibility for connectivity, recreational amenity or active travel. | Local Populations and Sub-populations | Scoped In | Construction of the UK Scheme may impact human Health and Wellbeing through temporary or permanent changes to the accessibility of PRoW, recreational routes and active travel routes |
| Operational | | | | Scoped In (only for effects on PRoW from the Converter Station) | Potential permanent impacts of operational effects associated with active travel networks, recreational access, connections and physical activity have been scoped out of the assessment of health and wellbeing. |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | As set out in Volume 02, Chapter 12: Traffic and Transport, traffic movements from O&M vehicles are expected to be limited, while schedule maintenance will be infrequent and short. As such no operational effects from O&M vehicles are expected. When looking at operational effects from Converter Station on PRoW, there is the potential for permanent PRoW diversions or closures. As a result, there effects have been scoped in. |
| Construction and Decommissioning | Potential impacts on access to and capacity of local community services. | Effects on physical or mental health and wellbeing linked to changes in capacity of local community services and facilities. | Local Populations and Sub-populations | Scoped In | Construction of the UK Scheme may impact human Health and Wellbeing through temporary or permanent population changes and/or changes to the access of community services (including healthcare, education facilities and open space). |
| Operational | | | | Scoped Out | As set out in Volume 02, Chapter 12: Traffic and Transport, no PRoW or road links or junctions are anticipated to be impacted during the operational phase by operational and maintenance vehicles Despite this, there may be permanent PRoW closures or diversions due to the Converter Station. As set out in Volume 04, Chapter 24: Socio-economics and Land Use, the scale of non-local operational employment is likely to be limited. Therefore, the impact of operational |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | employment on community services and social infrastructure, including healthcare services, education facilities and open space is scoped out of the assessment. |
| Construction and Decommissioning | Potential impacts on social cohesion and community identity | Effects on physical or mental health and wellbeing linked to changes in social cohesion and community identity. | Local Populations and Sub-populations | Scoped In | Construction of the UK Scheme may impact human Health and Wellbeing through temporary or permanent changes to social cohesion (as a result of severance and changes in population and landscape and visual amenity). |
| Operational | | | | Scoped In – Landscape and visual impacts. | Operation of the UK Scheme may impact human Health and Wellbeing through permanent changes to social cohesion through changes to landscape and visual amenity. |
| | | | | Scoped Out – Traffic and transport and operational employment impacts. | As set out in Volume 02, Chapter 12: Traffic and Transport, no PRoW or road links or junctions are anticipated to be impacted during the operational phase. As set out in Volume 04, Chapter 24: Socio-economics and Land use, the scale of operational employment is likely to be limited. Therefore, the impact of operational employment on social cohesion and community identity is scoped out of the assessment. |
| Construction and Decommissioning | Potential effects on employment, training and | Effects on physical or mental health and wellbeing linked to benefits of | Local Populations | Scoped In | Construction of the UK Scheme may impact human Health and Wellbeing through temporary or permanent effects |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | business activity | opportunities for employment and skills. | and Sub-populations | | of employment and training opportunities.<br>There may be some disruption to existing commercial activities and during construction activity. |
| Operational | | | | Scoped Out | As set out in Volume 04, Chapter 24: Socio-economics and Land use, the scale of employment supported in the operational stage is likely to be limited to a small number of operational and maintenance personnel; and there are unlikely to be effects on existing commercial activity, land uses or the wider agricultural economy.<br>Potential permanent impacts of operational effects associated with employment opportunities and wider socio-economic effects have been scoped out of the health and wellbeing assessment. |
| Construction, Operational and Decommissioning | Potential impacts on residents and workers associated with the generation of EMFs | Effects on physical or mental health and wellbeing linked to the effects of EMFs. | Local Populations and Sub-populations | Scoped Out | Potential impacts of effects associated with the generation of EMF have been scoped out of the assessment of health and wellbeing.<br>The Applicant will ensure that policies and procedures are in place at the design phase to ensure that all equipment complies with public EMF exposure limits. |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction, Operational and Decommissioning | Potential effects relating to land and water contamination | Effects on physical or mental health and wellbeing linked to land and water contamination. | Local Populations and Sub-populations | Scoped Out | As set out in Volume 02, Chapter 07: Ground Conditions and Contamination, there is potential for the creation of preferential pathways in the construction and decommissioning phases, resulting in the migration of contamination.<br>As set out in Volume 02, Chapter 07: Ground Conditions and Contamination, there are no likely significant effects anticipated during the operational phase.<br>Despite impacts from potential contamination having the potential to impact human health if mobilised, adherence to the outline CEMP and the DEMP would mitigate against these potential impacts. In light of this, effects on population relating to land and water contamination have been scoped out from all phases. |
| Construction, Operational and Decommissioning | Transboundary Effects | Effects on physical or mental health and wellbeing that may be international in scope. | Local Populations and Sub-populations | Scoped Out | Potential impacts on Health and Wellbeing are only considered in a local context in relation to cumulative effects and therefore impacts to Health and Wellbeing in the UK are not relevant within other European states. |

### 25.7.3 Cumulative and Transboundary Effects

#### Cumulative Effects

25.7.3.1 Volume 05, Chapter 32: Approach to Cumulative Effects details how potential cumulative effects will be assessed through the Cumulative Effects Assessment (CEA) and gives examples of those projects likely to be assessed. For Health and Wellbeing, cumulative interactions may occur with the whole Tarchon Project in combination with the UK Scheme and other planned developments within the Health and Wellbeing Study Areas.

25.7.3.2 ISEP guidance (IEMA, 2022a) suggests that the level of cumulative effects should be determined.

25.7.3.3 This means, for each determinant of health (or health pathway), listing the relevant reasonably foreseeable cumulative projects and using professional judgement (further sensitivity analysis is not required as the receptor remains the same, however magnitude should be appraised in light of the combined effect), providing a combined level of effect to reflect the likely implications for public health.

25.7.3.4 The priority is the identification of potential significant effects and the identification and description of any further mitigation necessary.

25.7.3.5 The guidance notes that:

- A combined public health effect is most likely where a population is affected by multiple determinants of health and a large proportion of the same individuals within that population experience the combination of effects; and
- Some impacts are relatively localised, e.g. dust from a construction site, whilst others may be more far-reaching, e.g. job creation or noise along shared transport corridors.

25.7.3.6 The guidance also notes that an element of the cumulative assessment should articulate where a project contributes to a trend of incremental additional pressures on public health that, whilst individually is not significant, collectively give rise to significant public health effects.

25.7.3.7 The assessment will consider the individual environmental effects that may have the potential to influence health pathways, for example, air quality, noise, transport and access and socio-economics, that may have the potential to result in significant cumulative effects on populations and sub-populations affected by the UK Scheme.

#### Transboundary Effects

25.7.3.8 As set out in Volume 01, Chapter 06: EIA Approach and Methodology, transboundary effects are defined as effects that would affect the environment in another state within the European Economic Area (EEA), i.e. effects which would be experienced beyond the borders of the UK.

25.7.3.9 Potential impacts on Health and Wellbeing will only occur where there is direct disturbance to communities and, as such, will not be experienced beyond the UK Scheme's Order Limits[1].

25.7.3.10 Potential impacts on human Health and Wellbeing are only considered in a local context in relation to cumulative effects and, therefore, impacts to human Health and Wellbeing in the UK are not considered relevant to populations within other European States.

## 25.8 Assumptions, Limitations and Uncertainties

25.8.1.1 The Health and Wellbeing assessment will be based on professional judgement and best practice methodology and will consider both the negative and positive impacts that the UK Scheme could have upon existing and surrounding receptors. It will provide a broad, high-level indication of the likelihood of potential significant effects occurring, reporting on these effects to people and the local community.

25.8.1.2 As outlined, the assessment will draw upon other technical chapters to aid the assessment of the impact of the UK Scheme on Health and Wellbeing receptors. The assumptions and limitations set out in these technical chapters will inherently apply within the Health and Wellbeing assessment.

25.8.1.3 The proposed assessment approach is based on desk study information. Reasonable worst-case assumptions regarding the likely baseline conditions will be made when assessing the likelihood of significant effects in the ES, determined from the desk study information.

[1] The Order limits will define the boundary of the UK Scheme within which the authorised development can be carried out and hence represent the maximum extent of land to be acquired or used for the construction, operational and decommissioning phases of the UK Scheme.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 04, Chapter 26: Materials and Waste

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00018 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| CEMP | Construction Environmental Management Plan |
| CL:AIRE | Contaminated Land: Applications in Real Environments |
| CEA | Cumulative Effects Assessment |
| DEMP | Decommissioning Environmental Management Plan |
| EA | Environment Agency |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| EPA | Environment Protection Act |
| ES | Environmental Statement |
| ICES | International Council for the Exploration of the Sea |
| IEMA | Institute of Environmental Management and Assessment |
| m | Metre |
| $m^3$ | Metre Cubed |
| MDS | Maximum Design Scenario |
| MPA | Minerals Planning Authority |
| MSA | Minerals Safeguarding Areas |
| NPPF | National Planning Policy Framework |
| NPS | National Policy Statement |
| PEIR | Preliminary Environmental Impact Report |
| PPG | Planning Practice Guidance |
| SWMP | Site Waste Management Plan |
| SNRHW | Stable Non-Reactive Hazardous Waste |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| WPA | Waste Planning Authority |
| WRAP | Waste and Resources Action Programme |

# 26. Materials and Waste

## 26.1 Introduction

26.1.1.1 This Chapter presents the Materials and Waste assessment which will consider the potential significant effects on Materials and Waste receptors during the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). The UK Scheme is formed of both the UK Marine Scheme (UKMS) and the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description), both of which are relevant to this Chapter. As a result, this Chapter is split where relevant between the UKMS and EOS.

26.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Materials and Waste baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Materials and Waste receptors from the proposed components of the UKMS and EOS; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

26.1.1.3 For the purpose of this Scoping Report, Materials and Waste comprises:

- The consumption of materials (key construction materials only including concrete, aggregate, asphalt and steel); and
- The generation and management of waste.

### 26.1.2 Materials

26.1.2.1 Materials are defined in the Guidance (IEMA, 2020) as "*physical resources that are used across the lifecycle of a development*". Examples include concrete, aggregate, asphalt and steel. The assessment of resource availability and the impacts on resources will be considered within the assessment.

26.1.2.2 Other material assets considered include built assets such as landfill void capacity, waste management facilities and allocated or safeguarded mineral (e.g. quarries, coated stone and concrete or mortar plants, mineral transhipment (rail depot and wharf) sites, construction and decommissioning phase recycling and soil screening) and waste sites.

26.1.2.3 Minerals Safeguarding Areas (MSA) are large geographical zones identified by mineral planning authorities to protect potential mineral resources from non-mineral development. In accordance with Institute of Environmental Management and Assessment (IEMA) Guidance (IEMA, 2020) impacts upon MSAs are not assessed in a Materials and Waste assessment. Impacts to MSAs are covered in

Volume 01, Chapter 07: Ground Conditions and Contamination. Minerals safeguarding sites are specific locations within larger MSAs that are specifically safeguarded for minerals and related infrastructure. Examples include existing quarries, depots, wharfs or other areas allocated for mineral processing and handling. Safeguarded mineral sites are assessed in a Materials and Waste assessment, and are therefore discussed in this Chapter, however it is noted that there are no safeguarded mineral sites within the UK Scheme (EOS and UKMS Scoping Boundaries).

### 26.1.3 Waste

*26.1.3.1* Waste is defined as per the European Waste Framework Directive (European Union, 2008) as *"any substance or object which the holder discards or intends or is required to discard".*

26.1.3.2 This Chapter considers the onshore management of waste, which includes only wastes generated onboard vessels used by the UKMS and brought onshore within the UK for recycling or disposal. Discharges from the UKMS to sea are discussed in Volume 03, Chapter 13: Marine Physical Environment, and discharges from the UKMS to air are discussed in Volume 04, Chapter 28: Air Quality.

26.1.3.3 This Chapter is supported by the following figures:

- Volume 01, Chapter 02: UK Project Description, Figure 2-1: English Onshore Scheme Scoping Boundary; and
- Volume 01, Chapter 02: UK Project Description, Figure 2-2: UK Marine Scheme Scoping Boundary.

26.1.3.4 This Chapter should be read alongside the following Chapters for a broader understanding of the UK Scheme and Materials and Waste interactions:

- Volume 01, Chapter 05: Legislative and Planning Policy Context;
- Volume 02, Chapter 07: Ground Conditions and Contamination;
- Volume 02, Chapter 09: Land Use, Soils and Agriculture;
- Volume 02, Chapter 13: Marine Physical Environment; and
- Volume 04, Chapter 28: Air Quality.

## 26.2 Study Areas

26.2.1.1 The area applicable to the UK Scheme is defined in line with the IEMA Guidance (IEMA, 2020) and comprise of the development footprint and any areas required for temporary access, site compounds, working platforms and other enabling activities. This is the area in which waste would be generated and construction materials used. This includes wastes generated on the vessels used by the UKMS which will be brought onshore (Figure 2-1, Figure 2-2).

26.2.1.2 The assessment of potential significant effect on allocated or safeguarded waste sites located in the Scoping Boundary is not included in the IEMA Guidance (IEMA, 2020) however, they are included in the baseline for completeness.

26.2.1.3 The EOS Scoping Boundary represents the maximum extent in which the development footprint (including all enabling works) will be sited onshore. It is located within the administrative areas of Essex County Council and Tendring District Council. Essex County Council is the Minerals Planning Authority (MPA) and Waste Planning Authority (WPA). The UKMS is located within the International Council for the Exploration of the Sea (ICES) Division IV and represents the maximum extent in which the development footprint (including all enabling works) will be sited offshore.

### 26.2.2 Expansive Study Areas

26.2.2.1 An Expansive Study Area (i.e. encompassing an area larger than the Scoping Boundary) has been used as potential impacts from the UK Scheme on waste and materials resources and infrastructure may occur on a larger scale.

#### Non-hazardous and inert waste

26.2.2.2 The Expansive Study Area for non-hazardous and inert waste management and landfill void capacity is the East of England (as defined by the Environment Agency (EA) (EA, 2023a)). This is the region in which the UK Scheme is located. This area is defined based on professional judgement and informed by consideration of and adherence to the proximity principle and where sufficient infrastructure and capacity is available to process and manage non-hazardous and inert waste.

#### Hazardous waste

26.2.2.3 The Expansive Study Area for hazardous waste management and landfill void capacity is England. This area is defined based on IEMA Guidance (IEMA, 2020). The proximity principle for hazardous waste in England is outlined in Principle 2 - Infrastructure Provision in the Strategy for Hazardous Waste Management in England *"We look to the market for the development of hazardous waste infrastructure, which implements the hierarchy for the management of hazardous waste and meets the needs of the UK to ensure that the country as a whole is self-sufficient in hazardous waste disposal, facilities are put in place for hazardous waste recovery in England, and the proximity principle is met"* (Defra, 2010). Planning for hazardous waste management is also undertaken at a national level.

#### Steel

26.2.2.4 With regard to Materials, the Expansive Study Area for the availability of steel is national throughout the UK. The Expansive Study Area for the availability of aggregates, asphalt and concrete, is the East of England region. Again, these areas are defined based on professional judgement and informed by consideration of the proximity principle and value for money.

## 26.3 Relevant Legislation, Planning Policy and Guidance

26.3.1.1 This Section identifies the relevant legislation, planning policy and guidance relating to the assessment of potential effects on Materials and Waste that may arise from the construction, operation, maintenance and decommissioning of the

UK Scheme. The following legislation, planning policy and guidance will be used to determine and guide the assessments of impacts on Materials and Waste.

### 26.3.2 Legislation

26.3.2.1 The following legislation will be taken into account:

- Directive 2008/98/EC The Waste Framework Directive (European Union, 2008) (as transposed in UK law as of 2018; see the Waste and Environmental Permitting etc. (Legislative Functions and Amendments etc) (EU Exit) Regulations 2020 (HM Government, 2020a);
- Environmental Protection Act 1990 (EPA 1990) (HM Government, 1990);
- The Hazardous Waste (England and Wales) Regulations 2005 as amended (HM Government, 2005);
- The Waste (England and Wales) Regulations 2011 as amended (HM Government, 2011);
- The Environmental Permitting (England and Wales) Regulations 2016 (HM Government, 2016);
- Environment Act 2021 (HM Government, 2021);
- The Controlled Waste (England and Wales) Regulations 2012 (HM Government, 2012);
- Waste (Circular Economy) (Amendment) Regulations 2020 (HM Government, 2020b); and
- The Environmental Targets (Residual Waste) (England) Regulations 2023 (HM Government, 2023a).

### 26.3.3 National Planning Policy Framework

26.3.3.1 The Materials and Waste assessment will be carried out with reference to the following national planning policy, as relevant:

- Overarching National Policy Statement (NPS) for Energy (EN-1) (Department for Energy and Net Zero, 2025);
- National Planning Policy for Waste (HM Government, 2014a);
- A Green Future: Our 25 Year Plan to Improve the Environment (Defra, 2018a);
- Our Waste, Our Resources: A Strategy for England (Resources and Waste Strategy for England) (Defra, 2018b);
- Environmental Improvement Plan (HM Government, 2023b);
- The Waste Prevention Programme for England: Maximising Resources, Minimising Waste (Defra, 2023); and
- The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2024).

### 26.3.4 Guidance

26.3.4.1 The Materials and Waste scoping assessment will be carried out with reference to the following guidance:

- National Planning Practice Guidance (PPG) for Minerals (HM Government, 2014b);
- National PPG for Waste (HM Government, 2015);
- IEMA Guidance (IEMA, 2020);
- Contaminated Land: Applications in Real Environments (CL:AIRE), Definition of Waste: Development Industry Code of Practice (DoW CoP), v2 (CL:AIRE, 2011);
- Waste and Resources Action Programme (WRAP), Designing Out Waste: A Design Team Guide for Civil Engineering (WRAP, n.d.);
- Waste Duty of Care Code of Practice (Defra, 2018c); and
- Defra (2011) Guidance on Applying the Waste Hierarchy.

### 26.3.5 Local Planning Policy

26.3.5.1 The relevant local policies for Materials and Waste will be considered during the EIA process and implemented where reasonably practicable with full assessment of these policies at Preliminary Environmental Impact Report (PEIR) and Environmental Statement (ES) stages. The current relevant local policies are summarised as follows:

- Essex Minerals Local Plan (adopted July 2014) (Essex County Council, 2014)
  - Policy S4 - Reducing the use of mineral resources;
  - Policy S8 - Safeguarding mineral resources and mineral reserves; and
  - Policy S9 - Safeguarding mineral transhipment sites and secondary processing facilities.
- The Essex and Southend-on-Sea Waste Local Plan (adopted July 2017) (Essex County Council, 2017)
  - Policy 2 (Part c) – Safeguarding Waste Management Sites and Infrastructure
- Waste Consultation Areas - Where non-waste development is proposed within 250 metres (m) of safeguarded sites or within 400 m of a Water Recycling Centre, the relevant Local Planning Authority is required to consult the WPA on the proposed non-waste development. This is to determine whether proposals have the potential to adversely impact on the operation of a safeguarded waste site or infrastructure.

## 26.4 Consultation and Engagement

26.4.1.1 No topic-specific consultation has taken place relating to Materials and Waste to date. However, responses on the non-statutory consultation (Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council,

Suffolk County Council, Tendring District Council and Mid Suffolk and Babergh District Council. No relevant comments to Materials and Waste have been received to date.

## 26.5 Baseline Environment

26.5.1.1 A desktop review will be undertaken during the PEIR stage of the EIA once the Materials and Waste aspects of the UK Scheme are better understood. This will also be included within the ES to provide detail on the availability of materials and management of waste, including the distance and capacity of registered landfill facilities local to the UK Scheme.

26.5.1.2 The following sections outline the baseline conditions in relation to the availability of key construction materials, landfill capacity and waste management infrastructure within the Scoping Boundary and Expansive Study Area as relevant. This information will provide a baseline against which the effects of the construction, operational and decommissioning phases of the UK Scheme on Materials and Waste can be assessed.

### 26.5.2 Availability of Key Construction Materials

26.5.2.1 UK and regional data have been used to establish a baseline of available material (inferred from requirement and production or sales), for key construction materials expected to be used during the construction of the UK Scheme (Table 26-1).

26.5.2.2 It is expected that the majority of key construction materials, e.g., aggregates, asphalt and concrete, will be sourced locally, taking into account the proximity principle and value for money, with the exception of steel which may be sourced internationally. Crushed rock is not available in the East of England and it is assumed that it will be sourced from outside of the Scoping Boundary.

26.5.2.3 The potential for inclusion of recycled contents within the key construction materials will be considered in the Materials and Waste assessment following the good practice guidance set out in WRAP Designing Out Waste Tool for Civil Engineering (WRAP, n.d.).

**Table 26-1: Key Construction Material Availability (within the Expansive Study Area as defined in 26.2)**

| Material | Million tonnes per year | Baseline Data Year (latest available) | Data Description |
|---|---|---|---|
| Steel | 15 | 2024 | The UK's steel requirement (UK Steel, 2025) |
| Crushed rock | 0 (30.6 - East Midlands closest region with crushed rock production) | 2022 | East of England and East Midlands - Estimated primary aggregates production (Mineral Products Association, 2023) |
| Sand and gravel | 10.5 | 2022 | |
| Ready-mixed concrete (million tonnes converted from cubic metres ($m^3$) using a density of 2.4 tonnes/$m^3$) | 2.9 | 2022 | East of England – Sales (Mineral Products Association, 2023) |
| Asphalt | 2.4 | 2022 | |

### 26.5.3 Landfill Capacity

26.5.3.1 The EAs 2023 Waste Summary Tables for England – Version 1 (EA, 2023a) has been used to define the current baseline for landfill capacity in the East of England for non-hazardous waste and England for hazardous waste Table 26-2. Hazardous restricted sites are not included as they may not be available to the UK Scheme. Restricted landfills only accept waste from a restricted set of sources and producers, commonly the site operator (e.g. a manufacturing site).

**Table 26-2: Landfill Capacity (2022) in the East of England and England**

| Landfill Type | East of England Capacity (000s $m^3$) | England Capacity (000s $m^3$) |
|---|---|---|
| Hazardous Merchant | N/A - hazardous waste assessed at the England level | 9,680 |
| Non-hazardous with Stable Non-Reactive Hazardous Wastes (SNRHWs)* cell | 3,055 | N/A - non-hazardous and inert waste assessed at the regional level |
| Non-hazardous | 25,110 | |
| Inert | 30,522 | |

* Some non-hazardous sites can accept some SNRHW into a dedicated cell, but this is usually a small part of the overall capacity of the site.

26.5.3.2 There are no permitted landfills within the Scoping Boundary, as outlined in the EA's Permitted Waste Sites - Authorised Landfill Site Boundaries spatial data (EA, 2023b).

26.5.3.3 There is one historic (closed) landfill site located within the Scoping Boundary identified in the EA's Historic Landfill Sites spatial data (EA, 2025). This is discussed further in Volume 02, Chapter 07: Ground Conditions and Contamination.

### 26.5.4 Waste Management Infrastructure

26.5.4.1 IEMA Guidance (IEMA, 2020) states that it *"…does not consider waste processing and recovery facilities as sensitive receptors, rather: they are part of a system that has the potential to reduce the magnitude of adverse impacts associated with waste generation and disposal. Waste processing and recovery facilities are, hence, different to landfills, in that the latter are finite resources".* Therefore, waste management infrastructure is not considered further in the baseline.

### 26.5.5 Safeguarded Mineral and Waste Sites

26.5.5.1 There are no safeguarded mineral sites within the Scoping Boundary.

26.5.5.2 Reference to the EA's Environmental Permitting Regulations – Waste Sites (EA, 2023b), indicates that there is one permitted waste site within the Scoping Boundary (Essex Council Council's Dovercourt Recycling Centre, West End, Hall Lane). The potential significant effect on this site will be considered further in the PEIR and ES.

### 26.5.6 Future Baseline Conditions

26.5.6.1 The baseline environment is not static and is expected to change over time, irrespective of the UK Scheme. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UK Scheme over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

26.5.6.2 There is no publicly available information on the long-term trends of national and/or regional demands for any of the key construction materials. Construction material demand is closely aligned to both the quantity of construction taking place and the performance of the general economy. Therefore, it is deemed inappropriate to forecast future demand as this is unlikely to be linear. It is therefore not possible to set a future baseline for resources. Therefore, future consumption is assumed to be the same as the current baseline as outlined in Table 26-1.

26.5.6.3 For the purposes of assessment, landfill void capacity is assumed to remain the same as the current baseline. It is assumed the WPA would consent new landfill void capacity to replace that which has been used up should the need arise. However, although the current baseline is used in the assessment, a 'very high' sensitivity rating (discussed further in Section 26.6.4 below) is applied to landfill void capacity to recognise the potential for landfill void capacity to decline in future.

## 26.6 Assessment Methodology

26.6.1.1 This Section outlines the methodology that has been considered for the scoping exercise and will be used to assess the potential significant effect associated with Materials and Waste. The IEMA Guidance (IEMA, 2020) offers two methods for the assessment of waste. Method W1 – Void Capacity – has been selected as this is a more detailed methodology and is appropriate for larger, more complex projects.

26.6.1.2 The criteria used for Materials and Waste align with topic-specific criteria in the IEMA Guidance (IEMA, 2020), rather than the general significance criteria outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

26.6.1.3 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on material and waste receptors arising from the construction, operational and decommissioning phases of the UK Scheme. This approach defines:

- **Sources and impacts**: The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

26.6.1.4 Accordingly, the receptors are:

- Landfill void capacity in the Expansive Study Area of East of England (non-hazardous landfill void capacity) and England (hazardous landfill void capacity). The IEMA Guidance states: *"Landfill is a finite resource, and hence – through the ongoing disposal of waste – there is a continued need to expand existing and develop new facilities. This requires the depletion of natural and other resources which, in turn, adversely impacts the environment"* (IEMA, 2020); and
- Construction material (required in construction, operation and decommissioning) availability in the East of England for concrete, aggregate and asphalt and in the UK for steel. As outlined in the IEMA Guidance: *"Consuming materials impacts upon their immediate and (in the case of primary material) long-term availability; this results in the depletion of natural resources and adversely impacts the environment"* (IEMA, 2020).

26.6.1.5 Embedded mitigation measures will be considered prior to the assessment of potentially significant effects in the EIA to avoid considering assessment scenarios that are unrealistic in practice, i.e. do not take account of such measures even though they are likely to be standard practice and/or form part of the design of the UK Scheme (Mitigation by Design). These will then be followed through the assessment to ensure that realistic, potential significant effects are identified. Where potential significant effects are identified after considering these embedded mitigation measures, 'Scheme Specific Mitigation' (additional or secondary mitigation) will be developed and proposed, where feasible.

### 26.6.2 Methodology for assessment of effects on Materials

26.6.2.1 Effects upon materials during the construction, operational and decommissioning phases of the UK Scheme are assessed by:

1. Establishing the baseline for national (steel) and regional consumption (aggregates, asphalt and concrete) of key construction materials by weight;
2. Assessing the sensitivity of materials as related to the availability and types of construction materials to be consumed by the UK Scheme;
3. Establishing the quantities of key construction materials required for the construction of the UK Scheme (magnitude); and
4. Comparing the total quantities of key construction materials with the most recent national demand (utilising a percentage approach).

26.6.2.2 Effects upon waste during the construction, operational and decommissioning phases of the UK Scheme are assessed by:

1. Establishing the baseline landfill void capacity in the Expansive Study Area;
2. Assessing the sensitivity of the identified landfill void capacity;
3. Establishing the quantities of waste to be generated during the construction, operation and decommissioning of the UK Scheme (magnitude); and
4. Comparing the total waste arising from the construction, operational and decommissioning phases of the UK Scheme against the landfill void capacity (using a percentage approach) assuming a worst case that waste goes to landfill.

### 26.6.3 Sensitivity of Receptor – Materials

26.6.3.1 The sensitivity of materials relates to the availability and type of construction material to be consumed by the UK Scheme. The IEMA Guidance (IEMA, 2020) criteria described within Table 26-3 is used to determine the sensitivity of materials.

**Table 26-3: Definitions of Sensitivity for Materials**

| Sensitivity | Definition |
|---|---|
| Very High | • On balance, the key materials required for the construction, operational and decommissioning phases of the UK Scheme are forecast are known to be insufficient in terms of production, supply and/or stock; and/or<br>• Comprise no sustainable features and benefits compared to industry-standard materials. |
| High | • On balance, the key materials required for the construction, operational and decommissioning phases of the UK Scheme are forecast (through trend analysis and other information) to suffer from known issues regarding supply and stock; and/or<br>• Comprise little or no sustainable features and benefits compared to industry-standard materials. |
| Medium | • On balance, the key materials required for the construction, operational and decommissioning phases of the UK Scheme are forecast (through trend analysis and other information) to suffer from some potential issues regarding supply and stock; and/or |

| Sensitivity | Definition |
|---|---|
| | • Are available comprising some sustainable features and benefits compared to industry-standard materials. |
| Low | • On balance, the key materials required for the construction, operational and decommissioning phases of the UK Scheme are forecast (through trend analysis and other information) to be generally free from known issues regarding supply and stock; and/or<br>• Are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials. |
| Negligible | • On balance, the key materials required for the construction, operational and decommissioning phases of the UK Scheme are forecast (through trend analysis and other information) to be free from known issues regarding supply and stock; and/or<br>• Are available comprising a very high proportion of sustainable features and benefits compared to industry-standard materials*. |

* Subject to supporting evidence, sustainable features and benefits could include, for example, materials or products that: comprise reused, secondary or recycled content (including excavated and other arisings); support the drive to a circular economy; or in some other way reduce lifetime environmental impacts.

### 26.6.4 Sensitivity of Receptor – Waste

26.6.4.1 The sensitivity of waste relates to availability of landfill capacity in the absence of the UK Scheme. As outlined in the IEMA Guidance *"landfill capacity is recognised as an unsustainable and increasingly scarce option for managing waste"* (IEMA, 2020). It is assessed based on a review of historic landfill void capacity trends, where available, and information from relevant policy documents.

26.6.4.2 The criteria described within Table 26-4 and Table 26-5 are used to determine the sensitivity of Waste in terms of inert and non-hazardous landfill capacity and hazardous landfill capacity, respectively.

**Table 26-4: Definitions of Sensitivity for Inert and Non-hazardous Landfill Capacity (as defined by the IEMA Guidance (IEMA, 2020))**

| Sensitivity | Definition |
|---|---|
| Very High | Across construction, operational and decommissioning phases, the baseline/future baseline (i.e. without the UK Scheme) of regional inert and non-hazardous landfill capacity:<br>• is expected to reduce very considerably (by >10%);<br>• is expected to end during construction or operation;<br>• is already known to be unavailable; or<br>• would require new capacity or infrastructure to be put in place to meet forecast demand. |
| High | Across construction, operational and decommissioning phases, the baseline/future baseline (i.e. without the UK Scheme) of regional inert and non-hazardous landfill capacity is expected reduce considerably: by 6-10% as a result of wastes forecast. |

| Sensitivity | Definition |
|---|---|
| Medium | Across construction, operational and decommissioning phases, the baseline/future baseline (i.e. without the UK Scheme) of regional inert and non-hazardous landfill capacity is expected reduce noticeably by 1-5% as a result of wastes forecast. |
| Low | Across construction, operational and decommissioning phases, the baseline/future baseline (i.e. without the UK Scheme) of regional inert and non-hazardous landfill capacity is expected reduce minimally by <1% as a result of wastes forecast. |
| Negligible | Across construction, operational and decommissioning phases, the baseline/future baseline (i.e. without the UK Scheme) of regional inert and non-hazardous landfill capacity expected to remain unchanged or is expected to increase through a committed change in capacity. |

**Table 26-5: Definitions of Sensitivity for Hazardous Landfill Capacity (as defined by the IEMA Guidance (IEMA, 2020))**

| Sensitivity | Definition |
|---|---|
| Very High | Across the construction, operational and decommissioning phases, the baseline/future baseline (i.e. without the UK Scheme) of regional (or where justified, national) hazardous landfill capacity:<br>• is expected to reduce very considerably (by >1%);<br>• is expected to end during construction or operation;<br>• is already known to be unavailable; or<br>• would require new capacity or infrastructure to be put in place to meet forecast demand. |
| High | Across the construction, operational and decommissioning phases, the baseline/future baseline (i.e. without the UK Scheme) of regional (or where justified, national) hazardous landfill capacity is expected to reduce considerably by 0.5-1% as a result of wastes forecast. |
| Medium | Across the construction, operational and decommissioning phases, the baseline/future baseline (i.e. without the UK Scheme) of regional (or where justified, national) hazardous landfill capacity is expected to reduce noticeably by 0.1-0.5% as a result of wastes forecast. |
| Low | Across the construction, operational and decommissioning phases, the baseline or future baseline (i.e. without the UK Scheme) of regional (or where justified, national) hazardous landfill capacity is expected to reduce minimally by <0.1% as a result of wastes forecast. |
| Negligible | Across the construction, operational and decommissioning phases, the baseline or future baseline (i.e. without the UK Scheme) of regional (or where justified, national) hazardous landfill capacity is expected to remain unchanged or is expected to increase through a committed change in capacity. |

### 26.6.5 Magnitude of Impact – Materials

26.6.5.1 The magnitude of impact describes the degree of variation from the baseline conditions as result of the UK Scheme based upon IEMA Guidelines (IEMA, 2020). The methodology for assessing the magnitude of impact from materials comprises

a percentage-based approach that determines the influence of construction materials used by the UK Scheme on the baseline national availability for steel and regional availability for aggregates, asphalt and concrete. The criteria used to assess the magnitude of impact for materials are provided within Table 26-6.

**Table 26-6: Definitions of Magnitude for Materials (as defined by the IEMA Guidance (IEMA, 2020))**

| Magnitude | Definition |
|---|---|
| Major | UK Scheme consumption of one or more materials is >10% by volume of the baseline availability*. |
| Moderate | UK Scheme consumption of one or more materials is between 6-10% by volume of the baseline availability*. |
| Minor | UK Scheme consumption of one or more materials is between 1-5% by volume of the baseline availability*. |
| Negligible | UK Scheme consumption of no individual material type is equal to or greater than 1% by volume of the baseline availability*. |
| No change | UK Scheme consumption of no materials is required. |

* A national baseline is used in the absence of regional construction material consumption data e.g. steel.

### 26.6.6 Magnitude of Impact – Waste

26.6.6.1 The methodology for assessing the magnitude of impact for waste comprises a percentage-based approach that determines the influence of waste generation from the construction of the UK Scheme on the baseline landfill capacity. The criteria used to assess the magnitude of impact for resources and waste are provided within Table 26-7 and Table 26-8.

**Table 26-7: Definitions of Magnitude for Inert and Non-hazardous Waste (as defined by the IEMA Guidance (IEMA, 2020))**

| Magnitude | Definition |
|---|---|
| Major | Waste generated by the UK Scheme will reduce Expansive Study Area landfill capacity baseline* by >10%. |
| Moderate | Waste generated by the UK Scheme will reduce Expansive Study Area landfill capacity baseline* by 6-10%. |
| Minor | Waste generated by the UK Scheme will reduce Expansive Study Area landfill capacity baseline* by 1-5%. |
| Negligible | Waste generated by the UK Scheme will reduce Expansive Study Area landfill capacity baseline* by <1%. |
| No change | Zero waste generation and disposal from the UK Scheme. |

* Forecast as the worst-case scenario, during a defined construction and/or operational phase.

**Table 26-8: Definitions of Magnitude for Hazardous Waste (as defined by the IEMA Guidance (IEMA, 2020))**

| Magnitude | Definition |
|---|---|
| Major | Waste generated by the UK Scheme will reduce Expansive Study Area landfill capacity baseline* by >1%. |
| Moderate | Waste generated by the UK Scheme will reduce Expansive Study Area landfill capacity baseline* by <0.5-1%. |
| Minor | Waste generated by the UK Scheme will reduce Expansive Study Area landfill capacity baseline* by <0.1-0.5%. |
| Negligible | Waste generated by the UK Scheme will reduce Expansive Study Area landfill capacity baseline* by <0.1%. |
| No change | Zero waste generation and disposal from the UK Scheme. |

* Forecast as the worst-case scenario, during a defined construction and/or operational phase.

### 26.6.7 Significance of Effect

26.6.7.1 Table 26-9 describes the effect thresholds used in determining the effects and Table 26-10 shows the significance of the effect.

**Table 26-9: Effect Thresholds (as defined by the IEMA Guidance (IEMA, 2020))**

| Sensitivity of Receptor | Magnitude of Impact | | | | |
|---|---|---|---|---|---|
| | Major | Moderate | Minor | Negligible | No Change |
| Very High | Very Large | Large or Very Large | Moderate or Large | Slight | Neutral |
| High | Large or Very Large | Moderate or Large | Slight or Moderate | Slight | Neutral |
| Medium | Moderate or Large | Moderate | Slight | Neutral or Slight | Neutral |
| Low | Slight or Moderate | Slight | Neutral or Slight | Neutral or Slight | Neutral |
| Negligible | Slight | Neutral or Slight | Neutral or Slight | Neutral | Neutral |

**Table 26-10: Significance of Effect (as defined by the IEMA Guidance (IEMA, 2020))**

| Effect | Materials | Waste |
|---|---|---|
| **Very Large** | Significant | Significant |
| **Large** | | |
| **Moderate** | | |
| **Slight** | Not Significant | Not Significant |
| **Neutral** | | |

26.6.7.2 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

26.6.7.3 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UK Scheme design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UK Scheme.

### 26.6.8 Key Sensitivities

26.6.8.1 Registered landfill sites used by the UK Scheme may be affected by construction, operational and decommissioning works through a material increase in the volume of waste types received. This is most likely to occur during the construction and decommissioning phase of the UK Scheme, where projected waste volumes are expected to be the highest.

26.6.8.2 Residential receptors on the routes from the UK Scheme to the landfill facilities used may be affected by an increase in traffic; this will be assessed as part of Volume 02, Chapter 12: Traffic and Transport. Additional consideration will be given to receptors which may be affected by any potential access routes.

26.6.8.3 At the point of generation, handling and storage of waste may affect soils, surface and groundwater receptors on land used by the UK Scheme during the construction and operational phases. Potential effects on soils and water resources are addressed in Volume 02, Chapter 07: Ground Conditions and Contamination and Volume 02, Chapter 08: Water Environment.

26.6.8.4 Due to the regional and national availability of materials and the anticipated volumes of materials estimated to be required in the construction of the UK Scheme, there are no key material sensitivities.

## 26.7 Potential Effects and Mitigation

26.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 26.7.2 Use of Materials

26.7.2.1 The construction phase of the UK Scheme has the greatest potential for significant effects on materials as this will require material resources for the construction of the proposed new infrastructure. This may, therefore, have permanent direct adverse effects on the environment, specifically through the depletion of non-

renewable resources. Specific quantities of materials have not been quantified at this stage, however the types of material resources likely to be required for the construction of the UK Scheme, are as follows:

- Concrete and cement;
- Aggregate;
- Asphalt; and
- Steel.

26.7.2.2 Whilst additional alternative materials may be used, the materials listed above are considered to be a worst-case scenario and therefore alternatives would not have any greater adverse effects.

26.7.2.3 Material receptor sensitivity is determined as ‘low’ (Table 26-3). At ‘low’ material receptor sensitivity, the point of significance is a major magnitude of impact. This point of significance is defined within Table 26-6 as the *“consumption of one or more materials is >10% by volume of the baseline availability”.*

26.7.2.4 Judgement of aspects scoped in or out is taken from the baseline information and the understanding of the known and estimated demand for materials resources.

26.7.2.5 Materials used during construction, operation and decommissioning are unlikely to be required in quantities greater than 10% of regional (aggregates, concrete and asphalt) or national (steel) construction material availability. Assumptions on UK Scheme material consumption is based on the construction material (during the construction phase) requirements of a similar development of similar scale, namely, the Aquind Interconnector Project (Aquind, 2019) which included the following material requirements:

- Aggregate requirement for the converter station and onshore cable corridor was anticipated to be 143,108 tonnes. This is less than 10% of regional aggregate availability which is 4.1 million tonnes;
- Asphalt requirement for the converter station and onshore cable corridor was anticipated to be 15,300 tonnes. This is less than 10% of regional asphalt availability which is 240,000 tonnes;
- Concrete requirement for the converter station, onshore cable corridor and marine cable corridor was anticipated to be 60,028 tonnes. This is less than 10% of regional concrete availability which is 290,000 tonnes; and
- Steel requirement for the converter station and onshore cable corridor was anticipated to be 4,750 tonnes. This is less than 10% of national steel availability which is 1.5 million tonnes.

26.7.2.6 Considering the current baseline of material availability within the region (and nationally for steel) this suggests that resources required for the construction phase are not deemed to be significant when assessing the percentage impact per material required. Impacts to materials have therefore been Scoped Out of further assessment in the ES.

### 26.7.3 Generation and Management of Waste

26.7.3.1 During the construction phase waste would predominantly arise from excavations of rock and soil and from materials brought to site, not used for their intended purposes, damaged items, cut offs and surplus materials. Some types of waste generated from construction projects may be harmful to human health or to the environment, either immediately or over an extended period of time (defined as hazardous wastes). However, these are not anticipated to be generated from the UK Scheme because the majority of wastes would be non-hazardous.

26.7.3.2 Exact quantities of waste likely to be generated by the construction of the UK Scheme have not been quantified at this stage. However, waste may result from the following:

- Surplus excavated materials (soils or substrata); and
- Surplus construction materials (e.g. concrete, aggregates).

26.7.3.3 During decommissioning, waste will predominately arise from the demolition of buildings and equipment. Similarly to the construction phase, some types of waste may be harmful to human health or to the environment, either immediately or over an extended period of time (defined as hazardous wastes). However, these are not anticipated to be generated from the UK Scheme because the majority of wastes would be non-hazardous.

26.7.3.4 Exact quantities of waste likely to be generated by the demolition of the UK Scheme have not been quantified at this stage. However, waste is likely to primarily result from demolished construction materials (e.g. concrete, aggregates).

26.7.3.5 There will be minimal waste generation during the operation and maintenance of the UK Scheme.

26.7.3.6 Waste receptor sensitivity is determined as ‘very high’ (Table 26-4 and Table 26-5). At a waste receptor sensitivity of ‘very high’, the point of significance equates to a minor magnitude of impact. This point of significance is defined within Table 26-7 and Table 26-8 as:

- *“Waste generated by the UK Scheme will reduce Expansive Study Area landfill capacity baseline by 1-5%”* for inert and non-hazardous waste; and
- *“Waste generated by the UK Scheme will reduce Expansive Study Area landfill capacity baseline by <0.1-0.5%”* for hazardous waste.

26.7.3.7 Although exact quantity of waste likely to be produced by the construction of the UK Scheme have not been estimated at this point, it is considered that waste production may exceed 1% of the landfill void capacity for inert and non-hazardous waste and 0.1% of the void capacity for hazardous waste. Additionally, due to the limited information available at the scoping stage, and the uncertainty about the nature of mitigation(s) and the method by which mitigation(s) would be secured, impacts on landfill void capacity during the construction and decommissioning phases has been Scoped In for further assessment in the ES. Impacts during the operational phase are Scoped out.

26.7.3.8 It should be noted that only waste brought onshore to the UK would be considered in the waste assessment since the sensitive receptor for waste is onshore landfill void capacity. Dredging spoils will be managed and/or disposed of at sea and not brought onshore and are therefore excluded from the assessment. Dredging spoils are addressed in Volume 03, Chapter 13: Marine Physical Environment**.**

### 26.7.4 Embedded Mitigation and Good Practice Measures

26.7.4.1 The UK Scheme will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as *"mitigation measures that have been incorporated into a project's description and form an inherent part of the project's design"* (IEMA, 2024). The embedded mitigation measures which are relevant to this Chapter are presented in the table below (Table ).

**Table 26-11: Embedded Mitigation Measures of Importance to Materials and Waste**

| Measure Proposed | Rationale |
|---|---|
| Design for reuse and recovery | Identifying, securing and using materials that already exist on site (e.g. reuse of excavated material for landscaping). |
| Design for materials and waste efficient procurement | Identify and specify materials that can be acquired responsibly, in accordance with a recognised industry standard. |
| Adherence to the Waste Hierarchy | The UK Scheme will aim to prioritise waste prevention, followed by preparing for reuse, recycling and recovery and lastly disposal to landfill as per the waste hierarchy (Figure 26-1). |
| Outline Construction Environmental Management Plan (CEMP) | The outline CEMP will include the implementation of industry standard practice and control measures for environmental impacts arising during construction, such as the approach to waste management on site. |
| Outline Site Waste Management Plan (SWMP) | Outline details of the management of waste from onshore construction activities will be provided in the outline Construction Environmental Management Plan (CEMP). |
| Offshore Waste Management Plan | Outline details of the management of waste from offshore construction activities will be provided in the outline Construction Environmental Management Plan (CEMP). |
| Decommissioning Environmental Management Plan (DEMP) | A DEMP will be prepared following appropriate environmental legislation and agreed with the relevant authorities at the time of decommissioning. |

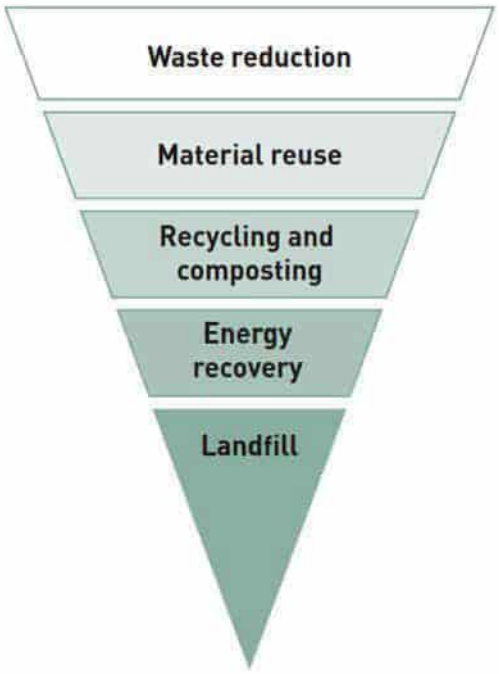



**Figure 26-1: Waste Hierarchy (Defra, 2011)**

26.7.4.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UK Scheme development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

26.7.4.3 As the UK Scheme advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective and compliant with regulatory standards and stakeholder input.

### 26.7.5 Scoping Assessment

26.7.5.1 Within the ES, embedded measures will be considered prior to the assessment of potential significant effects to avoid considering assessment scenarios that are unrealistic in practice, i.e. do not take account of such measures even though they are likely to be standard practice and/or form part of the design of the UK Scheme (Mitigation by Design). These will then be followed through the assessment to ensure that realistic potential significant effects are identified. Where potential significant effects are identified after considering these embedded measures, additional mitigation will be considered, developed and proposed, where feasible.

26.7.5.2 Table 26-12 below summarises the elements of the UK Scheme scoped in and out for Materials and Waste.

Table 26-12: Elements Scoped In and Out for Materials and Waste

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction, Operational and Decommissioning | Use of Materials | No impacts anticipated | Materials | Scoped Out | It is anticipated that material resources required at all UK Scheme phases will be less than 10% of the regional availability (national availability for steel). Therefore, no significant effects are expected. |
| Construction and Decommissioning | Production and Disposal of Waste | Generation of inert, non-hazardous and hazardous wastes from construction and decommissioning activities, resulting in potential reduction in regional landfill void capacity (East of England for non-hazardous waste; England for hazardous waste). | Waste | Scoped In | Given the limited information available at scoping and the potential for waste production during construction and decommissioning of the UK Scheme to exceed 1% landfill void capacity for inert and non-hazardous waste and/or 0.1% landfill void capacity for hazardous waste further assessment is required to determine the likely level of effect. |
| Operational | Production and Disposal of Waste | No impacts anticipated | Waste | Scoped Out | There will be minimal waste generation during the operation and maintenance of the UK Scheme. Therefore, no significant effects are expected. |

### 26.7.6 Cumulative and Transboundary Effects

#### Cumulative Effects

26.7.6.1 Volume 05, Chapter 32: Approach to Cumulative Effects details how potential cumulative effects will be assessed through the Cumulative Effects Assessment (CEA) and gives examples of those projects likely to be assessed.

26.7.6.2 No topic-specific cumulative effects for Materials and Waste are anticipated, as the key pathways (material consumption and landfill capacity) operate at regional and national scales.

#### Transboundary Effects

26.7.6.3 As set out in Volume 01, Chapter 06: EIA Approach and Methodology, transboundary effects are defined as effects that would affect the environment in another state within the European Economic Area (EEA), i.e. effects which would be experienced beyond the borders of the UK.

