The Great Grid Upgrade

Sea Link

Sea Link

Volume 5: Consultation Report

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Abbreviations

Abbreviation	Description
AIL	Abnormal Indivisible Loads
ALC	Agriculture Land Classification
AONB	Area of Outstanding Natural Beauty
BMV	Best and Most Versatile
CPRSS	Corridor and Preliminary Routeing and Siting Study
EIA	Environmental Impact Assessment
ESO	Electricity System Operator
GIL	Gas Insulated Lines
GIS	Gas Insulated Switchgear
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
HVG	Heavy Goods Vehicle
LNR	Local Nature Reserve
LV	Low Voltage
MCZ	Marine Conservation Zone
NGT	National Grid Electricity Transmission
NGV	National Grid Ventures
NNR	National Nature Reserve
NOA	Network Options Assessment
NPS	National Policy Statements
OHL	Overhead Line
OWF	Offshore Windfarm
PRoWS	Public Rights of Way
SAC	Special Area of Conservation
SPA	Special Protection Area
SPR	Scottish Power Renewables
SQSS	Security and Quality of Supply Standard
SSSI	Site of Special Scientific Interest
TJB	Transition Joint Bay
TSS	Traffic Separation Scheme

UK	United Kingdom
VSC	Voltage Source Converter

Executive Summary

National Grid Electricity Transmission plc (hereafter referred to as National Grid) is developing proposals to reinforce the high voltage power network in the South East of England and East Anglia. Sea Link (hereafter referred to as the Proposed Project) is required to accommodate additional power flows generated from renewable and low carbon energy generation, as well as additional new interconnection with mainland Europe.

Routeing and siting work was undertaken between 2021 and 2022. The outputs of this process were reported within the Sea Link Corridor and Preliminary Routeing and Siting Study (CPRSS).

In Autumn 2022, a non-statutory public consultation was held for a period of eight weeks, between 24 October 2022 and 18 December 2022. This consultation introduced the project, explained how National Grid had developed its proposals, and sought the views of the public and stakeholders. Copies of the CPRSS were made available during the 2022 non-statutory consultation.

The proposals National Grid consulted on comprised of a reinforcement of the network with a predominantly offshore High Voltage Direct Current (HVDC) Link between the proposed Friston substation in the Sizewell area of Suffolk and the existing Richborough to Canterbury 400 kV overhead line close to Richborough in Kent.

National Grid consulted on five corridor options in Suffolk, these were:

- Suffolk Site 1 Emerging Preference;
- Suffolk Site 3 Emerging Preference;
- Suffolk Site 1 Alternative;
- Suffolk Site 3 Alternative (option 1); and
- Suffolk Site 3 Alternative (option 3).

National Grid consulted on two corridor options for the marine cable, these were:

- Marine Corridor Emerging Preference; and
- Marine Corridor Alternative.

National Grid consulted one corridor in Kent, this was:

- Kent Emerging Preference corridor.

We also consulted on the technology choice in Kent for the High Voltage Alternating Current (HVAC) connection being made by either overhead line or underground cables.

Within the corridors National Grid showed a graduated swathe, which was presented at National Grid's 2022 non-statutory consultation. The darker areas of the swathe indicated, based information available at the time, a more likely location for the infrastructure within the corridors. This was indicative and subject to further assessment work, and the consultation feedback National Grid received.

The feedback received during the 2022 non-statutory consultation has been carefully reviewed and considered, alongside ongoing environmental and engineering studies. National Grid have also backchecked and reviewed its previous studies to ensure the reasons for the decisions taken have not changed following a review of the non-statutory consultation feedback.

This report provides:

- a summary of the options National Grid consulted on;
- a summary of the relevant non-statutory consultation responses which have informed the option selection and design evolution;
- an explanation of the option appraisal and selection of the preferred options; and
- an explanation of the evolution of the design of the Proposed Project from that consulted on in 2022.

In Suffolk, Site 3 Emerging Preference has been selected as the preferred option. In marine waters, the Marine Corridor Emerging Preference has been selected as the preferred option. In Kent, an overhead line has been selected as the choice of technology for the HVAC connection.

The Proposed Project involves the reinforcement of the electricity transmission network between Suffolk and Kent, predominantly via offshore High Voltage Direct Current (HVDC) link, but with onshore elements to connect into the transmission network. The proposed Project is split into three elements, as follows.