26.7.6.4 Transboundary effects related to waste arising from extraction, processing and manufacture of construction components and products are proposed to be scoped out of the assessment. This is based on the assumption that these products and materials are being developed in a manufacturing environment with their own waste management plans, facilities and supply chain, which are potentially in different regions of the UK or the world and therefore outside of the geographical scope of this study. Such matters cannot be accurately predicted and assessed as they relate to procurement decisions that cannot be assured.

26.7.6.5 Transboundary effects related to indirect environmental impacts at off-site waste management facilities are assumed to be assessed (and where necessary mitigated) under the planning and permitting regime for those sites and thus do not normally require assessment as part of an EIA for a development that uses such facilities waste management, as outlined in the IEMA Guidance (IEMA, 2020).

26.7.6.6 Transboundary effects are therefore scoped out of further assessment in relation to Materials and Waste.

## 26.8 Assumptions, Limitations and Uncertainties

26.8.1.1 The approach to Materials and Waste scoping has been prepared on the basis of the information available at the time of undertaking the scoping exercise. Any assumptions made for scoping and the limitations this presents are reported above as relevant, including the important assumption that the future baseline for Materials and Waste will be the same as the current baseline.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 04, Chapter 27: Tourism and Recreation

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE--AP-00002 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| BRES | Business Register and Employment Survey |
| BSAC | British Sub-Aqua Club |
| CEA | Cumulative Effects Assessment |
| CEMP | Construction Environmental Management Plan |
| CTMP | Construction Traffic Management Plan |
| DCO | Development Consent Order |
| DEMP | Decommissioning Environmental Management Plan |
| DMRB | Design Manual for Roads and Bridges |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| GBTS | Great Britain Tourism Survey |
| GVA | Gross Value Added |
| ISEP | Institute of Sustainability and Environmental Professionals |
| km | Kilometre |
| LSA | Local Study Area |
| LSOA | Lower Super Output Area |
| m | Metre |
| MDS | Maximum Design Scenario |
| MMO | Marine Management Organisation |
| NM | Nautical Mile |
| NPS | National Policy Statement |
| NSIP | Nationally Significant Infrastructure Project |
| OEMP | Operational Environmental Management Plan |
| ONS | Office for National Statistics |
| O&M | Operational and Management |
| PADI | Professional Association of Diving Instructors |
| PRoW | Public Rights of Way |
| RAMS | Recreational Disturbance Avoidance and Mitigation Strategy |
| RYA | Royal Yachting Association |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| VMP | Vessel Management Plan |

# 27. Tourism and Recreation

## 27.1 Introduction

27.1.1.1 This Chapter presents the Tourism and Recreation assessment which will consider the potential significant effects on Tourism and Recreation receptors during the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). The UK Scheme is formed of both the UK Marine Scheme (UKMS) and the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description), both of which are relevant to this Chapter. As a result, this Chapter is split where relevant between the UKMS and EOS.

27.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Tourism and Recreation baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Tourism and Recreation receptors from the proposed components of the UKMS and EOS; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

27.1.1.3 This Chapter should be read in conjunction with:

- Volume 01, Chapter 02: UK Project Description;
- Volume 01, Chapter 05: Legislative and Planning Policy Context;
- Volume 01, Chapter 06: EIA Approach and Methodology;
- Volume 02, Chapter 11: Onshore Archaeology and Cultural Heritage;
- Volume 02, Chapter 12: Traffic and Transport;
- Volume 03, Chapter 18: Shipping and Navigation;
- Volume 03, Chapter 20: Offshore Infrastructure and Other Sea Users;
- Volume 04, Chapter 21: Landscape and Visual Impact Assessment; and
- Volume 04, Chapter 24: Socio-economics and Land Use.

27.1.1.4 There are accompanying figures for this Chapter (Figure 27-1, Figure 27-2 and Figure 27-3) and reference is made to Figures 1-4 and 1-5 in Volume 01, Chapter 01: Introduction, which describe the EOS and UKMS Scoping Boundaries, and Figure 12-1 in Volume 02, Chapter 12: Traffic and Transport, which describes Public Rights of Way (PRoW).

27.1.1.5 The assessment will consider potentially significant Tourism and Recreation effects on the following onshore and offshore receptors:

- The local visitor accommodation sector;
- Users of recreational routes and PRoW (where these users are recreational users);
- Tourism and the tourist economy and its components including:
  - Users of onshore visitor attractions, recreational facilities and open space; and
  - Users of offshore recreational facilities (for example, beaches, bathing waters, sailing clubs, recreational vessels and diving clubs) and open space (in terms of land use change and environmental change).

## 27.2 Study Area

27.2.1.1 The impact of the UK Scheme on Tourism and Recreation will depend on the spatial extent of each effect being assessed. Study Areas have been defined using professional judgement, informed by relevant guidance and experience gained from other electricity network schemes in England and UK waters.

27.2.1.2 Due to the different types of effects and scale of sensitive receptors for Tourism and Recreation, different study areas will be used within this assessment. These have generally been determined by the extent of the potential effect and the sensitivity and scale of the receptor.

27.2.1.3 For Tourism and Recreation effects influenced by assessments reported in other technical Chapters, the Study Area may vary depending on receptor location, type of effect and the Study Area adopted in those Chapters. These Areas will be confirmed following completion of the Environmental Statement (ES) assessments. At this scoping stage, the following Study Areas are anticipated as highlighted in Figure 27-1 and Figure 27-2:

- For the assessment of effects on users of PRoW and other recreational routes (including cycleways and multi-user routes), a Study Area is defined as a 500 metre (m) buffer from the EOS Scoping Boundary (as shown in Figure 27-1), in line with the Design Manual for Roads and Bridges (DMRB) LA 112 guidance (National Highways, 2020). It includes local receptors with the potential to be directly impacted by the UK Scheme, including the closure and diversion of routes.
- For receptors such as onshore visitor attractions, recreational facilities and open space, the Study Area is defined as a 500 m buffer from the EOS Scoping Boundary (as shown in Figure 27-1), in line with DMRB LA 112 guidance (National Highways, 2020). It includes local receptors with the potential to be directly impacted (for example, land take) by the UK Scheme.
- For offshore recreational users such as beach users and swimmers, the Study Area is defined as 500 m from the UKMS Scoping Boundary (as shown in Figure 27-2), in line with DMRB LA 112 guidance (National Highways, 2020). The Study Area includes local receptors with the potential to be directly impacted (for example, land take) by the UK Scheme.

27.2.1.4 For offshore recreational activities such as SCUBA diving, the Study Area is defined as 100 m from the UKMS Scoping Boundary, in line with wreck sites identified in

Volume 03, Chapter 19: Offshore Archaeology and Cultural Heritage. This enables marine archaeological and cultural heritage seabed receptors that are close to the UKMS Scoping Boundary to be included in the assessment, as the features themselves or their potential mitigation measures may extend into the UKMS Scoping Boundary and could potentially be impacted.

27.2.1.5 Offshore recreational activities are often associated with specific points of interest, which are most commonly wrecks and archaeological sea bed features. An 100m buffer ensures that all wrecks and archaeological sea bed features located adjacent to the UKMS Scoping Boundary are captured, taking account of any diving approaches or mooring locations.

27.2.1.6 For offshore recreational vessel activities such as sailing and cruising, the Study Area is defined as 5 Nautical Miles (NM) from the UKMS Scoping Boundary, in line with Volume 03, Chapter 18: Shipping and Navigation. This is considered a standard-sized buffer for offshore subsea cables and is sufficient to characterise activity in proximity to the UKMS. The Study Area also includes Harwich Port.

27.2.1.7 The assessment of amenity effects will draw on findings from Study Areas defined for the following relevant technical topics:

- Volume 02, Chapter 12: Traffic and Transport;
- Volume 04, Chapter 21: Landscape and Visual Impact Assessment; and
- Volume 04, Chapter 22: Noise and Vibration.

27.2.1.8 Receptors located outside the defined Study Areas will also be identified and considered where relevant. Their identification will be informed by other technical topics, including:

- Volume 02, Chapter 12: Traffic and Transport;
- Volume 04, Chapter 21: Landscape and Visual Impact Assessment; and
- Volume 04, Chapter 22: Noise and Vibration.

27.2.1.9 It is noted that the current extent of the UK Scheme is defined by the UK Scheme Scoping Boundary (comprising the EOS Scoping Boundary and the UKMS Scoping Boundary as shown in Figures 1-4 and 1-5 in Volume 01, Chapter 01: Introduction), but that these are expected to be refined as the UK Scheme design evolves (as discussed in Volume 01, Chapter 03: Approach to Alternatives).

27.2.1.10 The Study Areas presented within the ES will therefore reflect the spatial extent of the boundaries at that time, based upon the principles and buffer distances described above.

27.2.1.11 Effects on the tourist economy and tourism accommodation are influenced by factors outlined above, as well as by the administrative scale used for tourism-related planning and the functional economic market areas identified in Volume 04, Chapter 24: Socio-economics and Land Use, along with survey

information on the likely distribution of the non-local, temporary construction workforce.

27.2.1.12 For the purposes of defining the geographic extent for baseline data collection (see Section 27.5), a best-fit of the Local Study Area (LSA) has been identified which includes the 14 Lower Super Output Areas (LSOAs) that fall fully or partially within the EOS Scoping Boundary: (LSA – LSOAs)

- Tendring 005B;
- Tendring 003A;
- Tendring 004A;
- Tendring 004B;
- Tendring 004C;
- Tendring 004D;
- Tendring 004E;
- Tendring 002C;
- Tendring 003B;
- Tendring 003C;
- Tendring 003E;
- Tendring 004F;
- Tendring 005C; and
- Tendring 002F.

27.2.1.13 The best-fit of the LSA using LSOAs is shown in Figure 27-3.

27.2.1.14 For the baseline, Comparator data is also provided for Tendring district, Essex County, East of England and England as a whole, where available and relevant.

27.2.1.15 Where baseline data is not available at the LSOA level, local authority level data (Tendring district) is used instead to inform this baseline.

606000 609000 612000 615000 618000 621000 624000

237000 234000 231000 228000 225000 222000

East Suffolk

Babergh

Colchester

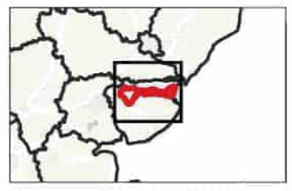
Tendring

TARCHON

**Tarchon Interconnector Project**
Scoping Report

**Local Study Area (English Onshore Scheme Scoping Boundary)**

**Legend**
- English Onshore Scheme Scoping Boundary
- Local Authority Districts
- Local Study Area (500m from English Onshore Scheme Scoping Boundary)



**Notes**

Coordinate System:
OSGB36 / British National Grid

0 1 2 km

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| Scale: | Date: | Drawn by: | Checked by: | Approved by: |
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| 1:70000 @ A3 | 02/03/2026 | BPHB | GB | CC |

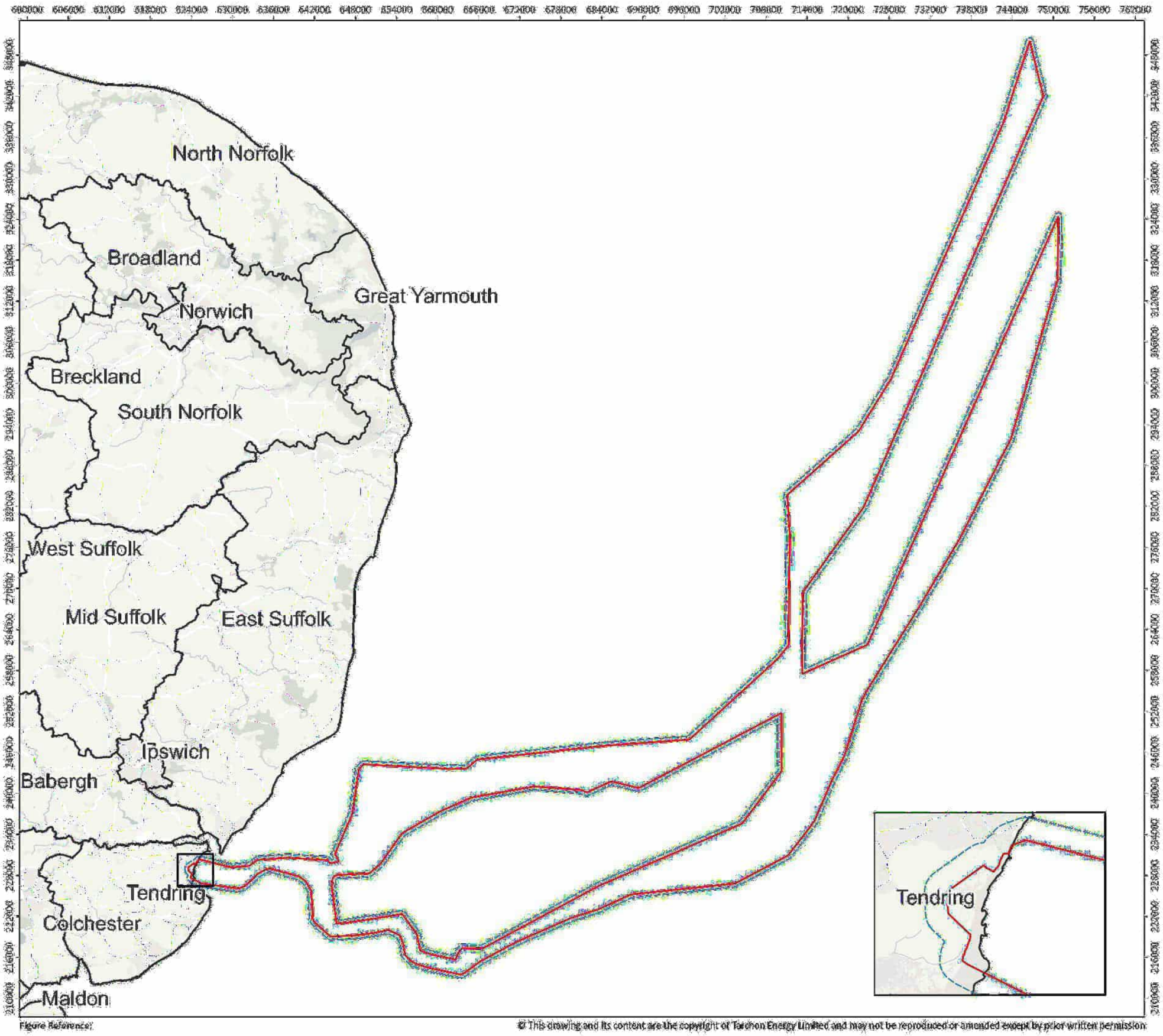
Riverview
A17 The Embankment Business Park
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**Figure 27-1**

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**Tarchon Interconnector Project**

Scoping Report

**Local Study Area (UK Marine Scheme Scoping Boundary)**

**Legend**

- UK Marine Scheme Scoping Boundary
- Local Study Area (500m from the UK Marine Scheme Scoping Boundary
- Local Authority Districts

**Notes**

Coordinate System: OSGB36 / British National Grid

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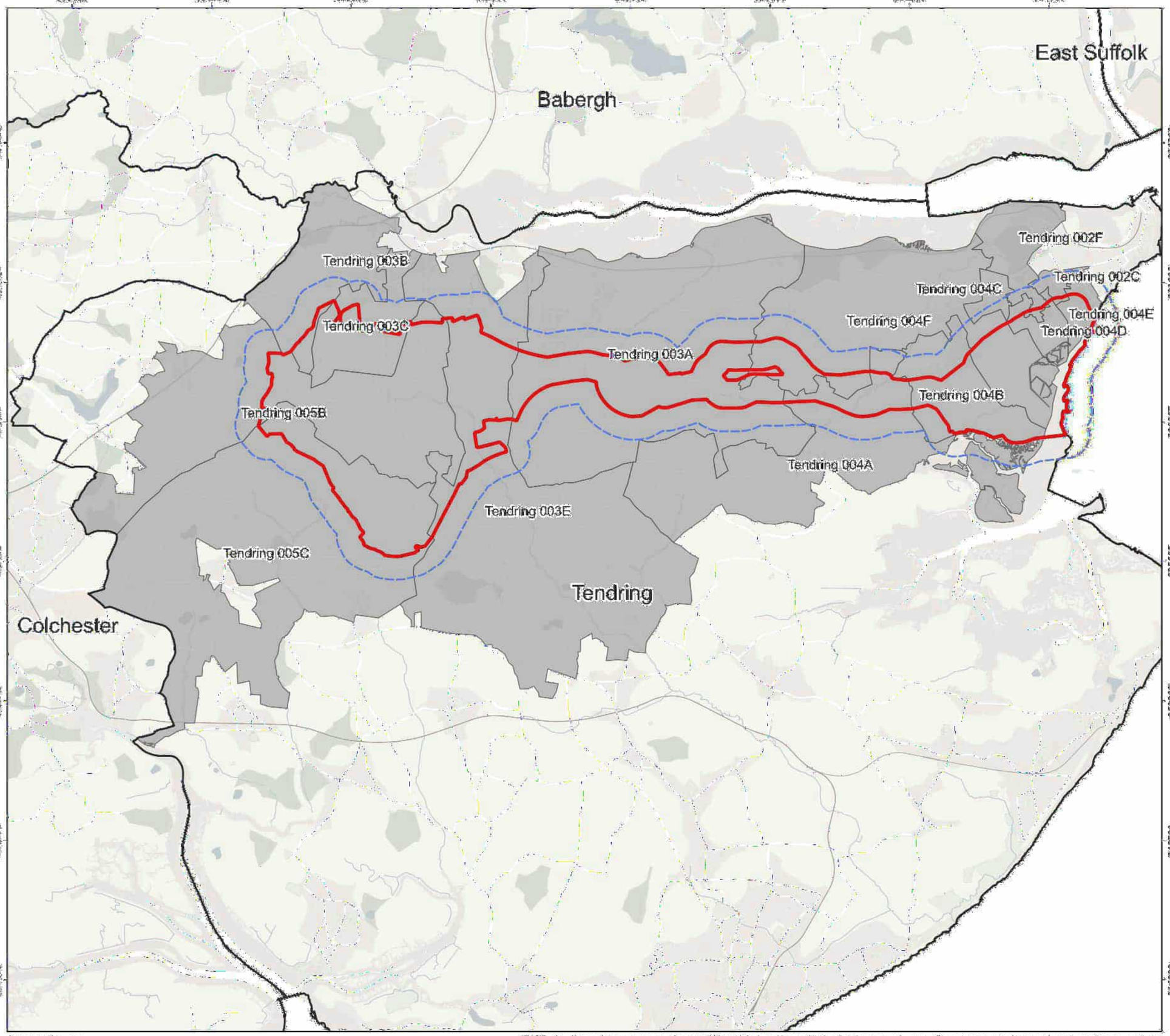
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**Figure 27-2**

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**Tarchon Interconnector Project**

Scoping Report

**Local Study Area (English Onshore Scoping Boundary) - Lower Super Output Areas**

**Legend**

- English Onshore Scheme Scoping Boundary
- Local Authority Districts
- Local Study Area (500m from the English Onshore Scheme Scoping Boundary)
- LSOAs within 500m of the English Onshore Scheme Scoping Boundar

**Notes**

Coordinate System:
OSGB36 / British National Grid

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Figure 27-3

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## 27.3 Relevant Legislation, Planning Policy and Guidance

### 27.3.1 Introduction

27.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context provides an overview of all relevant legislation and planning policy. This section refers to legislation, planning policy and guidance relating to the assessment of potential effects on Tourism and Recreation that may arise from the construction, operation and decommissioning of the UK Scheme.

27.3.1.2 The below legislation, policies and guidance were reviewed as part of the scoping exercise, the content and requirements of which have been used to shape and develop the proposed scope of the Tourism and Recreation assessment.

### 27.3.2 Legislation

*27.3.2.1* Regulation 4(2)(a) of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (HM Government, 2017) requires that *"the EIA must identify, describe, and assess in an appropriate manner, in light of each individual case, the likely significant direct and indirect effects of the proposed development on the population and human health".*

### 27.3.3 National Planning Policy Framework

27.3.3.1 Section 5.13 of Overarching National Policy Statement for Energy (EN-1) (NPS EN-1) (Department for Energy Security & Net Zero, 2026) outlines potential Tourism and Recreation impacts from the construction, operation and decommissioning of energy infrastructure.

27.3.3.2 Paragraph 5.11.24 of NPS EN-1 (Department for Energy Security & Net Zero, 2026) acknowledges that new energy infrastructure can impact green infrastructure, including recreational open spaces, PRoWs and coastal access routes. It states the importance of mitigating any adverse impact and, where appropriate, to improve that network and of green infrastructure.

27.3.3.3 Paragraph 5.13.4 of NPS EN-1 (Department for Energy Security & Net Zero, 2026) states that *"The applicant's assessment should consider all relevant socio-economic impacts, which may include: effects (positive and negative) on tourism and other users of the area impacted".*

27.3.3.4 Paragraph 5.13.3 of NPS EN-1 (Department for Energy Security & Net Zero, 2026) encourages early engagement with relevant local authorities during early stages of project development so that *"the applicant can gain a better understanding of local or regional issues or opportunities".*

27.3.3.5 Paragraph 5.13.10 of NPS EN-1 (Department for Energy Security & Net Zero, 2026) acknowledges that the Secretary of State may conclude that limited weight is to be given to assertions of socio-economic impacts that are not supported by evidence (particularly in view of the need for energy infrastructure as set out in this NPS).

*27.3.3.6* Paragraph 5.6.10 of NPS EN-1 (Department for Energy Security & Net Zero, 2026) states that *"The ES should include an assessment of the effects on the coast, tidal rivers and estuaries. In particular, applicants should assess the effects of the proposed project on maintaining coastal recreation sites and features".*

### 27.3.4 Guidance

27.3.4.1 Relevant guidance and standards that have informed the scoping process and will be considered as part of the assessment are outlined below.

- Institute of Sustainability and Environmental Professionals (ISEP) Guidance – Social Impact Assessment in EIA in the UK (ISEP, 2025);
- DMRB LA 112 (National Highways, 2020);
- Workforce Mobility and Skills in the UK Construction Sector (East of England) (Construction Industry Training Board (CITB), 2023); and
- National Planning Practice Guidance (Ministry of Housing, Communities and Local Government, 2024).

### 27.3.5 Local Planning Policy

27.3.5.1 Relevant local policies and strategies supporting these, have been reviewed as part of the scoping exercise to determine which may be of relevance to the Tourism and Recreation assessment. Those which will inform the Tourism and Recreation assessment are outlined below.

27.3.5.2 The Tendring District Local Plan 2013-2033 and Beyond: North Essex Authorities' Shared Strategic Section 1 (Tendring District Council, 2022a) outlines the following policies relevant to Tourism and Recreation:

- Policy SP 2 Recreational Disturbance Avoidance and Mitigation Strategy (RAMS); and
- Policy SP 7 Place Shaping Principles.

27.3.5.3 The Tendring District Local Plan 2013-2033 and Beyond Section 2 (Tendring District Council, 2022b) sets out the following policies of relevance to Tourism and Recreation:

- Policy PP 8 Tourism;
- Policy PP 11 Holiday Parks; and
- Policy PPL 2 Coast Protection Belt.

27.3.5.4 The Tourism Strategy for Tendring 2021-2026 (Tendring District Council, 2021) outlines the following strategies and priorities of relevance to Tourism and Recreation:

- Essex Green Infrastructure Strategy (Essex County Council, 2020), Section 3.2: Green Infrastructure Objectives;
- Essex Walking Strategy (Essex County Council, 2021), Objective 6: Promoting walking for leisure; and

- Essex Cycling Strategy (Essex County Council, 2016) Strategic Action Area 7: Provide coherent cycle networks.

27.3.5.5 The aims and objectives of local planning policies and strategies have been given due regard and consideration, where relevant, when developing the proposed scope of the Tourism and Recreation assessment.

## 27.4 Consultation and Engagement

27.4.1.1 No topic-specific consultation has taken place as part of the preparation of the Tourism and Recreation Chapter of the Scoping Report. However, future engagement with relevant stakeholders will be undertaken during the EIA process.

27.4.1.2 Responses from the non-statutory consultation event (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council, Tendring District Council and Mid Suffolk and Babergh District Council. Where comments relevant to the assessment of Tourism and Recreation have been provided, these are summarised and responded to in Table 27-1.

**Table 27-1: Non-Statutory Consultation Responses: Tourism and Recreation**

| Consultee | Summary of Comment | Response and Proposed Action |
|---|---|---|
| Essex County Council | Tourism in Tendring is worth more than £276 million. It is unclear with the non-statutory consultation how the UK Scheme would impact tourism in Tendring. It is necessary to set out impact and mitigation that be in place to ensure it is not adversely affected, that impacts can be mitigated against and lasting legacy be provided. | The Tourism and Recreation assessment reported in the ES will consider the impacts of the UK Scheme on a range of Tourism and Recreation receptors. Mitigation will be identified if necessary to reduce the potential significant effects of the UK Scheme. |
| Suffolk County Council | Suffolk County Council seek to ensure there are no negative impacts on tourism sector and to understand what mitigation may be needed. | The Tourism and Recreation assessment reported in the ES will consider the impacts of the UK Scheme on a range of relevant receptors. Mitigation will be identified if necessary to reduce the potential significant effects of the UK Scheme. |

## 27.5 Baseline Environment

### 27.5.1 Baseline Conditions

27.5.1.1 The onshore and offshore environment supports a wide range of Tourism and Recreational 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 i.e. close to their respective area of residence.

27.5.1.2 This section describes the baseline environmental characteristics with specific reference to Tourism and Recreation. The potential significant effects arising from the UK Scheme will be assessed relative to the baseline conditions of the existing site and its surroundings.

27.5.1.3 Baseline data illustrating the existing conditions within and surrounding the UK Scheme has been collected through a desk-based research exercise using publicly available sources, documents and web-based applications. This overview of Tourism and Recreation characteristics is based on the following data sources:

- Publicly available information on websites for public transport operators and online resources for promoted recreational routes and PRoW;
- Visit Essex website (Visit Essex, 2026);
- Destination Research (2023a) Economic Impact of Tourism Essex;
- Destination Research (2023b) Economic Impact of Tourism Tendring;
- Publicly available mapping and online satellite imagery;
- Marine Management Organisation (MMO) (2020);
- Professional Association of Diving Instructors (PADI) (2025) PADI Dive Shops Essex;
- British Sub-Aqua Club (BSAC) (2026) Find a club or centre;
- Royal Yachting Association (RYA) (2026) Find a club, centre or water sport activity near you;
- Office for National Statistics (ONS) (2025a) Business Register and Employment Survey (BRES);
- Visit Britain (2023a) Great Britain Tourism Survey (GBTS) domestic overnight trips, County level volume and value 2022 to 2024 (dataset);
- Visit Britain (2023b) Visitation of local authorities and other areas for overnight and day trips (2017-2019) (dataset);
- Visit Britain (2016) Accommodation Stock Audit (2016);
- Visit Britain (2026) England Hotel Occupancy: latest; and
- ONS (2025b) Estimates for Regional Gross Value Added (GVA).

### Existing Baseline

#### *Value, Volume and Characteristics of the Tourist Economy in Tendring*

27.5.1.4 As outlined in Tendring District Council's (2021) Tourism Strategy 2021-2026, the tourism sector is currently worth almost £402 million and is responsible for almost 9,000 jobs, accounting for 17.9% of the Tendring District's workforce. The net worth of Tendring's tourism economy has grown by approximately £115 million since 2010.

27.5.1.5 In 2022, the total number of trips to Essex, including both day visits and longer stays, was approximately 52 million. These visitors generated approximately £252

million in direct spending, with an additional £691 million in indirect and induced expenditure. This contributed to a total tourism value of £3.3 billion. Tourism supported 63,000 jobs in Essex, accounting for 9.3% of employment in the county.

27.5.1.6 Public datasets can also be used to estimate the number of jobs in the 'tourism' sector[1]. On this basis, Tendring has around 5,810 tourism-sector jobs and Essex has around 57,175 tourism-sector jobs, making up 13.8% and 9.0% of all jobs in these areas, respectively.

27.5.1.7 There is a total of 450 tourism jobs within 500 m of the EOS Boundary, representing 7% if the jobs in Tendring's tourism sector.

27.5.1.8 When looking at the existing tourist economy within Tendring, the latest Economic Impact of Tourism for Tendring District Council (Destination Research, 2023b) suggests that the sector is currently thriving and continues to grow with the total value of the tourism sector growing by 51% between 2021 and 2022. The value of overnight trips was a key driver in the growth of Tendring District Council's total tourism value, which increased by c.£41 million (equivalent to a 77% increase).

27.5.1.9 Data from Visit Britain (2023b) on domestic overnight and day trips also highlights the strength of Tendring's tourist sector, with the number of overnight trips (500,000) and total spend (£88 million per year) between April 2021 and March 2023 being greater within Tendring when compared to all other districts within Essex.

27.5.1.10 The Economic Impact Report (Destination Research, 2023b) also suggests that Tendring District Council is continuing to recover well from the Covid-19 pandemic, with the total value of the tourism sector and the number of jobs both being only 1% below pre-pandemic figures. In addition to this, the average length of trip, spend per overnight trip and spend per night all increased when compared to 2019 figures, which further reiterates how well the Tendring District Council tourism sector has bounced back from the economic strain of the pandemic.

27.5.1.11 The Tendring Tourism Strategy (Tendring District Council, 2021) describes the existing tourism offer in Tendring, including established attractions and events (for example, Clacton Pier, Clacton Pavilion and the annual Clacton Airshow, which takes place on the Marine Parade West and showcases various renowned aircraft, including Red Arrows, Lancaster PA474s and Firebirds, attracting over a quarter of a million visitors each year).

27.5.1.12 Key tourist assets and facilities within Tendring as per the Essex Tourist Guide (2026) and Essex Sunshine Coast (2026) are as follows:

[1] Tourism sector includes Standard Industrial Classification (SIC) codes 5510; Hotels and similar accommodation, 5520; Holiday and other short stay accommodation, 5530; Camping grounds, recreational vehicle parks and trailer parks, 5590; Other accommodation, 5610; Restaurants and mobile food service activities, 5621; Event catering activities, 5629; Other food service activities, 5630; Beverage serving activities, 7911; Travel agency activities, 7912; Tour operator activities, 7990; Other reservation service and related activities, 9001; Performing arts, 9002; Support activities to performing arts, 9003; Artistic creation, 9004; Operation of arts facilities, 9102; Museum activities, 9103; Operation of historical sites and buildings and similar visitor attractions, 9104; Botanical and zoological gardens and nature reserve activities, 9200; Gambling and betting activities, 9311; Operation of sports facilities, 9321; Activities of amusement parks and theme parks, 9329; Other amusement and recreation activities, 7711; Renting and leasing of cars and light motor vehicles and 7721; and Renting and leasing of recreational and sports goods.

- Clacton Pavilion;
- Century Cinema Clacton;
- Clacton Shopping Village;
- Princes Theatre;
- West Cliff Theatre;
- Holland Haven Country Park;
- Walton and Frinton Yacht Club;
- Frinton on Sea Lawn Tennis Club;
- Frinton Golf Club;
- Frinton Summer Theatre;
- Great Holland Pits Nature Reserve;
- Christopher Jones House Harwich;
- Martello Tower;
- Naze Tower;
- Clacton Pier; and
- Walton Pier.

27.5.1.13 When looking at accommodation stock, data is produced at the local authority level by Visit Britain (2016) as part of their Accommodation Stock Audit. According to this dataset, there are a total of 12,226 rooms in Essex and 1,573 tourist rooms within Tendring, with the majority of these being hotel rooms (929) or tourist campsites (608). There are 4,870 bed spaces in Tendring, with over half of these being in non-serviced collective accommodation establishments.

27.5.1.14 In terms of occupancy rates for tourist accommodation, Visit Britain (2026) produces monthly reports at a national and regional scale for serviced (hotel) accommodation. For the East of England, annual average occupancy according to January 2025 to November 2025 Visit Britain data on occupancy rates ranges from 83% in peak months (July and August) to 63% in off-peak months, with an annual average of 75%.

27.5.1.15 Based on the application of regional occupancy rates to the estimated accommodation stock in 2016, there are an average of 1,128 unoccupied rooms in Cambridge, East Cambridgeshire and South Cambridgeshire, or approximately 882 at the peak tourist month.

27.5.1.16 Based on the application of regional occupancy rates to the estimated accommodation stock in 2016, there are an average of 228 unoccupied rooms in Tendring or approximately 157 at the peak tourist month.

27.5.1.17 Within Tendring, over the period 2015-2024, the proportion of jobs that are ‘tourist sector’ jobs have remained constant as a proportion of the total number of jobs (varying only between 12.4% and 14.5%), suggesting that employment within the

tourist sector is relatively stable. In addition to this, the number of jobs within the tourism sector across Tendring was 5,100 in 2015 and only grew by 14% to 5,810 in the space of 9 years (2024), highlighting the consistent nature of the sector in Tendring. This also suggests that even during economic downturns or unpredictable factors such as the Covid-19 pandemic, the sector has remained strong and stable.

#### *Public Rights of Way*

27.5.1.18 The Study Area is intersected by a number of PRoWs (PRoWs are shown in Volume 02, Chapter 12: Traffic and Transport on Figure 12-2).

27.5.1.19 The National Cycle Network routes located in Dovercourt and Harwich are not located within 500 m of the EOS Scoping Boundary. Whilst there do not appear to be any other national trails currently open within the Study Area, it is understood that work to establish the Jaywick to Harwich section of the King Charles III England Coast Path is currently taking place and that this will pass through the EOS Scoping Boundary. This will therefore be considered within the assessment as appropriate.

#### *Onshore Visitor Attractions and Recreational Facilities*

27.5.1.20 Onshore visitor attractions and recreational facilities, including National Nature Reserves, sports and leisure clubs and historical landmarks, located within the Study Area are outlined in Table 27-2.

**Table 27-2: Onshore Visitor Attractions and Recreational Facilities within the Study Area**

| Onshore Visitor Attraction or Recreational Facility | Type | Approximate Distance from Scoping Boundary |
|---|---|---|
| Hamford Waters National Nature Reserve | National Nature Reserve | Within the EOS Scoping Boundary |
| Low Road Recreation Ground | Recreational Facility | Within EOS Scoping Boundary |
| Harwich and Dovercourt Cricket Club | Recreational Facility | Within the EOS Scoping Boundary |
| Harwich and Dovercourt Rugby Club | Recreational Facility | Within the EOS Scoping Boundary |
| Dovercourt Bay Lifestyles (Leisure Centre) | Recreational Facility | Within the EOS Scoping Boundary |
| Tendring Hundred Showground (events venue) | Recreational Facility | Within the EOS Scoping Boundary |
| Dovercourt Boating Lake | Lake and Canoe and Kayak Rental Service | 100 m |
| The Dovercourt Lighthouses and Causeway | Historical Landmark | 530 m |
| Little Oakley Football Club | Recreational Facility | 60 m |
| Lawford House Pool | Recreational Facility | 90 m |

| Onshore Visitor Attraction or Recreational Facility | Type | Approximate Distance from Scoping Boundary |
|---|---|---|
| Lawford Football Club | Recreational Facility | 365 m |

### *Offshore Visitor Attractions and Recreational Facilities*

27.5.1.21 As outlined in Volume 03, Chapter 20: Offshore Infrastructure and Other Sea Users, offshore visitor attractions and recreational activities in the region are largely seasonal, typically taking place in the inshore waters, creeks and rivers that flow into the Outer Thames Estuary.

27.5.1.22 Details of nature reserves, beaches and slipways located within the Study Area are outlined in Table 27-3.

**Table 27-3: Offshore Visitor Attractions and Recreational Facilities within the Study Area**

| Coastal and nearshore Visitor Attraction or Recreational Facility | Type | Approximate Distance from Scoping Boundary | Examples of Types of Activities and/or Facilities |
|---|---|---|---|
| Irlam's Beach | Nature Reserve/ Beach | Within the Scoping Boundary | Walking, dog walking, fishing, angling. |
| Sheep Beach | Beach | Within the Scoping Boundary | Walking and dog walking. |
| Middle Beach | Beach | Within the Scoping Boundary | Walking and dog walking. |
| Slipway Dovercourt Seafront Harwich | Slipways | 400 m | Suitable for Recreational Craft. |
| Dovercourt Bay Beach | Beach | 500 m | Activities include windsurfing, canoeing, sailing, jet skiing, walking, dog walking, swimming and birdwatching. Slipway and beach huts. |

27.5.1.23 In the UK, recreational sea fishing is usually synonymous with coastal angling. Angling pertains to fishing with lines and, in the UK, this is almost entirely by line with rod and reel (Visit Essex, 2026).

27.5.1.24 Recreational sea fishing is a popular activity around the UK coast and is present in the coastal and nearshore area. 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 (Visit Essex, 2026).

27.5.1.25 There are a number of dive clubs located in the Study Area including Ipswich Dive Club (iDive) and Diveline Medical Ltd in Ipswich and Finding Scuba in Martlesham, running diver trips (Destination Research, 2023a; 2023b). Diving is often associated with shipwreck sites.

27.5.1.26 As outlined in Volume 03, Chapter 19: Offshore Archaeology and Cultural Heritage, there are a total of 28 records relating to wrecks within 100 m of the Offshore Scoping Boundary identified by the National Marine Heritage Record maintained by Historic England. For the purpose of this assessment, it is assumed that all records relating to wrecks have the potential to have recreational diving activity.

27.5.1.27 There are no sailing clubs located within the LSA for the EOS Scoping Boundary; the closest clubs are located to the north in Harwich Town: Harwich and Dovercourt Sailing Club (approximately 1.4 kilometres (km) from the LSA) and Harwich Town Sailing Club (approximately 1.9 km from the LSA) (MMO, 2020).

27.5.1.28 This Chapter will also draw on the relevant baseline conditions set out in Volume 03, Chapter 18: Shipping and Navigation, specifically on recreational vessel activity and routes located in proximity to the UKMS. Recreational vessels were recorded mostly in nearshore areas, with a high volume of recreational activity around the entrance to Harwich and Felixstowe, as well as to the south around Walton-on-the-Naze (MMO, 2020).

#### *Public Open Space*

27.5.1.29 The following open spaces are located within the EOS Scoping Boundary:

- Low Road Recreation Ground – Park;
- St Mary the Virgin, Little Bromley – Cemetery;
- St Mary the Virgin, Wix – Cemetery;
- Louvain Estate Park – Park; and
- Harwich Town Bay Areas Blue Baseball Club – Baseball Field.

27.5.1.30 The following open spaces are located within the EOS Scoping Boundary: Open spaces within 500 m of the EOS Scoping Boundary are presented in Table 27-4.

**Table 27-4: Public Open Spaces within 500 m of the EOS Scoping Boundary**

| Open Space Name | Type | Approximate Distance from EOS |
|---|---|---|
| Wix Playing Field | Park, Playground and Tennis Court | 40 m |
| Oakley Coronation Park | Park and Playing Field | 460 m |
| Allotments off Rectory Road | Allotment | 180 m |
| Allotments off Hungerdown Lane | Allotment | 245 m |
| Long Meadows Allotments | Allotment | 255 m |
| Dovercourt Croquet Lawn and Putting Green | Croquet Lawn and Putting Green | 255 m |
| Boatswains Call Allotments | Allotment | 275 m |
| Abdy Avenue Allotments, off Harwich Road | Allotment | 280 m |
| Dovercourt Putting Green | Outdoor Sports Facility (Bowls) | 450 m |
| Upper Doverscourt Playing Field (off Willow Way) | Playground | 370 m |
| The Waterfront, Dovercourt | Tennis Courts | 395 m |
| Lawford Green and Play Area | Park and Playground | 420 m |
| Dunns Meadow Allotments | Allotment | 460 m |
| Open Space bounded by Long Meadows and Graven Hill Way | Park and Playground | 30 m |
| Little Oakley Memorial Ground | Playing Field | 70 m |
| Open Space bounded by Long Meadows and Allfields | Park | 80 m |
| Open Space bounded by Warham Road and Magpie Close | Park | 50 m |
| Allotments bounded by Wix Bypass and Colchester Road | Allotment | 50 m |

### 27.5.2 Future Baseline Conditions

27.5.2.1 The baseline environment is not static and is expected to change over time, irrespective of the UK Scheme. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UK Scheme over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

27.5.2.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

27.5.2.3 This section describes the characteristics of the future baseline environment relevant to Tourism and Recreation. Baseline information illustrating the expected future conditions within and around the UK Scheme has been compiled through desk-based research using publicly available sources, supplemented by selected purchased datasets. The overview of future Tourism and Recreation baseline conditions draws on the following data sources:

- ONS (2025c) Subnational population projections for England: 2022-based;
- Experian Limited (2023a) Experian workforce jobs based employment projections; and
- Experian Limited (2023b) Gross Valued Added (GVA) projections.

### Future Baseline

#### *Population*

27.5.2.4 ONS (2025c) population projections show that over the 10-year period from 2026 to 2036, the population of Tendring is expected to grow by 9.4% to approximately 173,075 people. The increase is higher than the projected rate of increase for Essex (5.6%) and across England as a whole (4.5%) over the same period.

27.5.2.5 The Experian Regional Planning Service data provides employment projections up to 2043 (Experian Limited, 2023a). According to 2023-based workforce job projections, workforce jobs in Tendring are projected to grow from 51,900 jobs in 2026 to 54,500 jobs in 2036, representing a growth rate of 5.0%. This rate of growth was greater than total workforce growth at the regional level (4.9%), equal to the growth rate at the national level and marginally lower than the growth rate at the county level (5.2%). The jobs growth is calculated over the base of 2023 workforce jobs data from Experian.

27.5.2.6 Experian’s Regional Planning Service also records GVA data (Experian Limited, 2023b) at the local authority, county, regional and national levels. Between 2026 and 2036, overall GVA in Tendring is projected to grow from c.£2,060 m to c.£2,490 m, representing a growth rate of 21%. This was marginally greater than GVA growth rates at the county, regional and national levels (at 20%, 19% and 19%, respectively).

27.5.2.7 The future baseline for Tourism and Recreation facilities over the medium-term is uncertain, as even where future planned uses are known, it is not certain whether developments will be operational before the start of the UK Scheme’s construction. Due to this uncertainty, for the purposes of this assessment, it is assumed the future baseline for the LSA in relation to both the EOS Scoping Boundary and the UKMS Scoping Boundary would be unchanged from the current baseline to the completion of the EOS and UKMS construction.

## 27.6 Assessment Methodology

### 27.6.1 Introduction

27.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the construction, operational and decommissioning phases of the UK Scheme. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

27.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on Tourism and Recreation receptors arising from the construction, operational and decommissioning phases of the UK Scheme. This approach defines:

- **Sources and impacts**: The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

27.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06: EIA Approach and Methodology.

27.6.1.4 The Tourism and Recreation assessment will consider the construction, operational and decommissioning phases of the UK Scheme. Details of each of these stages are set out in Volume 01, Chapter 6: EIA Approach and Methodology.

27.6.1.5 Relevant policy will be reviewed at the local, regional and national levels to identify the key issues of relevance to the UK Scheme.

27.6.1.6 A full, detailed baseline assessment will be undertaken using a range of sources to provide a description of the Tourism and Recreation conditions within the Study Areas set out in Section 27.2. This will be done using established statistical sources and desk-based research and will build upon the data presented in Section 27.5 and the PRoW assessment set out in Volume 02, Chapter 12: Traffic and Transport.

27.6.1.7 An assessment of potential significant effects will be undertaken to determine the effect of the UK Scheme on the baseline Tourism and Recreation conditions. There is currently no statutory guidance on the methodology for undertaking assessments of potential significant effects on Tourism and recreation receptors, however the proposed methodology aligns with the requirements set out in Volume 01, Chapter 06: EIA Approach and Methodology and NPS EN-1 (Department for Energy Security & Net Zero, 2026) and has regard to guidance referenced within this Chapter.

27.6.1.8 The methodology for the assessment of potential significant effects on Tourism and Recreation receptors will entail:

- An assessment of the likely scale, permanence and significance of effects associated with Tourism and Recreation receptors; and

- An assessment of the potential cumulative impacts with other developments within the surrounding area.

27.6.1.9 The assessment of potentially significant Tourism and Recreation effects will use policy, guidance and expert judgment to assess the scale and nature of the impacts of the UK Scheme against baseline conditions.

27.6.1.10 For Tourism and Recreation receptors there is no single accepted definition of what constitutes a significant (or not significant) effect. It is however recognised that effects are categorised based upon the relationship between the scale (or magnitude) of impact and the sensitivity (or value) of the affected resource or receptor.

### 27.6.2 Sensitivity of Receptor

27.6.2.1 The sensitivity of the Tourism and Recreation receptors takes account of the importance attached to each receptor in policy terms and the characteristic of the baseline environment and ability of the receptor to absorb or respond to change. Where practicable, it also draws on measurable indicators such as the scale of these receptors identified in the baseline to gauge the receptor's sensitivity.

27.6.2.2 Detailed definitions of sensitivity for socio-economic receptors (tourism and the tourist economy and its components; tourist accommodation market) and recreational and visitor attractions, facilities and open space receptors and recreational PRoWs is presented in Table 27-5.

**Table 27-5: Definitions of sensitivity for Tourism and Recreation**

| Sensitivity | Definition |
|---|---|
| Very High | For socio-economic receptors (tourism and the tourist economy and its components; tourist accommodation market):<br>• The socio-economic receptor has no capacity to absorb or respond to change without noticeable socioeconomic loss or gain<br>For recreational and visitor attractions, facilities and open space receptors and recreational PRoWs:<br>• Receptor is of very high importance (for example as dictated by national policy), used very frequently, with no potential to substitute with other options; or experiencing environmental or access change as to render impossible its intended use and therefore substantially disadvantage users.<br>• National trails and routes of very high importance in policy terms (for example, with national designations), likely to be used for both commuting and recreation and are in frequent use. |
| High | For socio-economic receptors (tourism and the tourist economy and its components; tourist accommodation market):<br>• The socio-economic receptor has limited capacity to absorb or respond to change without noticeable socioeconomic loss or gain<br>For recreational and visitor attractions, facilities and open space receptors and recreational PRoWs: |

| Sensitivity | Definition |
|---|---|
| | • Receptor is of high importance (for example, as dictated by local policy, usage and accessibility), used frequently, with limited potential to substitute with other options; or experiencing environmental or access change as to substantially alter its intended use and therefore disadvantage users.<br>• Regional trails and routes (for example, promoted circular walks) are of moderate importance in policy terms (such as those with regional designations or regionally promoted routes). They are typically used frequently for recreation and to a lesser extent commuting. These routes generally have some potential to be substituted with alternative options (either existing or re-provided) to maintain access to the wider network or community infrastructure. |
| Medium | For socio-economic receptors (tourism and the tourist economy and its components; tourist accommodation market):<br>• The socio-economic receptor has some capacity to absorb or respond to change and may result in some perceptible socio-economic loss or gain.<br>For recreational and visitor attractions, facilities and open space receptors and recreational PRoWs*:*<br>• Receptor is of medium importance (for example, as dictated by local policy, usage and accessibility), used reasonably frequently, with moderate potential to substitute with other options or experiencing little environmental or access change as to slightly alter its intended use and therefore moderately disadvantage users.<br>• Routes close to communities of medium importance in policy terms (for example, footpaths connecting villages, bridleways and restricted byways), which are used for recreational purposes (for example, dog walking), but for which alternative routes can be taken.<br>• Such routes have moderate potential to substitute with other route options (existing or re-provided) to access with the wider network or community infrastructure; or PRoW is of high importance, with good alternative routes available (existing or re-provided); or PRoW is of low importance, with limited potential to substitute with other route options (existing or re-provided) to access with the wider network or community infrastructure. |
| Low | For socio-economic receptors (tourism and the tourist economy and its components; tourist accommodation market):<br>• The socio-economic receptor has the capacity to absorb or respond to change and may result in hardly perceptible socioeconomic loss or gain.<br>For recreational and visitor attractions, facilities and open space receptors and recreational PRoW:<br>• Low sensitivity is assigned to receptors that are not given specific mention in policy or which are primarily used by casual and/or local users with many alternative recreational resources available to them.<br>• Receptor is of low importance (for example, as dictated by local policy, usage and accessibility), used infrequently, with strong potential to substitute with other options or experiencing little environmental or |

| Sensitivity | Definition |
|---|---|
| | access change as to hardly perceptibly alter its intended use and therefore slightly disadvantage users.<br>• Routes of medium or low importance in policy terms (for example, permissive paths or dead-end/isolated routes), but with good potential to substitute with other route options (existing or re-provided) to access with the wider network or community infrastructure.<br>• Routes which have fallen into partial disuse or difficult accessibility through past severance or which are scarcely used because they do not currently offer a meaningful route for either utility or recreational purposes. |
| Negligible | For socio-economic receptors (tourism and the tourist economy and its components; tourist accommodation market):<br>• Negligible sensitivity is assigned to receptors that would not normally be expected to experience any adverse impact.<br>For recreational and visitor attractions, facilities and open space receptors and recreational PRoW:<br>• Negligible effects can be felt by those given no specific mention in policy or by casual and/or local users with many alternative recreational resources available to them.<br>• Routes which have fallen into disuse or have no present accessibility through severance or which are not used because they do not currently offer a meaningful route for either utility or recreational purposes. |

### 27.6.3 Magnitude of Impact

27.6.3.1 The magnitude of change upon each receptor was determined by considering the change experienced from the baseline conditions, subject to the consideration of embedded mitigation.

27.6.3.2 The magnitude of a particular effects is defined by the criteria presented in Table 27-6.

**Table 27-6: Definitions of magnitude for Tourism and Recreation**

| Magnitude | Definition |
|---|---|
| Large | • Substantial change to the Tourism or Recreation asset/receptor in terms of employment levels, output or productivity<br>• Proposals will cause a substantial change to existing patterns and levels of use or experience of recreational resources, either permanently or for a sustained period of time (i.e. several months to permanent) and only poor-quality alternatives are available. |
| Medium | • Noticeable change to the Tourism or Recreation asset/receptor in terms of employment levels, output or productivity<br>• Proposals will cause a modest change to existing patterns and levels of use of recreation resources or a more substantial change for a temporary, medium-term period (of weeks to a few months). |
| Small | • Slight or hardly perceptible change to the Tourism or Recreation asset/receptor in terms of employment levels, output or productivity |

| Magnitude | Definition |
|---|---|
| | • Proposals will cause a slight or short-term (i.e. less than one month) change to existing patterns and levels of use of recreation resources, with a slight reduction in overall numbers and a low level of displacement. |
| Negligible | • No perceptible change to the Tourism or Recreation asset/receptor in terms of employment levels, output or productivity<br>• Very minor or very short-term (a few days) changes in levels and/or patterns of use. |

### 27.6.4 Significance of Effect

27.6.4.1 To ensure consistency across topics, a matrix approach has been adopted to present judgements made on the significance of an effect. This terminology is outlined in Table 27-7Table 27-7: below.

**Table 27-7: Significance Matrix**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | Large | Medium | Small | Negligible |
| Very High | Major | Major | Moderate | Minor |
| High | Major | Moderate | Moderate | Minor |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

27.6.4.2 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

27.6.4.3 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UK Scheme design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UK Scheme.

## 27.7 Potential Effects and Mitigation

27.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 27.7.2 Embedded Mitigation and Good Practice Measures

27.7.2.1 The UK Scheme will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as *"mitigation measures that have been incorporated into a project's description and form an inherent part of the project's design"* (ISEP, 2024). The embedded mitigation measures which are relevant to this Chapter are presented in the table below (Table 27-8).

**Table 27-8: Embedded Mitigation Measures of Importance to Tourism and Recreation**

| Measure Proposed | Rationale |
|---|---|
| Development and Implementation of a Vessel Management Plan (VMP) | • Development and implementation of a VMP. The VMP will:<br>– Set out the types and numbers of vessels engaged in the works;<br>– Define project vessel coordination measures and interactions with SUNK VTS/HHA Harbour Control;<br>– Include indicative transit routes;<br>– Give detail on concurrent working procedures which will set out details of the project vessels and their movements during the survey, seabed preparation, construction, operation and management (O&M) phases in sensitive area; and<br>– Detail specific navigational safety hazards such as the DWRs and how they will be managed. |
| Outline Construction Environmental Management Plan (CEMP) | The outline CEMP will outline measures relevant to the control and mitigation of effects that have a relationship to or bearing on, receptors and interests scoped into the Tourism and Recreation assessment. These measures are likely to focus on: minimising community disruption and severance during construction works; maintaining access to tourist and recreational facilities; minimising temporary land take during construction; and protecting receptor amenity. |
| Outline Operational Environmental Management Plan (OEMP) | The outline OEMP will outline measures relevant to the control and mitigation of effects that have a relationship to or bearing on, receptors and interests scoped into the Tourism and Recreation assessment. These measures are likely to focus on: minimising community disruption and severance during the operational works; maintaining access to tourist and recreational facilities; minimising temporary land take during construction; and protecting receptor amenity. |
| Decommissioning Environmental Management Plan (DEMP) | A DEMP will be prepared following appropriate environmental legislation and agreed with the relevant authorities at the time of decommissioning. |
| Outline Construction Traffic Management Plan (CTMP) | This document will detail measures to regulate construction traffic. |

27.7.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UK Scheme development and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

27.7.2.3 As the UK Scheme advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective and compliant with regulatory standards and stakeholder input.

27.7.2.4 Mitigation measures for construction, operational and decommissioning phases include steps taken during the UK Scheme's design phase to minimise potentially significant effects, based on key sensitivities, constraints and opportunities as part of an iterative process of design and assessment (such as avoiding local receptors through design options).

27.7.2.5 Mitigation measures set out in Volume 02, Chapter 12: Traffic and Transport; Volume 04, Chapter 24: Socio-economics and Land Use; Volume 03, Chapter 18: Shipping and Navigation and Volume 04, Chapter 21: Landscape and Visual Impact Assessment, are also likely to be relevant for minimising effects on local receptors associated with Tourism and Recreation.

27.7.2.6 Where practicable, measures would be implemented to ensure accessibility to recreational routes and PRoWs, visitor attractions, recreational facilities and open space is maintained. This will be achieved through the use of best practice measures, including with regard to trenchless cable installation methods, phasing of construction works and if necessary, providing diversions for users.

27.7.2.7 As further discussed in Volume 02, Chapter 12: Traffic and Transport, any potential permanent or temporary closures to PRoW or other recreational routes will be applied for/detailed in the Development Consent Order (DCO) application, which will be secured as part of the PRoW Management Plan. Development and adherence to the PRoW Management Plan will ensure that PRoWs will be safely maintained, protected or temporarily maintained where practicable during construction and operation.

### 27.7.3 Scoping Assessment

27.7.3.1 This section summarises the outcomes of the scoping exercise in relation to the potential Tourism and Recreation impacts and effects that could arise as a result of construction, operational and decommissioning phases of the UK Scheme. Details of each these three stages are set out in Volume 01, Chapter 02: UK Project Description.

27.7.3.2 The proposed scope of the Tourism and Recreation assessment is set out below and has been determined using the approach described in Volume 01, Chapter 06: EIA Approach and Methodology.

### Effects on the Capacity/Availability of Tourist Accommodation

27.7.3.3 There is potential for the 'non-local' element of the construction workforce staying temporarily in the area to increase demand for tourist sector accommodation, reducing the available capacity for tourist use.

27.7.3.4 The assessment will consider evidence on the likely scale and type of accommodation demand from this element of the workforce, in the context of public data on the availability and capacity of the tourist accommodation sector.

### Effects on the Accessibility and Recreational Amenity of PRoW

27.7.3.5 The UK Scheme may require temporary and permanent closure or diversion of PRoW and other recreational routes to facilitate construction works or changes in amenity which may reduce the recreational experience of PRoW that contribute towards the character of tourism in the area.

27.7.3.6 The assessment will consider the nature of effects identified in other assessments across the ES, in the context of the recreational value of identified routes (which contributes to their sensitivity).

27.7.3.7 The assessment will draw upon assessments of accessibility and connectivity, severance, pedestrian delay, non-motorised user amenity, fear and intimidation, landscape and visual impacts and noise and vibration on PRoW users would be considered in respective Chapters:

- Volume 02, Chapter 12: Traffic and Transport;
- Volume 04, Chapter 21: Landscape and Visual Impact Assessment;
- Volume 04, Chapter 22: Noise and Vibration; and
- Volume 04, Chapter 24: Socio-economics and Land Use.

### Effects on the Tourist Economy and its Components and Assets

27.7.3.8 Effects on recreational facilities are assessed by considering the presence of local recreational and commercial facilities, as well as landscape and cultural heritage receptors that contribute to the value, volume and character of tourism in the area, and the extent to which their accessibility or environmental amenity may be affected during the construction, operation and decommissioning of the UK Scheme.

27.7.3.9 The assessment will consider potential effects of the following:

- Land or areas required by the UK Scheme (temporary and permanent) from visitor attractions, recreational facilities and open space; and
- Changes to air quality, noise and vibration, landscape and visual amenity, cultural heritage value, and traffic and transport to visitor attractions, recreational facilities and open space.

27.7.3.10 There is potential for the UK Scheme to result in changes to air quality, noise (excluding vibration), landscape and visual amenity, and traffic and transport. There

may be permanent disruption to users of visitor attractions, recreational facilities, open space and offshore receptors, including beach users, swimmers, recreational boating and diving within the relevant study areas.

27.7.3.11 Offshore recreational receptors (including recreational diving, sailing and cruising, coastal angling, water sports users and other leisure vessel activities) may experience disturbance or displacement during the construction, operational and decommissioning phases of the UKMS due to the presence of construction vessels, increases in vessel traffic and the establishment of temporary exclusion zones.

27.7.3.12 In addition, cable installation activities such as seabed preparation, trenching and backfilling have the potential to increase suspended sediment concentrations locally, which may temporarily reduce underwater visibility for recreational divers and affect recreational sea fishing by altering catchability or user experience. These potential impact pathways will therefore be included within the scope of the Tourism and Recreation assessment, to ensure effects on the amenity, accessibility and experiential quality of offshore recreation are appropriately considered.

27.7.3.13 These effects will be assessed with reference to relevant offshore baseline conditions, including the presence of wrecks used by divers, nearshore recreational vessel activity routes and the location of beaches and water sports areas within or near the UKMS Scoping Boundary.

27.7.3.14 Where relevant, this will include a summary analysis of land changes and (in some cases) significant effects (and embedded and additional mitigation) reported in the following Chapters of the ES where relevant:

- Volume 02, Chapter 12: Traffic and Transport;
- Volume 03, Chapter 19: Onshore Archaeology and Cultural Heritage;
- Volume 04, Chapter 21: Landscape and Visual Impact Assessment;
- Volume 04, Chapter 22: Noise and Vibration; and
- Volume 04, Chapter 28: Air Quality.

### Decommissioning Phase

27.7.3.15 Impacts associated with the decommissioning of the UK Scheme would be expected to be lesser in magnitude than those associated with the construction phase, as certain components of the UK Scheme are expected to be left in-situ (for example, buried cabling).

27.7.3.16 However, a worst-case scenario is proposed whereby all elements of the UK Scheme are assumed to be removed as part of the decommissioning phase. Therefore, the decommissioning phase is expected to result in comparable impacts and effects to those predicted in the construction phase.

### Scoping Summary

27.7.3.17 A detailed summary of elements scoped in or scoped out of the Tourism and Recreation assessment is presented in Table 27-9.

Table 27-9: Elements Scoped In and Out for Tourism and Recreation

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction and decommissioning | Non-local, temporary construction and decommissioning workforce). | Changes to the capacity and availability of tourist accommodation. | Tendring District tourist accommodation market | Scoped In | There is potential for adverse effects on the availability of tourist accommodation, due to a portion of the construction and decommissioning workers coming from outside the area and seeking temporary accommodation. |
| Operational | | N/A | | Scoped Out | There will be negligible additional demand for temporary accommodation as a result of the limited operational and maintenance workforce. |
| All | Activities requiring temporary PRoW closures/diversions; presence of works affecting amenity. | Changes to PRoW or other recreational routes which could result in changes to the accessibility of these facilities and recreation amenity obtained from these facilities. | PRoW and users within 500m of the UK Scheme | Scoped In | There is potential for adverse effects on users of PRoW and other recreational routes, resulting in severance of such routes and journey delays and a change in environmental amenity. |
| Construction and decommissioning | Temporary/permanent land take; construction traffic and disturbance (noise/dust/visual); offshore vessel presence and safety zones. | Changes to the employment capacity of the tourist sector and tourism patterns due to temporary and permanent land take. | Users of onshore visitor attractions and recreation facilities, and open space users of offshore Tourism and Recreation receptors; and | Scoped In | There may be temporary or permanent land take, resulting in disruption and severance impacts on users of onshore recreational facilities, visitor attractions and open space identified within the relevant study areas. |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | the tourist economy and its components. | | There may be permanent amenity effects due to changes in air quality, noise (excluding vibration), seascape, landscape and visual amenity, and traffic and transport, resulting from the operation of the UK Scheme, impacting onshore and offshore Tourism and Recreation receptors within the relevant study areas.<br><br>Offshore recreation users may face temporary effects during construction and decommissioning because of increased vessel activity and safety or exclusion zones.<br><br>Cable-laying works can also raise local sediment levels, reducing underwater visibility for divers and influencing sea-angling conditions. These pathways will be assessed to understand how amenity, access and overall recreational experience could be affected. |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Operational | | N/A | | Scoped Out | There would be no ongoing activities during the operational phase that would result in disturbance to Tourism or Recreation receptors with the exception of maintenance activities, which could result in increased noise, dust, traffic or visual disturbance. On the basis that activities during operation are likely to be localised and limited in terms of air quality emissions, permanent amenity effects on onshore and offshore Tourism and Recreation receptors have been scoped out of further assessment in relation to Tourism and Recreation. |

### 27.7.4 Cumulative Effects

27.7.4.1 Volume 05, Chapter 32: Approach to Cumulative Effects details how potential cumulative effects will be assessed through the Cumulative Effects Assessment (CEA) and gives examples of those projects likely to be assessed. For Tourism and Recreation, cumulative interactions may occur with the whole Tarchon Project in combination with the UK Scheme and other planned developments within the Tourism and Recreation Study Areas.

27.7.4.2 The assessment will consider the potential for cumulative effects on Tourism and Recreation receptors relating to:

- effects on the Capacity/Availability of Tourist Accommodation (as a result of non-local, temporary construction workforce from the UK Scheme, where this construction phase may overlap with the construction phase of other Nationally Significant Infrastructure Project (NSIP) developments in the Study Area);
- effects on the Accessibility and Recreational Amenity of PRoW (as a result of temporary closures, diversions, crossings and amenity change where there may be overlapping effects of concurrent NSIPs on the same receptors); and
- effects on the Tourist Economy and its Components and Assets including:
  - from land take on onshore visitor attractions, recreation facilities and open space where there may be overlapping effects of concurrent NSIPs on the same receptors; and
  - permanent effects from land take on offshore Tourism and Recreation receptors (including perception-related effects on visitor draw) where there may be overlapping effects of concurrent NSIPs on the same receptors.

### 27.7.5 Transboundary Effects

27.7.5.1 As set out in Volume 01, Chapter 06: EIA Approach and Methodology, transboundary effects are defined as effects that would affect the environment in another state within the European Economic Area (EEA), i.e. effects which would be experienced beyond the borders of the UK.

27.7.5.2 Transboundary impacts on offshore Tourism and Recreation receptors can be scoped out due to the fact that any effects arising from the installation of subsea cables would be small in scale, short lived and confined to a narrow working corridor. This suggests that the UK Scheme would not result in any lasting changes to offshore Tourism and Recreation conditions. The temporary nature of construction activities suggests that activities would not be expected to cause changes to access, amenity or availability of offshore areas used for recreation that would cause significant effects across national boundaries. With the cables being located subsea during the operational phase of development and no other permanent offshore structures set to be constructed, any operational changes would be unlikely to influence how offshore Tourism and Recreation receptors at the wider, transboundary scale.

## 27.8 Assumptions, Limitations and Uncertainties

27.8.1.1 The Tourism and Recreation assessment will be based on professional judgment and best practice methodology and will consider both the negative and positive impacts that the UK Scheme may have upon existing and surrounding receptors. It will provide a broad, high-level indication of effects, reporting on the potentially significant effects to Tourism and Recreation receptors impacting people and the local community.

27.8.1.2 The assessment of the significance of effects will be carried out against a benchmark of current Tourism and Recreation baseline conditions prevailing around the UK Scheme, as far as is possible within the limitations of such a dataset. The most recently available data sources will be used in this Chapter, although it should be noted that baseline data can be subject to a time lag between collection and publication. As with any dataset, these conditions may be subject to change over time which may influence the findings of the assessment.

27.8.1.3 As set out in Volume 01, Chapter 02: UK Project Description, the precise methodology for decommissioning is not currently known, however impacts are expected to be similar to or of a lesser magnitude than construction effects. Therefore, decommissioning effects will not be specifically assessed within the ES, but to represent a worst-case, decommissioning effects will be considered to be the same as construction phase effects.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 04, Chapter 28: Air Quality

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00032 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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No table of figures entries found.

## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| AADT | Annual Average Daily Traffic |
| ADMS | Atmospheric Dispersion Modelling System |
| AMCT | Annual Mean Concentration Target |
| APIS | Air Pollution Information System |
| AQAL | Air Quality Assessment Level - Institute of Air Quality Management term to describe air quality objective (or similar) against which to assess significance of effect. |
| AQMA | Air Quality Management Area |
| CEMP | Construction Environmental Management Plan |
| Defra | The Department for Environment, Food and Rural Affairs |
| DMRB | Design Manual for Roads and Bridges |
| DRA | Dust Risk Assessment |
| ECA | Emissions Control Area |
| EEA | European Economic Area |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| EPUK | Environmental Protection United Kingdom |
| ES | Environmental Statement |
| GHG | Greenhouse Gas |
| HDV | Heavy Duty Vehicles |
| HGV | Heavy Goods Vehicle |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| IAQM | Institute of Air Quality Management |
| IMO | International Maritime Organisation |
| km | Kilometres |
| LDV | Light Duty Vehicles |
| LGV | Light Goods Vehicle |
| LAQM | Local Air Quality Management |
| LNR | Local Nature Reserve |
| LWS | Local Wildlife Site |
| m | Metre |
| $m^2$ | Metre Squared |
| $m^3$ | Metre Cubed |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| MDS | Maximum Design Scenario |
| N | Nitrogen |
| NPS | National Policy Statement |
| $NO_x$ | Generic term for nitrogen oxides, primarily composed of nitric oxide (NO) and nitrogen dioxide ($NO_2$) |

| Acronym | Definition |
|---|---|
| $NO_2$ | Nitrogen Dioxide |
| NPPF | National Planning Policy Framework |
| PERT | Population Exposure Reduction Target |
| PPG | Planning Practice Guidance |
| $PM_{2.5}$ | Particulate Matter 2.5 Micrometres (or smaller) |
| $PM_{10}$ | Particulate Matter 10 Micrometres (or smaller) |
| $SO_2$ | Sulphur Dioxide |
| SSSI | Site of Special Scientific Interest |
| SAC | Special Area of Conservation |
| SPA | Special Protection Area |
| t | Tonnes |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| UKMPS | United Kingdom Marine Policy Statement |
| $\mu g/m^3$ | Microgram Per Cubic Metre |

# 28. Air Quality

## 28.1 Introduction

28.1.1.1 This Chapter presents the Air Quality assessment which will consider the potential significant effects on air quality receptors during the construction, operational and decommissioning phases of the Tarchon Interconnector Project (Tarchon project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). The UK Scheme is formed of both the UK Marine Scheme (UKMS) and the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description), both of which are relevant to this Chapter. As a result, this Chapter is split where relevant between the UKMS and EOS.

28.1.1.2 This Chapter of the Scoping Report:

- Provides a summary of the current Air Quality baseline;
- describes the proposed methodology and datasets to be used within the assessment;
- identifies relevant potential effect pathways and associated Air Quality receptors from the proposed components of the UKMS and EOS; and
- highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

28.1.1.3 This Chapter should be read in conjunction with:

- Volume 01, Chapter 02: UK Project Description;
- Volume 02, Chapter 07: Ground Conditions and Contamination;
- Volume 02, Chapter 10: Onshore Biodiversity; and
- Volume 02, Chapter 12: Traffic and Transport.

28.1.1.4 There are no figures or annexes associated with this Chapter.

## 28.2 Study Area

28.2.1.1 The Study Area defined as part of the Scoping stage has been established by initial desktop review, appraisal work undertaken to date, aerial photography and mapping and application of professional judgement.

28.2.1.2 An initial maximum Study Area of 10 kilometres (km) for Air Quality matters from the EOS and UKMS Scoping Boundaries has been identified for the Air Quality Scoping stage, which is predominantly within the local authority area of Tendring District Council (Essex County Council), with small areas in Babergh District Council (Suffolk County Council) and Colchester City Council.

28.2.1.3 This Study Area extends beyond the EOS and UKMS Scoping Boundaries due to the limited air quality data availability in the vicinity of the UK Scheme and has been considered with respect to published baseline information on existing air quality.

28.2.1.4 The Study Area that will be utilised in the Air Quality Assessment to inform the Environmental Statement (ES) will be defined with reference to appropriate guidance and will vary by emissions source.

28.2.1.5 For construction site emissions, the Study Area will be informed by the Institute of Air Quality Management's (IAQM) (2024) guidance on assessing the air quality impacts from construction and demolition, which includes:

- Human health and amenity sensitive land uses located within 250 metres (m) of the construction site boundary (which is currently unknown) and within 50 m of a public road used by construction traffic up to 500 m from a site egress; and
- Designated nature conservation sites located within 50 m of the final construction site boundary and within 50 m of a public road used by construction traffic up to 500 m from a site egress.

28.2.1.6 Both IAQM and Design Manual for Roads and Bridges (DMRB) guidance were considered. While DMRB can be applied to many linear infrastructure projects, it is primarily focused on highways-related emissions and offers limited direction for assessing construction dust and non-road sources. For this chapter, IAQM provides the most appropriate methodology for evaluating construction-related air quality effects on this project.

28.2.1.7 For construction phase road traffic emissions impacts, the Study Area will be informed by the IAQM and Environmental Protection UK (EPUK) guidance on assessing Air Quality impacts for land use planning and development control (Moorcroft & Barrowcliffe, 2017), which includes:

- Receptors located adjacent to roads that experience an increase in annual average daily traffic (AADT) Light Duty Vehicles (LDV), vehicles of less than 3.5 tonnes (t) movements of 500 or more on roads outside and away from an Air Quality Management Area (AQMA), or 100 or more at locations within or adjacent to an AQMA, due to the construction of the UK Scheme.
- Receptors located adjacent to roads that experience an increase in AADT Heavy Duty Vehicles (HDV), vehicles of equal to or more than 3.5 t) movements of 100 or more on roads outside and away from an AQMA, or 25 or more at locations within or adjacent to an AQMA, due to the construction of the UK Scheme.

28.2.1.8 There is the potential for Air Quality impacts on ecological sites from construction traffic emissions. Further discussion with the project ecologists and Natural England will be required to agree scope and methodology, including agreeing the Study Area.

28.2.1.9 For construction phase vessel emissions, there is no specific guidance on Study Area for the Air Quality assessment of this source. Defra provide general guidance for local authorities to review and assess air quality within their administrative areas (Defra, 2022). This guidance states that local authorities should review and assess local air quality at locations where:

- there is human health sensitive land use with 250 m of berths and main areas of manoeuvring with more than 5,000 two-way large ship movements per year; and
- there is human health sensitive land use within 1 km of berths and main areas of manoeuvring with more than 15,000 two-way large ship movements per year.

28.2.1.10 Large ships are defined by the guidance as cross-channel ferries, roll on-roll-off ships, bulk cargo, container ships and cruise liners.

## 28.3 Relevant Legislation, Planning Policy and Guidance

28.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context, provides an overview of all relevant legislation and planning policy context. This section refers to legislation, planning policy and guidance relating to assessment of potential effects on air quality that may arise from construction, operational and decommissioning phases of the UK Scheme.

28.3.1.2 The following legislation, policies and guidance were reviewed as part of the Scoping stage, the content and requirements of which have been used to shape and develop the proposed scope of the Air Quality assessment.

### 28.3.2 Legislation

28.3.2.1 The applicable legislation includes:

- EU Directive 2008/50/EC (European Parliament and the Council of the European Union, 2008)
- The Infrastructure Planning (EIA) Regulations 2017 (as amended) (HMSO, 2017);
- Environmental Protection Act 1990 (HMSO, 1990);
- Air Quality (England) Regulations (HMSO, 2000);
- Air Quality (England) (Amendment) Regulations (HMSO, 2002)
- Air Quality Standards (Amendment) Regulations 2016 (HMSO, 2016);
- The Air Quality Standards (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 (HMSO, 2019);
- Environment Act 1995 (HMSO, 1995);
- Environment Act 2021 (HMSO, 2021a);
- The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (HMSO, 2023);
- MARPOL (International Convention for the Prevention of Pollution from Ships) Directive (Annex VI Regulation 13) (IMO, 2005a);
- MARPOL Directive (Annex VI, Regulation 14) (IMO, 2005b); and
- The Merchant Shipping (Prevention of Air Pollution from Ships) and Motor Fuel (Composition and Content) (Amendment) Regulations 2014 (HMSO, 2014).

28.3.2.2 The above legislation has informed the scope of the Air Quality assessment, including the identification of sensitive receptors and likely potential impacts and effects.

### 28.3.3 Marine Policy Statements

28.3.3.1 This Scoping exercise has been informed by the requirements of the National Policy Statement for Energy (EN-1) (NPS) (DESNZ, 2025). Paragraph 5.2.8 of NPS EN-1 (DESNZ, 2025) states that *"Where the project is likely to have adverse effects on air quality the applicant should undertake an assessment of the impacts of the proposed project as part of the ES".*

28.3.3.2 Paragraph 5.2.9 of NPS EN-1 (DESNZ, 2025) goes on to describe what should be covered in the ES, including *"existing air quality concentrations and the relative change in air quality from existing levels; any significant air quality effects, mitigation action taken and any residual effects, distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project; the predicted absolute emissions, concentration change and absolute concentrations as a result of the proposed project, after mitigation methods have been applied; and any potential eutrophication impacts."*

28.3.3.3 This Scoping exercise has been used to determine whether the UK Scheme has the potential to have a significant effect on local air quality and to determine the likely detail required of such an assessment. The Air Quality assessment will be required to consider baseline air quality conditions at and in the vicinity of the UK Scheme and will evaluate the changes in pollutant concentrations resulting from the UK Scheme. This will include but not necessarily limited to:

- a construction dust assessment (addressing potential emissions from site preparation and construction activities);
- a construction phase road traffic emissions assessment;
- an assessment of emissions from construction vessels; and
- an assessment of potential emissions sources during the operational and decommissioning phases.

28.3.3.4 It should be noted that decommissioning effects are expected to be similar to, or of a lesser magnitude than, construction effects. Therefore, decommissioning effects will not be specifically assessed in the Air Quality assessment and reference will instead be made to the outcomes of the construction phase assessment.

28.3.3.5 Paragraph 5.2.10 of NPS EN-1 (DESNZ, 2025) adds that *"applicants should consider the Environment Targets (Fine Particulate Matter) (England) Regulations 202*3 (HMSO, 2023) and associated Defra guidance".

28.3.3.6 This Scoping exercise considers existing baseline conditions with regards to particulate matter. An Air Quality assessment of the UK Scheme will be required, which will include consideration of the primary pollutants of concern – nitrogen dioxide ($NO_2$) and particulate matter ($PM_{10}$ and $PM_{2.5}$).

28.3.3.7 Paragraph 5.2.12 of NPS EN-1 (DESNZ, 2025) states that *"Where a proposed development is likely to lead to a breach of any relevant statutory air quality limits, objectives or targets, or affect the ability of a non-compliant area to achieve compliance within the timescales set out in the most recent relevant air quality plan/strategy at the time of the decision, the applicant should work with the relevant authorities to secure appropriate mitigation measures to ensure that those statutory limits, objectives or targets are not breached."*

28.3.3.8 The Scoping exercise identifies the need for an Air Quality assessment, which will include an evaluation of the risk of non-compliance with statutory air quality objectives. Where potential exceedances or adverse impacts are identified, the assessment will propose appropriate mitigation measures to ensure that emissions from the UK Scheme are minimised as far as practicable.

28.3.3.9 The objectives apply at locations where members of the public are likely to be regularly present and are likely to be exposed over the averaging period of the objective. Defra explains where these objectives will apply in its Local Air Quality Management (LAQM) Technical Guidance (Defra, 2022). The annual mean objectives for $NO_2$ and $PM_{10}$ apply at the façades of residential properties, schools and hospitals for example. The 24-hour mean objective for $PM_{10}$ applies at the same locations as the annual mean objective, as well as in gardens of residential properties and at hotels. The 1-hour mean objective for $NO_2$ applies wherever members of the public might regularly spend 1-hour or more, including outdoor eating locations and pavements of busy shopping streets. For $PM_{2.5}$, the objective set by Defra for local authorities is to work toward reducing concentrations without setting any specific numerical value. In the absence of a numerical objective, it is convention to assess local Air Quality impacts against the limit value[1], originally set at 25 micrograms per cubic metre (µg/m$^3$) and currently set at 20 µg/m$^3$. The relevant air quality criteria for this assessment are provided in Table 28-1.

[1] EU Directive 2008/50/EC sets limit values for $NO_2$, $PM_{10}$ and $PM_{2.5}$, and is implemented in UK law through the Air Quality Standards Regulations (2010) (as amended through The Air Quality Standards (Amendment) Regulations 2016 and The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020). The limit values for $NO_2$ and $PM_{10}$ are the same numerical concentrations as the UK objectives, but achievement of the limit values is a national obligation rather than a local one and concentrations are reported to the nearest whole number. In the UK, only monitoring and modelling carried out by UK Central Government meets the specification required to assess compliance with the limit values.

**Table 28-1: Air Quality Criteria for $NO_2$, $PM_{10}$ and $PM_{2.5}$**

| Pollutant | Time Period | Value |
|---|---|---|
| $NO_2$ | 1-hour Mean | 200 µg/m$^3$ not to be exceeded more than 18 times a year |
| | Annual Mean | 40 µg/m$^3$ |
| $PM_{10}$ | 24-hour Mean | 50 µg/m$^3$ not to be exceeded more than 35 times a year |
| | Annual Mean | 40 µg/m$^3$ [a] |
| $PM_{2.5}$ | Annual Mean | 20 µg/m$^3$ [b] |

[a] A proxy value of 32 µg/m$^3$ as an annual mean is used in this assessment to assess the likelihood of the 24-hour mean $PM_{10}$ objective being exceeded. Measurements have shown that, above this concentration, exceedances of the 24-hour mean $PM_{10}$ objective are possible (Defra, 2022).
[b] There is no numerical $PM_{2.5}$ objective for local authorities. Convention is to assess against the UK limit value which is currently 20 µg/m$^3$.

28.3.3.10 Defra has also set targets for $PM_{2.5}$ concentrations in England under the Environment Act (HMSO, 2021b) (Table 28-2). Achieving these targets is the responsibility of Defra. Rather than requiring a quantitative assessment of new developments against these targets, Defra instead advises applicants to provide evidence that they have considered exposure to $PM_{2.5}$ and taken appropriate action to minimise emissions.

**Table 28-2: Environment Act $PM_{2.5}$ Concentration Targets**

| Metric | Target | Target year |
|---|---|---|
| AMCT[a] | Interim target: 12 µg/m$^3$ | 2028 |
| | Legally binding target: 10 µg/m$^3$ | 2040 |
| PERT[b] | Interim target: 22% reduction in exposure compared to 2018 | 2028 |
| | Legally binding target: 35% reduction in exposure compared to 2018 | 2040 |

[a] Annual Mean Concentration Target (AMCT).
[b] Population Exposure Reduction Target (PERT).

28.3.3.11 The Scoping exercise has also been informed by the UK Marine Policy Statement (UKMPS) (Defra, 2011) and the UK Marine Strategy (Defra, 2019). Section 2.6.2 of the UKMPS (Defra, 2011) sets out the Government's policy for marine environments relating to air quality. In paragraph 2.6.2.1 of the UKMPS, it is noted that *"The construction, operation and decommissioning phases of projects can involve emissions to air which could lead to adverse impacts on human health, biodiversity, or on the wider environment."*

28.3.3.12 In the UK Marine Strategy (Part Three) (Defra, 2019), Descriptor 5 refers to the Control of Nitrogen Oxides ($NO_x$) emissions from ships through the Merchant

Shipping (Prevention of Air Pollution from Ships) Regulations 2008 (as amended) (HMSO, 2008). It states that this measure requires engines installed on a ship to meet the specified $NO_x$ emission standard and is primarily designed to improve air quality.

### 28.3.4 National Planning Policy Framework

28.3.4.1 The National Planning Policy Framework (NPPF) (2024) sets out planning policy for England. It states that the purpose of the planning system is to contribute to the achievement of sustainable development and that the planning system has three overarching objectives, one of which (Paragraph 8c) is an environmental objective: *"to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy".*

28.3.4.2 To prevent unacceptable risks from air pollution, Paragraph 187 of the NPPF states that *"Planning policies and decisions 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".*

28.3.4.3 Paragraph 198 of the NPPF states that *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development".*

28.3.4.4 More specifically on Air Quality, Paragraph 199 of the NPPF makes clear that *"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan".*

### 28.3.5 Guidance

28.3.5.1 Relevant guidance and standards which have been used as part of the Scoping process are listed below:

- The Air Quality Strategy for England (2023) (Defra, 2023);
- Institute of Air Quality Management and Environmental Protection UK (2017) Guidance on Land-Use Planning & Development Control: Planning for Air Quality (EPUK & IAQM, 2017);
- Institute of Air Quality Management (IAQM, 2024) Guidance on the assessment of dust from demolition and construction;
- Local Air Quality Management Technical Guidance 2022 (LAQM TG22) (Defra, 2022); and
- National Planning Policy Guidance: Air Quality (PPG) (2019) (Department for Levelling Up, Housing and Communities, 2019).

28.3.5.2 The NPPF is supported by PPG (Ministry of Housing, Communities & Local Government, 2019), which includes guiding principles on how planning can take account of the impacts of new development on air quality. The PPG states that *"Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with Limit Values. It is important that the potential impact of new development on air quality is taken into account where the national assessment indicates that relevant limits have been exceeded or are near the limit, or where the need for emissions reductions has been identified".*

28.3.5.3 Regarding plan-making, the PPG states, *"It is important to take into account air quality management areas, Clean Air Zones and other areas including sensitive habitats or designated sites of importance for biodiversity where there could be specific requirements or limitations on new development because of air quality".*

28.3.5.4 The role of local authorities through the LAQM regime is covered, with the PPG stating that a local authority Air Quality Action Plan *"identifies measures that will be introduced in pursuit of the objectives and can have implications for planning".*

28.3.5.5 In addition, the PPG makes clear that *"Odour and dust can also be a planning concern, for example, because of the effect on local amenity"*.

28.3.5.6 Regarding the need for an air quality assessment, the PPG states that *"Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity".*

28.3.5.7 The PPG sets out the information that may be required in an air quality assessment, making clear that *"Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific".*

*28.3.5.8* The PPG also provides guidance on options for mitigating air quality impacts, as well as examples of the types of measures to be considered. It makes clear that *"Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact. It is important that local planning authorities work with applicants to consider appropriate mitigation so as to ensure new development is appropriate for its location and unacceptable risks are prevented".*

### 28.3.6 Local Planning Policy

28.3.6.1 The relevant local policies for assessing potential effects on Air Quality are contained within the Tendring District Local Plan 2013 - 2033 and Beyond (Section 2) (Tendring District Council, 2022). Policy SPL 3 Sustainable Design contains the design criteria against which every planning application for development will be considered. Part C: Impacts and Compatibility specifically refers to air quality:

- *"the development, including any additional road traffic arising, will not have unacceptable levels of pollution on: air, land, water (including ground water), amenity, health or safety through noise, smell, dust, light, heat, vibration, fumes or other forms of pollution or nuisance;"* and
- *"during the construction phase, developers must comply with a 'considerate constructors' scheme' which employs reasonable measures and techniques to minimise and mitigate impacts and disturbance to neighbours and the existing wider community and any damage to public and private property.*"

28.3.6.2 Tendring District Council have collaborated with the other Essex Local Authorities in preparing an Essex Air Quality Strategy (currently a draft for consultation) (Essex Air Quality Consortium, 2025), however the actions set out are not directly relevant to the construction of the EOS.

## 28.4 Consultation and Engagement

28.4.1.1 No topic-specific consultation has taken place relating to Air Quality to date. None of the responses to the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) received from Essex County Council, Suffolk County Council, Tendring District Council, or Babergh and Mid Suffolk district councils were relevant to Air Quality.

28.4.1.2 Where required, methodologies for assessment of road traffic emissions will be confirmed with the Environmental Health Officer at Tendring District Council, who are responsible for the LAQM of the area in which the EOS would be located. In the unlikely event that the construction traffic is above the IAQM Screening criteria in other authority areas, they will also be consulted.

## 28.5 Baseline Environment

### 28.5.1 Baseline Conditions

28.5.1.1 This section describes the baseline environmental characteristics for the UK Scheme and surrounding areas with a specific focus on Air Quality.

### Air Quality Receptors

28.5.1.2 Receptors of interest for the Air Quality assessment include those which are sensitive to the pollutants emitted and located close enough to the UK Scheme to be impacted by UK Scheme emissions, as defined by published air quality assessment methodologies.

28.5.1.3 For potential impacts on human health, they also represent locations where members of the public are present for a duration of time comparable to the averaging period of the air quality objectives.

28.5.1.4 There are a number of communities within the EOS Scoping Boundary that will include receptors such as these including, but not limited to, the southern reaches of Harwich, the villages of Wix, Bradfield Heath and Horseley Cross and a number of isolated farmsteads.

28.5.1.5 Receptors may also be present in the marine environment but are limited locations where public marine vessels are located close to the UKMS Scoping Boundary and are occupied for a period of time comparable to the averaging periods of the air quality objectives.

28.5.1.6 Nature conservation designation sites can also be sensitive to Air Quality impacts. These comprise sensitive habitats with an international designation, including Special Areas of Conservation (SAC) and Special Protection Areas (SPA), those with a national designation, such as Sites of Special Scientific Interest (SSSI) and other important habitats recognised in national planning policy such as Ancient Woodland and those with a local designation, including Local Nature Reserves (LNR) and Local Wildlife Sites (LWS). Specific nature conservation habitats located close to the UK Scheme are described in Volume 02, Chapter 10: Onshore Biodiversity and Volume 03, Chapter 14: Benthic and Intertidal Ecology and include, but not limited to, the Hamford Water SAC, SPA and SSSI.

### Local Air Quality Management

28.5.1.7 Tendring District Council undertake routine ongoing monitoring of ambient air quality as part of their LAQM responsibilities under Part IV of the Environment Act 1995 (HMSO, 1995) (as amended by the Environment Act 2021) and subsequent Regulations (HMSO, 2021a).

28.5.1.8 In 2023, the council undertook passive (diffusion tube) monitoring of $NO_2$ concentrations at 45 sites located along principal traffic routes in order to quantify roadside $NO_2$ concentrations within their administrative area (Tendring District Council, 2024). None of the council's monitoring was undertaken within the EOS Scoping Boundary. Beyond the EOS Scoping Boundary Air Quality Study Area, include sites in Harwich, Manningtree, Ardleigh and Goose Green. Monitored pollutant concentrations within these areas have been used as a proxy to understand existing air quality within the Study Area and this suggests that existing air quality is of a good standard across the area with no risk of an exceedance of the air quality objective.

28.5.1.9 Tendring District Council have not declared an AQMA anywhere within their administrative area. AQMAs further afield are considered to be highly unlikely to be affected by the EOS.

### Background Pollutant Concentrations

28.5.1.10 Air pollution background concentration maps are published by Defra. The main purpose of the background maps is to provide estimates of background concentrations for specific pollutants. These can then be used in air quality assessments to better understand the contribution of local sources to total pollutant concentrations. They provide information on how pollutant concentrations change over time and across a wide area.

*28.5.1.11* The User Guide (Defra, 2024) defines background concentrations as *"The total concentration of a pollutant comprises those from explicit local emission sources such as roads, chimney-stacks, etc., and those that are transported into an area by the wind from further away. If all the local sources were removed, all that would remain is that which comes in from further away; it is this component that is called 'background'".*

28.5.1.12 In many situations, the background contribution may represent a significant or dominant proportion of the total pollutant concentration, so it is important that there is a good understanding of background concentrations when completing air quality assessments as this in turn allows for a good understanding of local pollutant sources.

28.5.1.13 Background data for the relevant 1 km x 1 km grid squares that represent the Study Area for $NO_2$, $PM_{10}$ and $PM_{2.5}$ was sourced from Defra's 2021-based Background Maps (Defra, 2021) for the assessment baseline year of 2025. Background data for NOx and nitrogen (N) deposition was sourced from the current background maps published on the Air Pollution Information System (APIS) (APIS, 2026). These data are presented in Table 28-3. These data represent the most current and up to date data source.

**Table 28-3: Background Concentrations Across the Study Area - 2025**

| | Annual Mean Concentration (µg/m$^3$) | | | |
|---|---|---|---|---|
| | $NO_2$ | $PM_{10}$ | $PM_{2.5}$ | $NO_X$ |
| Min. | 6.0 | 8.8 | 5.4 | 9.7 |
| Max. | 9.8 | 14.3 | 7.0 | 11.0 |

28.5.1.14 The range in background concentration data for the key pollutants of concern included in Table 28-3 demonstrate that air quality is unlikely to be constrained in the Study Area at locations removed from significant local sources of emissions to air. The standard of background pollutant concentration data is summarised as follows:

- Maximum $NO_2$ accounts for less than 25% of the 40 µg/$m^3$ air quality objective for that pollutant.
- Maximum $PM_{10}$ accounts for around 36% of the 40 µg/$m^3$ air quality objective for that pollutant.
- Maximum $PM_{2.5}$ accounts for around 35% of the 40 µg/$m^3$ air quality objective for that pollutant.
- Maximum $NO_x$ accounts for around 37% of the 30 µg/$m^3$ air quality objective for that pollutant.

### Dust Deposition

28.5.1.15 Baseline dust conditions are not currently monitored or modelled in the Study Area. A background level of dust exists in all urban and rural locations in the UK. Dust can be generated on a local scale from vehicle movements and from the action of wind on exposed soils and surfaces. Dust levels can be affected by long range transport of dust from distant sources into the local vicinity. The concentrations of dust can vary depending on a range of parameters, such as meteorological conditions and time of year.

28.5.1.16 Ambient dust deposition rates are not monitored extensively in the UK. Monitoring that is undertaken is usually connected with specific activities such as mining and mineral extraction operations or specific large-scale construction projects. Dust monitoring may also be undertaken to investigate specific complaints received by local authorities, who are then required to investigate dust nuisance under the Environmental Protection Act 1990 (HMSO, 1990). Therefore, there is no quantitative baseline information for dust deposition available in the Study Area.

### Marine Baseline

28.5.1.17 The UKMS Scoping Boundary and surrounding area is located within the North Sea Emissions Control Area (ECA), as defined by the International Maritime Organisation (IMO). Marine vessels operating within the North Sea ECA must comply with the MARPOL $NO_X$ and $SO_2$ emission standards.

28.5.1.18 The background pollutant data that has been sourced from Defra and APIS Table 28-3 include the contribution from existing marine vessel emissions. The contribution from marine vessels to baseline pollutant concentrations varies by proximity to marine sources. Contributions to concentrations and deposition rates from this source are greatest at locations close to major ports.

28.5.1.19 While there is no systematic air quality monitoring in the offshore environment at the same resolution as onshore, the current baseline includes several existing sources of air emissions. These include extensive vessel operations associated with commercial shipping, navigation and fisheries, as described in the relevant chapters:

- Volume 03, Chapter 17: Commercial Fisheries;
- Volume 03, Chapter 18: Shipping and Navigation; and

- Volume 03, Chapter 20: Other Sea Users.

### 28.5.2 Future Baseline Conditions

28.5.2.1 The baseline environment is not static and is expected to change over time, irrespective of the UK Scheme. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UK Scheme over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

28.5.2.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

28.5.2.3 Future baseline conditions are likely to be similar to those reported for the baseline above. Over future years, air quality is expected to improve, due, in part, to the decarbonisation of the transport and energy sectors. However, such sources are not typically local contributors to background air quality in more rural locations and as such, future conditions are likely to remain similar to those experienced today.

28.5.2.4 Offshore air quality conditions are additionally influenced by factors such as international shipping regulations and vessel activity levels, which may lead to gradual improvements, though data availability and certainty are more limited in the marine environment.

## 28.6 Assessment Methodology

### 28.6.1 Introduction

28.6.1.1 The EIA will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, of the Scoping Report and will consider the construction, operational and decommissioning phases of the UK Scheme. Details of each of these stages are set out in Volume 01, Chapter 02: UK Project Description.

28.6.1.2 A source–pathway–receptor framework will be applied within the EIA approach to identify and evaluate potential effects on Air Quality receptors arising from the construction, operational and decommissioning phases of the UK Scheme. This approach defines:

- **Sources and impacts**: The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

28.6.1.3 More detail on the sources and impacts, pathway and receptor approach is outlined in Volume 01, Chapter 06, EIA Approach and Methodology.

28.6.1.4 There is no official guidance in the UK in relation to development control on how to describe the nature of air quality impacts, nor how to assess their significance. The approach within the EPUK/IAQM guidance (EPUK & IAQM, 2017) will therefore, be used in any assessment of vehicle emissions. This approach involves a two-stage process:

- a qualitative or quantitative description of the impacts on local air quality arising from the development; and
- a judgement on the overall significance of the effects of any impacts.

28.6.1.5 The guidance recommends that the assessment of significance should be based on professional judgement, with the overall air quality impact of the development described as either 'significant' or 'not significant'.

28.6.1.6 A judgement of the significance should be made by a competent professional who is suitably qualified, for example by being a full member of the IAQM[2].

28.6.1.7 Construction vehicle emissions will be screened against the IAQM (EPUK & IAQM, 2017) criteria to determine the methodology for assessment. Should the screening threshold not be exceeded, air quality impacts are unlikely and no further assessment is required,

28.6.1.8 Should the screening threshold be exceeded, a detailed Air Quality assessment is likely to be required. Such an assessment will quantify the total concentrations of $NO_X$, $NO_2$, $PM_{10}$ and $PM_{2.5}$, and the change in concentrations with the UK Scheme under construction, at air quality sensitive locations within 200 m of any link that exceeds the screening criteria. The assessment will utilise the Atmospheric Dispersion Modelling System (ADMS) roads dispersion model and the latest emission factors LAQM tools published by Defra (Defra, 2022).

### 28.6.2 Sensitivity of Receptor

#### Construction Dust

28.6.2.1 The sensitivity of the area is defined taking account of a number of factors:

- the specific sensitivities of receptors in the area;
- the proximity and number of those receptors;
- in the case of $PM_{10}$, the local background concentration; and
- site-specific factors, such as whether there are natural shelters to reduce the risk of wind-blown dust.

28.6.2.2 The first requirement is to determine the specific sensitivities of local receptors. The IAQM guidance recommends that this should be based on professional judgment, taking account of the principles set out in Table 28-4. These receptor sensitivities are then used in the matrices set out in Table 28-5, Table 28-6 and Table 28-7 to determine the sensitivity of the area. Finally, the sensitivity of the area

[2] See Competent Air Quality Expert for Environmental Impact Assessment (2018) available at: https://iaqm.co.uk/text/position_statements/competent_expert_in_aq.pdf

is considered in relation to any other site-specific factors, such as the presence of natural shelters etc. and any required adjustments to the defined sensitivities are made.

**Table 28-4: Principles to be Used When Defining Receptor Sensitivities**

| Class | Principles | Examples |
|---|---|---|
| **Sensitivities of People to Dust Soiling Effects** | | |
| High | • Users can reasonably expect enjoyment of a high level of amenity; or<br>• the appearance, aesthetics or value of their property would be diminished by soiling; and<br>• the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. | Dwellings, museum and other culturally important collections, medium- and long-term car parks and car showrooms. |
| Medium | • Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or<br>• the appearance, aesthetics or value of their property could be diminished by soiling; or<br>• the people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. | Parks and places of work. |
| Low | • The enjoyment of amenity would not reasonably be expected; or<br>• there is property that would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or<br>• there is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. | Playing fields, farmland (unless commercially sensitive horticulture), footpaths, short term car parks and roads. |
| **Sensitivities of People to the Health Effects of $PM_{10}$** | | |
| High | • Locations where members of the public may be exposed for eight hours or more in a day. | Residential properties, hospitals, schools and residential care homes. |
| Medium | • Locations where the people exposed are workers and where individuals may be exposed for eight hours or more in a day. | May include office and shop workers but will generally not include workers occupationally exposed to $PM_{10}$. |
| Low | • Locations where human exposure is transient. | Public footpaths, playing fields, parks and shopping streets. |

| Class | Principles | Examples |
|---|---|---|
| **Sensitivities of Receptors to Ecological Effects** | | |
| High | • Locations with an international or national designation and the designated features may be affected by dust soiling; or<br>• locations where there is a community of a particularly dust sensitive species. | Special Areas of Conservation with dust sensitive features. |
| Medium | • Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or<br>• locations with a national designation where the features may be affected by dust deposition. | Sites of Special Scientific Interest with dust sensitive features |
| Low | • locations with a local designation where the features may be affected by dust deposition. | Local Nature Reserves with dust sensitive features. |

**Table 28-5: Sensitivity of the Area to Dust Soiling Effects on People and Property**

| Receptor Sensitivity | Number of Receptors | Distance from the Source (m) | | | |
|---|---|---|---|---|---|
| | | <20 | <50 | <100 | <250 |
| High | >100 | High | High | Medium | Low |
| | 10-100 | High | Medium | Low | Low |
| | 1-10 | Medium | Low | Low | Low |
| Medium | >1 | Medium | Low | Low | Low |
| Low | >1 | Low | Low | Low | Low |

NOTES: For demolition, earthworks and construction, distances are taken either from the dust source or from the boundary of the site. For trackout (dust and debris carried off site by vehicles), distances are measured from the sides of roads used by construction traffic. Without mitigation, trackout may occur from roads up to 250 m, as measured from the site exit. The impact declines with distance from the site and it is only necessary to consider trackout impacts up to 50 m from the edge of the road.

### Table 28-6: Sensitivity of the Area to Human Health Effects

| Receptor Sensitivity | Annual Mean PM10 | Number of Receptors | Distance from the Source (m) | | | |
|---|---|---|---|---|---|---|
| | | | <20 | <50 | <100 | <250 |
| High | >32 µg/m³ | >100 | High | High | High | Medium |
| | | 10-100 | High | High | Medium | Low |
| | | 1-10 | High | Medium | Low | Low |
| | 28-32 µg/m³ | >100 | High | High | Medium | Low |
| | | 10-100 | High | Medium | Low | Low |
| | | 1-10 | High | Medium | Low | Low |
| | 24-28 µg/m³ | >100 | High | Medium | Low | Low |
| | | 10-100 | High | Medium | Low | Low |
| | | 1-10 | Medium | Low | Low | Low |
| | <24 µg/m³ | >100 | Medium | Low | Low | Low |
| | | 10-100 | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low |
| Medium | >32 µg/m³ | >10 | High | Medium | Low | Low |
| | | 1-10 | Medium | Low | Low | Low |
| | 28-32 µg/m³ | >10 | Medium | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low |
| | 24-28 µg/m³ | >1 | Low | Low | Low | Low |
| | <24 µg/m³ | >1 | Low | Low | Low | Low |
| Low | - | >1 | Low | Low | Low | Low |

### Table 28-7: Sensitivity of the Area to Ecological Effects

| Receptor Sensitivity | Distance from the Source (m) | |
|---|---|---|
| | <20 | <50 |
| High | High | Medium |
| Medium | Medium | Low |
| Low | Low | Low |

#### Vehicle Emissions

28.6.2.3 For the assessment of vehicle emissions, all human health receptors are considered to be High sensitivity.

### 28.6.3 Magnitude of Impact

#### Construction Dust

28.6.3.1 The dust emission magnitude is determined based on IAQM Guidance (IAQM, 2024) and is defined as either ‘Small’, ‘Medium’, or ‘Large’. The emission magnitude is determined for each activity type: demolition, earthworks, construction and trackout. The IAQM guidance explains that the classification should be based on professional judgement, but provides example categories, as shown in Table 28-8.

**Table 28-8: Examples of How the Dust Emission Magnitude Class May be Defined**

| Class | Examples |
|---|---|
| **Demolition** | |
| Large | Total building volume >75,000 metres cubed ($m^3$), potentially dusty construction material (for example, concrete), on-site crushing and screening, demolition activities >12 m above ground level |
| Medium | Total building volume 12,000 $m^3$ – 75,000 $m^3$, potentially dusty construction material, demolition activities 6-12 m above ground level |
| Small | Total building volume <12,000 $m^3$, construction material with low potential for dust release (for example, metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months |
| **Earthworks** | |
| Large | Total site area >110,000 metres squared ($m^2$), potentially dusty soil type (for example, clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height. |
| Medium | Total site area 18,000 $m^2$ – 110,000 $m^2$, moderately dusty soil type (for example, silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 3 m – 6 m in height. |
| Small | Total site area <18,000 $m^2$, soil type with large grain size (for example, sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3 m in height. |
| **Construction** | |
| Large | Total building volume >75,000 $m^3$, on-site concrete batching; sandblasting |
| Medium | Total building volume 12,000 $m^3$ – 75,000 $m^3$, potentially dusty construction material (for example, concrete), on-site concrete batching |
| Small | Total building volume <12,000 $m^3$, construction material with low potential for dust release (for example, metal cladding or timber) |
| **Trackout** [a] | |
| Large | >50 HDV (>3.5 t) outward movements in any one day, potentially dusty surface material (for example, high clay content), unpaved road length >100 m |
| Medium | 20-50 HDV (>3.5 t) outward movements in any one day, moderately dusty surface material (for example, high clay content), unpaved road length 50 m – 100 m |

| Class | Examples |
|---|---|
| Small | <20 HDV (>3.5 t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50 m |

[a] These numbers are for vehicles that leave the site after moving over unpaved ground.

28.6.3.2 The dust emission magnitude determined using Table 28-8 is combined with the sensitivity of the area determined using Table 28-5, Table 28-6 and Table 28-7 to determine the risk of impacts with no mitigation applied. The IAQM guidance provides the matrix in Table 28-9 as a method of assigning the level of risk for each activity.

**Table 28-9: Defining the Risk of Dust Impacts**

| Sensitivity of the Area | Dust Emission Magnitude | | |
|---|---|---|---|
| | **Large** | **Medium** | **Small** |
| **Demolition** | | | |
| High | High Risk | Medium Risk | Medium Risk |
| Medium | High Risk | Medium Risk | Low Risk |
| Low | Medium Risk | Low Risk | Negligible |
| **Earthworks** | | | |
| High | High Risk | Medium Risk | Low Risk |
| Medium | Medium Risk | Medium Risk | Low Risk |
| Low | Low Risk | Low Risk | Negligible |
| **Construction** | | | |
| High | High Risk | Medium Risk | Low Risk |
| Medium | Medium Risk | Medium Risk | Low Risk |
| Low | Low Risk | Low Risk | Negligible |
| **Trackout** | | | |
| High | High Risk | Medium Risk | Low Risk |
| Medium | Medium Risk | Medium Risk | Low Risk |
| Low | Low Risk | Low Risk | Negligible |

#### Vehicle Emissions

28.6.3.3 The IAQM guidance (EPUK & IAQM, 2017) does not categorise the magnitude of impact specifically, but considers the change in concentration relative to the appropriate objective at each individual receptor in combination with the total concentration in the “with scheme” scenario. This is called the “Impact Descriptor”.

### 28.6.4 Significance of Effect

28.6.4.1 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

28.6.4.2 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UK Scheme design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UK Scheme.

#### Construction Dust

28.6.4.3 The IAQM guidance does not provide a method for assessing the significance of effects before mitigation and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, the IAQM guidance is clear that the residual effect will normally be ‘not significant’.

#### Vehicle Emissions

28.6.4.4 As described above, impact descriptors are determined at individual receptors. Table 28-10 sets out the impact descriptor matrix. Impacts on Air Quality, whether adverse or beneficial, will have an effect on human health that can be judged as ‘significant’ or ‘not significant’. This is the primary requirement of the EIA regulations. The judgement of the overall significance of effect needs to take into account a variety of factors. For example, the modelled receptors may represent a group of properties and as such a single “major” impact descriptor could represent higher exposure than multiple “minor” impact descriptors. The influence of the EOS on local and national planning policy also needs to be considered - a development that prevents an AQMA from being revoked may be considered to be more significant than one that has no effect on an AQMA for example.

**Table 28-10: Local Air Quality Impact Descriptor Matrix**

| Long-Term Average Concentration at Receptor | Change in concentration relative to Air Quality Assessment Level (AQAL) | | | | |
|---|---|---|---|---|---|
| | 0% | 1% | 2-5% | 6-10% | >10% |
| 75% or less of AQAL | Negligible | Negligible | Negligible | Minor | Moderate |
| 76-94% of AQAL | Negligible | Negligible | Minor | Moderate | Moderate |
| 95-102% of AQAL | Negligible | Minor | Moderate | Moderate | Major |
| 103-109% of AQAL | Negligible | Moderate | Moderate | Major | Major |
| 110% or more of AQAL | Negligible | Moderate | Major | Major | Major |

## 28.7 Potential Effects and Mitigation

28.7.1.1 To inform identification of potential significant effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been

proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 28.7.2 Embedded Mitigation and Good Practice Measures

#### Construction Phase

28.7.2.1 Good Practice mitigation measures are set out in the IAQM Guidance (IAQM, 2024) and are dependent on the risk rating determined during the Dust Risk Assessment (DRA).

28.7.2.2 The potential for construction phase site dust impacts will be assessed qualitatively through a DRA in line with guidance published by the IAQM (IAQM, 2024) as set out above. The assessment will consider both the magnitude of potential dust emissions and the sensitivity of the surrounding area to determine the overall air quality impact. The identified risk level will be used to inform the selection of appropriate mitigation measures. The IAQM guidance recognises that, even with a rigorous dust management plan in place, it is not possible to guarantee that the dust mitigation measures will be effective all of the time, for instance under adverse weather conditions. The local community may therefore experience occasional, short-term dust annoyance. The scale of this would not normally be considered sufficient to change the conclusion that the effects will be ‘not significant’.

#### Decommissioning Phase

28.7.2.3 Decommissioning phase site emissions will be mitigated through use of the same standard best practice mitigation measures as stated for the mitigation of construction phase impacts and, where practicable, will include new measures that have been developed between now and the time of decommissioning.

### 28.7.3 Potential Effects

#### Construction Phase

28.7.3.1 The UK Scheme has the potential to affect local air quality, particularly during the construction phase. Potential impacts include:

- an increase in dust deposition resulting from construction activities associated with the EOS, which may affect the amenity of nearby sensitive receptors;
- elevated levels of pollutants, including particulate matter ($PM_{10}$ and $PM_{2.5}$), from construction activities associated with the EOS, which may affect exposure to pollutants harmful to human health;
- increased emissions from construction traffic for the EOS on the public road network, which may affect exposure to pollutants harmful to human health; and
- an increase in emissions ($NO_x$) and pollutant concentrations ($PM_{10}$ and $PM_{2.5}$) due to construction vessels associated with the UKMS, which may affect exposure to pollutants harmful to human health sensitive ecosystems.

28.7.3.2 Due to the scale of the EOS's construction works as set out in Volume 01, Chapter 02: UK Project Description, it is possible that significant effects could occur due to uncontrolled emissions of dust and finer particles associated with construction activities.

28.7.3.3 It is also possible that additional road traffic movements generated by the construction works and their associated emissions, could have a potentially significant effect on local air quality, particularly at sensitive locations close to the key routes used by construction traffic.

28.7.3.4 Air Quality impacts arising from construction of the UKMS will only occur in relation to emissions from construction vessels. There is currently no guidance by which to scope or screen whether an Air Quality assessment of such emissions is required.

28.7.3.5 Defra has published guidance for local authorities as part of the LAQM Technical Guidance (Defra, 2022), advising when vessel emissions should be considered (modelled or monitored) as part of their annual air quality status reporting. This guidance states that vessel emissions should be considered when there are more than 5,000 large ship movements per year, where there are receptors within 250 m of vessel operations, or 15,000 large ship movements per year, where there are receptors within 1 km of vessel operations.

28.7.3.6 Construction of the UKMS will require only a very small number of large vessel movements, substantially below 5,000 per year. Based on the expected scale of marine activity, construction vessel emissions are therefore considered to pose no realistic risk of exceeding air quality objectives at onshore receptors.

28.7.3.7 Accordingly, construction phase vessel emissions are proposed to be scoped out of the Air Quality assessment. No detailed assessment of construction vessel emissions will be undertaken within the ES.

28.7.3.8 The significance of effect of road traffic and vessel emissions impacts will be determined in line with the IAQM and EPUK guidance (EPUK & IAQM, 2017). This is based on the total concentrations predicted at individual Air Quality sensitive receptors with the construction vehicle movements, relative to the air quality objective and the change in pollutant concentration due to the UK Scheme, relative to the air quality objective, at the same locations.

#### Operational Phase

28.7.3.9 During the operational phase, potential impacts include:

- increased emissions from operation and maintenance traffic on the public road network, which may affect exposure to pollutants harmful to human health;
- increased emissions from back-up site combustion plant that will be installed at the Converter Station to ensure continued supply in the event of a power outage, which may affect exposure to pollutants harmful to human health;

- an increase in dust deposition resulting from maintenance activities from the EOS, which may affect the amenity of nearby sensitive receptors; and
- an increase in emissions due to vessels used for routine inspections, geophysical surveys and replacement of external cable protection for the proposed Subsea High Voltage Direct Current (HVDC) Cables; and for non-routine maintenance activities such as cable repair which may affect exposure to pollutants harmful to human health or other aspects of the environment.

28.7.3.10 It is considered highly unlikely that the number of traffic movements associated with operation and maintenance activities (set out in Volume 01, Chapter 02: UK Project Description) will exceed the IAQM screening criteria on any given road link. Therefore, it is proposed that operational road traffic emissions are scoped out of the Air Quality assessment.

28.7.3.11 Under normal operating conditions, the Converter Station will have a direct power link to the national grid. There is, however, the potential for back-up energy generation associated with the Converter Station to contribute to a significant Air Quality effect. This could occur due to the release of pollutants associated with combustion, subject to the size of the energy plant and the anticipated hours of operation.

28.7.3.12 As set out in Volume 01, Chapter 02: UK Project Description, a diesel back-up generator will be used to provide back-up electricity supply in the event of a failure of the low voltage electricity supply. The specification of the plant is not known at this time but will be reviewed within the ES with reference to its emissions and its potential to contribute a significant effect. If the plant's emissions data and location suggest that off-site impacts are possible, then those emissions will be modelled using the ADMS modelling software, to predict the contribution of those emissions to total pollutant concentrations at nearby sensitive receptors.

28.7.3.13 The significance of effect of any back-up energy plant emissions will be determined in line with the IAQM and EPUK guidance (EPUK & IAQM, 2017).

28.7.3.14 Any maintenance activities along the Onshore High Voltage Alternating Current (HVAC) and HVDC Cable Routes are likely to be small scale and localised to discrete areas where repair or maintenance is required. Due to the scale of the works and as best practice mitigation measures for dust and finer particles control would be employed, it is proposed that dust emissions during the operational phase are scoped out of the air quality assessment.

28.7.3.15 Air Quality impacts due to vessels used for routine inspections, geophysical surveys and replacement of external cable protection for the proposed Subsea HVDC Cables and for non-routine maintenance activities such as cable repair, are anticipated to be intermittent, of limited duration and temporary. Operational vessels are expected to comply with standard modern emissions regulations; however, no specific commitment on vessel specification is required at this stage. It is therefore considered that these emissions will constitute a negligible impact on

local air quality. It is proposed that emissions from vessels used during the operational phase are scoped out of the Air Quality assessment.

### Decommissioning Phase

28.7.3.16 The precise details of the decommissioning, although outlined in Volume 01, Chapter 02: UK Project Description, are not known. However, decommissioning effects are expected to be similar to, or of a lesser magnitude than, construction effects. Therefore, decommissioning effects will not be specifically assessed in the air quality assessment and reference will instead be made to the outcomes of the construction phase assessment.

28.7.3.17 The potential for decommissioning phase road traffic and vessel emissions impacts is difficult to estimate accurately. Even if it is assumed that decommissioning traffic flow and vessel movement impacts are similar to construction phase traffic and vessel impacts, the emissions from decommissioning vehicles and vessels may be different to those associated with construction, due to more advanced technologies by such time and the evolution of the vehicle and vessel fleets. Given the drive to decarbonise the transport sector and continual improvement in emissions technology, it is considered appropriate to assume that the road traffic and vessel emissions impact of decommissioning will be no worse than the road traffic and vessel emissions impact of construction. As such, it is proposed that decommissioning phase road traffic and vessel emissions are scoped out of further consideration in the EIA process.

28.7.3.18 Based on the potential impacts identified in Sections 28.7.2–28.7.4 and the applicable guidance outlined in Section 28.6, a summary of the elements proposed to be scoped in or scoped out of the Air Quality assessment is provided in Table 28-11 below. This table sets out the UK Scheme phase, the relevant activity, the receptors considered and the justification for Scoping decisions and is intended to provide a clear overview of how the assessment will be taken forward into the ES.

**Table 28-11: Elements Scoped In or Out for Air Quality Assessment**

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction | Site emissions - dust and fine particulates | An increase in dust deposition which may affect the amenity of nearby sensitive receptors.<br><br>Elevated levels $PM_{10}$ and $PM_{2.5}$ which may affect exposure to pollutants harmful to human health. | Human health and amenity located within 250 m of the construction site boundary and within 50 m of a public road used by construction traffic up to 500 m from a site egress.<br><br>Designated nature conservation sites located within 50 m of the construction site boundary and within 50 m of a public road used by construction traffic up to 500 m from a site egress. | Scoped In | Due to the scale of the construction works and the sensitivity of the area to dust impacts, the potential for site emissions (including dust and fine particulates) impacts will be assessed as a minimum through a qualitative DRA. |
| Construction | Combustion emissions ($NO_x$, $PM_{10}$ and $PM_{2.5}$) from construction phase traffic movements | Increased emissions which may affect exposure to pollutants harmful to human health. | Receptors located adjacent (<200 m) to roads that experience an increase in AADT traffic as defined by IAQM guidance. | Scoped In[3] | At present, modelled construction traffic data is not available; this will be reviewed once the data becomes available. When available, traffic volumes will be compared against the IAQM and EPUK screening criteria (EPUK & IAQM, 2017) for sites located beyond an AQMA, which specifies |

[3] Method and detail of assessment required is subject to the traffic impact (i.e. number of additional traffic movements) of the EOS.

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | | | | thresholds of an increase of more than 500 Light Goods Vehicles (LGVs) or 100 Heavy Goods Vehicles (HGVs) per day in AADT (EPUK & IAQM, 2017). Should the construction phase traffic volumes exceed the IAQM screening thresholds, a detailed air quality modelling assessment will be undertaken. If not, construction phase traffic emissions impacts will be assessed qualitatively. |
| Construction | Emissions ($NO_x$, $PM_{10}$ and $PM_{2.5}$) from construction vessels | An increase in emissions which may affect exposure to pollutants harmful to human health and sensitive ecosystems. | Human health receptors within 250 m of main areas of movement of more than 5,000 large ship movements per year. | Scoped Out | Construction of the UKMS will require far fewer than 5,000 large vessel movements per year. This is well below the indicative Defra LAQM screening criteria used to identify situations where vessel emissions may pose a risk to public health. Construction vessel emissions will be highly intermittent, temporary, of limited duration and are therefore considered unlikely to result in significant effects. As such, this aspect is scoped out of the Air Quality assessment. |
| Operational | Site combustion emissions ($NO_x$, $PM_{10}$ and $PM_{2.5}$) from back-up | Increased emissions from back-up plant at the Converter Station to ensure continued | Human health receptors within approximately 500 m | Scoped In[4] | Should the operational UK Scheme include back-up energy generation plant of a size and operational frequency that has the potential to |

[4] Method and detail of assessment required is subject to the scale of energy plant proposed and frequency of operation.

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | energy generation plant | supply in the event of a power outage, which may affect exposure to pollutants harmful to human health. | | | impact local air quality, then a detailed assessment of such emissions will be undertaken as part of the air quality assessment of the UK Scheme. |
| Operational | Combustion emissions ($NO_x$, $PM_{10}$ and $PM_{2.5}$) from operational phase traffic movements | Increased emissions which may affect exposure to pollutants harmful to human health. | N/A | Scoped Out | Given the nature of the operational EOS, it is considered highly unlikely that operational traffic movements will exceed the IAQM and EPUK screening criteria for sites located beyond an AQMA. A detailed assessment of operational phase road traffic emissions is therefore scoped out of further consideration in the air quality assessment. |
| Operational | Dust deposition resulting from maintenance activities from the EOS | An increase in dust deposition which may affect the amenity of nearby sensitive receptors. . | N/A | Scoped Out | Maintenance activities are likely to be small-scale and localised to discrete areas where repair or maintenance is required. Best practice mitigation measures for dust and finer particles control would be employed, therefore this aspect is scoped out of further consideration in the air quality assessment. |
| Operational | An increase in emissions ($NO_x$) and pollutant levels (including $PM_{10}$ and $PM_{2.5}$) | An increase in emissions which may affect exposure to pollutants harmful to human health or | N/A | Scoped Out | Emissions are anticipated to be intermittent, of limited duration and temporary. Moreover, the UKMS will commit to vessel specifications which will seek lowest vessel |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | due to vessels used for operation and maintenance | other aspects of the environment | | | emissions as far as reasonably practicable. It is considered that these emissions will constitute a negligible impact on local air quality, therefore this aspect is scoped out of further consideration in the air quality assessment. |
| Decommissioning | Site emissions including dust and fine particulates | An increase in dust deposition which may affect the amenity of nearby sensitive receptors.<br><br>Elevated levels $PM_{10}$ and $PM_{2.5}$ which may affect exposure to pollutants harmful to human health. | As for construction | Scoped In[5] | The precise details of decommissioning are not currently known. Decommissioning phase site emissions will be mitigated through use of standard best practice mitigation measures in place at the time of decommissioning. |
| Decommissioning | Combustion emissions ($NO_x$, $PM_{10}$ and $PM_{2.5}$) from decommissioning phase traffic movements. | Increased emissions which may affect exposure to pollutants harmful to human health. | As for construction | | |
| Decommissioning | Emissions ($NO_x$, $PM_{10}$ and $PM_{2.5}$) from vessels | An increase in emissions which may affect exposure to pollutants harmful to human health and | As for construction | | |

[5] Scoped in but will not be specifically assessed, as impacts will be mitigated through use of standard best practice mitigation measures in place at the time of decommissioning.

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | sensitive ecosystems. | | | |
| Transboundary Effects | N/A | N/A | N/A | Scoped Out | Air quality impacts from the EOS will be localised in nature and consequently would not affect air quality in other European Economic Area (EEA) member states. Given the proximity of the UKMS to the Netherlands, there is the potential for emissions to affect within another EEA State. However, such emissions are anticipated to be highly intermittent, of very limited duration and temporary, therefore this aspect is scoped out of further consideration in the air quality assessment. |

### 28.7.4 Cumulative and Transboundary Effects

#### Cumulative Effects

28.7.4.1 Operational effects have been scoped out of the assessment of Air Quality and as such there are unlikely to be any cumulative effects from the operation of the development.

28.7.4.2 There is the potential for cumulative impacts to result from the construction of the UK Scheme. In terms of dust and particulates from construction, impacts will be mitigated through good practice site mitigation measures such that there should be no significant impact. It is anticipated that any other construction activities in the area will also put in place appropriate mitigation measures and thus no cumulative impacts should occur. It is recommended that the Construction Environmental Management Plan (CEMP) sets out that regular communication be maintained with any other large schemes at the time in order to manage any potential interactions.

#### Transboundary Effects

28.7.4.3 As set out in Volume 01, Chapter 06: EIA Approach and Methodology, transboundary effects are defined as effects that would affect the environment in another state within the EEA, i.e. effects which would be experienced beyond the borders of the UK.

28.7.4.4 Potential impacts on air quality from the EOS are primarily associated with dust and road traffic emissions during construction and decommissioning and road traffic emissions from maintenance works and emissions from potential back-up power generation during the operational phase. All these impacts are localised in nature and consequently would not affect air quality in other EEA states. Therefore, transboundary Air Quality effects resulting from the EOS are scoped out of further assessment.

28.7.4.5 Potential impacts on Air Quality from the UKMS are associated with emissions from vessels during the construction, operational and decommissioning phases. It is acknowledged that the UKMS Scoping Boundary (as shown in Volume 01, Chapter 02: UK Project Description Figure 2-3) extends to the boundary of the UK exclusive economic zone (EEZ) with the Dutch EEZ. The vessel movements (and their associated emissions) for the UKMS will therefore, at times, be immediately adjacent to the Netherlands. Consequently, although the emissions generated by the UKMS will be localised, given the proximity to the Netherlands, there is the potential for UKMS emissions to be received within another EEA State. However, vessel emissions in proximity to the Netherlands capable of transcending international boundaries are considered to be highly intermittent, of very limited duration and temporary. As such, transboundary air quality effects resulting from the UKMS are scoped out of further assessment. Potential effects of greenhouse gas (GHG) emissions, which contribute to global climate change are discussed in Volume 04, Chapter 29: Carbon and Climate Change.

## 28.8 Assumptions, Limitations and Uncertainties

28.8.1.1 This Scoping assessment is based on the baseline conditions and the UK Scheme design information available at this stage. The Air Quality assessment itself will be undertaken once all necessary information is available and the design has been finalised.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 04, Chapter 29: Carbon and Climate Change

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00031 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| Role | Name |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| AR5 | Fifth Assessment Report |
| °C | Degrees Celsius |
| CaP | Cable Plan |
| CBRA | Cable Burial Risk Assessment (CBRA) |
| CCC | Climate Change Committee |
| CCRA | Climate Change Risk Assessment |
| CCRA3 | Third UK Climate Change Risk Assessment |
| CEMP | Construction Environmental Management Plan |
| $CH_4$ | Methane |
| CIA | Cumulative Impact Assessment |
| $CO_2$ | Carbon Dioxide |
| DCO | Development Consent Order |
| DEFRA | Department for Environment, Food and Rural Affairs |
| DESNZ | Department for Energy Security and Net Zero |
| DM | Do-Minimum |
| EEA | European Economic Area |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| ES | Environmental Statement |
| GHG | Greenhouse Gas |
| GWP | Global Warming Potential |
| HFCs | Hydrofluorocarbons |
| HVDC | High Voltage Direct Current |
| HSE | Health and Safety Executive |
| ICCI | In-combination Climate Change Impact |
| ICES | International Council for the Exploration of the Sea |
| IEMA | Institute of Environmental Management and Assessment |
| IPCC | Intergovernmental Panel on Climate Change |
| ISEP | Institute of Sustainability and Environmental Professionals |
| MDS | Maximum Design Scenarios |
| MHWS | Mean High Water Springs |
| mm | millimetre |
| MPS | Marine Policy Statement |
| NAP3 | Third UK National Adaptation Programme |
| NDC | Nationally Determined Contribution |
| $N_2O$ | Nitrous oxide |
| $NF_3$ | Nitrogen trifluoride |
| NPFF | National Planning Policy Framework |
| NPS | National Policy Statement |
| NPS EN-1 | Overarching National Planning Policy Statement for Energy |

| Acronym | Definition |
|---|---|
| NPS EN-3 | National Policy Statement for Renewable Energy Infrastructure |
| NPS EN-5 | National Policy Statement for Electricity Networks Infrastructure |
| NSP | Navigational Safety Plan (NSP) |
| OEMP | Operational Environmental Management Plan |
| O&M | Operations and Maintenance |
| PAS | Publicly Available Specification |
| PEIR | Preliminary Environmental Impact Report |
| PFCs | Perfluorocarbons |
| RCP | Representative Concentration Pathway |
| $SF_6$ | Sulphur hexafluoride |
| SSP | Shared Socioeconomic Pathways |
| $tCO_2e$ | Tonnes of carbon dioxide equivalent |
| UK | United Kingdom |
| UKCP18 | United Kingdom Climate Projections 2018 |
| UNFCCC | United Nations Framework Convention on Climate Change |
| VMP | Vessel Management Plan |
| WBCSD | World Business Council for Sustainable Development |
| WRI | World Resources Institute |

# 29. Carbon and Climate Change

## 29.1 Introduction

29.1.1.1 This Chapter presents the Carbon and Climate Change assessment which will consider the potential significant effects on Carbon and Climate Change receptors during the construction, Operation and Maintenance (O&M), and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project), United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). The UK Scheme is formed of both the UK Marine Scheme (UKMS) and the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description), both of which are relevant to this Chapter. As a result, this Chapter is split where relevant between the UKMS and EOS.

29.1.1.2 The wider Tarchon Project involves installing an electricity interconnector linking Essex, in East Anglia, UK, and Niederlangen, in Lower Saxony, Germany. The wider Tarchon Project proposes to connect the two countries' energy markets and increase the security and reliability of their electrical systems. In addition, it will facilitate the integration of additional volumes of intermittent renewable energy sources into the England and German energy grids.

29.1.1.3 This Chapter of the Scoping Report:

- Provides a summary of the current Carbon and Climate Change baseline;
- Describes the proposed methodology and datasets to be used within the assessment;
- Identifies relevant potential effect pathways and associated Carbon and Climate Change receptors from the proposed components of the UK Scheme; and
- Highlights the potential significant effects to be considered within the assessment for the purpose of an Environmental Impact Assessment (EIA).

29.1.1.4 This Chapter should be read alongside the following Chapters for a broader understanding of the UK Scheme and interactions with Carbon and Climate Change:

- Volume 01, Chapter 02: UK Project Description;
- Volume 01, Chapter 05: Legislative and Planning Policy Context;
- Volume 02, Chapter 08: Water Environment;
- Volume 02, Chapter 10: Onshore Biodiversity;
- Volume 02, Chapter 11: Onshore Archaeology and Cultural Heritage;
- Volume 03, Chapter 13: Marine Physical Environment;
- Volume 03, Chapter 14: Benthic and Intertidal Ecology;
- Volume 03, Chapter 15: Fish and Shellfish Ecology;
- Volume 03, Chapter 16: Marine Mammals Ecology;
- Volume 03, Chapter 17: Commercial Fisheries;

- Volume 03, Chapter 18: Shipping and Navigation;
- Volume 03, Chapter 19: Offshore Archaeology and Cultural Heritage;
- Volume 03, Chapter 20: Offshore Infrastructure and Sea Users;
- Volume 04, Chapter 21: Landscape and Visual Impact Assessment; and
- Volume 04, Chapter 23: Ornithology.

### 29.1.2 Types of Carbon and Climate Change Assessment

29.1.2.1 In line with relevant guidance (Section 29.3.6), three types of Carbon and Climate Change assessment are to be included in the EIA:

- **Greenhouse Gas (GHG) Emissions Assessment** – this will quantify the estimated GHG[1] emissions associated with the construction, O&M, and decommissioning phases of the UK Scheme, and will compare these against current and future baseline GHG emission levels. The assessment will also identify appropriate mitigation measures aimed at minimising GHG emissions throughout the UK Scheme's life cycle. For the purposes of this assessment, the term 'carbon' is used interchangeably to refer to GHG emissions;
- **Climate Change Resilience Assessment (CCRA)** – this will identify what climate changes are expected to occur in the future, and the vulnerability and resilience of the Scheme to those identified changes; and
- **In-combination Climate Change Impact (ICCI) assessment** – this will identify instances where projected climate change may interact with environmental impacts arising from the UK Scheme, potentially resulting in significant effects on environmental receptors that would not occur under current climatic conditions.

## 29.2 Study Area

### 29.2.1 Introduction

29.2.1.1 Three Study Areas will be utilised for this Chapter:

- GHG Study Area;
- CCRA Study Area; and
- ICCI assessment Study Area.

### 29.2.2 Greenhouse Gas (GHG) Assessment Study Area

29.2.2.1 The GHG assessment Study Area covers all relevant direct and indirect emission sources and sinks associated with the UK Scheme's Scoping Boundary during the construction, operational and decommissioning phases. The Scoping Boundary is shown in Figure 2-2 and Figure 2-3 in Volume 01, Chapter 02: UK Project Description.

29.2.2.2 The GHG assessment will adopt a whole-life carbon approach, in accordance with Publicly Available Specification (PAS) 2080: Carbon Management in Infrastructure

[1] This assessment will consider all GHGs identified under the Kyoto Protocol, including carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), Sulphur hexafluoride ($SF_6$), and nitrogen trifluoride ($NF_3$).

and the Institute of Environmental Management and Assessment[2] (IEMA) Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance (IEMA, 2022).

29.2.2.3 For the construction phase GHG assessment, the Study Area is defined by all emission sources linked to the development and installation of the UK Scheme. This includes emissions from the extraction, processing, and manufacture of construction materials; transportation of these materials and equipment to site (including long-distance supply chains where applicable); and on-site construction activities such as energy and fuel consumption, cable operation, and waste management.

29.2.2.4 For the operational phase assessment, GHG emissions associated with the maintenance, repair, and replacement of infrastructure (e.g. routine inspections, surveys and replacement of external cable protection) will be evaluated. GHG emissions resulting from operational energy and water use of the UK Scheme will also be considered.

### 29.2.3 Climate Change Resilience Assessment (CCRA) Study Area

29.2.3.1 The Study Area for the CCRA encompasses both the permanent and temporary construction, O&M and decommissioning phase footprints within the UK Scheme's spatial boundary (as described in Volume 01, Chapter 02: UK Project Description) and considers all relevant climate-related hazards that could affect infrastructure and assets associated with the UK Scheme. Climate risks and potential effects are evaluated across the full operational lifecycle of the UK Scheme.

29.2.3.2 The primary source of information to characterise future climate conditions to understand risks will be the UK Climate Projections 2018 (UKCP18) dataset (Met Office, 2018). These projections provide modelled climate change data for land and coastal zones, which, while not specific to offshore environments, are considered suitable for use in a proportionate assessment of climate risk.

29.2.3.3 As part of the CCRA Study Area, baseline and projected climate parameters derived from UKCP18 for the onshore region closest to the UK Scheme have been applied for both the EOS and UKMS Scoping Boundaries. Because UKCP18 outputs are structured around onshore grid points only, there is no option to obtain offshore-specific projections directly from the dataset. UKCP18 projections use land areas only as the basis of the projections and do not extend offshore. As a result, it is accepted best practice to use the nearest onshore UKCP18 location as a proxy for adjacent offshore areas. This approach is considered appropriate because the key climate variables of interest such as temperature, precipitation, and wind patterns tend to show strong spatial continuity between coastal onshore areas and the immediately adjacent marine environment. Regulators recognise this limitation in the UKCP18 dataset and accept the use of the closest onshore projection point as the best available representation of offshore conditions.

[2] Note in July 2025, IEMA rebranded as the Institute of Sustainability and Environmental Professionals (ISEP). However, since the guidance and documentation for this assessment still reference IEMA, the name IEMA will continue to be used throughout this assessment for consistency.

29.2.3.4 For the UKMS, the onshore EOS climate projections are therefore considered suitably representative of expected offshore conditions and are used as an applicable proxy. This reflects established best-possible practice given the approach of UKCP18 and the absence of dedicated offshore projection data. This is discussed further is Section 29.6.

### 29.2.4 In-combination Climate Change Impact (ICCI) Assessment Study Area

29.2.4.1 The Study Area for the ICCI assessment is the Study Area for each environmental discipline is as described in the relevant technical Chapters of this Scoping Report as discussed in 29.1.1.4.

## 29.3 Relevant Legislation, Planning Policy and Guidance

29.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context provides an overview of all legislation and planning policy framework relevant to the UK Scheme.

29.3.1.2 This Section outlines the national and international legislation, planning policy and guidance relating to the assessment of potential effects on Carbon and Climate Change that may arise from the UK Scheme.

### 29.3.2 Legislation

29.3.2.1 The following international conventions adopted by UK legislation are relevant to Carbon and Climate Change:

- The Kyoto Protocol (United Nations, 1997):
  - An international treaty within the United Nations Framework Convention on Climate Change (UNFCCC) which commits signatory countries to limit and reduce GHGs in accordance with agreed targets. The Protocol, which focused on developed countries, was adopted in 1997 and entered into force in 2005. The Kyoto Protocol applies to the seven GHGs, which are covered by the assessment methodology presented in Section 29.6.
- The Paris Agreement (United Nations, 2015)
  - An international treaty adopted in 2015 which is a legally binding agreement within the UNFCCC dealing with GHG emissions mitigation, adaptation and finance. It requires all signatories to strengthen their climate change mitigation efforts to keep global warming below 2 Degree Celsius (°C) this century, and to pursue efforts to limit global warming to below 2°C, preferably to 1.5°C, above pre-industrial levels. The Paris Agreement therefore builds upon the foundation of the Kyoto Protocol, expanding its scope, strengthening its mechanisms, and broadening its participation to create a more unified and effective global response to climate change.
- UK Nationally Determined Contribution (UK Government, 2025):
  - In 2020, the UK communicated its new Nationally Determined Contribution (NDC) to the UNFCCC. Within this, the UK has committed to reducing GHG emissions by at least 68% by 2030 compared to 1990 levels (UK Government, 2020). This was later updated in 2024, with a NDC target of reducing all GHG emissions by at least 81% by 2035, compared to 1990 levels (UK Government, 2025).

29.3.2.2 There is no legislation that defines the methodology to be used in the Carbon and Climate Change assessments. Rather, the accepted methodology for climate change assessments in EIA is defined by the best practice guidance referred to in Section 29.3.6.

29.3.2.3 The following legislation and policy relevant to Carbon and Climate Change is described below:

- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (UK Government, 2017):
  - Requires that EIAs assess the significant effects resulting from the impact on climate, and the vulnerability of the UK Scheme to climate change.
- The Climate Change Act 2008 (UK Government):
  - This legislation sets a legally binding target for the UK to reduce its GHG emissions from 1990 levels by at least 80% by 2050. This target is supported by a legally binding five-year 'Carbon budgets' system and an independent body to monitor progress, the Climate Change Committee (CCC). The UK carbon budgets restrict the amount of GHG emissions the UK can legally emit in a defined five-year period. The Climate Change Act 2008 was amended in 2019 to revise the existing 80% reduction target and legislate for net zero emissions by 2050.
- The Carbon Budget Order 2021 (UK Government, 2021):
  - Sets the carbon budget total for the Sixth (2033-2037) Carbon Budget period. The UK is currently developing, alongside the CCC, its 7th Carbon Budget, which is expected to be enforced by 2026.
- Planning Act 2008 (as amended by the Planning and Infrastructure Act 2025) (UK Government, 2025) :
  - Provides the statutory framework for the consenting of Nationally Significant Infrastructure Projects (NSIPs). The Planning and Infrastructure Act 2025 introduces amendments to streamline consenting, environmental assessment and decision-making processes, while retaining the core NSIP regime established under the Planning Act 2008. Section 104 requires decisions to be taken in accordance with relevant National Policy Statements, having regard to environmental effects.
- The Town and Country Planning (EIA) Regulations 2017 (UK Government, 2017) :
  - This governs EIA requirements including impacts on climate change e.g. GHG emissions.
- Energy Act 2023 (UK Government, 2023):
  - Focused on energy production, energy security, and the regulation of the energy market. As part of this legislation, the Act grants the primary powers needed to deliver the Offshore Wind Environmental Improvement Package. This package is designed to address the environmental impacts of offshore wind infrastructure on the marine environment and to streamline the consenting process for new offshore wind developments.

- Flood and coastal erosion risk management policy statement (UK Government, 2020):
  - This policy statement sets out the government's long-term ambition to create a nation more resilient to flood and coastal erosion, including ensuring that any new infrastructure built is resilient to flooding and coastal erosion.
- The UK's Net Zero Strategy (DESNZ & BEIS, 2022):
  - Sets out the government's long-term plan for reducing greenhouse gas emissions across the economy and achieving net zero by 2050. The strategy outlines sector-specific pathways for decarbonising power, transport, buildings, industry, and land use, while supporting economic growth and energy security.

29.3.2.4 The legislative and policy framework for CCRA and GHG assessment in the UK is well established. The most recent national evidence base is provided by the third UK Climate Change Risk Assessment (CCRA3) and National Adaptation Programme (NAP3). The fourth UK Climate Change Risk Assessment (CCRA4) is currently in development, with the independent assessment expected in 2026 and the statutory CCRA4 due in 2027. National Adaptation Programme (NAP4) is expected in 2028. While no immediate methodological changes are anticipated, the Carbon and Climate Change assessment will be based on up-to-date legislation, guidance and climate projections to ensure the UKMS and EOS remains robust to evolving policy and evidence.

### 29.3.3 National Policy Statements

29.3.3.1 The updated Energy National Policy Statements (EN-1, EN-3 and EN-5), designated in January 2026 by the Department for Energy Security and Net Zero (DESNZ), provide the primary policy framework for assessing NSIPs in the energy sector:

- Overarching National Policy Statement for Energy (EN-1) (2025, designated 2026) (DESNZ, 2026):
  - Sets out the Government's policy for the delivery of energy infrastructure, requiring applicants to demonstrate how environmental protection, biodiversity conservation and enhancement have been integrated into project design. This includes consideration of marine planning policy, marine licensing, ecosystem services and natural capital;
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (updated 2025, designated 2026) (DESNZ, 2026):
  - Establishes assessment requirements for offshore renewable energy developments, including the need to identify, assess and mitigate effects on marine species across all phases of the project lifecycle, including cumulative and in-combination effects; and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (updated 2025, designated 2026) (DESNZ, 2026):

  - Requires applicants to apply the mitigation hierarchy to environmental effects associated with electricity network infrastructure, including likely and potential impacts from climate change.

### 29.3.4 UK Marine Policy Statement

29.3.4.1 The updated Energy National Policy Statements (EN-1, EN-3 and EN-5), designated in January 2026 by the Department for Energy Security and Net Zero (DESNZ), provide the primary policy framework for assessing NSIPs in the energy sector:

- Overarching National Policy Statement for Energy (EN-1) (2025, designated 2026) (DESNZ, 2026):
  - Sets out the Government's policy for the delivery of energy infrastructure, requiring applicants to demonstrate how environmental protection, biodiversity conservation and enhancement have been integrated into project design. This includes consideration of marine planning policy, marine licensing, ecosystem services and natural capital;
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (updated 2025, designated 2026) (DESNZ, 2026):
  - Establishes assessment requirements for offshore renewable energy developments, including the need to identify, assess and mitigate effects on marine species across all phases of the project lifecycle, including cumulative and in-combination effects; and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (updated 2025, designated 2026) (DESNZ, 2026):
  - Requires applicants to apply the mitigation hierarchy to environmental effects associated with electricity network infrastructure, including likely and potential impacts from climate change.

29.3.4.2 From this the UK Marine Policy Statement (MPS) serves as the implementation framework for Section 44 of the Marine and Coastal Access Act 2009, guiding decisions impacting the UK's marine environment. The UK MPS, originally published in 2011 and last updated September 2020 by Department for Environment, Food and Rural Affairs (Defra) (DEFRA, 2020) provides the overarching policy framework for marine planning and decision-making. It sets out objectives to halt biodiversity loss, protect marine ecosystems and avoid harm to marine ecology where possible, while recognising that development may present opportunities for ecological enhancement.

29.3.4.3 Paragraph 2.6.7.7 of the UK MPS states that marine planning and decision making should consider how the marine environment can adapt to the impacts of climate change, including assessing "likely and potential impacts from climate change and their implications for the location of timing of development and activities over the plan period and beyond" (DEFRA, 2020) . In particular, developments and projects should consider risks associated with rising land and sea temperatures, sea level rise, and the potential for increased frequency and intensity of extreme events such as flooding and coastal erosion.

### 29.3.5 National Planning Policy Framework (NPPF)

29.3.5.1 The NPFF (published December 2024, as amended February 2025) (Ministry of Housing, Communities and Local Government, 2024) sets out Government policy for sustainable development in England. The Carbon and Climate Change ES Chapter will be undertaken and reported in accordance with the relevant NPS requirements.

### 29.3.6 Guidance

29.3.6.1 In addition to the general approach and guidance outlined in Volume 01, Chapter 06: EIA Approach and Methodology, the following guidance is relevant to the Carbon and Climate Chapter. Further information on how this guidance and other relevant documentation has been used to inform the assessment methodology provided in Section 29.6.

- PAS 2080:2023 Carbon Management in Buildings and Infrastructure (British Standards Institution, 2023);
- IEMA Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (IEMA, 2020);
- IEMA Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance (IEMA, 2022);
- Planning Practice Guidance – Climate Change (UK Government, 2019); and
- UKCP18 (Met Office, 2018).

### 29.3.7 Local Planning Policy

29.3.7.1 Within the Tendring District Local Plan 2013-2033 (Tendring District Council, 2021), the following local policies are relevant to the Carbon and Climate Change ES Chapter:

- Sustainable Design:
  - *“the applicant/developer can demonstrate how the proposal will minimise the production of greenhouse gases and impact on climate change as per the Building Regulations prevailing at the time and policies and requirements in this plan;*
  - *All new development (including changes of use), should incorporate climate change adaptation measures and technology from the outset including reduction of emissions, renewable and low carbon energy production, passive design, and through green infrastructure techniques, where appropriate.”*
- Green Infrastructure:
  - “*Green Infrastructure will be used as a way of adapting to, and mitigating the effects of, climate change, through the management and enhancement of existing spaces and habitats and the creation of new spaces and habitats, helping to provide shade during higher temperatures, flood mitigation and benefits to biodiversity, along with increased access.”*
- Development and Flood Risk:

– "*All development classified as "More Vulnerable" or "Highly Vulnerable" within Flood Zone 2 and 3 should set finished floor levels 300mm above the known or modelled 1 in 100 annual probability (1% AEP) flood level including an allowance for climate change."*

29.3.7.2 Tendring District Council is reviewing its Local Plan to update policies. This 'Tendring District Local Plan Review 2025-2042 And Beyond' (Tendring District Council, 2026) is currently out for consultation in draft form. It includes updated local polices relevant to the Carbon and Climate Change ES Chapter: Non-strategic Policy SPL3: Sustainable Design, Strategic Policy PPL1: Development and Flood Risk and Strategic Policy DI1: Infrastructure Delivery and Impact Mitigation. However, as these policies remain in draft form, they have not been considered further at this stage.

29.3.7.3 The Essex Climate Adaptation Plan Framework (Essex County Council, 2024) outlines the immediate and long-term priorities and strategies for climate adaptation in Essex. Priorities for adaptation development include: *"Ensure climate risk management is integrated into Essex County Council decision making, policies and planning, especially in areas responsible for long term assets (such as council buildings, built environment, highways)."*

## 29.4 Consultation and Engagement

29.4.1.1 No topic-specific consultation has taken place relating to Carbon and Climate Change to date. However, responses to the non-statutory consultation (as described in Volume 01, Chapter 04: Approach to Consultation) have been received from Essex County Council, Suffolk County Council, Tendring District Council and Babergh and Mid Suffolk District Councils. Where comments relevant to Carbon and Climate Change have been provided, these are summarised and responded to in Table 29-1.

**Table 29-1: Non-statutory Consultation Responses: Carbon and Climate Change**

| Consultee | Summary of Comment | How Matter will be Addressed |
|---|---|---|
| Essex County Council | Details of lifecycle GHG emissions of the UK Scheme should be provided, noting that the UK Scheme should align with the Government's commitment to Net Zero[3]. | A GHG lifecycle assessment will be undertaken in accordance with the IEMA GHG Assessment guidance. (IEMA, 2022) and PAS 2080: (British Standards Institution, 2023), which includes assessing the UK Scheme's alignment to the UK's net zero trajectory. The proposed methodology is detailed in Section 29.6. |

[3] The UK's Plans and Progress to Reach Net Zero by 2050 https://researchbriefings.files.parliament.uk/documents/CBP-9888/CBP-9888.pdf

## 29.5 Baseline Environment

### 29.5.1 Baseline Conditions across UK Scheme

29.5.1.1 For the purposes of this Scoping Report, a desk-based review of baseline conditions has been undertaken, using relevant spatial and scientific data sources. The data sources and approach to establishing the baseline for this Chapter are discussed below and in Section 29.5.3. These data sources will be taken forward and used to inform the Carbon and Climate Change ES Chapter, in addition to any relevant site-specific data that may be collected for the UK Scheme.

#### GHG

29.5.1.2 In accordance with IEMA Guidance: Assessing Greenhouse Gas Emissions and Evaluating Their Significance (IEMA, 2022), the baseline, or Do-Minimum (DM) scenario has been established to provide a reference against which potential GHG emissions associated with the UK Scheme can be assessed. This baseline represents the current environmental conditions in the absence of the UK Scheme. Namely, a situation in which no infrastructure is present within the UK Scheme boundary. The baseline scenario incorporates reasonable assumptions regarding projected cumulative GHG emissions within the Study Area, assuming the UK Scheme does not proceed.

29.5.1.3 The GHG assessment covers all relevant direct and indirect emission sources and sinks associated with the UK Scheme's construction, operation and decommissioning phases. The effects of GHG emissions are not geographically constrained and have a global, as opposed to a local, effect. As the receptor for GHG emissions is the global atmosphere, the UK Scheme's impacts on climate will be considered on a global scale.

29.5.1.4 The GHG assessment Study Area covers the UK Scheme's footprint. It should be noted that at present, the only GHG emissions within the Study Area are from routine vehicle and vessel transits, agriculture, local industry and fisheries which are expected to be small and unchanged by the UK Scheme, once operational, so will not be considered.

#### CCRA

29.5.1.5 High level climatology observations are provided by the Met Office, with the current baseline represented by historical data from 1991–2020. Baseline climatic conditions for the UK Scheme have been characterised using data from the nearest weather station to the landfall area, Walton-on-the-Naze, approximately 7 km from the landfall zone (Table 29-2) (Met Office, 2025).

**Table 29-2: Historical climate data (1991-2020), taken from Walton-on-the-Naze (Met Office, 2025)**

| Climate Parameters | Observation |
|---|---|
| Temperature | The mean annual maximum temperature was 13.92 °C and the mean annual minimum temperature was 8.01°C. |
| Sunshine | The average annual sunshine hours were 1,824.01 hours. |
| Rainfall | The mean annual rainfall was 555.78 mm with the wettest month being August (mean rainfall of 58.54 mm), and the driest month being May (mean rainfall of 30.6 mm). |
| Wind speed | Mean monthly wind speed at 10 m was 10.46 knots. |
| Days of air frost | Air frost occurs when the temperature at 1.25 m above the ground falls below 0°C. There were no data records for air frost at Walton-on-the-Naze, however in the region of East Anglia, the mean days of air frost was 6.4 days. |

29.5.1.6 Coastal erosion and flooding are highly episodic short-term processes, and there is a significant disconnect between the associated timescales, making it difficult to define a baseline (Masselink, Russell, Rennie, Brooks, & Spencer, 2020). However, a previous study showed that the coastal length undergoing erosion in East of England was 168 km out of 555 km East of England boundary (EUROSION, 2004). Flooding can be affected by a combination of many factors including (but not limited to) river flow rates, local soil type and the presence of flood defences, and is therefore most appropriately interpreted alongside the rainfall baseline.

#### ICCI Assessment

29.5.1.7 The baseline for the ICCI assessment for the UK Scheme will be as described in each of the relevant technical Chapters of the EIA Offshore Scoping Report.

### 29.5.2 Future Baseline Conditions across the UK Scheme

29.5.2.1 The baseline environment is not static and is expected to change over time, irrespective of the UK Scheme. When undertaking impact assessment, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UK Scheme over its operational lifetime. This future baseline will be defined for the purposes of the Carbon and Climate Change ES Chapter.

29.5.2.2 The future baseline covers general climatic conditions that would be experienced throughout construction, O&M and decommissioning phases.

29.5.2.3 Modelled climate scenarios and pathways provide plausible representations of future states of the climate system, incorporating socio-economic, technological, demographic and environmental development. Representative Concentration Pathways (RCP) for various GHG emissions scenarios were developed by the IPCC for their Fifth Assessment Report (AR5) in 2014 (IPCC, 2014). The Met Office UKCP18 climate projections reference RCP pathways (Met Office, 2018), so they will be applied in the Carbon and Climate Change ES Chapter.

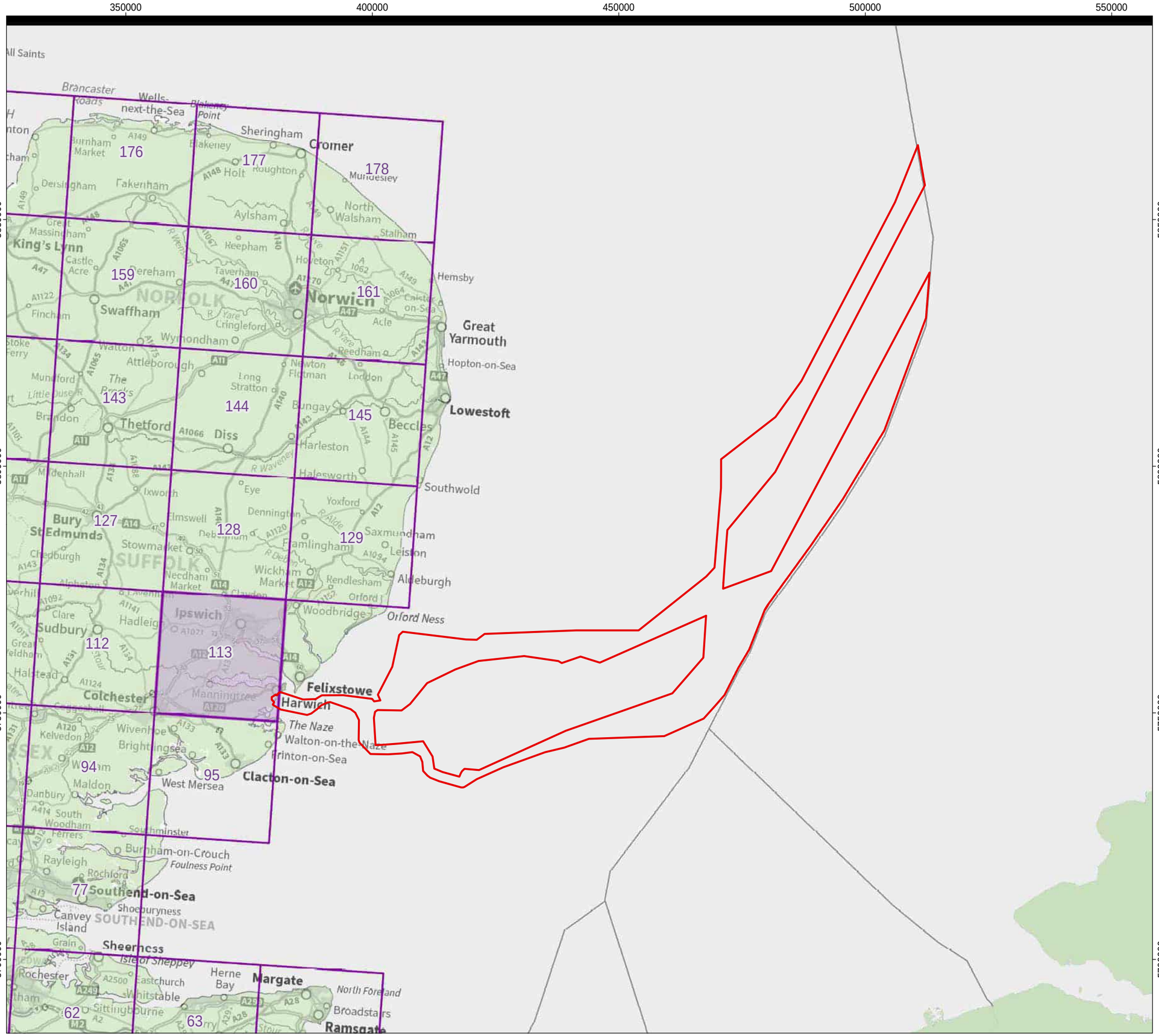
29.5.2.4 The future baseline for the CCRA will consider changes in climate variables under a high emissions scenario (RCP8.5). RCP8.5 is considered a worst-case future pathway, referencing a slow transfer to low-carbon energy provision. RCP8.5 is considered a possible, but conservative GHG emissions scenario, suitable for evaluating the climate resilience of long-lifetime projects. It will be used as the future baseline that will inform the assessment in the Carbon and Climate Change ES Chapter.

29.5.2.5 It is noted that the IPCC Sixth Assessment Report (IPCC, 2023) replaced the earlier RCP scenarios with Shared Socioeconomic Pathways (SSPs). SSPs are linked to updated climate projections, that combine emissions trajectories with socioeconomic assumptions. Where wider international context or comparison with IPCC Sixth Assessment Report findings is relevant, the corresponding SSP scenarios (e.g., SSP5-8.5) will also be referenced in the Carbon and Climate Change ES Chapter.

29.5.2.6 The future baseline for the CCRA will be taken from UKCP18 climate projections, as seen in Figure 29-1 and Figure 29-2. The following climate change aspects are considered of importance relative to the 1991-2020 UK baseline. These are aligned with UK CCRA3 considerations relevant to UK Scheme specific infrastructure and UKCP18 climatic projections:

- Mean daily maximum and minimum temperatures are expected to increase in both summer and winter, with increased humidity;
- Increased frequency of extreme weather events, higher wave heights;
- Average sea water temperature is anticipated to increase;
- Increased ocean acidification and reduction in seawater pH;
- Sea level rise;
- Accelerated coastal erosion;
- Increasing tidal flooding in low-lying areas,
- Winter precipitation is expected to increase, summer precipitation is expected to decrease; and
- Increased HSE issues e.g. temperature thresholders for workers.

29.5.2.7 Future baseline conditions for ICCI will be informed by the individual technical Chapters.




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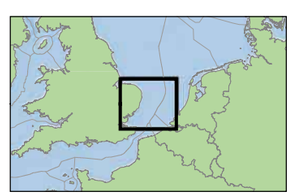
## Tarchon Interconnector Project

Scoping Report

UKCP18 Anomalies for Probabilistic Projections and Variables from Probabilistic Projections of Climate Extremes over UK, 1961-2100. Data Grid Square Selected Closest to the UK Marine Scheme Array Area (25 km2)

Legend

- UK Marine Scheme Scoping Boundary
- Exclusive Economic Zones (EEZ) Boundaries
- UK Climate Projections 2018 25km Grid Cell



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

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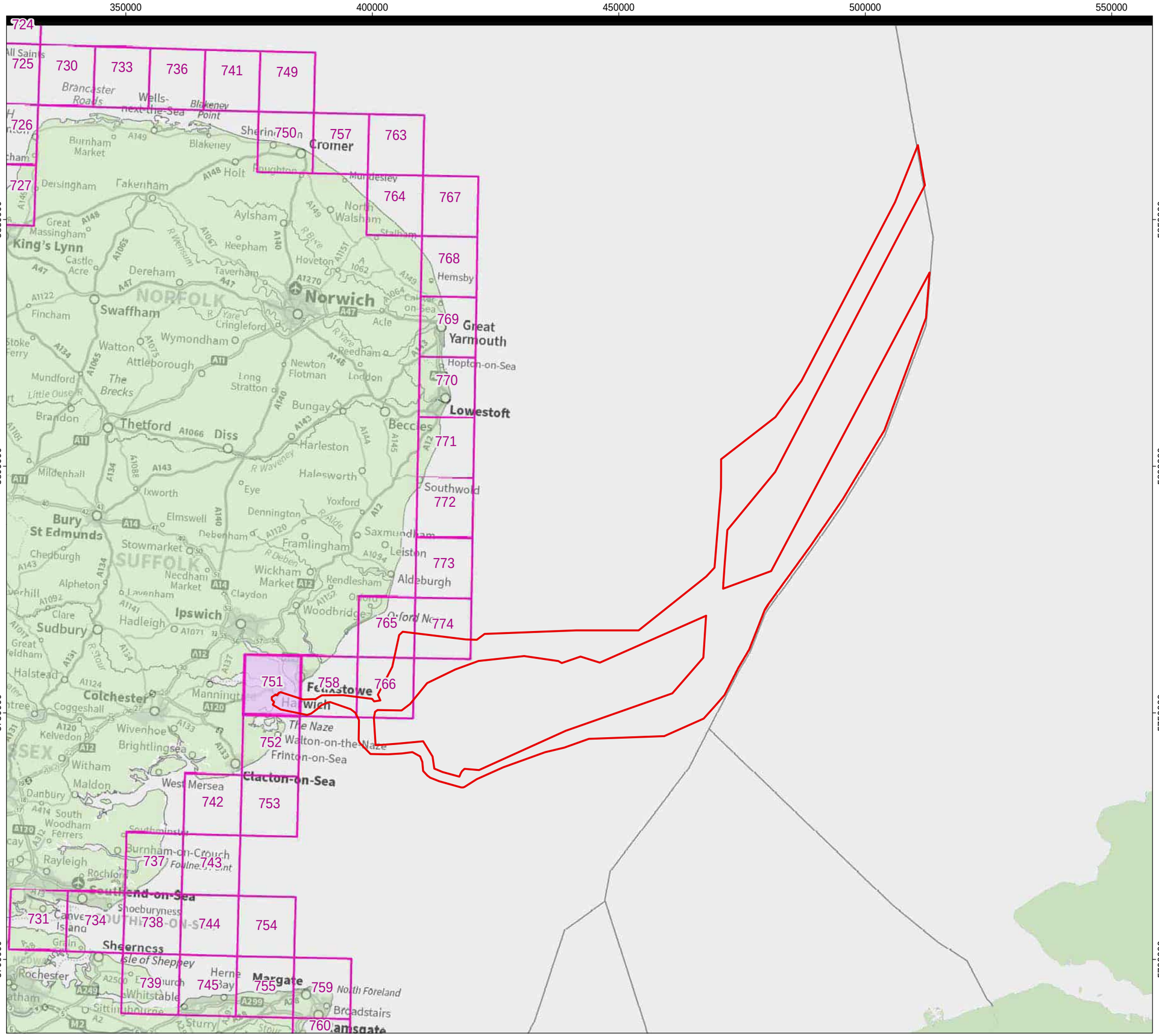

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Figure 29-1

Figure Reference: Tarchon_Scoping_CCC_Fig29-1_UKCP18_ClimateExtremes_v2

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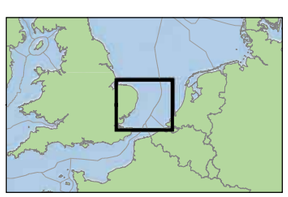
## Tarchon Interconnector Project

Scoping Report

UKCP18 Sea Level Anomalies for Marine Projections over UK, 1961-2100. Data Grid Square Selected Closest to the UK Marine Scheme Array Area (12 km2)

Legend

- UK Marine Scheme Scoping Boundary
- Exclusive Economic Zones (EEZ) Boundaries
- UK Climate Projections 2018 Coastal Cell



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

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Figure 29-2

Figure Reference: Tarchon_Scoping_CCC_Fig29-2_UKCP18_SeaLevel_v2

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### 29.5.3 Additional Proposed Data Sources

#### GHG Assessment

29.5.3.1 The information to inform the GHG assessment will be from a combination of the UK Scheme specific information available at the current design stage, alongside publicly available industry benchmarks, and assumptions based on industry knowledge. This will be used to provide a preliminary estimate of embodied carbon emissions and operational energy.

29.5.3.2 The carbon emissions for the UK Scheme will be calculated by converting 'activity' data into carbon emissions through the application of referenced typical emissions conversion factors widely used within the industry. The sources for these emissions may include the following:

- Greenhouse Gas Reporting: Conversion Factors (published annually) (DESNZ, 2025);
- Inventory of Carbon and Energy database V4.1 (Circular Ecology, 2025);
- Valuation of energy use and GHG emissions for appraisal: supplementary guidance to the HM Treasury Green Book (DESNZ, 2023); and
- The latest available ecoinvent database within SimaPro® (currently ecoinvent v3.11) (SimaPro, 2025).

29.5.3.3 The main reference periods for assessing emissions will be in line with the UK Carbon Budget Periods, covering 2025-2037 (Fourth, Fifth Sixth and Seventh Budget), summarised in Table 29-3.

**Table 29-3: Carbon budget periods.**

| Carbon Budget and Period | Carbon Budget Limit | Reduction of $CO_2$ below 1990 levels (Climate Change Committee, 2025) |
|---|---|---|
| Fourth (2023-2027) | 1,950 $MtCO_2e$ | 50% by 2025 |
| Fifth (2028-2032) | 1.725 $MtCO_2e$ | 68% by 2030 |
| Sixth (2033-3037) | 969 $MtCO_2e$ | 78% by 2035 |
| Seventh (2038 to 2042) | 535 $MtCO_2e$ | 81% by 2035 |

#### CCRA

29.5.3.4 As part of the CCRA, future projected climate conditions for the area encompassing the UK Scheme will be provided up to the 2060s using UKCP18 data. This time period will cover the assumed operational life of the UK Scheme.

29.5.3.5 Historical baseline data from the Met Office, the International Council for the Exploration of the Sea (ICES), Marine Climate Change Impacts Partnership and additional literature such as Kendon *et al.* (2024), and Ostle *et al.* (2016) will also be used for specific UK climate parameters. In addition, the latest National Flood Risk Assessment (Environment Agency, 2025) will used to assess the latest flooding data. This will be assessed against UKCP18 projections to establish the future climate baseline using UKCP18 grid squares (see Figure 29-1 and Figure 29-2).

#### ICCI Assessment

29.5.3.6 For the ICCI assessment, data sources will be obtained from the relevant technical Chapters, as listed in Section 29.1.1.4.

## 29.6 Assessment Methodology

29.6.1.1 There are three assessments to be conducted as part of the Carbon and Climate Change ES Chapter. For the CCRA, ICCI and GHG assessments the method will follow the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology of this Scoping Report, following a source, impact, pathway, receptor model.

29.6.1.2 However, each of the three assessments (CCRA, ICCI and GHG) is supported by its own specialist guidance and therefore requires a tailored methodological approach. While these approaches differ in their specific requirements, they remain fully consistent with the overarching EIA framework and are considered appropriate and acceptable within the context of recognised best practice. Assessment criteria specific to this topic is outlined in Section 29.6.5 and has been informed by relevant guidance, discussed below.

### 29.6.2 GHG Assessment

29.6.2.1 The GHG assessment will be undertaken in accordance with best practice principles set out in IEMA Assessing Greenhouse Gas Emissions and Evaluating Their Significance (IEMA, 2022). This guidance provides the established framework for the quantification, interpretation, and reporting of GHG emissions within EIAs.

29.6.2.2 The GHG assessment methodology will follow a project lifecycle approach to quantify and report the GHG emissions anticipated to be generated or avoided as a result of construction (including materials), O&M and decommissioning of the UK Scheme. Emissions will be expressed in tonnes of carbon dioxide equivalent ($tCO_2e$), a unified metric representing the Global Warming Potential (GWP) of the principal GHG emissions. This will be compared against the Do-Minimum baseline scenario (nil) to determine the net change in GHG emissions attributable to the UK Scheme.

29.6.2.3 The carbon emissions for the UK Scheme will be calculated by converting UK Scheme-related ‘activity’ data into carbon emissions, through the application of referenced typical emission conversion factors, widely used within the industry, and put into an equation:

- *Activity data x GHG emissions factor = GHG emissions*

29.6.2.4 The information for the GHG assessment will be collated from a combination of UK Scheme specific information available at the current design stage, alongside publicly available industry benchmarks and assumptions based on industry knowledge. This can be used to provide a preliminary estimate of embodied carbon emissions.

29.6.2.5 Examples of UK Scheme specific information will include quantities of construction materials, fuel consumption, electricity use, and transport distances. Where UK

Scheme specific data is not available, known standard data sources applicable to the UK Scheme design are used to further support the assessment.

29.6.2.6 To contextualise the estimated GHG emissions from the UK Scheme, sector-specific carbon budgets will be used in line with IEMA Guidance (IEMA, 2020), to assess the significance of emissions and their alignment with national targets.

29.6.2.7 The UK Scheme will also consider mitigation opportunities and identify and evaluate opportunities to reduce whole-life carbon emissions. This will ensure that feasible measures to minimise emissions are integrated across all phases of the UK Scheme.

29.6.2.8 The assessment will also examine how, and to what extent, the UK Scheme may deliver net GHG emission benefits, particularly through enabling renewable energy transmission between countries and increasing energy sustainability (by reducing energy wastage through trading renewable energy instead of opting for energy curtailment). This will include, where feasible, a quantitative evaluation of the UK Scheme's carbon "pay-back" period. The assessment will identify where possible, the electricity sources used during operation, e.g. the proportion supplied by renewable energy. This will help determine the scale of carbon benefits by estimating the time required for the UK Scheme's operational emissions savings to offset its construction emissions.

29.6.2.9 The significance of GHG effects from the UK Scheme, adverse or beneficial, across its full lifecycle will be stated. Specific criteria to be applied to overall effect significance are outlined in Section 29.6.5.

### 29.6.3 CCRA

29.6.3.1 The CCRA will evaluate the resilience of the UK Scheme to potential future climate change impacts. The CCRA will identify and address potential climate-related hazards that could affect the UK Scheme, ensuring that risks to infrastructure, safety, and functionality are appropriately considered.

29.6.3.2 Key climate change-related factors, including extreme weather events, temperature and sea level rise, flooding, coastal erosion, wind intensity and storm surges, will be integral to the assessment process. These factors will be considered throughout the design, construction, and operational phases to ensure the UK Scheme remains robust, adaptive, and resilient under projected future climate conditions.

29.6.3.3 Information for the future climate baseline will be sourced from UKCP18 projections (see Section 29.5.2). UKCP18 grid square 113 (See Figure 29-1) covers a 25 $km^2$ coastal and onshore area closest to the Landfall zone. This is considered an applicable proxy for climate variables (e.g. temperature, storm intensity) across both the onshore and adjacent offshore areas of the UK Scheme.

29.6.3.4 Sea-level projections however, are provided through a different UKCP18 dataset that uses 12 $km^2$ coastal and marine grid squares. Figure 29-2 indicates multiple 12 $km^2$ UKCP18 grid squares applicable to assessing sea level anomalies for the

UKMS. Accordingly, sea-level rise assessments on the UKMS will draw on the relevant coastal/marine grid squares (751, 758, 766, 765 and 774), and will be reviewed to confirm relevant sea level projections.

29.6.3.5 This climate projection data provides a probabilistic indication of how global climate change is likely to affect the defined climate variables and time periods for the UK Scheme.

29.6.3.6 The CCRA will identify where resilience measures are required to address potentially significant impacts from climate change. Appropriate high-level resilience measures will be proposed, involving key engineering, design, and environmental specialists to ensure that climate-related risks are effectively mitigated.

29.6.3.7 Appropriate mitigation and adaptation measures will be embedded within the overall environmental and engineering design framework for the UK Scheme. Through this integrated approach, it is anticipated the UK Scheme would consider and minimise any potential deficiencies in climate resilience ahead of the CCRA. The Carbon and Climate Change ES Chapter will detail the adequacy of these measures and their effectiveness in ensuring the UK Scheme's long-term resilience to climate change.

29.6.3.8 The CCRA will adopt a qualitative methodology, identifying future climate hazards and assessing their potential impacts and associated risks to the UK Scheme. The significance appraisal will follow a structured assessment of sensitivity and magnitude, consistent with the IEMA (2020) guidance on climate change resilience and adaptation. Specific criteria to be applied to overall effect significance are outlined in Section 29.6.5.

29.6.3.9 In the event that significant CCRA effects remain after accounting for embedded mitigation, potential additional climate change adaptation measures will be proposed to mitigate residual risks.

### 29.6.4 ICCI Assessment

29.6.4.1 For the ICCI assessment, specific criteria on effect significance (see Section 29.6.5) will be applied to develop qualitative assessments of potential topic-specific ICCI. A degree of professional judgement will be applied to determine the likely significance of future effects, subject to long-term climatic trends and extreme weather events within the UK Scheme Study Area,

29.6.4.2 The assessment will also provide recommendations for appropriate mitigation measures and outline future monitoring requirements to ensure that any unexpected impacts on environmental receptors and resources are identified and addressed in a timely manner.

29.6.4.3 ICCI will be evaluated across all relevant environmental topics to ensure a comprehensive understanding of potential effects and the adequacy of the proposed adaptive design measures. Specific criteria to be applied to overall effect significance are outlined in Section 29.6.5.

### 29.6.5 Criteria for Assessment

#### Sensitivity of Receptor

29.6.5.1 The sensitivity of the receptor is the degree of response to a change, and a function of the receptor's capacity to accommodate and recover from a change if it is affected (IEMA 2020).

29.6.5.2 When defining the sensitivity of a receptor to climate change effects, the following factors must also be considered:

- Susceptibility – receptor's ability to be affected by climate change (the opposite of resilience);
- Vulnerability – degree of potential exposure of a receptor to climate change; and
- Importance – describes the receptor's value in economic terms and the degree to which other elements depend on it.

29.6.5.3 Informed by IEMA guidance, the susceptibility criteria for climate receptors applied are provided in Table 29-5. The vulnerability criteria for climate receptors are provided in Table 29-6. The importance criteria for climate receptors are provided in Table 29-7.

29.6.5.4 Each receptor will be given a score of 1-3 for each of these three considerations. These are multiplied together and normalised to get overall sensitivity score from 1-100 and categorised as per Table 29-4.

**Table 29-4: Sensitivity scoring**

| Overall Sensitivity Scoring | Description |
|---|---|
| High | A score over 65 |
| Medium | A score between 29 and 65 |
| Low | A score between 10 and 28 |
| Negligible | A score lower than 10 |

**Table 29-5: Receptor Susceptibility Criteria (IEMA, 2020)**

| Susceptibility Value | Description |
|---|---|
| High | The receptor has no ability to withstand or not be substantially altered by the projected changes to the existing/prevailing climatic factors (e.g., lose much of its original function and form). |
| Medium | The receptor has some limited ability to withstand or not be substantially altered by the projected changes to the existing/prevailing climatic factors (e.g., lose much of its original function and form). |
| Low | The receptor has the ability to withstand or not be substantially altered by the projected changes to the existing/prevailing climatic factors (e.g., retain much of its original function and form). |

**Table 29-6: Receptor Vulnerability Criteria (IEMA, 2020)**

| Vulnerability Value | Description |
|---|---|
| High | The receptor is directly dependent on existing/prevailing climatic factors and reliant on these specific existing climate conditions continuing in future, or only able to tolerate a very limited variation in climate conditions. |
| Medium | The receptor is dependent on some climatic factors but able to tolerate a range of conditions. |
| Low | Climatic factors have little influence on the receptors. |

**Table 29-7: Receptor Importance Criteria (IEMA, 2020)**

| Importance Value | Description |
|---|---|
| Low | Limited economic and operational value to the UK Scheme, minimal critical dependencies relevant to its overall functioning. For example infrastructure at physical risk from climate change is classed of low importance, failure will result in limited and short lived effects. |
| Medium | Moderate economic and operational value to the UK Scheme, moderate number of dependencies that are important to its functioning. |
| High | High economic and operational value to the UK Scheme, large number of key dependencies that are materially important to its functioning. |

### Magnitude of Impact

29.6.5.5 In determining magnitude, each assessment will consider the probability and consequence of a climatic impact on the UK Scheme:

- Probability: indicates the chance of the impact occurring within the lifetime of the UK Scheme; and
- Consequence: reflects the scale of the impact, which encompasses geographic extent, number of receptors affected, complexity of impact, degree of harm to those affected, duration, frequency, and reversibility.

29.6.5.6 The probability criteria are provided in Table 29-9. The consequence criteria are provided in Table 29-10.

29.6.5.7 Each receptor is given a separate score of 1-5 for the probability and the consequence of the impact. These have then been multiplied and normalised to give a combined magnitude score between 1-100. These scores are then converted to an overall magnitude descriptor as seen in Table 29-8.

**Table 29-8: Magnitude scoring**

| Overall Magnitude Scoring | Description |
|---|---|
| High | A score over 65 |
| Medium | A score between 29 and 65 |
| Low | A score between 10 and 28 |
| Negligible | A score lower than 10 |

**Table 29-9: Impact Probability Criteria**

| Probability Value | Description |
|---|---|
| Very high | Very Likely. Represents an 85 to 100% chance of occurring over the course of the UK Scheme. Occurs multiple times e.g. annually[4]. |
| High | Likely. Represents a 60 to 84% chance of occurring over the course of the UK Scheme. Occurs several times e.g. approximately once every five years |
| Medium | Possible. Represents a 35 to 59% chance of occurring over the course of the UK Scheme. Occurs limited times e.g. once every 15 years |
| Low | Unlikely. Represents a 16-34% chance of occurring over the course of the UK Scheme. Occurs once |
| Very Low | Very Unlikely. Represents a 0–15% chance of occurring over the course of the UK Scheme. |

**Table 29-10: Impact Consequence Criteria**

| Consequence Value | Description |
|---|---|
| Very Large | The level of impact could be major[5] to the long-term operation of the UK Scheme. |
| Large | The level of impact could be moderate or in some cases major to the long-term operation of the UK Scheme |
| Moderate | The level of impact could moderately affect the UK Scheme |
| Minor | The level of impact is minor and is not expected to have a material effect on the UK Scheme |
| Negligible | The level of impact is low and unlikely to affect the UK Scheme |

### Significance of Effect

29.6.5.8 By assigning and combining magnitude and sensitivity criteria, overall effect significance upon climate receptors can be determined (Table 29-11). Each climate effect on the UK Scheme will also be classified as either adverse or beneficial.

[4] See IEMA EIA Guide to Climate Change Resilience and Adaptation (IEMA, 2020) 'Likelihood Criteria used in Highways England EIA Projects'

[5] It is noted that certain aspects of the CCRA do not fully align with the standard EIA assessment framework, as the focus is on assessing risks *to* the UK Scheme rather than effects *from* the UK Scheme on the environment. The assessment criteria are aligned as closely as possible with standard EIA terminology and structure.

29.6.5.9 For the purposes of the EIA, effects assessed as Moderate or Major are considered 'significant', while effects assessed as Minor or Negligible are considered 'not significant'.

29.6.5.10 All impacts scoped into the EIA will be fully assessed. The assessment will apply the mitigation hierarchy to ensure that potential effects are avoided, minimised, restored or offset, with embedded mitigation incorporated directly into the UK Scheme design. Where an effect is identified as Moderate or Major even after embedded mitigation has been applied, additional mitigation will be considered. These further measures will aim to reduce the significance of the effect to a level that is as low as reasonably practicable and to limit any residual effects arising from the UK Scheme.

**Table 29-11: Matrix Used for the Assessment of Significance of the Effect**

| Sensitivity of Receptor | Magnitude of Impact | | | |
|---|---|---|---|---|
| | High | Medium | Low | Negligible |
| High | Major | Moderate | Moderate | Minor |
| Medium | Moderate | Moderate | Minor | Negligible |
| Low | Minor | Minor | Minor | Negligible |
| Negligible | Minor | Negligible | Negligible | Negligible |

## 29.7 Potential Effects and Mitigation

29.7.1.1 To inform identification of potential effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 29.7.2 Embedded Mitigation and Good Practice Measures

29.7.2.1 The UK Scheme will be adhering to the mitigation hierarchy in all instances to prioritise avoidance of effects. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as “mitigation measures that have been incorporated into a project’s description and form an inherent part of the project’s design’ (ISEP, 2024).

29.7.2.2 Embedded mitigation and Good Practice Measures will ensure GHG, CCRA and ICCI impacts are effectively managed. These will be provided in the Carbon and Climate Change ES Chapter. Proposed example measures are outlined below, to be developed further in the Carbon and Climate Change ES Chapter.

29.7.2.3 The list below includes proposed embedded mitigation measures to address climate risks, including but not limited to:

- Development of and adherence to the outline CEMP setting out construction procedures and good working practices, roles and responsibilities and

construction related mitigation to be delivered, and that minimises their impact on the environment;

- Development of and adherence to a Cable Plan (CaP) and Cable Burial Risk Assessment (CBRA) to ensure the UKMS is carried out in accordance with the approved details and related mitigation;
- Development of and adherence to an Operational Environmental Management Plan (OEMP). This will ensure that all operation activities are carried out in a manner that minimises their impact on the environment, and that mitigation measures contained in the EIA, or as otherwise agreed, are fully implemented; and
- Development and implementation of a Vessel Management Plan (VMP). The VMP will:
  - Set out the types and numbers of vessels engaged in the works;
  - Define project vessel coordination measures and interactions with SUNK VTS/HHA Harbour Control;
  - Include indicative transit routes;
  - Give detail on concurrent working procedures which will set out details of the project vessels and their movements during the survey, seabed preparation, construction and O&M phases in sensitive area; and
  - Detail specific navigational safety hazards such as the DWRs and how they will be managed.

29.7.2.4 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UK Scheme development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

29.7.2.5 The requirement and feasibility of any additional mitigation measures will be dependent on the significance of the effects assessed and determined upon Carbon and Climate Change receptors. These measures will be consulted upon with statutory consultees and stakeholders throughout the EIA process.

### 29.7.3 Scoping Assessment

#### GHG Assessment

29.7.3.1 The GHG emissions arising from the development and construction of the UK Scheme are expected to be outweighed over its operational lifetime by the benefits of facilitating low-carbon electricity transmission. The use of efficient technologies including High Voltage Direct Current (HVDC) systems to optimise long-distance transmission, together with the UK Scheme's role in enabling more flexible import and export of renewable energy, is anticipated to reduce renewable energy curtailment and support the efficient utilisation of renewables. Accordingly, the UK Scheme is likely to deliver a net GHG benefit compared with a future baseline without its development

29.7.3.2 Potential sources of GHG emissions are identified using the lifecycle modules set out in PAS 2080:2023, representing current best practice for infrastructure carbon assessments. This includes Module A (emissions from construction), Module B (Use Stage i.e. O&M), Module C (End-of-Life, i.e. decommissioning) and Module D (benefits and loads beyond the system boundary). GHG emission sources considered within the PAS 2080 lifecycle assessment that that are scoped in and inform this Carbon and Climate Change Chapter are presented in Table 29-12. Those excluded for further consideration are highlighted, with justification provided.

29.7.3.3 For the purposes of this assessment, the sensitivity of the receptor (i.e. global climate), is considered to be high. Any increase in GHG emissions has the potential to hinder the UK's progress toward meeting its statutory carbon budgets and long-term emissions-reduction commitments. This reflects the widely recognised need, reinforced by the Paris Agreement and the scientific community, to limit global temperature rise to well below 2°C.

29.7.3.4 Note: Module D (benefits and loads beyond the system boundary) will be considered in order to estimate potential wider benefits such as enabling renewable energy transmission between countries. However, in line with PAS 2080 guidance, the Module D results will not be aggregated into the total quantified lifecycle assessment because they are outside the PAS 2080 system boundary.

Table 29-12: Potential scope of GHG emissions

| Lifecycle Stage | PAS 2080:2023 Module | Activity | Scoped in / out | Primary Emissions | Scoping Justification |
|---|---|---|---|---|---|
| Pre-construction | A0 | Land purchase and associated fees /advice for the UK Scheme. | Out | Emissions associated with energy use and transportation demands from preliminary studies and work, including onshore and offshore field studies. | These emissions mainly cover short transportation distances involving small amounts of equipment. Associated impacts will be well below a 1% threshold compared to the construction and materials emissions of the UK Scheme, so are deemed negligible. |
| Product stage | A1 – A3 | Raw material extraction and manufacturing of products are required to build the equipment for the UK Scheme. Transportation of materials for such processes/ manufacturing (where available). | In | Embodied GHG emissions from energy use in the extraction of materials and manufacture of components and equipment. Potential emission of potent GHGs during manufacture, such as sulphur hexafluoride ($SF_6$). GHG emissions from the transportation of products and materials during their processing and manufacture. This includes emissions beyond the secondary tier | Scoped in as emissions are expected to be notable. |

| Lifecycle Stage | PAS 2080:2023 Module | Activity | Scoped in / out | Primary Emissions | Scoping Justification |
|---|---|---|---|---|---|
| | | | | in the supply chain. Where exact information cannot be gathered for this, an estimate based on expert judgement will be used. | |
| Construction process stage | A4 | Transportation of construction materials to the UK Scheme. | In | Transport of materials to the UK Scheme is included under the construction process stage, where these are not included in embodied GHG emissions. | Though expected to be relatively minor, scoped in as emissions may be above the 1% significance threshold. |
| | A5 | On-site construction activity, including emissions from construction compounds. Transportation of construction workers to and from the UK Scheme. Disposal of any waste generated by the construction processes. | In | Energy (e.g. electricity, fuel) consumption from plant and vehicles including vessels, generators on-site and construction worker commuting. GHG emissions from disposal and transportation of waste. | Scoped in as emissions are expected to be notable. |
| | | Land use change. | Out | GHG emissions from the net loss of carbon sinks expected to be negligible so scoped out. | Scoped out as emissions are assumed to be negligible. |

| Lifecycle Stage | PAS 2080:2023 Module | Activity | Scoped in / out | Primary Emissions | Scoping Justification |
|---|---|---|---|---|---|
| Operation stage | B1 | GHG emissions associated with fabric of products and materials. | Out | Emissions associated with the fabrication of new products and materials used during operation are assumed to be negligible | Scoped out as emissions are assumed to be negligible (very little new material is required during operation). |
| | B2, B3, B4 | Maintenance, repair and replacement of the UK Scheme | In | GHG emissions from energy consumption, material use and waste generation from Scheme maintenance. | Though expected to be relatively minor, scoped in as emissions may be above the 1% significance threshold. |
| | B5 | Refurbishment of the UK Scheme | Out | The UK Scheme is not expected to undergo refurbishment during its lifetime. | Scoped out as emissions are assumed to be negligible. |
| | B6 | Operational energy use | In | GHG emissions from energy consumption by the UK Scheme, including transmission losses during the transfer of electricity. | Though expected to be relatively minor, scoped in as emissions may be above the 1% significance threshold. |
| | B7 | Operational water use | Out | GHG emissions from the provision of potable water, and the treatment of wastewater. | Scoped out as emissions are assumed to be negligible. |
| | B8 | Other operational processes | Out | Other GHG emissions associated with the UK Scheme (such as management of operational waste). This stage accounts for emissions associated with | Because all expected emissions are already covered by other sections, no emissions are expected to fall under this category. |

| Lifecycle Stage | PAS 2080:2023 Module | Activity | Scoped in / out | Primary Emissions | Scoping Justification |
|---|---|---|---|---|---|
| | | | | any operational processes not covered by the other sections. | |
| | B9 | User utilisation of infrastructure | Out | GHG emissions associated with user's utilisation of the UK Scheme during the use stage. This stage refers to the emissions associated with third parties using the infrastructure. An example would be the emissions of people driving across a bridge. | No third parties will use the infrastructure, as instead they are using the product (electricity). Therefore, there will be no emissions under this category, |
| Decommissioning stage | C1 – C4 | On-site decommissioning activity.<br>Transportation and disposal of waste materials.<br>Transportation of workers | In | Energy (e.g. electricity, fuel) consumption from plant, vehicles, and generators within the Study Area.<br>GHG emissions from disposal and transportation of waste.<br>GHG emissions from the transportation of workers to the UK Scheme. | Though expected to be relatively minor, scoped in as emissions may be above the 1% significance threshold. |
| Benefits and loads beyond the system boundary | D | Benefits beyond the system boundary | In | The main GHG benefit of the UK Scheme is the enabling of renewable energy transmission between countries. However, in line with PAS | Scoped in as consequences for total emissions are expected to be notable. |

| Lifecycle Stage | PAS 2080:2023 Module | Activity | Scoped in / out | Primary Emissions | Scoping Justification |
|---|---|---|---|---|---|
| | | | | 2080 guidance, this will not be aggregated into the total quantified lifecycle assessment because it is outside the PAS 2080 UK Scheme system boundary. | |

CCRA

29.7.3.5 Climate conditions and climate change present a greater risk to the UK Scheme during the extended O&M phase (of at least 40 years). During decommissioning, climate conditions will present increased risks compared to the construction period, due to climate change over time.

29.7.3.6 Key climate change risks scoped in are summarised below:

- Increases in mean daily maximum and minimum temperatures may result in heightened risks to personnel above acceptable working guidelines. For example risks from increased heat stress or heat exhaustion that would be of concern to the Health and Safety Executive (HSE), potentially reducing days in which work can take place outside;
- Increased frequency of extreme weather events raises physical risks to UK Scheme infrastructure and assets, as well as vessel and worker safety. May lead to more frequent cancellations of planned works extending construction timelines or hindering O&M work;
- Increased coastal flooding driven by sea level rise, storm surges, and more intense precipitation events may increase the likelihood of inundation of onshore infrastructure, landfall points, and access routes. Flooding can disrupt construction and maintenance activities, damage cable landfall assets, and reduce the reliability of terrestrial support systems. Repeated flooding may also degrade soils, infrastructure, and protective structures, increasing long term maintenance needs;
- Accelerated coastal erosion exacerbated by rising sea levels, stronger wave action, and more frequent storm events, may threaten the stability of cable landfalls. Shoreline retreat can expose buried assets, undermine access roads or working platforms, and necessitate more frequent interventions such as reburial, armouring, or realignment of coastal infrastructure. Over the operational lifetime of the UK Scheme, erosion may also complicate decommissioning by altering sediment profiles and increasing the depth or difficulty of asset retrieval;
- Higher tidal and storm surge levels may increase scouring along the cable route, especially near the shore;
- Sea level rise may amplify wave loading and hydrodynamic forces, increasing potential for cable exposure, bending, or damage to protective coverings. Higher baseline sea levels mean storm surges will reach further inland, even without stronger storms;
- Higher ambient seawater temperatures can lower thermal dissipation and reduce ampacity (current-carrying capacity) of cables. Overheating may become more likely, accelerating material degradation and reducing cable lifespan and/or efficiency;
- Higher humidity and increased winter precipitation may accelerate corrosion of metallic elements above the waterline; and
- Long-term climate influences acting on installed infrastructure throughout the operational period may increase the difficulty of decommissioning, for example, through enhanced corrosion, material degradation, or structural weakening.

### ICCI Assessment

29.7.3.7 Until each technical Chapter has fully evaluated and determined the significance of effects within the EIA, the potential for ICCI cannot be ruled out with certainty and must therefore be scoped into the Carbon and Climate Change ES Chapter. Example ICCI to consider are the following:

#### *Onshore*

- Increased frequency and intensity of rainfall can increase impacts associated with surface water flooding and erosion;
- Higher air temperatures and more frequent heatwaves may affect local impacts associated with soil conditions;
- Increased drought frequency may influence impacts linked to local hydrological conditions; and
- Higher temperatures and altered seasonal patterns may affect the resilience, behaviour and distribution of terrestrial and intertidal species;

#### *Offshore*

- Increased storm surge and wave heights can lead to increased coastal erosion;
- Changes in key marine processes due to climate change may influence water clarity, contaminant behaviour, and nutrient inputs;
- Elevated temperatures, combined with decreased pH levels, have the potential to degrade marine habitat quality and negatively impact native species;
- Climate change influences fish distribution and abundance, affecting growth rates, recruitment, behaviour, survival and response to changes of other trophic levels;
- Increased sea temperature is anticipated to result in shifts in marine mammal species distribution, prey availability, and habitat suitability;
- Increased sea surface temperature may affect prey species for birds thus affecting identified receptors. Increased air temperature may affect migration seasons and/or availability of prey;
- Commercial fisheries receptors (i.e. relevant fishing fleets) could theoretically be impacted by climate change over the lifetime of the UKMS. Rising sea temperatures can shift fish populations, spawning seasons or migration timings and increased storms can reduce fishing days; and
- Climate change effects may have indirect impacts on shipping and navigation, and marine archaeology. More frequent or intense storms can disrupt shipping routes, increase transit times, and raise safety risks. Rising sea levels can alter shipping infrastructure, navigational channels, and coastal geomorphology, as well as reducing accessibility to marine archaeology. More frequent extreme weather events may also pose physical risks to marine archaeology.

### Overall Scoping Assessment

29.7.3.8 In summary the elements scoped in and out of the Carbon and Climate Change ES Chapter, with justification are presented in Table 29-13.

**Table 29-13: Elements Scoped In and Out for Carbon and Climate Change chapter**

| UK Scheme Phase / Assessment | UK Scheme Activity | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|
| Lifecycle GHG Assessment | Assessment of the impact of GHG emissions arising from the Scheme on the climate over the Scheme lifetime. | Climate | Scoped In | The UK Scheme has the potential to result in an increase in GHG emissions to the global atmosphere. Any increase in GHG emissions has the potential to have an impact, due to the high sensitivity of the receptor (the global climate) to increases in GHG emissions. The lifecycle GHG impact assessment is therefore scoped in for the construction, operation, maintenance and decommissioning phases of the Scheme. |
| CCRA | Assessment of the resilience of the Scheme to the potential impacts of climate change. | Climate | Scoped In | The UK Scheme may be vulnerable to climate change hazards which have the potential to have an impact on the UK Scheme's ability to maintain its function or purpose. The CCRA is therefore scoped in for the construction, operation, maintenance and decommissioning phases of the UK Scheme. |
| ICCI | Assessment of the combined impact of the Scheme and future climate change on the receiving environment. | Climate | Scoped In | Until each technical Chapter has fully evaluated and determined the significance of effects within the EIA, the potential for ICCI cannot be ruled out with certainty and must therefore be scoped into the assessment. |

### 29.7.4 Cumulative and Transboundary Effects

#### Cumulative Effects

29.7.4.1 As outlined in Volume 01, Chapter 06: EIA Approach and Methodology, potential cumulative effects will be assessed through a Cumulative Effects Assessment (CEA), which identifies and evaluates combined effects arising from the UK Scheme in conjunction with other existing, consented, or proposed projects (including the Tarchon Project as a whole). For the Carbon and Climate Change CEA, potential cumulative interactions may occur with other projects and infrastructure in the vicinity of the Study Area, such as other subsea cables.

29.7.4.2 The CEA for Carbon and Climate Change will consider the Maximum Design Scenario (MDS) for each relevant project, plan, and activity in accordance with the methodology set out in Volume 01, Chapter 06: EIA Approach and Methodology.

##### *GHG Assessment (Cumulative)*

29.7.4.3 In accordance with IEMA guidance on GHG assessment (IEMA, 2022), cumulative effects will be scoped out of the GHG assessment, as GHG emissions are globally mixed pollutants and cumulative effects are not considered meaningful at the UK Scheme level.

##### *CCRA (Cumulative)*

29.7.4.4 For CCRA, cumulative effects may arise where other project activities and infrastructure exacerbate climate-related risks to the UK Scheme. For example, the presence of other active construction projects in the UK Scheme area could influence storm-related safety hazards by reducing flexibility in construction and maintenance scheduling. Although such interactions are not considered likely, cumulative effects will be scoped in for the assessment.

##### *ICI Assessment (Cumulative)*

29.7.4.5 For the ICCI assessment, cumulative effects could occur where climate change influences other environmental receptors that are themselves subject to cumulative pressures from multiple activities. While such cases are anticipated to be limited in extent, potential cumulative impacts will be scoped in for the ICCI review to ensure these risks are appropriately addressed.

#### Transboundary Effects

29.7.4.6 As set out in Volume 01, Chapter 06: EIA Approach and Methodology, transboundary effects are those that would affect the environment in another state within the European Economic Area (EEA), i.e. effects which would be experienced beyond the borders of the UK.

##### *GHG Assessment (Transboundary)*

29.7.4.7 GHG emissions are inherently transboundary in nature, as they contribute to global atmospheric concentrations irrespective of the point of emission. Accordingly, GHG

emissions associated with the UK Scheme will be considered in the context of national and international carbon reduction targets, which align with the global commitments established under the COP27 Agreement and other relevant climate accords.

*CCRA (Transboundary)*

29.7.4.8 Given the inherent transboundary nature of the UK Scheme, the physical risks to cable integrity are also transboundary. Other climate-related risks while unlikely, may also be influenced by interactions that extend beyond national borders. For example, the availability and operation of vessels sourced from other countries could be disrupted by increases in the frequency or severity of extreme weather events, affecting programme delivery and resilience. For the CCRA, transboundary effects will be scoped in for further consideration.

*ICI Assessment (Transboundary)*

29.7.4.9 For the ICCI assessment, the consideration of any transboundary effects will be determined as described in the relevant technical Chapters of the EIA.

## 29.8 Assumptions, Limitations and Uncertainties

29.8.1.1 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 within the UK Scheme, assumptions will be made based on industry approximations and professional best practice in line with the assessment methodologies (Section 29.6) .

29.8.1.2 All assumptions and limitations, including any exclusions, together with assumptions for choices and criteria leading to the exclusion of input and output data will be documented as part of the assessment.

## 29.9 References

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# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 04, Chapter 30: Risk of Major Accidents and Disasters

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00038 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| BGS | British Geological Survey |
| CAP | Civil Aviation Publication |
| CEMP | Construction Environmental Management Plan |
| CMEs | Coronal Mass Ejections |
| COMAH | Control of Major Accident Hazards |
| DC | Direct Current |
| DCO | Development Consent Order |
| DEMP | Decommissioning Environmental Management Plan |
| DESNZ | Department of Energy Security and Net Zero |
| DIO | Defence Infrastructure Organisation |
| DNO | Distribution Network Operator |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| EMF | Electromagnetic Field |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| FIR | Flight Information Region |
| FRA | Flood Risk Assessment |
| HDPE | High-Density Polyethylene |
| HSE | Health and Safety Executive |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| km | Kilometre |
| KIS-ORCA | Kingfisher Information Service – Offshore Renewable Cable |
| LARS | Lower Airspace Radar Service |
| LFA | Low Flying Area |
| m | Metre |
| $m^2$ | Metre Squared |
| MAH | Major Accident Hazard |
| MMO | Marine Management Organisation |
| MOD | Ministry of Defence |
| NESO | National Energy System Operator |
| NPS | National Policy Statement |
| NSTA | North Sea Transition Authority |
| O&M | Operations and Maintenance |
| OEMP | Operational Environmental Management Plan |
| RLB | Red Line Boundary |
| SoS | Secretary of State |
| Stour OC | Stour Operational Catchment |
| TRA | Temporary Restricted Area |

| Acronym | Definition |
|---|---|
| TraC | Transitional and Coastal |
| UK | United Kingdom |
| UKHO | United Kingdom Hydrographic Office |
| UXO | Unexploded Ordnance |
| XPLE | Cross Linked Polyethylene |

# 30. Risk of Major Accidents and Disasters

## 30.1 Introduction

30.1.1.1 This Chapter presents the major accidents and disasters assessment which will consider the potential significant effects on major accidents and disasters receptors during the construction, operational, and decommissioning phases of the Tarchon Interconnector Project (Tarchon Project) United Kingdom (UK) Scheme (as described in Volume 01, Chapter 02: UK Project Description). The UK Scheme is formed of both the UK Marine Scheme (UKMS) and the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description), both of which are relevant to this Chapter. As a result, this Chapter makes reference to both the UKMS and EOS independently where relevant, and the UK Scheme when referred to collectively.

30.1.1.2 This Chapter considers two main aspects: the vulnerability of the UK Scheme to a major accident/disaster, and the potential for the UK Scheme to cause a major accident alongside:

- Identifying whether any major accidents and disasters topics and events are required to be scoped into the environmental impact assessment and thus included within the Environmental Statement (ES);
- Identifying those major accident and disaster topics and events that are proposed to be scoped out of further assessment, with a justification provided; and
- Defining the approach and methodology for identifying potential major accidents and disasters and their assessment, in the context of the UK Scheme.

30.1.1.3 This Chapter should be read alongside the Chapters as set out in Table 30-2 for a broader understanding of the UK Scheme and major accident and disaster interactions.

## 30.2 Relevant Legislation, Panning Policy and Guidance

### 30.2.1 Regulatory and Planning Context

30.2.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context, describes the overall regulatory and planning policy context for the UK Scheme. The key legislation, policy, and guidance relevant to the assessment of major accidents and disasters associated with the construction, operation, maintenance and decommissioning phases of the UK Scheme are presented below.

30.2.1.2 Schedule 4, Paragraph 5d of the EIA Regulations (HM Government, 2017) requires that the EIA contains "*a description of the likely significant effects of the development on the environment resulting from the risks to human health, cultural heritage or the environment (for example due to accidents or disasters)"* and Schedule 4, Paragraph 8 requires that the EIA contain "*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*".

### 30.2.2 Guidance

30.2.2.1 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 Organization's (ISO) ISO 311000: 2018 Risk Management – Principles and Guidelines (The International Standards Organizations, 2018);
- Defra, 2011, 'Guidelines for Environmental Risk Assessment and Management' (Department of Food, Environment and Rural Affairs , 2011);
- The 2025 UK National Risk Register (NRR) (HM Government, 2025); and
- The Institute of Sustainability and Environmental Professionals (ISEP), 'Major Accidents and Disasters in EIA: An ISEP Primer' (ISEP, 2020).

30.2.2.2 The ISEP Primer (ISEP, 2020) 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*."

30.2.2.3 The ISEP Primer (ISEP, 2020) sets out a non-exhaustive list of major accidents, manmade hazards and natural hazards, as defined above, which could be considered within a major accidents and disasters assessment. This list has been used alongside the risks outlined within the NRR and developed to comprehensively identify the major accident and disaster categories/types to be considered in this Chapter and Table 30-5. These are listed in Table 30-1 to provide context. Within Table 30-5 the listed major accident and disaster categories/types will be assessed for relevance to the UK Scheme in consideration of the baseline conditions set out in Section 30.4.1

### Table 30-1: Major Accidents and Disasters Categories

| Categories | Relevant major event type (combined from NRR (HM Government, 2025) and the ISEP Primer (ISEP, 2020) lists) |
|---|---|
| **Natural Events** | |
| Geophysical | • Earthquakes.<br>• Volcanic Activity.<br>• Landslides.<br>• Sinkholes.<br>• Tsunamis. |
| Hydrological | • Tidal Flooding.<br>• Fluvial Flooding.<br>• Pluvial Flooding.<br>• Groundwater Flooding.<br>• Avalanches. |
| Climatological and meteorological | • Cyclones.<br>• Hurricanes.<br>• Typhoons.<br>• Storms and Gales.<br>• Thunderstorms.<br>• Wave Surges.<br>• Extreme Temperatures: Heatwaves, Low (sub-zero) Temperatures and Heavy Snow.<br>• Droughts.<br>• Severe Space Weather: Solar Flares.<br>• Severe Space Weather: Solar Energetic Particles.<br>• Severe Space Weather: Coronal Mass Ejections (CMEs).<br>• Fog.<br>• Wildfires: Forest Fire, Bush/brush, Pasture.<br>• Poor Air Quality. |

| Categories | Relevant major event type (combined from NRR (HM Government, 2025) and the ISEP Primer (ISEP, 2020) lists) |
|---|---|
| Biological | • Disease epidemics: Viral, Bacterial, Parasitic, Fungal and Prion.<br>• Animal Diseases: Zoonotic: Avian influenza, West Nile Virus, Rabies.<br>• Animal Diseases: Non-zoonotic: Foot and Mouth and Swine Fever.<br>• Plants. |
| **Technological or Manmade hazards** | |
| Societal | • Extensive Public Demonstrations Which Could Lead to Violence and Loss of Life.<br>• Widespread Damage to Societies and Economies.<br>• The Need for Largescale Multi-Faceted Humanitarian Assistance.<br>• The Hindrance or Prevention of Humanitarian Assistance by Political and Military Constraints.<br>• Significant Security Risks for Humanitarian Relief Workers in Some Areas.<br>• Famine.<br>• Displaced Population. |
| Industrial and urban accidents | • Major Accident Hazard Chemical Sites.<br>• Major Accident Hazard (MAH) Pipelines.<br>• Nuclear.<br>• Fuel Storage.<br>• Dam Breaches.<br>• Mines and Storage Caverns.<br>• Fires. |
| Transport accidents (including vessel movements and road traffic) | • Road.<br>• Rail.<br>• Waterways/ at sea.<br>• Aviation. |
| Pollution accidents | • Air.<br>• Land.<br>• Water. |

| Categories | Relevant major event type (combined from NRR (HM Government, 2025) and the ISEP Primer (ISEP, 2020) lists) |
|---|---|
| Utility failures | • Electricity.<br>• Gas.<br>• Water Supply.<br>• Sewage System. |
| Malicious attacks | • Chemical.<br>• Biological.<br>• Radiological.<br>• Nuclear.<br>• Sabotage by External Parties.<br>• Transport Systems.<br>• Crowded Places.<br>• Cyber. |
| Engineering accidents and failures | • Infrastructure.<br>• Bridge Failure.<br>• Flood Defence Failure.<br>• Mast and Tower Collapse.<br>• Property or Bridge Demolition Accidents.<br>• Tunnel Failure/Fire. |
| Human error/management failure | • Buried Strike to Existing Buried Services.<br>• Crane Operation. |
| Sabotage/arson | • Sabotage or Arson on Proposed Infrastructure. |
| Explosion (chemical, nuclear or other) | • Unexploded Ordnance (UXO). |

## 30.3 Study Area

30.3.1.1 The following factors and associated distances were taken into consideration for setting the initial Study Area, in order to capture any adverse consequences caused by major accidents and disasters, on the UK Scheme. As there is no specific regulatory guidance or standardised methodology, the Study Area distances are based on professional judgement undertaken by an appropriately experienced individual. The Study Area has been established by identifying internal risks (those originating from the UK Scheme) and external risks (vulnerability of the UK Scheme to external events) and considering the potential zones of impact based on the hazard's characteristics.

30.3.1.2 All distances are in relation to the UK Scheme Scoping Red Line Boundary (RLB) as shown on Volume 01, Chapter 01: Introduction, Figure 1-3 covering both the English Onshore Scheme (EOS) and the UK Marine Scheme (UKMS):

- Manmade features with the potential to create risks:
  - Airports, airfields and ports within 10 km;
  - Control of Major Accident Hazard (MAH) facilities within 3 km;
  - MAH pipelines within 1 km;
  - Rail infrastructure within 1 km;
  - Offshore Wind Farms within 1 km;
  - Transmission (gas, electrical, oil/fuels) crossing the UK Scheme RLB; and
  - High density shipping areas crossing the UK Scheme RLB.
- Natural features with the potential to create risks:
  - Dam failure and seismic activity within 5 km; and
  - Flood risk and unstable ground conditions within 1 km.

## 30.4 Baseline Environment

### 30.4.1 Baseline Conditions

30.4.1.1 The baseline conditions described for major accidents and disaster events are derived from the following desk study sources:

- Technical chapters of this Scoping Report: Volume 02, (Chapters 07 to 12), Volume 03, (Chapters 13 to 20) and Volume 04, (Chapters 21 to 31);
- National Risk Register 2025 (HM Government, 2025);
- British Geological Survey (BGS) ‘Onshore GeoIndex’ (British Geological Survey, 2025);
- The Coal Authority Interactive Map (The Coal Authority, 2025);
- Control of Major Accident Hazard (COMAH) 2015 Public Information Search (HSE, 2015);
- Marine Management Organisation (MMO) Public Register for marine licences and MMO Evidence Projects (Marine Management Organisation, 2025);

- North Sea Transition Authority (NSTA): Digital data for oil and gas infrastructure and blocks (North Sea Transition Authority, 2025);
- UK Hydrographic Office: Military Practice and Exercise Areas (North Sea Transition Authority, 2025);
- The Kingfisher Information Service – Offshore Renewable Cable (KIS-ORCA): Marine cables digital data (Kingfisher Information Service , 2025); and
- Google street view maps covering the UK Scheme RLB.

30.4.1.2 The baseline conditions are split into three groups:

- Potential environmental receptors: receptors that could be vulnerable to a major accident or disaster as a result of the UK Scheme;
- 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.

### 30.4.2 Potential Environmental Receptors

30.4.2.1 Potential receptors that could be affected by a major accident or disaster have been described and outlined within the specific environmental topic chapters in Volume 02 and related annexes in Volume 03. Table 30-2 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 30-2: Signposts to Chapters with relevant receptors**

| Chapters / Annexes | Receptors |
|---|---|
| **Volume 02 (Onshore)** | |
| Chapter 07: Ground Conditions | • Groundwater and aquifers<br>• Land Stability |
| Chapter 08: Water Environment | • Water Resources<br>• Watercourses and waterbodies<br>• Flood Risk |
| Chapter 09: Soils and Agriculture | • Soil<br>• Best and Most Versatile (BMV) Agricultural Land |
| Chapter 10: Onshore Biodiversity | • Ecological receptors<br>• Notable Habitats (Terrestrial and Aquatic)<br>• Designated Sites |
| Chapter 11: Onshore Archaeology and Cultural Heritage | • Designated heritage assets<br>• Non-designated heritage assets |
| Chapter 12: Traffic and Transport | • Roads |

| Chapters / Annexes | Receptors |
|---|---|
| | • Cycle Routes<br>• Public Rights of Way (PRoW) |
| **Volume 03 (Offshore)** | |
| Chapter 13: Marine Physical Environment | • Water quality<br>• Coastal morphology<br>• Seabed morphology |
| Chapter 14: Benthic and Intertidal Ecology | • Intertidal and subtidal benthic ecology |
| Chapter 15: Fish and Shellfish Ecology | • Fish and shellfish |
| Chapter 16: Marine Mammal Ecology | • Marine mammals |
| Chapter 17: Commercial Fisheries | • Commercial fisheries |
| Chapter 18: Shipping and Navigation | • Shipping and navigation |
| Chapter 19: Offshore Archaeology and Cultural Heritage | • Marine archaeology |
| Chapter 20: Offshore Infrastructure and Other Users | • Offshore infrastructure<br>• Other sea users |
| **Volume 04 (UK Scheme Wide Aspects)** | |
| Chapter 21: Seascape, Landscape and Visual Amenity | • Designated Sites |
| Chapter 22: Noise and Vibration | • Residential receptors<br>• Commercial receptors<br>• Communities |
| Chapter 23: Ornithology | • Designated sites<br>• Bird populations |
| Chapter 24: Socioeconomics and Land Use | • Residential receptors<br>• Commercial receptors<br>• Communities |
| Chapter 25: Human Health | • Residential receptors<br>• Commercial receptors<br>• Communities |
| Chapter 26: Materials and Waste | • Minerals<br>• Waste |
| Chapter 27: Tourism and Recreation | • Commercial receptors<br>• Communities<br>• Visitor attractions and recreational facilities |
| Chapter 28: Air Quality | • Residential receptors<br>• Commercial receptors<br>• Communities |

| Chapters / Annexes | Receptors |
|---|---|
| Chapter 29: Carbon and Climate Change | • The global climate |
| Chapter 31: Other Environmental Topics | • Onshore Utilities Infrastructure (telecommunications, electricity, gas, water)<br>• Aviation Receptors<br>• Human receptors |

### 30.4.3 Nearby Installations

30.4.3.1 Table 30-3 outlines the three sites that fall under the COMAH Regulations 2015 within 3 km of the UK Scheme RLB and they are presented in Figure 30-1.

**Table 30-3: COMAH sites within 3 km of the UK Scheme RLB**

| Operator name | Location | Address | Tier | Activities at Site |
|---|---|---|---|---|
| EPC United Kingdom Limited | Harwich | Great Oakley Works – Harwich<br>Bramble Island<br>Great Oakley<br>Harwich<br>Essex<br>CO12 5JW | COMAH Upper Tier Operator | Manufacture of fine chemicals and fuel additives, explosives handling and storage. |
| Haltermann Carless UK Limited | Harwich | Harwich Refinery<br>Refinery Road<br>Parkeston<br>Harwich<br>Essex<br>CO12 4SS | COMAH Upper Tier Operator | Refining, processing, blending, and storage of petroleum-based feedstocks and hydrocarbon solvents. |
| TW Logistics Limited | Manningtree | Wrabness Storage Depot<br>Wheatsheaf Lane<br>Wrabness<br>Manningtree<br>Essex<br>CO11 2TE | COMAH Lower Tier Operator | Storage, processing, and distribution of containerised cargoes including white goods, electrical items, and bulk materials. |

610000 615000 620000 625000

235000 230000 225000 220000

TW Logistics Limited

Haltermann Carless UK Limited

EPC United Kingdom Limited

# TARCHON

## Tarchon Interconnector Project
Scoping Report

## COMAH Sites Located within 3 km of the UK Scheme RLB

**Legend**

- COMAH Site
- English Onshore Scheme Scoping Boundary




**Notes**

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Coordinate System: British National Grid

0 2 4 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:65,000 @A3 | 17/02/2026 | BPHB | RB | MB |

Riverview
A17 The Embankment Business Park
Heaton Mersey
Stockport
SK4 3GN
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+44 (0) 161 442 8938

APEM

Sheet 1 of 1

Figure 30-1

Figure Reference: Tarchon_Scoping_OET_Fig30-1_COMAH_Sites_v1

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### 30.4.4 Natural Hazards and Disasters

30.4.4.1 The ISEP Primer (ISEP, 2020) 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*

30.4.4.2 The majority of the proposed Landfall area is located within Flood Zone 3. The majority of the Indicative Onshore HVDC Cable Corridor is located within Flood Zone 1, with small areas of Flood Zone 2 and 3 located where the cable route crosses watercourses and in the eastern extent where it overlaps with the proposed Landfall area. The area of search for the Converter Station and HVAC Cable Route, and the refined area of search for the Converter Station are all located within Flood Zone 1. Flood mapping is presented in Volume 03, Figure 8-3. The EOS Scoping Boundary is presented in Volume 01, Chapter 01: Introduction, Figure 1-4.

30.4.4.3 The UK Scheme is located within three operational hydrological catchments - the Stour Operational Catchment (Stour OC), Colne Essex, and Essex Transitional and Coastal (TraC).

30.4.4.4 With regard to flood risk and drainage, future baseline conditions will be forecast, 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 UK Scheme can be found in Volume 02, Chapter 08: Water Environment.

#### *Climate*

30.4.4.5 As described within Volume 04, Chapter 29: Carbon and Climate Change, the current climate within the UK Scheme Scoping RLB as defined in terms of temperature, rainfall, sea level, sea water temperature, and other climatic factors is represented by historical data for the 1981-2010 period. Current baseline climatic data has been obtained from the nearest weather station to the vicinity of the proposed Landfall, i.e. Walton-on-the-Naze weather station (Met Office, 2025). This current baseline data is presented in Table 30-4.

**Table 30-4: Historical Climatic Data (1981 - 2010) at the Nearest Climate Station (Walton-on-the-Naze)**

| Climate Variable | Baseline (1981 – 2010) |
|---|---|
| Mean annual maximum daily temperature | 13.58 |
| Mean summer (June, July, August) maximum daily temperature (°C) | 20.23 |
| Mean winter (December, January, February) minimum daily temperature (°C) | 2.35 |
| Warmest month on average (°C) | 21.22 (July) |
| Coldest month on average (°C) | 2.05 (January) |
| Mean annual rainfall (millimetre (mm)) | 548.83 |

| Climate Variable | Baseline (1981 – 2010) |
|---|---|
| Mean summer rainfall (mm) | 44.36 |
| Mean winter rainfall (mm) | 45.47 |
| Wettest month on average (mm) | 57.77 (October) |
| Driest month on average (mm) | 35.9 (April) |
| Mean monthly wind speed at 10 m (knots) | 10.4 |

### *Storm and High Winds*

30.4.4.6 Being one of the most sheltered parts of the UK, the Southeast of England usually experiences mean wind speeds of around 10 knots. Southern and eastern England (including Essex) typically experience fewer than five gale days per year on average; gales being defined as conditions where a mean windspeed of 34 knots or more is experienced over 10 consecutive minutes.

30.4.4.7 Extreme storms are very rare in the UK; however, storms of a lower magnitude occur particularly during winter and cause issues when they do occur.

30.4.4.8 The Met Office's storm centre (Met Office, 2025) states "in the recent climate, there is no evidence of positive or negative trends in windstorm number or intensity. Trends in windstorm numbers are difficult to detect, due to how these naturally vary year-to-year and decade-to-decade".

### *Land instability*

30.4.4.9 Earthquakes in the UK do occur but are unlikely to be powerful enough to inflict severe damage, noting that the largest recorded UK event was the 1931 Dogger Bank earthquake which registered at magnitude 6.1 (Neilson, Musson , & Burton, 1984). Although located offshore, its effects were felt across Britain, but damage was minimal. The UK Scheme Scoping RLB passes through an area of low seismicity. BGS data indicate that the UK Scheme passes through areas with a Peak Ground Acceleration (PGA) of 0.02 to 0.04 g. PGA is equal to the maximum ground acceleration that occurs during an earthquake at a location and is expressed in fractions of g, where g equals the standard acceleration due to gravity. This is the second lowest of the nine BGS seismicity categories for the UK (British Geological Society, 2025).

### *Wildfire*

30.4.4.10 The UK has a temperate climate that is not usually associated with wildfires; however, wildfires do occur annually. Due to the prolonged spell of dry weather, by the end of April 2025 the area of the UK directly affected by wildfires was already higher than the total for any year in the previous decade. In 2025 the UK experienced the highest number of fires at 120, an increase of 11 from the previous record set in 2022, with a total burned area of 47179 hectares (ha) vs the previous highest area of 28100 ha in 2019 (Global Wildfire Information System, 2025). 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.

### 30.4.5 Future Baseline Conditions

30.4.5.1 The baseline environment is not static and is expected to change over time, irrespective of the presence of the UK Scheme. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UK Scheme over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

30.4.5.2 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

### 30.4.6 Assessment Methodology

30.4.6.1 In order to understand the initial risk with regards to major accidents and disasters an initial Scoping exercise has been undertaken to identify and review the sources outlined in Table 30-2. The results of this Scoping exercise are included in Table 30-5, which outlines the potential vulnerability of the UK Scheme 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.

### 30.4.7 Establishing the proposed scope of assessment

30.4.7.1 This Scoping exercise follows the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology of the Scoping Report and will consider the construction, operational and decommissioning phases of the UK Scheme. The approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology follows a source, impact, pathway and receptor model, defined as:

- **Sources and impacts**: The origin of a potential impact;
- **Pathway**: The mechanism by which the impact may affect a receptor; and
- **Receptor**: The component of the environment that may be affected.

30.4.7.2 Due to the unique assessment requirements for the topic of major accidents and disasters, and the fact that major accidents and disasters are low likelihood (but high impact) events, this approach of a source, impact, pathway, receptor model is not appropriate for this Chapter. Instead this Chapter deviates from the general approach outlined in Volume 01, Chapter 06: EIA Approach and Methodology, and instead follows the methodology presented in the ISEP Primer (ISEP, 2020) and reproduced in Figure 30-2 below.

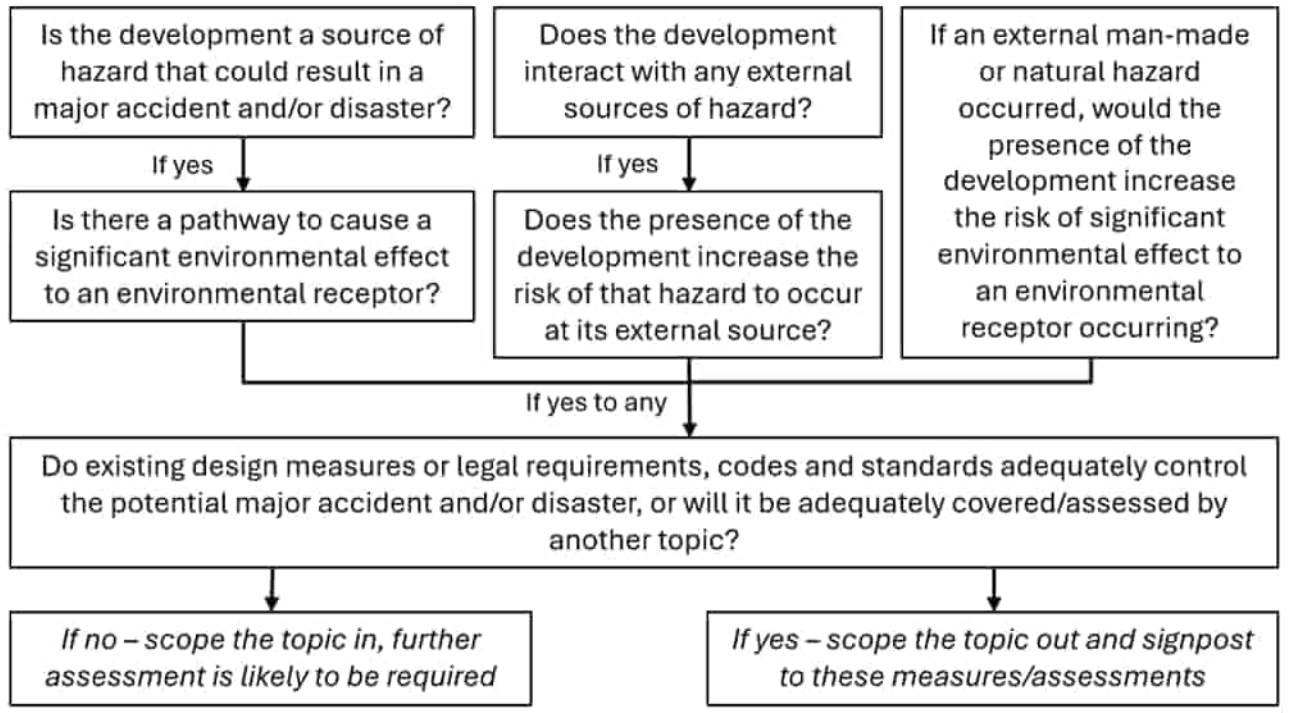



**Figure 30-2: Scoping decision process (ISEP Major Accidents in EIA: A Primer)**

## 30.5 Potential Effects and Mitigation

### 30.5.1 Section Introduction

30.5.1.1 To inform identification of potential effects and allow appropriate mitigation measures to be implemented, the use of a Design Envelope approach that sets out the Maximum Design Scenario (MDS) parameters has been proposed. Further details regarding the specific parameters of the MDS are set out in Volume 01, Chapter 02: UK Project Description.

### 30.5.2 Embedded Mitigation and Good Practice Measures

30.5.2.1 The UK Scheme will be adhering to the mitigation hierarchy in all instances to prioritise avoidance. However, as part of a developing design process, embedded mitigation measures are also proposed to limit potential effects on the environment. Embedded mitigation is defined as *"mitigation measures that have been incorporated into a project's description and form an inherent part of the project's design"* (ISEP, 2024). The embedded mitigation measures which are relevant to major accidents and disasters receptors are presented in the appropriate topic Chapter as signposted in Table 30-2.

30.5.2.2 All embedded mitigation measures identified at this stage are preliminary and will be refined through further assessment, detailed UK Scheme development, and ongoing stakeholder engagement and consultation. Their inclusion at this point does not constitute final approval or implementation; rather, it reflects current best practice and anticipated requirements.

30.5.2.3 As the UK Scheme advances, these measures will be reviewed and adjusted as necessary to ensure they remain appropriate, effective, and compliant with regulatory standards and stakeholder input.

### 30.5.3 Scoping Exercise

30.5.3.1 Table 30-5 below outlines the results of the major accidents and disasters Scoping exercise and the justification for decisions made on each risk.

Table 30-5: Major Accidents and Disasters Scoping Table

| Major event category | Major event type | Basis of decision to Scope in/out | Scoped In or Scoped Out |
|---|---|---|---|
| **Natural Hazards** | | | |
| Geophysical | Earthquakes | • Earthquakes do occur in the UK but are unlikely to be powerful enough to inflict severe damage. The UK Scheme (construction, operation and decommissioning) is not considered to be vulnerable to earthquakes at the level typically experienced in the UK. It is also unlikely to trigger earthquakes. | Scoped Out |
| | Volcanic Activity | • There are no active volcanoes in the UK, however according to the National Risk Register – 2025 (HM Government, 2025), 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 the potential to blow ash and gas towards the UK.<br>• The main impact of previous volcanic eruptions on the UK has been disruption to air travel - due to the risk of ash damaging engines protocols to avoid air traffic in the vicinity of ash clouds are in place. Should such restrictions occur again this would not impact on any aspect of the UK Scheme (construction, operation and/or decommissioning) as air travel is not required.<br>• Resources and receptors would also not be put at a greater risk as a consequence of the UK Scheme. | Scoped Out |
| | Landslides | • The British Geological Survey (BGS)'s National Landslide Database (British Geological Survey, 2025) shows there has been one landslide recorded within UK Scheme RLB.<br>• The UK Scheme's topography is relatively flat. The UK Scheme does not involve the formation of deep cuts/high embankments. In designing the UK Scheme to applicable standards, resources and receptors would not be put at a greater risk as a consequence of the UK Scheme (construction, operation and/ or decommissioning). | Scoped Out |
| | Sinkholes | • The superficial and bedrock geology within the UK Scheme RLB is described in Volume 02, Chapter 07: Ground Conditions and Contamination, for the EOS and Volume 03, Chapter 13: Marine Physical Environment, for the UKMS.<br>• Due to the nature of the superficial and bedrock geology within the UK Scheme RLB sinkholes are unlikely. | Scoped Out |
| | Tsunamis | • The UK Scheme is not located in a tsunami risk zone. | Scoped Out |
| Hydrology | Tidal Flooding<br>Fluvial Flooding<br>Pluvial Flooding<br>Groundwater Flooding | • The baseline environment in relation to flooding is presented in Volume 02, Chapter 08: Water Environment. The proposed Onshore HVAC and HVDC Cables will be buried and above ground infrastructure will be limited to the proposed Converter Station.<br>• A Flood Risk Assessment (FRA) will be undertaken, the scope of which will be agreed with relevant stakeholders. The FRA and other studies will identify requirements for mitigation at the construction, operation and maintenance and decommissioning phases of the UK Scheme. An outline Surface Water Drainage Strategy will be prepared within the FRA for the operational phase to ensure the risk of surface water flooding is not increased as a result of the UK Scheme.<br>• The Converter Station design will incorporate appropriate post construction surface water management and land drainage systems.<br>• Measures to manage surface water during construction will be included within the outline Construction Environmental Management Plan (CEMP). The outline Surface Water Drainage Strategy and outline CEMP will be submitted with the DCO application.<br>• Consequently, the effects of flooding (all types) on the UK Scheme's permanent above ground infrastructure will be appropriately managed/ mitigated and are therefore anticipated to be negligible.<br>• There is no pathway for the operational Scheme to impact on tidal flooding.<br>• Therefore, the UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster as a consequence of increased flood risk. | Scoped Out |
| | Avalanches | • Avalanches are not considered relevant given the location of the UK Scheme. | Scoped Out |
| Climatological and Meteorological | Cyclones, hurricanes, typhoons, storms and gales | • Cyclones, hurricanes, typhoons do not typically occur in the UK.<br>• Storms and gales could result in damage to the proposed Converter Station. However, it will be designed and constructed in line with UK standards which take into account environmental conditions including exposure to UK weather conditions including predicted extremes. The risk is not significantly different to other similar infrastructure in the locality. | Scoped Out |
| | Thunderstorms | • This type of event could result in lightning strikes to temporary elevated structures during construction and decommissioning (e.g. tower cranes); however, the risk is no different to other construction projects in the locality. | Scoped Out |

| Major event category | Major event type | Basis of decision to Scope in/out | Scoped In or Scoped Out |
|---|---|---|---|
| | | • The proposed Converter Station, once operational will be fitted with appropriate lightning conductors, all other infrastructure will be underground, or subsea. | |
| | Wave surges | • The Converter Station will be located onshore and therefore is not expected to be impacted by wave surges. The remaining infrastructure is underground or subsea. Therefore, UK Scheme infrastructure would not be subject to the direct hydraulic forces of a wave surge during operation.<br>• The UK Scheme will be designed, constructed and decommissioned 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. | Scoped Out |
| | 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.<br>• Data sourced from the UK Met Office summarises the highest daily maximum temperature in the UK is 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.<br>• Climate change is set to lead to more extreme events in future years. The UK Scheme will be designed, constructed and decommissioned to withstand projected temperature changes over the lifetime of the development in accordance with known and accepted climate change projections. | Scoped Out |
| | Droughts | • Over the past 40 years, England has experienced five long-duration droughts (lasting over 6 months) and two shorter periods of drought.<br>• Environment Agency analysis identifies that drought conditions have resulted in no known issues within the UK's energy sector to date (Environment Agency, 2026).<br>• Drought has the longest advance warning times of the severe weather types. The UK Scheme (construction, operation and decommissioning) would not be vulnerable to drought. The design of the underground Onshore HVAC and HVDC Cables will be resilient to ground shrinkage. | Scoped Out |
| | Severe Space Weather:<br>– Solar Flares<br>– Solar Energetic Particles<br>– Coronal Mass Ejections (CMEs) | • The energy from solar flares reaches Earth within a few minutes and can cause high frequency radio disruption or potentially disrupt/damage orbiting satellites.<br>• Solar energetic particles arrive at Earth around 15 minutes to a few hours after they occur and cause solar radiation storms which can potentially impact electronics.<br>• 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.<br>• The UK Scheme (construction, operation and decommissioning) is no more vulnerable than other similar infrastructure in the locality or the UK in general as the impact from severe space weather would be global, with variations in magnitude based on latitude and dependency on satellite infrastructure. The response to such events would require co-ordinated efforts from multiple governments. | Scoped Out |
| | 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 50 m over a wide area.<br>• Should fog become an issue during the construction, operational (including emergency repair works) or decommissioning phase due to visibility, work would cease, where it is not safe to continue until conditions improve. | Scoped Out |
| | Wildfires: Forest fire, Bush/brush, pasture | • Due to increased prevalence of dry and hot weather conditions as a result of climate change, wildfire risk has increased over recent years.<br>• During operation, the proposed Converter Station would include standoff distances from wooded areas and landscape planting. Should weather conditions during construction and/or decommissioning become hot and dry for a long period of time, further consideration would be given to hot work activity locations to avoid the risk of wildfires being caused by works and/or risks to people and equipment from wildfire. | Scoped Out |
| | Poor Air Quality | • Periods of elevated pollution over a widespread area lasting more than two days, can occur between 5 and 10 times a year dependent on seasonal weather conditions.<br>• The proposed scope of the air quality assessment is set out in Volume 04, Chapter 28: Air Quality. During construction and decommissioning, mitigation measures to manage dust emissions during construction will be detailed in the outline Construction | Scoped Out |

| Major event category | Major event type | Basis of decision to Scope in/out | Scoped In or Scoped Out |
|---|---|---|---|
| | | Environmental Management Plan (CEMP) and Decommissioning Environmental Management Plan (DEMP). During operation of the UK Scheme 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 UK Scheme itself. | |
| Biological | Pandemic<br>– Viral<br>– Bacterial<br>– Fungal<br>Emerging infectious disease | • The construction, operation or decommissioning of the UK Scheme would not give rise to a novel pathogen or new disease. | Scoped Out |
| | Animal Diseases:<br>• Zoonotic:<br>– avian influenza West Nile virus<br>– Rabies<br>• Non-zoonotic:<br>– foot and mouth<br>– swine fever | • The UK Scheme (construction, operation and/or decommissioning) would not be a source of any animal disease epidemics. The UK Scheme will adopt strict biosecurity protocols particularly when working between livestock/poultry farms and these measures would form part of the outline CEMP, outline Operational Environmental Management Plan (OEMP), and DEMP. | Scoped Out |
| | Plants | • Standard control measures would be implemented by the appointed contractor during construction and decommissioning phase to handle and dispose of any diseased or invasive plants to prevent their spread. Similarly good practice soil management (as set out in a outline Soil Management Plan will be submitted with the DCO Application), would help prevent the spread of invasive plants and injurious weeds, for example by ensuring soil containing these plants and their seedbank are not transferred from an infected to a non-infected area. | Scoped Out |
| **Technological or Manmade Hazards** | | | |
| Societal | Extensive public demonstrations which could lead to violence and loss of life.<br>Widespread damage to societies and economies.<br>The need for largescale multi-faceted humanitarian assistance.<br>The hindrance or prevention of humanitarian assistance by political and military constraints.<br>Significant security risks for humanitarian relief workers in some areas. | • In recent decades, serious widespread disorder in the UK has been rare. The UK Scheme is located in a largely rural area of the UK, and despite isolated cases, the UK is considered to be a politically stable country. The UK Scheme (construction, operation and decommissioning) should not lead to civil unrest, widespread damage to societies and economies and is unlikely to require largescale multi-faceted humanitarian assistance. | Scoped Out |
| | Famine | • The UK Scheme 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 the UK or imported. Famine is also not relevant to the use of the UK Scheme. | Scoped Out |
| | Displaced population | • The UK Scheme is located in a developed country which is politically stable. There will be no significant displacement of populations as part of the UK Scheme. | Scoped Out |

| Major event category | Major event type | Basis of decision to Scope in/out | Scoped In or Scoped Out |
|---|---|---|---|
| Industrial and Urban Accidents | Major Accident Hazard (MAH) Chemical sites | • There are three establishments within 3 km of the UK Scheme RLB that are covered by the Control of Major Accident Hazard (COMAH) Regulations 2015 (HM Government, 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 UK Scheme (construction, operation and/ or decommissioning) would not lead to any increased risk of a major accident or disaster from a COMAH site. | Scoped Out |
| | Major Accident Hazard (MAH) Pipelines | • The UK Scheme would not lead to any increased risk of a major accident or disaster from a Major Accident Hazard (MAH) pipeline. Appropriate mitigation against damage by the UK Scheme (construction, operation and/ or decommissioning) to existing utilities (such as MAH pipelines) is set out in section 30.5 and in Volume 03, Chapter 20: Infrastructures and Other Sea Users. | Scoped Out |
| | Nuclear | • Nuclear sites are designed, built and operated so that the likelihood of releases of radiological material in the UK is extremely low. Sizewell B is located approximately 48 km north-east of the UK Scheme RLB, Sizewell B is a nuclear power station on the Suffolk coast. Alongside Sizewell B, Sizewell C was granted development consent in July 2022. The potential for interactions is considered to be negligible. The UK Scheme (construction, operation and/ or decommissioning) would not lead to any increased risk of a major accident or disaster from a nuclear site. | Scoped Out |
| | Fuel storage | • The UK Scheme (construction, operation and/or decommissioning) would not lead to any increased risk of a major accident or disaster from a fuel storage site. | Scoped Out |
| | Dam breaches | • Dam breaches in the UK are rare. 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 UK Scheme RLB and the UK Scheme (construction, operation and/ or decommissioning) would not lead to any increased risk of a dam breach. | Scoped Out |
| | Mines and storage caverns | • The UK Scheme RLB is not within a Coal Mining Reporting Area therefore the UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from mines and caverns. | Scoped Out |
| | Fires | • Fires could be initiated by construction and decommissioning related activities however standard control measures would be implemented by the appointed contractor to manage the risk of fire. The UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from fires. | Scoped Out |
| Transport accidents | Road | • Transport accidents unfortunately occur across the UK on a daily basis. During construction and decommissioning 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.<br>• Access points will incorporate appropriate visibility splays, turning radii and speed limit reductions where necessary/appropriate. A Construction Traffic Management Plan will be developed which will set out measures to control and manage construction traffic on the highway network. Further detail and assessment on road traffic risks are presented in Volume 02, Chapter 12: Traffic and Transport. The operation of the UK Scheme would not result in increased traffic flow or changes to traffic composition which could have an adverse impact on highway safety.<br>• The UK Scheme (construction, operation and/or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from road traffic accidents. | Scoped Out |
| | Rail | • There are no railway lines within the UK Scheme RLB therefore, the UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from rail accidents. | Scoped Out |
| | Waterways/at sea | • The proposed scope of the Shipping and Navigation assessment is set out in Volume 03, Chapter 18: Shipping and Navigation and proposes to include an assessment of marine vessel accidents through the preparation of a full Navigational Risk Assessment and hazard identification workshop exercise.<br>• As a result of this, an assessment will be scoped in and mitigation measures relating to vessel movements during the installation of the marine cable will be implemented via Volume 03, Chapter 18: Shipping and Navigation and therefore the UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from marine vessel accidents which would need further assessment within the major accidents and hazards assessment. | Scoped Out |
| | Aviation | • The potential for impacts on Aviation and Radar is set out in Section 30.5 below and any relevant assessment discussed. | Scoped Out |

| Major event category | Major event type | Basis of decision to Scope in/out | Scoped In or Scoped Out |
|---|---|---|---|
| | | • The UK Scheme is not likely to lead to any increased risk of a major accident or disaster from aviation accidents. | |
| Pollution accidents | Air | • The proposed scope of the air quality assessment is set out in Volume 04, Chapter 28: Air Quality. During construction and decommissioning, mitigation measures to manage dust emissions will be detailed in the outline CEMP and DEMP, ensuring that effects are appropriately managed. During operation of the UK Scheme there is unlikely to be any effect on Air Quality as maintenance vehicles would be limited and there are no emissions associated with the operation of the UK Scheme itself. The UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from air pollution accidents. | Scoped Out |
| | Land | • Control and management measures will be put in place to prevent pollution from the construction and decommissioning of the UK Scheme. The UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from land pollution accidents. | Scoped Out |
| | Water | • Control and management measures will be put in place to prevent pollution from the construction and decommissioning of the UK Scheme. The UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from water pollution accidents. | Scoped Out |
| Utilities failures | Electricity | • During construction, decommissioning and maintenance works, any work required near overhead or underground electricity cables would be adequately controlled through the application of guidance and good practice measures. The UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from an electricity utilities failure. | Scoped Out |
| | Gas | • There are no National Grid gas transmission pipelines within the UK Scheme RLB. However, there may be smaller distribution network gas pipelines present. These will be identified as part of the ongoing design process and during construction, decommissioning and maintenance works any work required near gas pipelines would be adequately controlled through the application of guidance and good practice measures.<br>• The UK Scheme 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 UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from a gas utilities failure. | Scoped Out |
| | Water Supply | • The UK Scheme 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 UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from a water supply utilities failure. | Scoped Out |
| | Sewage system | • The UK Scheme 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 UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from a sewage system utilities failure. | Scoped Out |
| Explosives | Unexploded Ordnance (UXO) | • The Phase 1 desk-based assessment of potential ground and geo-environmental risks associated with the EOS is to be presented with the ES and will include geological and hydrogeological information, including potential risks from UXO within the EOS (see Volume 02, Chapter 07: Ground Conditions and Contamination). If required, UXO surveys will be undertaken prior to construction.<br>• The UKMS will undergo UXO surveys. However, UXO survey and clearance work is not considered in this EIA. Instead, it will be subject to separate marine licence applications regulated by the MMO. The results of the UXO survey work in the UKMS will ensure that the cable is installed appropriately and with As Low As Reasonably Possible (ALARP) certification.<br>• The UK Scheme will be designed and constructed to appropriate design standards relevant to UXO. The UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from UXO, as any potential interaction would be mitigated with appropriate microrouting of the cable for avoidance or controlled demolition by a qualified contractor to remove the risk. | Scoped Out |
| Malicious Attacks | Chemical<br>Biological<br>Radiological Nuclear | • The likelihood of chemical, biological or radiological nuclear attack is extremely low and furthermore, measures set out within National Energy System Operator (NESO) Connection and Use of System Code relating to hostile acts will further lessen the risk of such attacks occurring.<br>• The UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster as a result of chemical, biological or radiological nuclear attack. | Scoped Out |

| Major event category | Major event type | Basis of decision to Scope in/out | Scoped In or Scoped Out |
|---|---|---|---|
| | Sabotage by external parties | • Although there are specific measures set out within NESO Connection and Use of System Code relating to sabotage and hostile acts which will lessen the risk of such attacks occurring, at this time, sabotage by external parties cannot be fully scoped out and will be considered further. | Scoped In |
| | Transport systems | • The UK Scheme is not a transport system and therefore this risk is scoped out. | Scoped Out |
| | Crowded places | • No part of the UK Scheme is considered to be a crowded place and therefore this risk is scoped out | Scoped Out |
| | Cyber | • According to the National Risk Register 2025 (HM Government, 2025), cyber-attacks occur almost constantly on key national and commercial electronic information, control systems and digital industries. The National Energy System Operator (NESO) is responsible for the administration and maintenance of the Security Quality of Supply Standard (SQSS) which includes addressing cybersecurity risks. NESO ensures that the SQSS framework is continually evolving to protect the energy system from cyber threats, including emerging quantum computing risks. This involves identifying vulnerabilities, promoting secure system upgrades, and coordinating efforts to bolster national cyber resilience in the face of sophisticated attacks.<br>• By adhering to the SQSS framework, measures will be in place to protect the operation of the UK Scheme from cyber-attacks.<br>• The UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from cyber-attacks. | Scoped Out |
| | Sabotage or arson on proposed infrastructure | • During construction and decommissioning, 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 station would be surrounded by security fencing to prevent trespass. The UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from sabotage or arson on the proposed infrastructure | Scoped Out |
| Engineering accidents and failures | Infrastructure | • The UK Scheme would be designed and constructed to appropriate design standards.<br>• It should also be noted that Volume 03, Chapter 18: Shipping and Navigation scopes in impacts due to vessel anchors interacting with the cable due to an anchor dragging or a vessel dropping anchor in an emergency and therefore this hazard is inherently considered within the ES. | Scoped Out |
| | Bridge Failure | • The UK Scheme does not include construction of a bridge and therefore this risk is scoped out. | Scoped Out |
| | Flood defence failure | • The UK Scheme 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 UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from a flood defence failure. | Scoped Out |
| | Mast and tower collapse | • There are no overhead lines proposed as part of the UK Scheme therefore the UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from mast or tower collapse. | Scoped Out |
| | Property or bridge demolition accidents | • No part of the UK Scheme involves property or bridge demolition activities; therefore this risk is scoped out. | Scoped Out |
| | Tunnel failure/fire | • No tunnels are proposed to be built as part of the UK Scheme and therefore this risk is scoped out. | Scoped Out |
| 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.<br>• Existing buried services will be identified as part of the ongoing design process and during construction, decommissioning and maintenance works any work required near them would be adequately controlled through the application of guidance and good practice measures.<br>• The UK Scheme 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<br>• These existing measures reduce the risk to as low as reasonably practicable for the UK Scheme to cause a service strike through human error. The UK Scheme (construction, operation and/ or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from buried strike to existing buried services. | Scoped Out |

| Major event category | Major event type | Basis of decision to Scope in/out | Scoped In or Scoped Out |
|---|---|---|---|
| | 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 UK Scheme (construction, operation and/or decommissioning) is not likely to lead to any increased risk of a major accident or disaster from crane operation. | Scoped Out |

### 30.5.4 Potential for Significant Effects

30.5.4.1 The Scoping exercise presented in Table 30-5 identified Malicious attacks: Sabotage by External Parties as the only hazard to be scoped into the EIA. All other hazard/events are scoped out or already captured and scoped into assessments within specific environmental topic chapters. It should be noted that certain major accidents and hazards have been identified as potentially resulting in significant effects and where this is the case these risks are scoped into the ES within specific environmental topic chapters. Should a currently unforeseen event/hazard need to be scoped into an assessment of major accidents and disasters 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 worst consequence should the event occur;
- Identify all cross-disciplinary impacts;
- Identify mitigation measures, management and, if possible, prevention; and
- Assess the likelihood; and determine the risk has been mitigated to as low as reasonably practical and identify any residual risks and their significance.

### 30.5.5 Scoping Conclusion

30.5.5.1 The Scoping exercise has shown that the vulnerability of the UK Scheme to major accidents and disasters can be mitigated or reduced by the processes and standards in place. The only hazard/event proposed to be scoped into the ES at this stage is malicious attacks: sabotage by external parties as this cannot be scoped out at this stage. The scoping exercise also outlines that the UK Scheme 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 30-6.

**Table 30-6: Scoping Conclusions**

| Receptor | Potential for significant effect | Project phase(s) | Proposed to be scoped in/out |
|---|---|---|---|
| The UK Scheme | Potential vulnerability of the UK Scheme to a major accident or disaster as set out in Table 30-5 | Construction, operation and maintenance and decommissioning | Malicious attacks: sabotage by external parties is Scoped In. All other risks are Scoped Out |
| Receptors listed in Table 30-1. | Potential for the UK Scheme to exacerbate existing hazard as set out in Table 30-5 | Construction, operation and maintenance and decommissioning | Scoped Out |

### 30.5.6 Cumulative and Transboundary Effects

#### Cumulative Effects

30.5.6.1 Major Accidents and Disasters are extremely unlikely events and it is therefore extremely unlikely to have multiple major accidents or disasters occur at the same time or affect the same receptors. A major accident from an external project/development affecting the Tarchon Project would be considered as a direct impact rather than a cumulative one and therefore cumulative effects are scoped out of assessment.

#### Transboundary Effects

30.5.6.2 Transboundary effects arise when impacts from a development within one European Economic Area (EEA) states affects the environment of another EEA state(s). The only impact scoped in for further assessment in the EIA is Malicious Attacks: Sabotage by External Parties. This risk event would likely involve the cutting or damaging of the interconnector cable preventing the transmission of power between the UK and Germany which would result in a reduction of power in the respective grids of each country.

30.5.6.3 It is not likely that a malicious attack on the interconnector cable would have a direct impact on the Netherlands jurisdiction as the cable passes through these waters, however if an attack were to happen in Netherlands waters, then both the UK and Germany would see impacts affecting power.

30.5.6.4 For the above reasons, Malicious Attacks: Sabotage by External Parties is scoped into a transboundary effects assessment.

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 04, Chapter 31: Other Environmental Topics

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00033 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| AC | Alternating Current |
| AIP | Aeronautical Information Publication |
| ATA | Aerial Tactics Area |
| ATCSU | Air Traffic Control Service Unit |
| CAA | Civil Aviation Authority |
| CaP | Cable Plan |
| CAP | Civil Aviation Publication |
| CBRA | Cable Burial Risk Assessment |
| CLN | Clacton (in relation to the aviation navigational aids) |
| DCO | Development Consent Order |
| DIO | Defence Infrastructure Organisation |
| DME | Distance Measuring Equipment |
| EIA | Environmental Impact Assessment |
| EMF | Electromagnetic Field |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| EU | European Union |
| FIR | Flight Information Region |
| FL | Flight Level |
| ft | Feet |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| IFP | Instrument Flight Procedure |
| km | Kilometre |
| LARS | Lower Airspace Radar Service |
| LFA | Low Flying Area |
| LVNL | Luchtverkeersleiding Nederland |
| m | Metre |
| Mil AIP | United Kingdom Military Aeronautical Information Publication |
| NATS | National Air Traffic Services |
| NOTAM | Notice to Airmen |
| NPS | National Policy Statement |
| OLS | Obstacle Limitation Surfaces |
| ONS | Office for National Statistics |
| PBN | Performance Based Navigation |
| PSR | Primary Surveillance Radar |
| RRH | Remote Radar Head |
| SSR | Secondary Surveillance Radar |
| TRA | Temporary Restricted Area |
| UK | United Kingdom |

| Acronym | Definition |
|---|---|
| UK AIP | Aeronautical Information Publication of the United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| VHF | Very High Frequency |
| VOR | Very High Frequency Omnidirection Range |

# 31. Other Environmental Topics

## 31.1 Introduction

31.1.1.1 This Chapter identifies Other Environmental Topics to be considered within the Environmental Impact Assessment (EIA) for the United Kingdom (UK) Scheme (as defined in Volume 01, Chapter 01: Introduction). The UK Scheme is formed of both the UK Marine Scheme (UKMS) and the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description), both of which are relevant to this Chapter. As a result, this Chapter is split where relevant between the UKMS and EOS.

31.1.1.2 This Chapter provides the proposed scope of assessment for each topic. This Chapter sets out the methodology, baseline information sources, embedded mitigation, and justification for scoping topics in or out of the EIA, in accordance with a proportionate approach under the Infrastructure Planning (EIA) Regulations 2017.

31.1.1.3 This Chapter considers environmental topics that are not addressed within the main technical Chapters of Volumes 02–04 but which require confirmation of their relevance to the UK Scheme. These include:

- Telecommunications, Radio and Television Reception, and Onshore Utilities (Section 31.2);
- Heat and Electromagnetic Fields (EMF) (Section 31.3); and
- Aviation and Radar (Section 31.4).

31.1.1.4 Where potential effects are already fully assessed within other technical Chapters, this Chapter signposts to those assessments and confirms whether any additional receptors or pathways require consideration here.

31.1.1.5 In line with the principle of proportionality and recognising the scale and nature of the UK Scheme, this Chapter concludes whether each topic is likely to give rise to significant environmental effects and therefore requires detailed assessment within the Environmental Statement (ES). Topics for which no significant effects are identified are proposed to be scoped out of the ES, with clear justification provided.

## 31.2 Telecommunications, Radio and Television Reception, and Onshore Utilities

### 31.2.1 Introduction

31.2.1.1 Given the nature and scale of the EOS, and the embedded mitigation incorporated into the design and construction methodology, no significant effects on telecommunications infrastructure, radio or television reception, or onshore utilities are anticipated. All onshore High Voltage Alternating Current (HVAC) and High Voltage Direct Current (HVDC) cables would be installed underground, which screens electric fields at source, while magnetic fields attenuate rapidly with

distance, meaning interference with telecommunications or broadcast infrastructure is not expected.

31.2.1.2 Where there are interactions with other Alternating Current (AC) cables derating studies would be undertaken to determine mitigations however as a minimum, crossing would be undertaken at 90 degrees (or as close to) where possible.

31.2.1.3 Where there are interactions with other utilities, if metallic, crossings would be maintained at 90 degrees. Should there be interactions with steel gas pipeline(s), studies would be undertaken to mitigate interference with the asset's cathodic protection.

31.2.1.4 Subsea cables would also be protected and buried where practicable, further limiting the potential for detectable electromagnetic emissions. Potential impacts on offshore utilities, including subsea telecommunications cables, are assessed separately in Volume 03, Chapter 20: Offshore Infrastructure and Other Sea Users.

31.2.1.5 On this basis and applying a proportionate approach in accordance with the EIA Regulations 2017, this topic is proposed to be scoped out of the ES.

### 31.2.2 Potential Effects and Mitigation

31.2.2.1 During construction and decommissioning, the potential for effects on onshore utilities would be limited to the risk of accidental damage associated with ground disturbance and plant movements. Such risks would be managed through standard embedded mitigation measures, including desk-based utilities searches, ground-penetrating radar surveys, consultation with statutory undertakers, and adherence to established industry guidance and good practice. During operation, no routine below-ground works are proposed, and any maintenance activities would be localised, temporary and subject to the same controls. Table 31-1 details the justification for the scoping out of these impacts.

31.2.2.2 Given the embedded mitigation and limited impact pathways, effects on Telecommunications, Radio and Television Reception, and Onshore Utilities are not considered to be significant.

31.2.2.3 Table 31-1 presents the proposed scoping conclusions for this topic, identifying the relevant phases, receptors and justifications. These conclusions demonstrate that all potential pathways for significant effects are effectively mitigated through the UK Scheme design and standard construction controls.

**Table 31-1: Elements Scoped In and Out for Telecommunications, Radio and Television Reception, and Onshore Utilities**

| EOS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction | Onshore cable installation and associated civil works | Temporary electromagnetic interference or disruption to telecommunications infrastructure during construction works. | Telecommunications infrastructure | Scoped Out | Cables would be installed underground and located at sufficient distance from telecommunications infrastructure. Embedded mitigation and EMF attenuation at source mean interference with transmission or reception is not anticipated; no significant effects predicted. |
| Construction | Onshore cable installation and plant movements | Temporary disturbance or interference to radio and television signal reception during construction activities. | Radio and television transmission and reception | Scoped Out | Embedded mitigation and underground cable installation would limit EMF emissions. No interference with broadcast transmission or reception is anticipated. |
| Construction | Excavation, vehicular and plant movements | Accidental damage to buried utilities (e.g., gas, water, electricity, telecoms) from excavation or construction plant. | Onshore utilities (e.g. electricity, gas, water, telecoms) | Scoped Out | Risk of accidental damage managed through utilities searches, ground-penetrating radar, consultation with undertakers and adherence to industry best practice; no significant effects predicted. |
| Operational | Operation of onshore HVAC and HVDC cables and converter station | Electromagnetic emissions from operational electrical infrastructure potentially affecting telecoms | Telecommunications infrastructure | Scoped Out | Electric fields would be effectively screened by cable sheathing and burial, with magnetic fields rapidly reducing with distance. EMF levels are not expected to affect telecommunications transmission or reception. |

| EOS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| | | transmission or reception. | | | |
| Operational | Excavation, vehicular and plant movements | Risk of accidental damage to existing utilities during occasional maintenance works involving ground disturbance. | Onshore utilities (e.g. electricity, gas, water, telecoms) | Scoped Out | No routine belowground works anticipated. Any maintenance would be temporary, localised and controlled through standard mitigation measures; no significant effects predicted. |
| Operational | Operation of onshore and subsea electrical infrastructure | Potential electromagnetic interference from operational electrical infrastructure affecting radio and TV signals. | Radio and television transmission and reception | Scoped Out | EMF emissions would remain within levels that would not affect broadcast infrastructure or signal reception; no significant effects anticipated. |
| Decommissioning | Operation of onshore and subsea electrical infrastructure | Low-level EMF emissions during decommissioning works with potential to affect radio and TV signals. | Radio and television transmission and reception | Scoped Out | Impacts expected to be similar to or less than construction. Embedded mitigation measures would apply; no significant effects anticipated. |

#### Cumulative and Transboundary Effects

31.2.2.4 No cumulative or transboundary impacts are anticipated for this topic and it is proposed to be scoped out.

## 31.3 Heat and Electromagnetic Fields

### 31.3.1 Introduction

31.3.1.1 Electrical infrastructure associated with the UK Scheme, including onshore HVAC and HVDC cables, subsea HVDC cables and converter station, inherently generates EMF and heat during the operational phase. EMF comprises electric and magnetic fields produced wherever electricity is transmitted. For buried and enclosed electrical infrastructure, electric fields are effectively screened by design, and magnetic fields reduce rapidly with distance, resulting in very limited potential for offsite effects.

31.3.1.2 Potential effects from EMF on human health receptors are comprehensively assessed within Volume 04, Chapter 25: Health and Wellbeing, and potential EMF effects on marine ecological receptors are assessed within Volumes 03, Chapters 15–16. These Chapters identify the relevant receptors and pathways and conclude whether any significant effects may arise. As no additional receptors beyond those already assessed have been identified for this Chapter, EMF is presented here only to support a proportionate scoping conclusion.

31.3.1.3 This Section focuses on the assessment of potential effects associated with heat and EMF. It is acknowledged that onshore HVAC and HVDC cables and subsea HVDC cables generate heat during operation as a result of electrical resistance. Heat is consequently identified as a potential pathway through which effects could occur. The assessment considers the likelihood of significant effects occurring due to heat generation associated with the UK Scheme, taking account of UK Scheme design, embedded mitigation and relevant receptors.

### 31.3.2 Baseline Environment

#### Baseline Conditions

31.3.2.1 Heat is generated during the operation of electrical infrastructure, including HVAC and HVDC cables and converter stations, and EMFs are an inherent characteristic of electricity transmission. The UK Scheme is expected to generate heat typical of electrical transmission infrastructure. The EMF characteristics of buried cables and enclosed infrastructure are well understood. Existing land uses within the EOS Scoping Boundary are typical of rural and semi-rural environments, with no receptors that are uniquely sensitive to heat exposure.

#### Future Baseline Conditions

31.3.2.2 The baseline environment is not static and is expected to change over time, irrespective of the UK Scheme. When undertaking impact assessments, it is

therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UK Scheme over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

31.3.2.3 In relation to the current baseline, the future baseline will take into account anticipated future pressures, including those arising from ongoing anthropogenic activities and broader changes associated with climate change, such as global warming and increases in sea temperatures. Where relevant and where data are available, these considerations will be reflected in the assessment to ensure that potential effects are appropriately contextualised.

### 31.3.3 Potential Effects and Mitigation

#### Embedded Mitigation and Good Practice Measures

31.3.3.1 Embedded mitigation relevant to heat and EMF include:

- Burial of all onshore HVAC and HVDC cables;
- Protection and burial of subsea cables where practicable;
- Sheathing/insulation of all HVAC and HVDC cables; and
- Converter station design that contains EMF within the building envelope where required.

31.3.3.2 Cable spacing and burial depth have been designed to manage thermal output, ensuring any heat effects remain highly localised and do not present a pathway to surface receptors. EMF exposure pathways have been assessed in detail in Volume 04, Chapter 25: Health and Wellbeing, and offshore ecology Chapters (Volume 03, Chapters 14 – 16), with no significant effects identified.

31.3.3.3 These measures are inherent to the UK Scheme design and would be implemented through the Outline Environmental Management Plans and secured through the Development Consent Order (DCO), including:

- Cable Burial Risk Assessment (CBRA); and
- Cable Plan (CaP).

#### Scoping Assessment

31.3.3.4 Given the nature and scale of the UK Scheme, and the embedded mitigation incorporated within the design:

- No additional receptors or pathways relevant to this Chapter have been identified; and
- Heat and EMF are therefore proposed to be scoped out of further assessment in this Chapter.

31.3.3.5 Potential effects on marine ecological receptors associated with subsea cable heating are assessed in the relevant marine Chapters (Volume 03, Chapters 14 – 16) and are not considered further below in Table 31-2.

### Table 31-2: Elements Scoped In and Out for Heat and EMF

| EOS Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction | Installation of onshore and subsea cables | Temporary, localised heat generation from electrical infrastructure installation activities, though at levels too low to create any plausible exposure pathway to human receptors. | Human receptors | Scoped Out | Temporary activities with no credible exposure to heat or radiation giving rise to significant effects. |
| Operational | Operation of buried HVAC and HVDC cables | Generation of heat and magnetic fields during cable operation; however, burial depth, insulation and natural attenuation prevent any meaningful exposure at the surface. | Human receptors | Scoped Out | Electric fields would be screened by cable insulation and burial; magnetic fields reduce rapidly with distance. No significant exposure pathways identified. |
| Operational | Operation of converter station | Localised heat generation and EMF emissions from equipment within the converter station building, although emissions remain contained within the structure and do not present an exposure pathway to external receptors. | Human receptors | Scoped Out | EMF would be contained within the converter station design where required. Embedded mitigation inherent to the EOS design; no significant effects anticipated. |

#### Cumulative and Transboundary Effects

31.3.3.6 No cumulative or transboundary impacts are anticipated for this topic, and it is proposed to be scoped out.

## 31.4 Aviation and Radar

### 31.4.1 Introduction

31.4.1.1 This Section investigates the potential significant effects on Aviation and Radar and the proposed approach to assessment. The assessment will consider the significant effects on Aviation and Radar that may arise from the construction, operational and decommissioning phases of the UK Scheme (as described in Volume 01, Chapter 01: Introduction).

31.4.1.2 This Section presents the scope of the detailed environmental assessment for Aviation and Radar for the UK Scheme. Specifically, the policy and legislative context and the approach to collecting relevant baseline data. It also provides an overview of the current understanding of baseline conditions within and surrounding both the EOS and the UKMS Scoping Boundaries. It concludes by setting out, with justification, why Aviation and Radar are proposed to be scoped out of the EIA.

### 31.4.2 Relevant Legislation, Planning Policy and Guidance

31.4.2.1 Legislation, policy and guidance specifically relating to Aviation and Radar in the UK are summarised below.

#### Legislation

31.4.2.2 Following the departure of the UK from the European Union (EU) and the European Aviation Safety Agency, former EU aviation safety legislation has been transposed into UK law as follows.

- UK Reg (EU) 2018/1139 (the UK Basic Regulation);
- UK Reg (EU) 3922/91 (the UK Technical and Administrative Harmonisation Regulation);
- UK Reg (EU) 965/2012 (Air Operations);
- UK Reg (EU) No 139/2014 (the UK Aerodromes Regulation);
- UK Reg (EU) No 2017/373 (the UK ATM Provision of Services Regulation);
- UK Reg (EU) No 923/2012 (the UK Standardised Rules of the Air Regulation);
- UK Reg (EU) No 1332/2011 (Airborne Collision Avoidance); and,
- AUR Performance Based Navigation UK Reg (EU) No 2018/1048 (the UK PBN Regulation).

31.4.2.3 Additionally, the following Civil Aviation Authority (CAA) publication details UK aviation legislation; CAP 393: Regulations made under powers in the Civil Aviation Act 1982 and the Air Navigation Order 2016 (CAA, 2022).

#### National Planning Policy Framework

31.4.2.4 The National Policy Statement for Energy (NPS EN-1) (DESNZ, 2025a) advises that:

- *"All aerodromes, covering civil and military activities, as well as aviation technical sites, meteorological radars and other types of defence interests (both onshore and offshore) can be affected by new energy development*.
- *Collaboration and co-existence between aviation, defence and energy industry stakeholders should be strived for to ensure scenarios such that neither is unduly compromised.*"

31.4.2.5 NPS EN-1 subsequently details the need for new developments to ensure that the safety and operation of civil and military aerodromes and aviation technical sites are not compromised. The Obstacle Limitation Surfaces (OLS), designed to protect aircraft operations at and in the vicinity of aerodromes, and the integrity of the performance of navigation aids should not be infringed. Safeguarding maps lodged with the Local Planning Authority should be referred to ensure OLS are not infringed and other relevant criteria, such as birdstrike hazards, are taken into account.

31.4.2.6 National Policy Statement for Electricity Networks Infrastructure (NPS EN-5), (DESNZ, 2025b) is also applicable to the UK Scheme in relation to adherence statutory technical safeguarding zones for communication, navigation and surveillance infrastructure to avoid adverse impacts of Electric and Magnetic Fields.

#### Guidance

31.4.2.7 Civil Aviation Publications (CAPs). The following CAPs have been considered within this assessment:

- CAP 168: Licensing of Aerodromes Thirteenth Edition Incorporating Amendment 15 (CAA, 2025); and
- CAP 670: Air Traffic Services Safety Requirements, Third Issue Amendment 1/2019 (CAA, 2019).

### 31.4.3 Consultation and Engagement

31.4.3.1 Topic-specific consultation relating to Aviation and Radar has been limited to discussions with the owners and operators of Great Oakley Airfield as outlined in Section 31.4.4.6. During the development of the EIA, National Air Traffic Services (NATS) and the Defence Infrastructure Organisation (DIO) will be consulted as statutory consultees for operations within UK airspace. The UK Scheme will be partially located within the Amsterdam FIR, as detailed in Section 31.4.4.5 and Figure 31-1. Luchtverkeersleiding Nederland (LVNL), the Air Navigation Service

Provider for the Netherlands will therefore also be consulted in relation to offshore activities within the Amsterdam FIR. For transboundary considerations, see Section 31.4.5.2.

## 31.4.4 Baseline Environment

### Study Area

#### *EOS Study Area*

31.4.4.1 In order to identify Aviation and Radar receptors, the onshore Study Area for Aviation and Radar has been defined in accordance with the criteria below. Once the receptors within the EOS Study Area have been identified, an assessment of the potential impacts of the construction, operational and decommissioning phase activities taking place within the EOS Scoping Boundary will be undertaken. All distances, where given, are from the EOS Scoping Boundary as shown on Volume 01, Chapter 01: Introduction, Figure 1-4. Study Area distances from the EOS include:

- 3 kilometres (km) radius for unlicensed aerodromes;
- Within the lateral confines for military low flying areas (LFAs);
- 10 km radius for other aviation facilities (e.g. navigational aids);
- 25 km radius for secondary surveillance radars (SSRs) and Meteorological Office radars;
- 30 km radius for licensed and certificated aerodromes;
- 65 km radius for airport primary surveillance radars (PSRs) and Instrument Flight Procedures (IFPs); and
- 200 km radius for air defence PSRs.

31.4.4.2 Assessment of impacts to en-route PSRs shall be determined by coverage as defined by NATS Safeguarding maps (NATS, 2026a).

#### *UKMS Study Area*

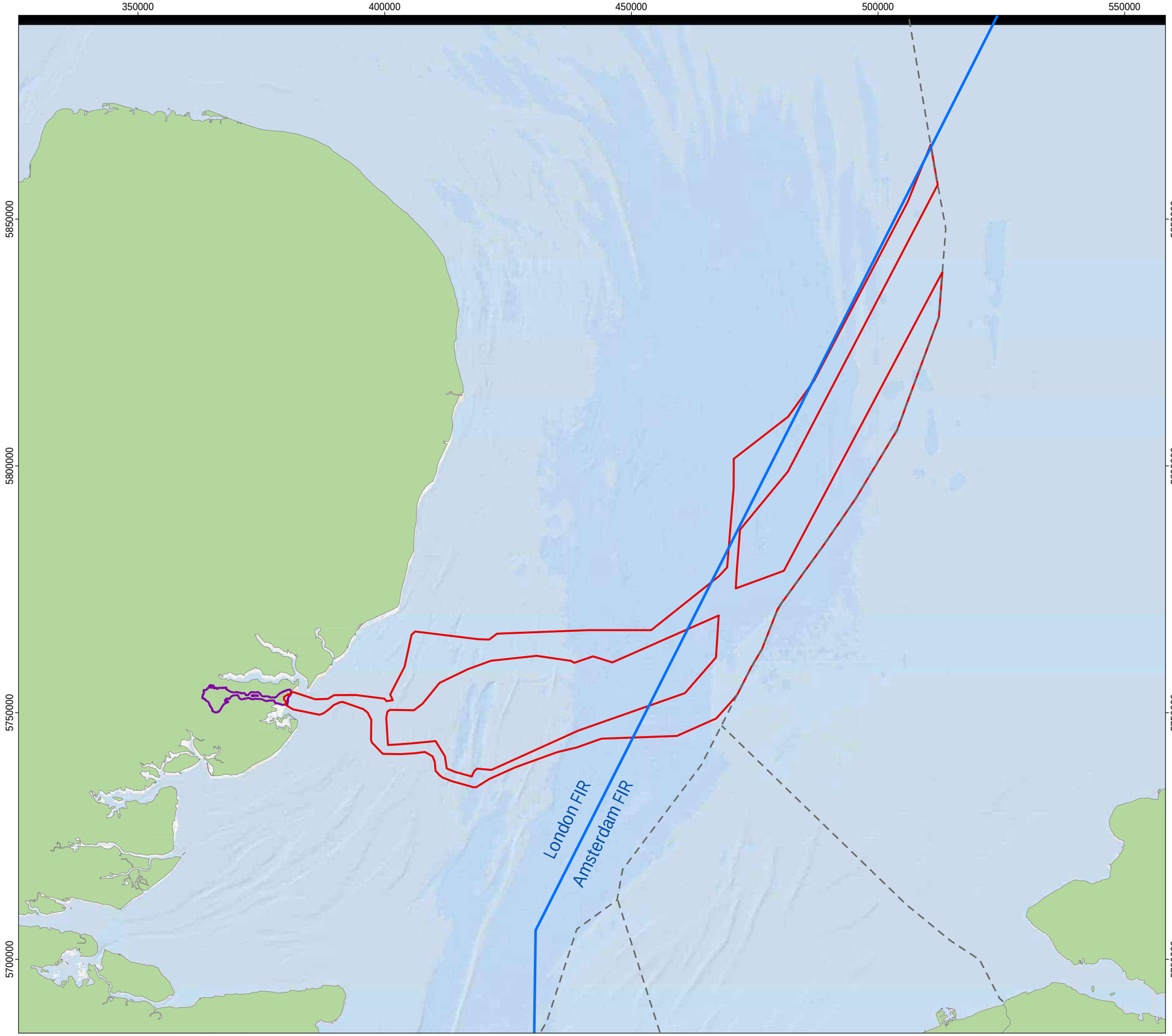
31.4.4.3 The UKMS Study Area for Aviation and Radar has been defined as the UKMS Scoping Boundary as shown on Volume 01, Chapter 01: Introduction, Figure 1-5.

### Baseline Conditions

31.4.4.4 The following data sources were consulted in assessing the baseline conditions and the identification of potential aviation receptors:

- United Kingdom Aeronautical Information Publication (UK AIP) (NATS, 2026b);
- United Kingdom Military Aeronautical Information Publication (Mil AIP) (No1 AIDU, 2026);
- NATS Safeguarding maps (NATS, 2026a); and
- The Netherlands Aeronautical Information Publication (LVNL, 2026).

31.4.4.5 The airspace above and adjacent to the proposed HVDC and HVAC cables and Converter Station is used by civil and military aircraft. The airspace is Class G uncontrolled airspace, which is established from surface up to Flight Level (FL) 195 (19,500 feet (ft) above mean sea level). The EOS Scoping Boundary and the western parts of the UKMS Scoping Boundary are located within the London Flight Information Region (FIR), with the east and northeast of the UKMS Scoping Boundary located within the Amsterdam FIR, shown in Figure 31-1. Aircraft operating within the airspace of the London FIR may be provided with a radar service by Air Traffic Control Service Units (ATCSUs) using radar systems operated by NATS, the Ministry of Defence (MOD) and airports providing a Lower Airspace Radar Service (LARS). Aircraft operating within the airspace of the Amsterdam FIR may be provided with a service by LVNL.




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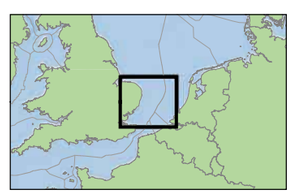
# Tarchon Interconnector Project

Scoping Report

## UK Scheme in relation to Flight Information Regions

Legend

- English Onshore Scheme Scoping Boundary
- UK Marine Scheme Scoping Boundary
- Exclusive Economic Zones (EEZ) Boundaries
- London and Amsterdam Flight Information Region (FIR) Boundary



Notes

Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Coordinate System: WGS 1984 UTM Zone 31N

0 20 40 km

N

| Scale | Date | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| 1:750,000 @A3 | 17/02/2026 | BPHB | EH | MB |

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Figure 31-1

Figure Reference: Tarchon_Scoping_OET_Fig31-1_FIR_Boundary_v1

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### Identification of Receptors

#### *Unlicensed Aerodromes*

31.4.4.6 Great Oakley Airfield is an unlicensed airfield located within the onshore Study Area, as well as partially within the EOS Scoping Boundary. The Airfield operates two grass runways for recreational flying. Visiting pilots are required to obtain prior permission to use the airfield. The Applicant aims to design the UK Scheme to eliminate any direct impacts on Great Oakley Airfield and its operations and is consulting with the aerodrome operator in this regard. Unlicensed Aerodromes have therefore been Scoped Out of further assessment.

#### *Military Low Flying*

31.4.4.7 A small area in the northeast section of the EOS Scoping Boundary, close to Harwich, is located within Low Flying Area 10 (LFA 10). This part of LFA 10 predominantly lies over the town of Harwich. Low flying permanent avoidance policy, as detailed within MOD UK publication: Military Low Flying in the United Kingdom (MOD, 2010) requires pilots to avoid overflying towns with populations greater than 10,000 according to the 2001 Census. According to the Office for National Statistics (ONS), Harwich had a population of 17,015 in 2001 (ONS, 2021), which exceeds the threshold for permitted overflight. Military Low Flying has therefore been Scoped Out of further assessment.

#### *Navigational Aids*

31.4.4.8 The NATS Clacton (CLN) en-route Very High Frequency (VHF) Omnidirection Range (VOR)/Distance Measuring Equipment (DME) navigational aid, located at N51 50 54.50 E001 08 51.32, lies within the onshore study area approximately 7 km to the south of the EOS Scoping Boundary. Approximately 80% of the EOS Scoping Boundary is located within the lateral confines of the safeguarding area for the CLN VOR/DME. The vertical extent of the safeguarded area is understood to be defined by an inverted cone, whose surface extends at an angle of 2%. Above the EOS Scoping Boundary, the VOR/DME safeguarded area is likely to be above 140 metres (m). As the maximum height of buildings to be constructed under the EOS is 26 m, with a maximum height of 29 m for lightning masts, construction and operation of the EOS falls below the vertical confined of the CLN VOR/DME. En-route navigational aids have therefore been Scoped Out of further assessment.

#### *Airport Primary and Secondary Surveillance Radar Systems and Meteorological Office Radar*

31.4.4.9 London Southend Airport, located approximately 42 km southwest of the UK Scheme, operates a PSR within the onshore Study Area. As the HVDC and HVAC cables will be buried and the Converter Station is a static building, they will not be detected by radar during the operational phase. Terrain shielding between the Southend Airport PSR and the EOS Scoping Boundary is highly likely, resulting in no anticipated detection of any vehicular or equipment movements during construction or decommissioning.

31.4.4.10 The closest Meteorological Office to the Scoping Area is Thurnham, approximately 72 km southwest of the EOS Scoping Boundary, which is outside the Study Area.

31.4.4.11 As the UK Scheme is highly unlikely to be detected by Airport PSR and SSR Systems or Meteorological Office Radar, they have been Scoped Out of further assessment.

#### *En-route and Air Defence Primary Radar Systems*

31.4.4.12 The NATS en-route radar system located at Debden and MOD Remote Radar Head (RRH) Neatishead, Norfolk lie within the onshore Study Area for Primary Radar Systems, approximately 52 km to the west-northwest and approximately 90 km north-northeast of the EOS Scoping Boundary respectively. As outlined at 1831.4.4.9, the HVDC and HVAC cables and converter station will not be detected during the operational phase. Terrain shielding between the Debden PSR and the EOS Scoping Boundary, and between RRH Neatishead and the EOS Scoping Boundary is highly likely, resulting in no anticipated detection of any vehicular or equipment movements during construction or decommissioning. The UKMS is approximately 75 km from RRH Neatishead at its closest point. Cable-laying vessels operating within the UKMS are highly unlikely to be of sufficient height to be detectable by the RRH. NATS en-route and Air Defence Primary Radar Systems have therefore been Scoped Out of further assessment.

#### *Restricted Airspace*

31.4.4.13 The UKMS lies in part within the lateral confines of Temporary Restricted Area (TRA) 003 within the London FIR. The vertical limits of TRA 003 are FL195-FL245 (19,500 ft – 24,500 ft), so construction and decommissioning activities will be beyond the TRA. The UKMS lies in part within the lateral confines of the Lakenheath (North and South) Aerial Tactics Areas (ATA), defined as:

- "*An airspace of defined dimensions designated for air combat training, within which high energy manoeuvres are regularly practised by aircraft formations.*"

31.4.4.14 The ATA operates between FL60-FL195 (6,000 ft – 19,500 ft), so construction and decommissioning phase activities will be below the vertical limits of the ATA. Other Airspace Restrictions have therefore been Scoped Out of further assessment.

### 31.4.5 Potential Effects and Mitigation

#### Scoping Assessment

31.4.5.1 The UK Scheme is unlikely to cause any adverse impact to aviation infrastructure or operations and will be scoped out of further assessment. Justification is summarised at Table 31-3.

Table 31-3: Elements Scoped In and Out for Aviation and Radar

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction, Operational, Decommissioning | Onshore cable installation and associated civil works, converter station | Possible interference with aerodrome operations from construction activities, equipment or structures located within or near airfield safeguarding areas. | Unlicensed Aerodromes | Scoped Out | Discussion is ongoing with the owners and operators of Great Oakley Airfield to design the EOS in a way that eliminates any direct impacts on the Airfield and its operations. Therefore, no significant effects are expected. |
| Construction, Operational, Decommissioning | Onshore cable installation and associated civil works, converter station | Potential for construction activities or tall equipment to interact with military low-flying routes or training areas. | Military Low Flying | Scoped Out | The small portion of the UK Scheme Scoping Boundary that is located within an LFA lies over the lateral confines of the town of Harwich; low flying permanent avoidance policy prohibits low flying over Harwich, so low flying will be highly unlikely to take place above the UK Scheme. |
| Construction, Operational, Decommissioning | Onshore cable installation and associated civil works, converter station. Offshore cable installation | Risk of physical obstruction or signal interference to navigational aids from ground infrastructure or construction activities. | Navigational Aids | Scoped Out | The UK Scheme is outside of the confines of the safeguarded areas of navigational aids. |
| Construction, Operational, Decommissioning | Onshore cable installation and associated civil works, converter station | Potential for onshore infrastructure or construction equipment to be detected by or interfere with airport radar systems. | Airport PSR and SSR | Scoped Out | The onshore cable installation will be buried and the converter station a static building that is highly unlikely to cause interference to Airport PSR due to terrain shielding. |

| UK Scheme Phase | Source | Potential Impact | Receptor | Scoped In or Out | Scoping Justification |
|---|---|---|---|---|---|
| Construction, Operational, Decommissioning | Onshore cable installation and associated civil works, converter station | Potential for construction activities or infrastructure to affect meteorological radar signal pathways or detection capability. | Meteorological Office Radar | Scoped Out | The EOS is outside of the safeguarding areas for Meteorological Office Radar. |
| Construction, Operational, Decommissioning | Onshore cable installation and associated civil works, converter station<br>Offshore cable installation | Risk that onshore works, converter station structures or offshore cable-laying vessels could be detected by or interfere with en-route or defence radar systems. | En-route and Air Defence Radar Systems | Scoped Out | The onshore cable installation will be buried and will not cause interference to NATS en-route or Air Defence Radar Systems during the operational phase.<br>The converter station is a static building that is highly unlikely to cause interference through signal blocking to NATS en-route or Air Defence Radar Systems due to terrain shielding during all phases of the UK Scheme.<br>It is highly unlikely, given the distance of the UKMS from the Radar Systems, that cable laying vessels will be detected during construction and decommissioning. As the offshore cable installation will be below sea level during the operational phase, it will not cause interference to NATS en-route or Air Defence Radar Systems. |
| Construction, Operational, Decommissioning | Offshore cable installation | Potential for construction or vessel activity to conflict with defined restricted airspace or tactical training areas. | Airspace Restrictions | Scoped Out | The UKMS will be beyond restricted airspace. |

### Cumulative and Transboundary Effects

31.4.5.2 No cumulative impacts are anticipated for this topic. Whilst the UKMS lies partially within the Amsterdam FIR, there will be no infrastructure above sea level during the operational phase, resulting in no aviation impact. During construction, the distance of the cable laying vessels within the UKMS from any aviation communication, navigation or surveillance system within the Netherlands will make the likelihood of detection or interference extremely small. Any potential interaction with any aviation communication, navigation or surveillance system within the Netherlands will be assessed within the Netherlands EIA and will be required to follow regulations and guidance specific to Dutch requirements. It is therefore proposed to scope out transboundary effects.

### Mitigation

31.4.5.3 Provision is already made under CAP 1096: *Guidance to crane users on the crane notification process and obstacle lighting and marking* for the notification and coordination of information of the intended use of tall construction equipment, should it be required during the construction or decommissioning phase of the UK Scheme. There may be a requirement to issue a Notice to Airmen (NOTAM) to provide information to pilots about temporary construction works. Additionally, there may be a requirement for aviation lighting to be affixed to the Converter Station to increase visibility to military aircraft, especially helicopters that operate within the EOS Scoping Boundary. The need and nature of such mitigation will be discussed and agreed with NATS and DIO during consultation.

## 31.4.6 Assumptions, Limitations and Uncertainties

31.4.6.1 The approach to Aviation and Radar has been prepared on the basis of information available at the time of undertaking the Scoping exercise.

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# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

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# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 04, Chapter 32: Approach to Cumulative and Transboundary Effects

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00034 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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Volume 06, Annex 32-1: Transboundary Screening Matrix.

## Acronyms

| Acronym | Definition |
|---|---|
| DCO | Development Consent Order |
| DESNZ | Department of Energy Security and Net Zero |
| EDR | Effective Deterrent Range |
| EEA | European Economic Area |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| JNCC | Joint Nature Conservation Committee |
| MMO | Marine Management Organisation |
| NPS | National Policy Statement |
| NSIP | Nationally Significant Infrastructure Project |
| OWF | Offshore Wind Farm |
| PEIR | Preliminary Environmental Impact Report |
| PINS | Planning Inspectorate |
| PMI | Project of Mutual Interest |
| SAC | Special Area of Conservation |
| SoS | Secretary of State |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| ZoI | Zone of Influence |

# 32. Approach to Cumulative and Transboundary Effects

## 32.1 Introduction

32.1.1.1 This Chapter sets out the proposed approach for considering cumulative and transboundary effects associated with the United Kingdom (UK) Scheme across the technical chapters of the Environmental Statement (ES). These effects may arise during the construction, operational and decommissioning phases of the UK Scheme (as described in Volume 01, Chapter 02: UK Project Description). The UK Scheme is formed of both the UK Marine Scheme (UKMS) and the English Onshore Scheme (EOS) (as described in Volume 01, Chapter 02: UK Project Description), both of which are relevant to this Chapter. As a result, this Chapter is split where relevant between the UKMS and EOS.

32.1.1.2 This Chapter outlines the baseline context relevant to cumulative and transboundary considerations, presents the methodology and datasets proposed for the assessments, identifies where significant effects may occur, and explains the level of detail to which these effects will be evaluated and reported as part of the Environmental Impact Assessment (EIA).

32.1.1.3 This Chapter should be read in conjunction with:

- Volume 01, Chapter 06: EIA Approach & Methodology
- Volume 06, Annex 32-1: Transboundary Screening Matrix; and
- Volumes 02 to 04, Chapters 07 to 31.

### 32.1.2 Scoping of Cumulative and Transboundary Effects

32.1.2.1 The assessment will be split between the three types of effects:

- Cumulative effects;
- Interrelationships and combined effects; and
- Transboundary effects.

32.1.2.2 These three types of effects are outlined in greater detail below.

#### Cumulative Effects

32.1.2.3 Cumulative effects are those that will be experienced by receptors as a result of UK Scheme impacts in combination with the impacts of other proposed or consented developments.

32.1.2.4 For clarity, where other projects already exist or are expected to be completed before construction of the UK Scheme, effects arising from these projects will be considered as part of the baseline assessment.

32.1.2.5 Accordingly, the cumulative effects assessment will include the following:

- Effects relating to how the UK Scheme may interact with other existing, consented, or reasonably foreseeable developments, including wider elements of the whole Tarchon Project within the UK. The assessment will focus on identifying where these interactions could lead to new or different significant effects on environmental receptors and resources.

32.1.2.6 For example, in operation, a visual receptor may simultaneously experience visual impacts from the UK Scheme Converter Station as well as from other planned developments' substations.

#### Interrelationships and Combined Effects

32.1.2.7 Separate to the assessment outlined above, interrelationships and combined effects of the UK Scheme (and from the whole Tarchon Project where relevant to impacts in the UK) in isolation will be assessed. This includes:

- Effects arising from the combination of UK Scheme-specific (and whole Tarchon Project where relevant to impacts in the UK) impacts, which, when occurring together, may create a new or different significant effect, or increase the significance of an effect compared to its impact in isolation.

32.1.2.8 For example, during construction, a local community may simultaneously experience impacts from dust, noise and traffic disruption all associated with the UK Scheme, resulting in a higher overall level of disturbance than any single impact alone.

#### Transboundary Effects

32.1.2.9 Transboundary effects associated with the UK Scheme are discussed in Volume 06, Annex 32-1: Transboundary Screening Matrix. Interactions with the Dutch Scheme and the German Scheme are considered from a transboundary perspective as they are located in jurisdictions outside of the UK's Exclusive Economic Zone (EEZ).

### 32.2 Study Area

32.2.1.1 The Study Area for cumulative effects will be established using the largest spatial extent of the Zones of Influence (ZoIs) identified within each topic-specific assessment. This area represents the spatial extent to which the UK Scheme could interact cumulatively with other proposed or reasonably foreseeable developments. The Study Area will therefore reflect the outer boundary of all relevant ZoIs and will be refined iteratively as the UK Scheme design progresses and as further information on other developments becomes available. This aligns with the staged approach set out in the Planning Inspectorate (PINS) cumulative effects guidance (Planning Inspectorate, 2024).

32.2.1.2 The Study Area for the interrelationships and combined effects assessments will be defined by the maximum area over which two or more effects from the UK Scheme could combine or interact with an environmental receptor or resource. Its spatial extent will be guided by the reach of individual effects and by the Study Area(s) identified within each topic-specific assessment.

## 32.3 Relevant Legislation, Planning Policy and Guidance

32.3.1.1 Volume 01, Chapter 05: Legislative and Planning Policy Context describes the overall regulatory and planning policy context for the UK Scheme. Key legislation, policy and guidance relevant to the assessment of potential cumulative and transboundary effects is presented below.

### 32.3.2 Cumulative Effects

32.3.2.1 Schedule 4 of The Infrastructure Planning (EIA) Regulations 2017 (HM Government, 2017) (the 'EIA Regulations') requires that an EIA should include consideration of both the interaction between the different aspects of the environment likely to be affected by a development (Regulation 5(2)(e)), and the potential significant effects of a development resulting from the cumulation of effects with other existing or approved projects (Schedule 4, Paragraph 5(e)).

32.3.2.2 Collectively, these effect interactions are referred to as cumulative effects.

32.3.2.3 The Overarching National Policy Statement for Energy (EN-1) (NPS-EN-1) (DESNZ, 2025) acknowledges this requirement, confirming in paragraph 4.3.3 that an assessment of the potential significant effects of a proposed project on the environment should cover cumulative effects at all stages of the project. It also states in paragraph 4.3.19 (DESNZ, 2025) that "*The Secretary of State should consider how the accumulation of, and interrelationship between, 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.*"

### 32.3.3 Transboundary Effects

32.3.3.1 Regulation 32 of the EIA Regulations (HM Government, 2017) establishes certain duties where the SoS considers that a Nationally Significant Infrastructure Project (NSIP) may have significant effects on the environment in a European Economic Area (EEA) State. These types of effect are called transboundary effects.

32.3.3.2 Transboundary procedures are managed by PINS on behalf of the SoS as part of the Planning Act 2008 (HM Government, 2008) process for examining applications for development consent.

32.3.3.3 Regulation 32 of the EIA Regulations (HM Government, 2017) outlines the obligations placed on the SoS to notify and consult EEA States, and within the timeframes set by the Planning Act 2008 (HM Government, 2008), where significant transboundary effects of a project are likely.

32.3.3.4 Whilst applicants for development consent have no formal role under Regulation 32 of EIA Regulations (HM Government, 2017), PINS Nationally Significant Infrastructure Projects: Advice on Transboundary Impacts and Process (Planning Inspectorate, 2024) confirms that the Planning Inspectorate will use the applicant's information to assist in determining the potential for significant effects on the

environment in EEA States. It also confirms that information regarding the potential for transboundary effects should be submitted by applicants:

- As part of any formal request for a Scoping Opinion made under Regulation 8 of the EIA Regulations (HM Government, 2017); and
- Within the suite of documents submitted as part of the application.

## 32.4 Consultation and Engagement

### 32.4.1 English Onshore Scheme (EOS)

32.4.1.1 In developing the proposed scope for the above assessments, full consideration has been given to stakeholder feedback received during the non-statutory consultation exercise (see Volume 01, Chapter 04: Approach to Consultation). In relation to the cumulative effects of the EOS, feedback from Essex County Council, Tendring District Council and Suffolk County Council highlighted some concerns and observations, which are summarised below:

- Potential for adverse cumulative effects on residents, the landscape and receiving environment – particularly from coalescence with other proposed infrastructure such as North Falls and Five Estuaries Offshore Windfarms;
- A need to co-ordinate plans to secure positive outcomes in terms of landscape mitigation, and to address potential cumulative effects on designated National Landscapes;
- A need to consider and address cumulative noise effects (construction and operational);
- A need to consider potential cumulative visual effects with other infrastructure projects, and cumulative effects on heritage assets;
- Concerns regarding the cumulative effects of construction traffic on the road network and its effects on local communities, and a need for detailed mitigation; and
- A need for co-ordination on matters relating to employment, supply chain, housing and service pressures that could arise from multiple developments.

32.4.1.2 Cumulative landscape, noise, heritage, construction traffic, and socio-economic effects will be assessed within cumulative sections of topic-specific chapters within the ES.

### 32.4.2 UK Marine Scheme (UKMS)

32.4.2.1 Pre-Scoping consultation for the UKMS has been undertaken with a number of marine stakeholders including (but not limited to) the Marine Management Organisation (MMO), Natural England, Joint Nature Conservation Committee (JNCC) and Historic England. Feedback relating to requests for consideration of cumulative effects associated with the UKMS include:

- A requirement to adhere to noise thresholds and to consider Effective Deterrent Ranges (EDRs) for works taking place within the Southern North

Sea Special Area of Conservation (SAC) to reduce the cumulative effects from underwater noise; and

- Consider other plans and projects located within designated sites that the UKMS interacts with to consider and assess potential cumulative effects on these sites.

32.4.2.2 Cumulative effects will be assessed within cumulative sections of topic-specific chapters within the ES.

## 32.5 Baseline Environment

### 32.5.1 Baseline Conditions

32.5.1.1 The UK Scheme (as described in Volume 01, Chapter 02: UK Project Description) covers the construction, operational and decommissioning phases of the EOS and UKMS, which together form the UK elements of the Tarchon Project. The UK Scheme will be delivered within a wider regional context that includes other planned infrastructure projects, including offshore wind farms and National Grid transmission projects, all of which are relevant to cumulative and transboundary considerations.

32.5.1.2 Due to the complex nature of the area within which the UK Scheme will be constructed (in terms of existing infrastructure and other planned infrastructure), the potential for cumulative effects to arise forms a key consideration for this EIA. Current existing and planned infrastructure within close proximity to the UK Scheme Scoping Boundary is shown in Volume 03, Chapter 23: Other Infrastructure and Other Sea Users, Figures 23-1 and 23-2.

32.5.1.3 Other major existing and planned infrastructure includes (but is not limited to) the following (highlighting the importance of robustly assessing potential cumulative effects from the UK Scheme):

- North Falls (proposed Offshore Windfarm (OWF), cable route, and substation);
- Five Estuaries (proposed Offshore Windfarm (OWF), cable route, and substation);
- East Anglia One, Two and Three (operational OWFs);
- Greater Gabbard (operational OWF);
- Galloper (operational OWF);
- Norfolk Vanguard East (operational OWF);
- Norwich to Tilbury East Anglia Connection Node (EACN) (Tarchon's proposed connection node);
- Sea Link (proposed interconnector);
- LionLink (proposed Multi-purpose interconnector);
- NeuConnect (in construction interconnector); and,
- A large variety of existing telecoms cables.

### 32.5.2 Future Baseline Conditions

32.5.2.1 The baseline environment is not static and is expected to change over time, irrespective of the UK Scheme. When undertaking impact assessments, it is therefore necessary to consider potential effects in the context of the range of environmental changes that may occur in the absence of the UK Scheme over its operational lifetime. This future baseline will be defined for the purposes of the EIA.

32.5.2.2 The UK Scheme will coexist alongside other major regional infrastructure projects, including offshore wind farms and National Grid transmission schemes, which form an evolving development context relevant to cumulative and transboundary considerations. The future baseline for assessment reflects not only existing environmental conditions, but also the anticipated progression of these neighbouring projects and wider regional change over the operational lifetime of the UK Scheme.

## 32.6 Assessment Methodology

### 32.6.1 Cumulative Effects

32.6.1.1 Cumulative effects with other existing or proposed developments relate to how the UK Scheme may interact with other projects, including wider elements of the Tarchon Project (Dutch Scheme and German Scheme) within the UK. The assessment will consider the potential for the UK Scheme to interact cumulatively with existing, consented or reasonably foreseeable developments in the surrounding area. It will focus on the effects arising from the UK Scheme in combination with other developments, including interactions with other elements of the wider Tarchon Project within the UK EEZ. Any effects of the UK Scheme on EEA states are addressed separately in transboundary screening (Volume 06, Annex 32-1: Transboundary Screening Matrix).

32.6.1.2 The proposed approach has been informed by the following published guidance:

- Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (Planning Inspectorate, 2024), which provides guidance on the identification of other developments to be considered, the proportionality of cumulative assessment, and the reporting of effects within an ES; and
- the MMO's Strategic Framework for Scoping Cumulative Effects (MMO, 2014), which provides a structured framework for identifying activities, pressures and receptors within the marine environment and supports a proportionate, evidence-led approach to Scoping cumulative effects.

#### Overview of Methodology

32.6.1.3 In accordance with published guidance, the cumulative effects assessment will adopt a four-staged and proportionate approach. The methodology will be informed by the topic-specific study areas and conclusions reported within the ES and will be refined iteratively as the assessment progresses and as further information becomes available.

32.6.1.4 The assessment will focus on identifying meaningful interactions between the UK Scheme and other developments within the UK's jurisdiction that have the potential to give rise to significant cumulative effects, rather than undertaking an exhaustive assessment of all possible combinations of projects and effects.

### Establishing Zones of Influence (ZoIs) and Area of Search

32.6.1.5 ZoIs will be defined for each environmental topic, representing the geographic area within which interactions between the UK Scheme and other developments could reasonably occur and result in cumulative effects on environmental receptors or resources. The ZoIs will be informed by the Study Area(s) defined for the individual topic assessments and, where appropriate, by the maximum spatial extent across relevant topics.

32.6.1.6 Professional judgement will be applied when defining ZoIs to ensure the approach remains proportionate and does not rely on arbitrary distance thresholds. The ZoIs, and the resulting area of search for other developments, will be subject to iterative review and refinement as the assessment progresses. Refinement may be influenced by factors including design evolution of the UK Scheme, emerging findings of topic-specific assessments, stakeholder feedback, and the availability of updated information relating to other developments.

### Stage 1: Long List

32.6.1.7 A long-list of other developments within the defined area of search will be compiled to inform the cumulative effects assessment. The long-list will include developments that are existing, consented, under construction, or reasonably foreseeable, and which are of a type or scale that could plausibly interact with the effects of the UK Scheme.

32.6.1.8 The types of plans and projects considered may include, but will not be limited to:

- NSIPs listed on the Planning Inspectorate's Programme of Projects;
- Major developments progressing under the Town and Country Planning Act 1990 (HM Government, 1990), including transport infrastructure, energy infrastructure and other large-scale proposals;
- Projects advancing through other statutory consent regimes; and
- The wider Tarchon Project (considering its effects within the UK).

32.6.1.9 Proportionate inclusion criteria will be applied to define what constitutes a 'major development', with reference to relevant legislative definitions and professional judgement, to ensure the assessment focuses on developments with the potential to give rise to meaningful cumulative interactions.

32.6.1.10 Each development identified will be reviewed to establish its planning or consent status at the time of assessment, including whether it is consented, in construction, submitted for determination, or identified within development plan documents.

32.6.1.11 A range of publicly available information sources will be used to identify and characterise other developments, which may include:

- The PINS Programme of Projects;
- Local authority planning portals and development plan documents;
- The MMO public register and marine plans;
- The Crown Estate and other relevant statutory bodies; and
- Project-specific and government websites.

32.6.1.12 The cumulative effects assessment will utilise the best available information at the time of assessment and will be updated where appropriate as new information emerges.

#### Stage 2: Short-List

32.6.1.13 The long-list of projects developed at Stage 1 will undergo a subsequent review for their further evaluation of their potential to result in cumulative effects. This review will be based on the following information:

- **Timescales**: consideration needs to be made as to whether there will be a temporal overlap between the UK Scheme and the external project under review, which could result in a potential pathway for cumulative effects to occur; and
- **Geographical relationship**: is there a spatial overlap between the UK Scheme and the external project under review, which could result in a potential pathway for cumulative effects to occur; and

32.6.1.14 The consideration of the above information will allow the refinement of the long list into the Stage 2 short-list.

#### Stage 3: Information Gathering

32.6.1.15 Following the creation of the short-list, a data gathering exercise will be undertaken to review data (either in the public domain such as published scoping reports and ES's, or via data sharing agreements) to determine the possible environmental effects associated with these external projects and to conclude if pathways for potential cumulative effects remain.

#### Stage 4: Assessment

32.6.1.16 During the Stage 4 assessment, the potential for cumulative effects to occur on environmental receptors or resources common to both the UK Scheme and the external projects will be undertaken. It is at this point that the significance of potential cumulative effects will be determined.

### 32.6.2 Interrelationships and Combined Effects

32.6.2.1 Interrelationships and combined effects concern interactions within the UK Scheme only (this will be extended to the whole Tarchon Project where relevant to impacts within the UK). There is no prescribed methodology for the assessment of these

kinds of effects. The proposed approach has therefore been informed by the Planning Inspectorate's guidance on cumulative effects assessment for NSIPs, the overarching EIA methodology set out in Volume 01, Chapter 06: EIA Approach and Methodology and the application of professional judgement.

32.6.2.2 The assessment will consider whether environmental receptors and resources could be subject to more than one type of effect arising from the construction, operational and decommissioning phases of the UK Scheme (and whole Tarchon Project where relevant to impacts within the UK). It will be informed by the findings of the topic-specific assessments reported within the ES.

32.6.2.3 A staged approach to the identification and assessment of interrelationships and combined effects is proposed, comprising:

- **Stage 1 – Screening**: Environmental receptors and resources will be reviewed to identify those that are common to more than one assessment topic and may therefore be exposed to more than one UK Scheme-related (and whole Tarchon Project where relevant to impacts within the UK) effect;
- **Stage 2 – Review of effects:** For receptors and resources identified at Stage 1, the nature and significance of the relevant effects will be reviewed to identify potential interactions requiring further consideration. The focus will be on residual effects with an individual significance of negligible or higher; and
- **Stage 3 – Assessment of interactions:** Where relevant interactions are identified, an assessment will be undertaken to determine whether the combined effects could result in an effect of greater significance than those identified in isolation or give rise to a new or different effects. The potential need for any additional mitigation, beyond that identified within the topic-specific assessments, will also be considered where practicable.

32.6.2.4 In applying this approach, regard will be made for the extent to which certain assessments are inherently cumulative, and to receptors and resources for which effects are wholly accounted for within a single topic assessment. Where no reasonable potential for interaction exists, further consideration will not be undertaken.

### 32.6.3 Transboundary Effects

#### Assessment Methodology

32.6.3.1 The assessment of transboundary effects considers the potential for the UK Scheme to give rise to significant effects within another EEA State. As the UK Scheme forms part of the wider Tarchon Project, which is recognised by the European Commission as a Project of Mutual Interest (PMI), particular attention is given to cross-border environmental pathways and the need for coordinated assessment across jurisdictions. The approach has been informed by Regulation 32 of the Infrastructure Planning (EIA) Regulations 2017 and the Planning Inspectorate's guidance on cumulative and transboundary assessments.

### Identification of Potential Transboundary Pathways

32.6.3.2 The first step of the assessment involves identifying environmental pathways through which effects arising from the UK Scheme could extend beyond UK territorial waters or influence receptors located within another jurisdiction. Potential cross-border pathways may include (but are not limited to):

- Changes to physical marine processes (e.g., hydrodynamics, sediment transport);
- Propagation of underwater noise from activity in the marine environment;
- Water quality changes associated with seabed disturbance or accidental releases;
- Effects on highly mobile or migratory species, including marine mammals, fish and seabirds;
- Disruption to fishing activity/grounds used by fishers from multiple nations; and
- Interactions with other offshore infrastructure outside of the UK's EEZ, in shared waters, including components of the wider Tarchon Project.

### Transboundary Study Area

32.6.3.3 A transboundary Study Area will be defined to reflect the geographic extent over which effects from the UK Scheme may be experienced by environmental receptors within another State. The Study Area will be informed by:

- The maximum extent of relevant environmental pathways;
- International ecological or conservation designations;
- The spatial distribution and known movement ranges of transboundary receptors; and
- The cross-jurisdictional footprint of the Tarchon Project as a PMI.

32.6.3.4 The Study Area will be refined iteratively as the UK Scheme design evolves, new data become available, and through ongoing engagement with the Planning Inspectorate.

### Screening of Potential Transboundary Effects

32.6.3.5 A screening of transboundary effects has been undertaken to determine whether the UK Scheme may give rise to significant transboundary environmental effects. The outputs of this screening are documented in Volume 06, Annex 31: Transboundary Screening Matrix.

32.6.3.6 The screening reviews information available in each of the topic Chapters (Volumes 02 - 04 of this Scoping Report) to:

- Draw upon topic-specific baselines outlined at the Scoping stage;
- Review each pathway–receptor interaction identified;
- Consider the magnitude, duration, extent and reversibility of effects;

- Provide the information required for the Secretary of State to determine whether EEA States should be notified under Regulation 32 of the EIA Regulations.

#### Information Gathering and Cross-Border Coordination

32.6.3.7 Where the screening identifies potential transboundary effects requiring further assessment, additional information will be collated at the ES stage to characterise receptor sensitivities and cross-border environmental conditions. This may include:

- Data from UK and EEA State marine plans, environmental registries and public datasets;
- Information on Natura 2000 sites and other international designations;
- Published technical or research studies relevant to the North Sea basin; and
- Information available through cross-jurisdictional regulatory and industry frameworks relevant to PMI projects.

32.6.3.8 This will ensure that the conclusions of the final assessment at the ES stage reflect the best available evidence at the time of reporting.

#### Assessment of Significant Transboundary Effects

32.6.3.9 Where transboundary interactions are identified at the screening stage, a detailed assessment will be undertaken at the ES stage to determine whether significant effects may arise. The assessment will consider:

- Receptor value, sensitivity and resilience;
- The scale, duration, extent and frequency of effects;
- The potential for additive or synergistic interactions with other developments; and,
- The effectiveness of mitigation measures described within topic-specific Chapters.

32.6.3.10 Where practicable, additional mitigation or monitoring measures will be identified.

#### Reporting

32.6.3.11 The outcomes of the transboundary effects assessment will be reported within the Transboundary Effects Chapter of the ES. Topic-specific ES Chapters will also highlight any transboundary considerations relevant to their respective receptors and assessment methodologies. This approach aligns with the Planning Inspectorate's expectations for proportionate, transparent reporting of transboundary effects in accordance with Regulation 32 of the EIA Regulations.

## 32.7 Potential Effects and Mitigation

### 32.7.1 Embedded Mitigation and Good Practice Measures

32.7.1.1 Embedded mitigation is detailed in each technical Chapter for any impacts proposed to be Scoped in. Outline mitigation and management plans will be

included with the ES where required with mitigation and monitoring secured and delivered through a requirement in the draft DCO.

### 32.7.2 Scoping Assessment

32.7.2.1 Cumulative effects will be reported on at the PEIR and ES stages. The scoping of interrelationships and combined effects is considered within each of the individual topic specific Scoping Chapters (Volumes 02 - 04). Transboundary effects have been given initial consideration within individual topic specific Scoping Chapters (Volumes 02 - 04) and are summarised in Volume 6, Annex 32-1: Transboundary Screening Matrix.

### 32.7.3 Future Assessment

32.7.3.1 The cumulative effects on environmental receptors and resources will be determined using professional judgement and input from the competent experts responsible for the production of the individual topic assessments at the ES stage. The assessment will reference the generic assessment criteria presented in Volume 01: Chapter 06: EIA Approach and Methodology, and the methodologies adopted for each assessment topic where relevant. The interrelationships and combined effects will be assessed within the topic-specific chapters of the ES where relevant.

32.7.3.2 Significance criteria for cumulative effects will be developed, reported in the ES, and are expected to build upon the criteria adopted within topic-specific assessments within the EIA, additionally taking account of the:

- Magnitude of effect — including the scale, intensity and severity of the impact on the receptor;
- Geographical extent — the spatial area over which the effect occurs and the degree to which it overlaps with effects from other developments;
- Duration and reversibility — including whether effects are short-term, medium-term or long-term, and whether they are reversible or permanent;
- Frequency and timing — how often an effect may occur and whether temporal overlap with other developments could exacerbate cumulative outcomes;
- Type of cumulative interaction — whether effects are additive, synergistic or combined across multiple pressures or projects;
- Receptor value and sensitivity — including ecological, environmental, social, or heritage importance, and the receptor’s resilience or vulnerability;
- Effect likelihood — the degree of certainty associated with the predicted cumulative effect, consistent with PINS’ emphasis on evidence-led proportionate assessment; and
- Effectiveness of mitigation — the extent to which proposed mitigation (for the UK Scheme or other developments) is expected to reduce or avoid the cumulative effect.

32.7.3.3 The cumulative, interrelationships and transboundary assessments will be undertaken at the ES stage and reported on in each topic specific chapter. The outcomes of the transboundary effects assessment will be compiled within a Transboundary Effects Chapter of the ES.

## 32.8 References

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TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 05, Chapter 33: Structure of the Environmental Statement

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00036 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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No table of figures entries found.

## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| DCO | Development Consent Order |
| EIA | Environmental Impact Assessment |
| ES | Environmental Statement |
| NSIP | Nationally Significant Infrastructure Project |
| NTS | Non-Technical Summary |
| PINS | Planning Inspectorate |

# 33. Structure of the Environmental Statement

## 33.1 Introduction

33.1.1.1 The Planning Inspectorate's (PINS) Nationally Significant Infrastructure Projects (NSIP) - Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements (Planning Inspectorate, 2020) recommends that applicants include an outline structure of the proposed Environmental Statement (ES) within their Scoping Report, when making a request for a Scoping Opinion.

33.1.1.2 The structure of the ES will broadly follow the order of chapters presented in this Scoping Report. However, this structure may be amended in response to the advice or direction provided in the Scoping Opinion and through consultation with key stakeholders. For example, where certain environmental topics are confirmed (or not) as being scoped in or out of the Environmental Impact Assessment (EIA). The ES structure will therefore be kept under review as the EIA progresses.

33.1.1.3 The ES will be presented in six volumes alongside a Non-Technical Summary (NTS). Volumes 01 to 05 will comprise the main ES text, together with all associated figures, while Volume 06 will contain all relevant annexes.

33.1.1.4 A standalone NTS summarising the content of the ES in non-technical language will also be provided.

33.1.1.5 It should be noted that cumulative and transboundary effects will be reported in individual technical chapters (Volumes 02 – 04) at the ES stage.

33.1.1.6 The outline structure of the proposed ES is presented in Table 33-1.

**Table 33-1: Proposed Structure of the Environmental Statement**

| ES Volume | Likely Content |
|---|---|
| ES Non-Technical Summary (NTS) | The NTS will be provided as a separate document and will give a concise overview of the UK Scheme, including the alternatives considered, the baseline conditions, the assessment methodology, the potential environmental effects, and the proposed mitigation measures. It will be designed to present information in an accessible and easy-to-understand format to support a wide audience in familiarising themselves with the UK Scheme, the NTS will limit the use of technical descriptions and language to ensure the document is accessible to all. |
| Volume 01: Introduction | Volume 01 will include the following introductory chapters setting out information relevant to the UK Scheme and the EIA process:<br>• Chapter 01: Introduction – this will introduce the Applicant, provide an overview of the UK Scheme including the need for the UK Scheme, the purpose and structure of the ES, and a brief summary of the other relevant assessments and documents;<br>• Chapter 02: UK Project Description – this will provide an updated description of the UK Scheme and how it would be constructed, operated, maintained and decommissioned;<br>• Chapter 03: Consideration of Alternatives – this will describe the reasonable alternatives considered and the reasons for the selection of the preferred option(s);<br>• Chapter 04: Consultation – this will summarise the consultation undertaken for the UK Scheme to date and refer, where relevant, to the Consultation Report;<br>• Chapter 05: Legislative and Planning Policy Context – this will present the legislative, national and local planning context relevant to the UK Scheme; and<br>• Chapter 06 EIA Approach and Methodology – this will present the overarching approach to the EIA and the methodology used, including the basis of assessment. |
| Volume 02: Onshore Environment | Volume 02 will include the following technical chapters assessing the environmental effects of the UK Scheme on topics relevant to the onshore environment:<br>• Chapter 07: Ground Conditions and Contamination;<br>• Chapter 08: Water Environment;<br>• Chapter 09: Land Use, Soils and Agriculture;<br>• Chapter 10: Onshore Biodiversity;<br>• Chapter 11: Onshore Archaeology and Cultural Heritage; and |

| ES Volume | Likely Content |
|---|---|
| | • Chapter 12: Traffic and Transport. |
| Volume 03: Offshore Environment | Volume 03 will include the following technical chapters assessing the environmental effects of the UK Scheme on topics relevant to the offshore environment:<br>• Chapter 13: Marine Physical Environment;<br>• Chapter 14: Benthic and Intertidal Ecology;<br>• Chapter 15: Fish and Shellfish Ecology;<br>• Chapter 16: Marine Mammal Ecology;<br>• Chapter 17: Commercial Fisheries;<br>• Chapter 18: Shipping and Navigation;<br>• Chapter 19: Offshore Archaeology and Cultural Heritage; and<br>• Chapter 20: Offshore Infrastructure and Other Sea Users. |
| Volume 04: UK Scheme Wide | Volume 04 will include the following technical chapters assessing the environmental effects of the UK Scheme on topics relevant to *both* the onshore and offshore environments:<br>• Chapter 21: Landscape and Visual Impact Assessment;<br>• Chapter 22: Noise and Vibration;<br>• Chapter 23: Ornithology;<br>• Chapter 24: Socio-economics and Land Use;<br>• Chapter 25: Health and Wellbeing; and<br>• Chapter 26: Materials and Waste.<br>• Chapter 27: Tourism and Recreation;<br>• Chapter 28: Air Quality;<br>• Chapter 29: Carbon and Climate Change;<br>• Chapter 30: Risk of Major Accidents and Disasters; and<br>• Chapter 31: Other Environmental Topics. |
| Volume 05: Summary Chapters | Volume 05 will include the following summary chapter which will summarise the findings of the ES:<br>• Chapter 32: Summary and Conclusions. |

| ES Volume | Likely Content |
|---|---|
| Volume 06: Annexes | Volume 06 will contain the annexes that support the chapters presented in Volumes 01 – 05. These annexes will include background data, technical reports, tables, and surveys that underpin the assessments in Volumes 01 - 05. Volume 06 will also include the mitigation plans required to be submitted in outline form.<br><br>Additionally, Volume 06 will contain the Environmental Mitigation and Commitments Register which will compile the environmental mitigation measures to be adopted during the construction, operation and maintenance, and decommissioning phases of the UK Scheme. It will also identify how each mitigation measure is secured within the draft Development Consent Order (DCO). |

## 33.2 References

Planning Inspectorate. (2020). *Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements.* Retrieved from https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an/


TARCHON

# Tarchon Interconnector Project

## Environmental Impact Assessment Scoping Report

## Volume 05, Chapter 34: Summary and Conclusions

| | |
|---|---|
| **Document Number** | GBTARC-ENV-APE-AP-00037 |
| **Revision** | 01 |
| **Date** | 07/04/2026 |
| **Classification** | Public |
| **Release Code** | Issued for Information |

| **Role** | **Name** |
|---|---|
| **Author** | APEM |
| **Reviewer** | Tarchon |

## Revision History

| Rev | Rev Date | Release Code | Description of Change |
|---|---|---|---|
| 01 | April 2026 | Issued for Information | Submission to PINS |

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No table of figures entries found.

## Annexes

No annexes associated with this Chapter.

## Acronyms

| Acronym | Definition |
|---|---|
| DCO | Development Consent Order |
| DRA | Dust Risk Assessment |
| EIA | Environmental Impact Assessment |
| EMF | Electro Magnetic Field |
| EOS | English Onshore Scheme |
| ES | Environmental Statement |
| GCR | Geological Conservation Review |
| GHG | Greenhouse Gas |
| GVA | Gross Value Added |
| HDD | Horizontal Directional Drilling |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| INNS | Invasive and Non-Native Species |
| LAT | Latitude |
| LNR | Local Nature Reserve |
| LoGS | Local Geological Sites |
| MSA | Mineral Safeguard Area |
| NOx | Nitrogen Oxides |
| PEXA | Practice and Exercise Areas |
| PINS | Planning Inspectorate |
| PM | Particulate Matter |
| PRoW | Public Rights of Way |
| PWS | Private Water Supply |
| SAC | Special Area of Conservation |
| SPA | Special Protection Area |
| SSSI | Site of Specific Scientific Interest |
| SSC | Suspended Sediment Concentration |
| TJB | Transitional Joint Bay |
| UK | United Kingdom |
| UKMS | United Kingdom Marine Scheme |
| UXO | Unexploded Ordinance |

# 34. Summary and Conclusions

## 34.1 Introduction

34.1.1.1 This Scoping Report represents notification under Regulation 8(1)(b) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (HM Government, 2017) that the Applicant will undertake an Environmental Impact Assessment (EIA) in respect of the United Kingdom (UK) Scheme and produce an Environmental Statement (ES) to report the findings of the EIA.

34.1.1.2 It also represents a formal application to the Planning Inspectorate (PINS) under Regulation 10 of the EIA Regulations (HM Government, 2017) for a 'Scoping Opinion' as to the information to be provided within the ES that will form part of the Development Consent Order (DCO) application. This Scoping Report has:

- Identified the environmental effects that are considered to have the potential to be significant; and
- Proposed the approach to be used in assessments that will be undertaken within the EIA to characterise and understand the significance of these effects.

34.1.1.3 The prescribed consultees are invited to consider the contents of this report and comment accordingly within the statutory 42-day time period.

34.1.1.4 The content presented in Table 34-1 summarises the proposed technical scopes reported in Volume 02: Onshore Topics of the Scoping Report.

34.1.1.5 The content presented in Table 34-2 summarises the proposed technical scopes reported in Volume 04: Offshore Topics of the Scoping Report.

34.1.1.6 The content presented in Table 34-3 summarises the proposed technical scopes reported in Volume 04: Project Wide Topics of the Scoping Report.

**Table 34-1: Elements to be scoped in and out (onshore topics)**

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| **Onshore** | | | |
| Ground Conditions and Contamination | Construction | • Temporary and permanent damage, disturbance or removal of geology or geological features of interest (Site of Specific Scientific Interest (SSSI), Local Geological Sites (LoGS) and Geological Conservation Review (GCR)).<br>• Temporary and permanent Mineral Safeguard Area (MSA) severance or sterilisation.<br>• Potential impacts on groundwater and surface water from contamination.<br>• Potential impacts on human health and ecological receptors from contamination.<br>• Potential impacts on infrastructure from contamination and ground gas.<br>• Potential impacts from remediation (if undertaken).<br>• Potential impacts on construction workers. | • Impacts to hydrogeological and hydrological setting.<br>• Transboundary effects. |
| | Operational | • None. | • Transboundary effects. |
| | Decommissioning | • Temporary and permanent damage, disturbance or removal of geology or geological features of interest (SSSI, LoGS and GCR).<br>• Temporary and permanent MSA severance or sterilisation. | • Impacts to hydrogeological and hydrological setting.<br>• Transboundary effects. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | • Potential impacts on groundwater and surface water from contamination.<br>• Potential impacts on human health and ecological receptors from contamination.<br>• Potential impacts from remediation (if undertaken).<br>• Potential impacts on construction workers. | |
| Water Environment | Construction | • Impacts to groundwater.<br>• Impacts to surface water.<br>• Impacts to hydromorphology.<br>• Impacts to flood risk, including drainage.<br>• Impacts to water resources (source protection zones, Private Water Supply (PWS) and abstractions). | • Impacts to potable water supply and foul drainage (groundwater and surface water).<br>• Transboundary effects. |
| | Operational | • Impacts to surface water.<br>• Impacts to flood risk, including drainage. | • Impacts to potable water supply and foul drainage (groundwater and surface water).<br>• Transboundary effects. |
| | Decommissioning | • Impacts to groundwater.<br>• Impacts to surface water.<br>• Impacts to hydromorphology.<br>• Impacts to flood risk, including drainage.<br>• Impacts to water resources (source protection zones, PWS and abstractions). | • Impacts to potable water supply and foul drainage (groundwater and surface water).<br>• Transboundary effects. |
| Land Use, Soils and Agriculture | Construction | • Removal of land from agricultural use for construction (permanent and temporary).<br>• Disruption of soil resources during construction (temporary). | • Transboundary effects.<br>• Impacts of electromagnetic fields (EMF) on agriculture. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | Operational | • None | • Transboundary effects.<br>• Impacts of EMF on agriculture.<br>• Impacts to agricultural land.<br>• Impacts to soil resources including loss of soil functions/volumes and soil-related features. |
| | Decommissioning | • Impacts to agricultural land.<br>• Disturbance of agricultural land.<br>• Disturbance of soil resources. | • Transboundary effects.<br>• Impacts of EMF on agriculture. |
| Onshore Biodiversity | Construction | • Impacts to Special Protected Areas (SPAs)/Ramsar sites located up to 20 km from the EOS Scoping Boundary.<br>• Impacts to Statutory Designated Sites located up to 5 km from the EOS Scoping Boundary.<br>• Impacts to Non-statutory Designated Sites.<br>• Impacts to protected species including the great crested newt.<br>• Impacts to bats.<br>• Impacts to hazel dormouse.<br>• Impacts to otter and water vole.<br>• Impacts to badger.<br>• Impacts to reptiles.<br>• Impacts to terrestrial invertebrates.<br>• Impacts to fish.<br>• Impacts to aquatic macro-invertebrates.<br>• Impacts to aquatic macrophytes. | • Transboundary effects. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | Operational | • Impacts to badger.<br>• Impacts to otter and water vole.<br><br>Scoped in for the Converter Station only:<br>• Impacts to species associated with SPAs/Ramsar sites (for example, birds) located up to 10 km from the EOS Scoping Boundary (Converter Station only). Impacts to Statutory Designated Sites located up to 2 km from the EOS Scoping Boundary (Converter Station only).<br>• Impacts to Non-statutory Designated Sites.<br>• Impacts to amphibians (including great crested newt).<br>• Impacts to bats.<br>• Impacts to hazel dormouse.<br>• Impacts to reptiles.<br>• Impacts to terrestrial invertebrates. | • Impacts to fish.<br>• Transboundary effects.<br>• Impacts to aquatic macrophytes.<br>• Impacts to aquatic macro-invertebrates.<br><br>Scoped out for the EOS Cable Route:<br>• Impacts to terrestrial invertebrates.<br>• Impacts to reptiles.<br>• Impacts to hazel dormouse.<br>• Impacts to bats.<br>• Impacts to amphibians (including great crested newt).<br>• Impacts to SPAs/Ramsar sites located up to 10 km from the EOS Scoping Boundary.Impacts to Statutory Designated Sites located up to 2 km from the Onshore Scoping Boundary.<br>• Impacts to Non-statutory Designated Sites. |
| | Decommissioning | • Scoped in impacts are the same as for the construction phase. | • Transboundary effects. |
| Onshore Archaeology and Cultural Heritage | Construction | • Impacts to buried archaeological remains<br>• Impacts to designated heritage assets.<br>• Impacts to historic hedgerows. | • Transboundary effects. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | Operational | • Impacts to designated heritage assets from the proposed Converter Station. | • Impacts to buried archaeological remains.<br>• Impacts to historic hedgerows.<br>• Impacts to designated heritage assets from the Landfall and Onshore Cable Route.<br>• Transboundary effects. |
| | Decommissioning | • Impacts to designated heritage assets. | • Impacts to buried archaeological remains.<br>• Impacts to historic hedgerows<br>• Transboundary effects. |
| Traffic and Transport | Construction | • Impacts to road links.<br>• Impacts to road junctions.<br>• Impacts to Public Rights of Way (PRoW).<br>• Impacts to national/regional walking and cycling routes. | • Transboundary effects. |
| | Operational | • Impacts to PRoW from the Converter Station. | • Impacts to road links.<br>• Impacts to road junctions.<br>• National/regional walking and cycling routes.<br>• Impacts to PRoW from operation and maintenance vehicles.<br>• Transboundary effects. |
| | Decommissioning | • Impacts to road links.<br>• Impacts to road junctions.<br>• Impacts to PRoW.<br>• National/regional walking and cycling routes. | • Transboundary effects. |

**Table 34-2: Elements to be scoped in and out (offshore topics)**

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| **Offshore** | | | |
| Marine Physical Environment | Construction | • Increases in Suspended Sediment Concentration (SSCs) and resulting changes to seabed levels.<br>• Deterioration of water quality due to the suspension of sediments and release of drilling fluids.<br>• Release of sediment-bound contaminants from disturbance of sediments.<br>• Potential impacts to seabed morphology.<br>• Modifications to littoral transport and coastal behaviour (erosion), including at landfall. | • Accidental release or spills of materials/chemicals. |
| | Operational | • Potential temporary increases in SSCs and resulting changes to seabed levels.<br>• Potential impacts to seabed morphology. | • Accidental release or spills of materials/chemicals.<br>• Seabed scouring. |
| | Decommissioning | • Increases in SSCs and resulting changes to seabed levels.<br>• Deterioration of water quality due to the suspension of sediments and release of drilling fluids.<br>• Release of sediment-bound contaminants from disturbance of sediments.<br>• Potential impacts to seabed morphology.<br>• Modifications to littoral transport and coastal behaviour (erosion), including at landfall. | • None. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| Benthic and Intertidal Ecology | Construction | • Temporary increase in suspended sediment and sediment deposition.<br>• Direct and indirect seabed disturbance leading to the release of sediment contaminants.<br>• Temporary habitat disturbance.<br>• Increased risk of introduction and/or spread of invasive and non-native species (INNS). | • Accidental pollution events. |
| | Operational | • Temporary habitat disturbance.<br>• Increased risk of introduction and/or spread of INNS.<br>• Long-term habitat loss or alteration due to the addition of infrastructure.<br>• Colonisation of hard substrates.<br>• Changes in marine physical processes.<br>• Electromagnetic field (EMF) effects. | • Accidental pollution events. |
| | Decommissioning | Scoped in impacts are the same as for the construction phase with the addition of:<br>• Long-term habitat loss or alteration due to the removal of infrastructure. | • Accidental pollution events. |
| Fish and Shellfish Ecology | Construction | • Increases in SSCs and deposition of disturbed sediments.<br>• Direct and indirect seabed disturbance leading to release of sediment contaminants.<br>• Mortality, injury, behavioural impacts and auditory masking arising from underwater noise and vibration. | • Direct damage (for example, crushing) and disturbance to mobile demersal and pelagic fish and shellfish species arising from construction activities.<br>• Accidental pollution events during the construction phase |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | • Temporary habitat loss and disturbance. | resulting in potential effects on fish and shellfish receptors.<br>• Increased risk of introduction and/or spread of INNS. |
| | Operational | • Permanent and/or long-term habitat loss or alteration due to the addition of infrastructure to the area.<br>• Colonisation of hard substrates.<br>• EMF impacts arising from cables.<br>• Temporary habitat loss and disturbance. | • Accidental pollution events during the construction phase resulting in potential effects on fish and shellfish receptors.<br>• Increased risk of introduction and/or spread of INNS. |
| | Decommissioning | • Increases in SSCs and deposition of disturbed sediments.<br>• Direct and indirect seabed disturbance leading to the release of sediment contaminants.<br>• Mortality, injury, behavioural impacts and auditory masking arising from underwater noise and vibration during decommissioning.<br>• Temporary habitat loss and disturbance. | • Increased risk of introduction and/or spread of INNS. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| Marine Mammal Ecology | Construction | • Increased underwater noise from other construction activities.<br>• Airborne sound and visual disturbance.<br>• Potential for indirect effects through impacts to prey species.<br>• Increased vessel activity; resulting in greater levels of disturbance, and increased risk of collision. | • Reduction in water quality due to discharges and unplanned releases, accidental leaks, and spills from vessels.<br>• Temporary increase in SSC leading to contaminant mobilisation and increased turbidity. |
| | Operational | • Increased underwater noise from maintenance activities.<br>• Increased vessel activity; resulting in greater levels of disturbance, and increased risk of collision. | • Disturbance to marine mammals from electromagnetic field (EMF) emissions.<br>• Disturbance to marine mammals from thermal emissions. |
| | Decommissioning | • Increased underwater noise from other decommissioning activities.<br>• Airborne sound and visual disturbance.<br>• Potential for indirect effects through impacts to prey species.<br>• Increased vessel activity; resulting in greater levels of disturbance, and increased risk of collision. | • Reduction in water quality due to discharges and unplanned releases, accidental leaks, and spills from vessels.<br>• Temporary increase in SSC leading to contaminant mobilisation and increased turbidity. |
| Commercial Fisheries | Construction | • Displacement of fishing activity leading to gear conflict and increased fishing pressure on adjacent grounds.<br>• Temporary reduction in access to, or exclusion from, established fishing grounds. | • None. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | • Increased vessel traffic associated with the Project within fishing grounds leading to interference with fishing activity.<br>• Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the UKMS.<br>• Physical presence of infrastructure leading to gear snagging.<br>• Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity.<br>• Disruption to seasonal fishing patterns.<br>• Obstruction of navigation routes to commercial fishing grounds.<br>• Temporary loss and alteration of fishing grounds.<br>• Temporary displacement of commercial fishing activities.<br>• Loss or damage to fishing gear.<br>• Indirect effects on commercial fisheries as a result of impacts on the ecology of commercial species.<br>• Obstruction of navigation routes to commercial fishing grounds. | |
| | Operational | Scoped in impacts are the same as for the construction phase with the addition of:<br>• Potential short term, localised exclusion from established fishing grounds due to | • None. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | possible O&M activities requiring cable protection in short sections only. | |
| | Decommissioning | • Scoped in impacts are the same as for the construction phase. | • None. |
| Shipping and Navigation | Construction | • Collision of a third-party vessel with a vessel associated with cable installation.<br>• Cable installation causing disruption to passing vessel routing or timetables.<br>• Increase in the risk of collision between third-party vessels due to construction activity.<br>• Vessel displacement leading to risk of allision with third party wind farm structures.<br>• Reduced access to local ports and harbours and disruption to port related services.<br>• Anchor interaction with the cable.<br>• Reduction in under keel clearance due to cables, protection and displaced sediment. | • Interference with marine navigational equipment due to electromagnetic field effects.<br>• Interference with marine navigational equipment. |
| | Operational | • Collision of a third-party vessel with a vessel associated with cable maintenance.<br>• Vessel displacement during maintenance activities leading to risk of allision with third party wind farm structures.<br>• Reduced access to local ports and harbours and disruption to port related services.<br>• Anchor interaction with the cable.<br>• Reduction in under keel clearance due to cables, protection and displaced sediment. | |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | • Cable maintenance causing disruption to passing vessel routing or timetables. | |
| | Decommissioning | • Collision of a third-party vessel with a vessel associated with cable decommissioning.<br>• Cable decommissioning causing disruption to passing vessel routing or timetables.<br>• Increase in the risk of collision between third-party vessels due to decommissioning activity.<br>• Vessel displacement leading to risk of allision with third party wind farm structures.<br>• Reduced access to local ports and harbours and disruption to port related services.<br>• Anchor interaction with the cable.<br>• Reduction in under keel clearance due to cables, protection and displaced sediment. | • Interference with marine navigational equipment due to electromagnetic field effects. |
| Offshore Archaeology and Cultural Heritage | Construction | • Physical disturbance activities causing direct damage and/or loss to marine archaeological and cultural heritage receptors on and below the seabed/coastal zone.<br>• Physical disturbance activities causing changes to hydrodynamic and sedimentary regimes leading to scour, exposing seabed and shallow buried, marine archaeological and cultural heritage receptors potentially causing increased rates of deterioration. | • None. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | • Changes to hydrodynamic and sedimentary accretion on the seabed, which may bury receptors inhibiting a range of biological, chemical and physical degradation processes.<br>• Physical disturbance activities including compression and penetration of cable laying. | |
| | Operational | • Physical disturbance activities causing direct damage and/or loss to marine archaeological and cultural heritage receptors on and below the seabed/coastal zone.<br>• Physical disturbance activities causing changes to hydrodynamic and sedimentary regimes leading to scour, exposing seabed and shallow buried, marine archaeological and cultural heritage receptors potentially causing increased rates of deterioration.<br>• Changes to hydrodynamic and sedimentary accretion on the seabed, which may bury receptors inhibiting a range of biological, chemical and physical degradation processes.<br>• Physical disturbance from cable repairs. | • None. |
| | Decommissioning | • Scoped in impacts are the same as for the construction phase. | • None. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| Offshore Infrastructure and Other Sea Users | Construction | • Direct disturbance and damage impacts from construction activities and vessels to existing infrastructure including:<br>– Offshore wind farms and export cables;<br>– Subsea cables;<br>– Mineral and aggregate extraction;<br>– Dredging and disposal; and<br>– Practice and Exercise Areas (PEXAs).<br>• Displacement or access impacts associated with construction activities and use of advisory safety zones.<br>• Indirect displacement or disturbance caused by temporary increases to sediment deposition/SSC on dredging and disposal operations.<br>• Indirect displacement or disturbance caused by increased UK Scheme vessel movements causing an impediment to the following other users:<br>– Offshore wind farms and export cables;<br>– Subsea cables;<br>– Mineral and aggregate extraction;<br>– Dredging and disposal; and<br>– PEXA. | • Direct disturbance and damage impacts from construction activities and vessels to existing infrastructure including:<br>– Nuclear sites;<br>– Aquaculture sites; and<br>– Carbon capture and storage sites.<br>• Displacement or access impacts associated with construction activities and use of advisory zones.<br>• Indirect displacement or disturbance caused by temporary increases to sediment deposition/SSC on:<br>– Offshore wind farms and export cables;<br>– Subsea cables;<br>– Mineral and aggregate extraction;<br>– Dredging and disposal;<br>– PEXA;<br>– Nuclear sites;<br>– Aquaculture sites; and<br>– Carbon capture and storage sites.<br>• Indirect displacement or disturbance caused by increased UK Scheme vessel |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | | movements causing an impediment to the following other users:<br>– Nuclear sites;<br>– Aquaculture sites; and<br>– Carbon capture and storage sites. |
| | Operational | • Direct disturbance to existing infrastructure including:<br>– Mineral and aggregate extraction;<br>– Dredging and disposal; and<br>– PEXA.<br>• Displacement or access impacts associated with use of advisory safety zones.<br>• Indirect displacement or disturbance caused by increased UK Scheme vessel movements causing an impediment to the following other users:<br>– Offshore wind farms and export cables;<br>– Subsea cables;<br>– Mineral and aggregate extraction;<br>– Dredging and disposal; and<br>– PEXA. | • Direct disturbance and damage impacts from construction activities and vessels to existing infrastructure including:<br>– Nuclear sites;<br>– Aquaculture sites; and<br>– Carbon capture and storage sites.<br>• Displacement or access impacts associated with construction activities and use of advisory zones.<br>• Indirect displacement or disturbance caused by increased UK Scheme vessel movements causing an impediment to the following other users:<br>– Nuclear sites;<br>– Aquaculture sites; and<br>• Carbon capture and storage sites. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | Decommissioning | • Direct disturbance and damage impacts from construction activities and vessels to existing infrastructure including:<br>– Offshore wind farms and export cables;<br>– Subsea cables;<br>– Mineral and aggregate extraction;<br>– Dredging and disposal; and<br>– PEXA.<br>• Displacement or access impacts associated with construction activities and use of advisory safety zones.<br>• Indirect displacement or disturbance caused by temporary increases to sediment deposition/SSC on dredging and disposal operations.<br>• Indirect displacement or disturbance caused by increased UK Scheme vessel movements causing an impediment to the following other users:<br>– Offshore wind farms and export cables;<br>– Subsea cables;<br>– Mineral and aggregate extraction;<br>– Dredging and disposal; and<br>– PEXA. | • Direct disturbance and damage impacts from construction activities and vessels to existing infrastructure including:<br>– Nuclear sites;<br>– Aquaculture sites; and<br>– Carbon capture and storage sites.<br>• Displacement or access impacts associated with construction activities and use of advisory zones.<br>• Indirect displacement or disturbance caused by temporary increases to sediment deposition/SSC on:<br>– Offshore wind farms and export cables;<br>– Subsea cables;<br>– Mineral and aggregate extraction;<br>– Dredging and disposal;<br>– PEXA;<br>– Nuclear sites;<br>– Aquaculture sites; and<br>– Carbon capture and storage sites.<br>• Indirect displacement or disturbance caused by increased UK Scheme vessel |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | | movements causing an impediment to the following other users:<br>– Nuclear sites;<br>– Aquaculture sites; and<br>– Carbon capture and storage sites. |

**Table 34-3: Elements to be scoped in and out (UK Scheme wide)**

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| Landscape and Visual Impact Assessment | Construction | • Impacts on landscape elements, landscape character and special qualities of designated landscapes. Impacts on views/visual amenity. | • Temporary alteration to landscape/seascape character and temporary alteration to visual amenity from the UK Marine Scheme (UKMS) and associated offshore works.<br>• Temporary alteration in the visual amenity of offshore receptors (e.g. ferry routes etc).<br>• Transboundary effects. |
| | Operational | • Permanent alteration to landscape/seascape character and temporary alteration to visual amenity from the proposed Converter Station Site, Landfall and Indicative Onshore HVDC and HVAC Corridors.<br>• Alteration to landscape/seascape character and visual amenity from the operation of the proposed Converter Station.<br>• Impacts on special qualities of designated landscapes. | • Temporary alteration to landscape/seascape character and temporary alteration to visual amenity from the UKMS and associated offshore works.<br>• Temporary alteration in the visual amenity of offshore receptors (e.g. ferry routes etc).<br>• Alteration to landscape/seascape character and visual amenity from the operation of the Landfall, Onshore HVAC and HVDC Cables.<br>• Impacts on landscape elements, landscape character and special qualities of designated landscapes. Impacts on views/visual amenity.<br>• Transboundary effects. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | Decommissioning | • Temporary alteration to landscape/seascape character and temporary alteration to visual amenity from the proposed Converter Station Site, Landfall and Indicative Onshore HVDC and HVAC Corridors.<br>• Alteration to landscape/seascape character and visual amenity from the decommissioning of the proposed Converter Station.<br>• Impacts on special qualities of designated landscapes. | • Temporary alteration to landscape/seascape character and temporary alteration to visual amenity from the UKMS and associated offshore works.<br>• Temporary alteration in the visual amenity of offshore receptors (e.g. ferry routes etc).<br>• Impacts on landscape elements, landscape character and special qualities of designated landscapes. Impacts on views/visual amenity.<br>• Transboundary effects. |
| Noise and Vibration | Construction | • Impacts from construction works noise associated with onshore cable route construction; onshore converter station construction works.<br>• Impacts from construction works vibration.<br>• Impacts from construction traffic noise.<br>• Impacts from construction traffic vibration on private roads.<br>• Impacts from underwater landfall construction noise. | • Impacts from construction traffic vibration on public roads.<br>• Impacts from construction noise on PRoW and beach leisure users.<br>• Impacts from construction vessel noise. |
| | Operational | • Impacts from operational noise from the converter station and other intermittent/variable sources (if applicable). | • Impacts from operational traffic noise.<br>• Impacts from operational vibration of the English Onshore Scheme. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | Decommissioning | • Decommissioning works noise (activities similar to construction).<br>• Decommissioning works vibration.<br>• Decommissioning traffic noise on public roads. | • Noise and vibration effects arising from offshore elements are outside the scope of the EOS assessment.<br>• Transboundary effects. |
| Ornithology | Construction | • Temporary disturbance and displacement (above water noise and physical presence) (all offshore ornithology receptors apart from red-throated diver).<br>• Indirect effects on prey and habitat.<br>• Habitat loss.<br>• Disturbance and displacement of onshore breeding and non-breeding birds.<br>• Disturbance or displacement of sensitive bird species.<br>• Loss or disturbance of habitats.<br>• Changes in distribution of prey species from the UKMS.<br>• Fragmentation of populations.<br>• Habitat degradation.<br>• Pollution from the UKMS.<br>• Species mortality. | • Temporary disturbance and displacement of red-throated diver (above water noise and physical presence).<br>• Accidental pollution (inclusive of indirect effects).<br>• All potential impacts on green-listed species of conservation concern (which are not listed on Schedule 1 or Annex I).<br>• All potential impacts on nightjar and woodlark. |
| | Operational | • Temporary disturbance and displacement from maintenance vessels (above water noise and physical presence) (all offshore ornithology receptors apart from red-throated diver).<br>• Indirect effects on prey and habitat. | • Temporary disturbance and displacement of red-throated diver (above water, noise and physical presence).<br>• Accidental pollution (inclusive of indirect effects). |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | • Permanently lost habitat from physical infrastructure footprint and disturbance.<br>• Disturbance and displacement of onshore breeding and non-breeding birds. | • All potential impacts on green-listed species of conservation concern (which are not listed on Schedule 1 or Annex I).<br>• All potential impacts on nightjar and woodlark. |
| | Decommissioning | • Temporary disturbance and displacement (above water noise and physical presence) (all offshore ornithology receptors apart from red-throated diver).<br>• Indirect effects on prey and habitat.<br>• Habitat loss.<br>• Disturbance and displacement of onshore breeding and non-breeding birds. | • Temporary disturbance and displacement of red-throated diver (above water noise and physical presence).<br>• Accidental pollution (inclusive of indirect effects).<br>• All potential impacts on green-listed species of conservation concern (which are not listed on Schedule 1 or Annex I).<br>• All potential impacts on nightjar and woodlark. |
| Socio-Economics and Land Use | Construction | • Temporary impacts to employment generation.<br>• Temporary impacts to Gross Value Added (GVA) generation.<br>• Temporary impacts of pronounced peaks in labour demand.<br>• Temporary impacts on accommodation facilities. | • None. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | • Temporary and permanent impacts on social infrastructure. | |
| | Operational | • Temporary and permanent impacts on social infrastructure.<br>• Permanent impacts to employment generation.<br>• Permanent wider socio-economic impacts (energy security and resilience). | • Permanent impacts to Gross Value Added (GVA) generation. |
| | Decommissioning | • Temporary impacts to employment generation.<br>• Temporary impacts to GVA generation.<br>• Temporary impacts of pronounced peaks in labour demand during construction.<br>• Temporary impacts on accommodation facilities.<br>• Temporary and permanent impacts on social infrastructure. | • None. |
| Health and Wellbeing | Construction | • Potential effects relating to land and water contamination.<br>• Potential effects on employment, training and business activity.<br>• Potential impacts on social cohesion and community identity.<br>• Potential changes to traffic and transport, and the accessibility of PRoW, recreational routes, and active travel networks. | • Effects on physical or mental health and wellbeing linked to the effects of EMFs.<br>• Transboundary effects. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | • Potential impacts on access to and capacity of local community services.<br>• Potential changes to air quality, noise and vibration, and landscape and visual amenity. | |
| | Operational | • Potential impacts on social cohesion and community identity.<br>• Potential changes to traffic and transport, and the accessibility of PRoW, recreational routes and active travel networks. | • Effects on physical or mental health and wellbeing linked to the effects of EMFs.<br>• Potential effects relating to land and water contamination. Potential effects on employment, training and business activity.<br>• Potential impacts on access to and capacity of local community services.<br>• Potential changes to air quality, noise and vibration, and landscape and visual amenity.<br>• Transboundary effects. |
| | Decommissioning | • Potential effects on employment, training and business activity.<br>• Potential effects relating to land and water contamination.<br>• Potential impacts on social cohesion and community identity.<br>• Potential impacts on access to and capacity of local community services.<br>• Potential changes to traffic and transport, and the accessibility of PRoW, recreational routes, and active travel networks. | • Effects on physical or mental health and wellbeing linked to the effects of EMFs.<br>• Transboundary effects. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | • Potential changes to air quality, noise and vibration, and landscape and visual amenity. | |
| Materials and Waste | Construction | • Production and disposal of waste. | • Use of materials. |
| | Operational | • None | • Use of materials.<br>• Production and disposal of waste |
| | Decommissioning | • Production and disposal of waste. | • None. |
| Tourism and Recreation | Construction | • Changes to the capacity and availability of tourist accommodation.<br>• Changes to PRoW or other recreational routes which could result in changes to the accessibility of these facilities and recreation amenity obtained from these facilities.<br>• Changes to the employment capacity of the tourist sector, and changes to tourism patterns due to temporary and permanent land take. | • None. |
| | Operational | • Changes to PRoW or other recreational routes which could result in changes to the accessibility of these facilities and recreation amenity obtained from these facilities. | • Changes to the capacity and availability of tourist accommodation.<br>• Changes to the employment capacity of the tourist sector, and changes to |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | • Impacts on users of PRoW and recreational routes. | tourism patterns due to temporary and permanent land take. |
| | Decommissioning | • Changes to the capacity and availability of tourist accommodation.<br>• Changes to PRoW or other recreational routes which could result in changes to the accessibility of these facilities and recreation amenity obtained from these facilities.<br>• Changes to the employment capacity of the tourist sector, and changes to tourism patterns due to temporary and permanent land take. | • None. |
| Air Quality | Construction | • Site emissions including dust and fine particulates.<br>• Combustion emissions (NOx, $PM^{10}$ and $PM^{2.5}$) from construction phase traffic movements. | • Emissions (NOx, $PM^{10}$ and $PM^{2.5}$) from construction vessels. |
| | Operational | • Site combustion emissions (NOx, $PM^{10}$ and $PM^{2.5}$) from back up energy generation plant. | • Combustion emissions (NOx, $PM^{10}$ and $PM^{2.5}$) from operational phase traffic movements.<br>• Dust deposition resulting from maintenance activities from the English Onshore Scheme.<br>• An increase in emissions (NOx) and pollutant levels (including $PM^{10}$ and $PM^{2.5}$) due to vessels used for operation and maintenance. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | Decommissioning | • Site emissions including dust and fine particulates.<br>• Combustion emissions (NOx, $PM_{10}$ and $PM_{2.5}$) from decommissioning phase traffic movements.<br>• Emissions (NOx, $PM_{10}$ and $PM_{2.5}$) from vessels. | • None. |
| Carbon and Climate Change | Construction | • Lifecycle Greenhouse Gas (GHG) impact assessment.<br>• Climate change risk assessment (CCRA).<br>• In-Combination Climate Change Impact (ICCI) assessment. | • Cumulative effects in the GHG assessment.<br>• GHG emissions from the net loss of carbon sinks. |
| | Operational | • Lifecycle GHG impact assessment.<br>• CCRA.<br>• ICCI assessment. | • Cumulative effects in the GHG assessment.<br>• GHG emissions from the net loss of carbon sinks.<br>• GHG emissions associated with the fabric of products and materials.<br>• GHG emissions associated with the refurbishment of the UK Scheme.<br>• GHG emissions from the provision of potable water and the treatment of wastewater. |
| | Decommissioning | • Lifecycle GHG impact assessment.<br>• CCRA.<br>• ICCI assessment. | • Cumulative effects in the GHG assessment.<br>• GHG emissions from the net loss of carbon sinks. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| Risk of Major Accidents and Disasters | Construction | • Potential vulnerability of the UK Scheme to malicious attacks from sabotage by external parties. | • Potential vulnerability of the UK Scheme to all other major accidents or disasters.<br>• Potential for the UK Scheme to exacerbate existing hazard. |
| | Operational | • Potential vulnerability of the UK Scheme to malicious attacks from sabotage by external parties. | • Potential vulnerability of the UK Scheme to all other major accidents or disasters.<br>• Potential for the UK Scheme to exacerbate existing hazard. |
| | Decommissioning | • Potential vulnerability of the UK Scheme to malicious attacks from sabotage by external parties. | • Potential vulnerability of the UK Scheme to all other major accidents or disasters.<br>• Potential for the UK Scheme to exacerbate existing hazard. |
| Other Environmental Topics: Telecommunications, Radio and Television Reception, and Utilities | Construction | • None. | • Telecommunications.<br>• Radio and Television Reception.<br>• Onshore Utilities. |
| | Operational | • None. | • Telecommunications.<br>• Radio and Television Reception.<br>• Onshore Utilities. |
| | Decommissioning | • None. | • Telecommunications.<br>• Radio and Television Reception.<br>• Onshore Utilities. |
| Other Environmental Topics: Heat and Electromagnetic Fields | Construction | • None. | • Heat impacts from the proposed Onshore HVAC and HVDC Cables on terrestrial receptors. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | | • Heat impacts from the proposed Subsea HVDC Cables. |
| | Operational | • None. | • Heat impacts from the proposed Onshore HVAC and HVDC Cables on terrestrial receptors.<br>• Heat impacts on from the proposed Subsea HVDC Cables. |
| | Decommissioning | • None. | • Heat impacts from the proposed Onshore HVAC and HVDC Cables on terrestrial receptors.<br>• Heat impacts from the proposed Subsea HVDC Cables. |
| Other Environmental Topics: Aviation and Radar | Construction | • None. | • Aviation and Radar impacts from the proposed Onshore HVAC and HVDC Cables, proposed Subsea HVDC Cables, and proposed Landfall.<br>• Aviation and Radar impacts from the proposed Converter Station. |
| | Operational | • None. | • Aviation and Radar impacts from the proposed Onshore HVAC and HVDC Cables, proposed Subsea HVDC Cables, and proposed Landfall.<br>• Aviation and Radar impacts from the proposed Converter Station. |
| | Decommissioning | • None. | • Aviation and Radar impacts from the proposed Onshore HVAC and HVDC Cables, proposed Subsea HVDC Cables, and proposed Landfall. |

| Chapter Title | Phase | Scoped In Impacts | Scoped Out Impacts |
|---|---|---|---|
| | | | • Aviation and Radar impacts from the proposed Converter Station. |

## 34.2 References

HM Government. (2017). *The Infrastructure Planning (Environmental Impact Assessment) 2017.* Retrieved March 11, 2026, from https://www.legislation.gov.uk/uksi/2017/572/contents


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