The Suffolk Onshore Scheme

- A connection from the existing transmission network via Friston Substation, including the substation itself. Friston Substation already has development consent as part of other third-party projects. If Friston Substation has already been constructed under another consent, only a connection into the substation would be constructed by the Sea Link project.
- A high voltage alternating current (HVAC) underground cable of approximately 1.7 km in length between the proposed Friston Substation and a proposed converter station (below).
- A 2 GW high voltage direct current (HVDC) converter station up to 26 m high plus external equipment (such as lightning protection & railings for walkways) near Saxmundham.
- A HVDC underground cable connection of approximately 10 km in length between the proposed converter station near Saxmundham, and a transition joint bay (TJB) approximately 900m inshore from a landfall point (below) where the cable transitions from onshore to offshore technology.
- A landfall on the Suffolk coast (between Aldeburgh and Thorpeness).

The proposals in Suffolk have been developed for Sea Link as a standalone project, but also include opportunities to co-locate infrastructure for up to two further projects at the converter station site, cable corridors and the landfall location.

The Offshore Scheme:

- Approximately 130 km of subsea HVDC cable, running between the Suffolk landfall location (between Aldeburgh and Thorpeness), and the Kent landfall location at Pegwell Bay.

The Kent Onshore Scheme:

- A landfall point on the Kent coast at Pegwell Bay.
- A TJB approximately 800m inshore to transition from offshore HVDC cable to onshore HVDC cable, before continuing underground for approximately 2 km to a new converter station (below).
- A 2 GW HVDC converter station, up to 26 m high plus external equipment (such as lightning protection & railings for walkways), near Minster. A new substation would be located immediately adjacent.
- Removal of approximately 1 km of existing HVAC overhead line, and installation of approximately 2.25 km of new HVAC overhead line from the substation near Minster and the existing Richborough to Canterbury overhead line.

The Proposed Project also includes modifications to sections of existing overhead lines in Suffolk and Kent, diversions of third-party assets, and land drainage from the construction and operational footprint. It also includes opportunities for environmental mitigation, compensation and enhancement (which could include hedgerow creation, native tree planting or funding local wildlife groups). The construction phase will involve various temporary construction activities including overhead line diversions, working areas for construction equipment and machinery, site offices, storage, accesses, bellmouths, and haul roads, as well as watercourse crossings and the diversion of public rights of way (PROWs).

The Proposed Project has been developed within the Suffolk Site 3 Emerging Preference corridor, the Marine Corridor Emerging Preference and the Kent Onshore Scheme Emerging Preference corridor as consulted on in 2022. There are however a number of locations where the draft Order Limits extend beyond these corridor extents. These are summarised in this report, along with the reasons why.

1. Introduction

1.1 Overview and Purpose

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

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

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

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

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

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

1.1.5 The purpose of this report is to:

- present the options appraisal process up to non-statutory consultation;
- present the outcome of the option selection process that has been undertaken following feedback from non-statutory consultation undertaken in Autumn 2022 to identify the preferred option for the Proposed Project; and
- describe how the Proposed Project has evolved from the preferred option selected for the Proposed Project to the design that is subject to statutory consultation being undertaken between 24 October 2023 and 18 December 2023.

1.2 Structure of this Report

1.2.1 This report is structured as follows:

- Section 1 – Introduction.
- Section 2 – Proposed Project Development.
- Section 3 – Summary of the Strategic Proposal.
- Section 4 – Summary of the Options Identification Stage.
- Section 5 – Summary of Non-Statutory Consultation Feedback.
- Section 6 – Option Section.
- Section 7 – Design Development of the Proposed Project.
- Section 8 – Description of the Proposed Project.
- Section 9 – Next Steps.
- Section 10 – References.

1.2.2 This report should be read in conjunction with the following figures as shown in **Appendix A – Figures**.

- **Figure 4.1: Suffolk Network Connection Points**
- **Figure 4.2: Suffolk Landfall Areas of Search - Sheets 1- 4**
- **Figure 4.3: Suffolk Converter Site Option AreaAreas - Sheets 1- 4**
- **Figure 4.4: Suffolk Terrestrial Route Corridors Sizewell Connection - Sheets 1 to 4**
- **Figure 4.5: Suffolk Terrestrial Route Corridors Proposed Friston Connection – Sheets 1 – 4**
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- **Figure 4.8: Suffolk Site 1 Emerging Preference**
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- **Figure 4.12: Suffolk Site 3 Alternative (Option 2)**
- **Figure 4.13: Kent Landfall Areas of Search - Sheets 1 to 4**
- **Figure 4.14: Kent Station Site Option Areas – Sheets 1 to 4**
- **Figure 4.15: Kent Route Corridors - Sheets 1 - 4**
- **Figure 4.16: Kent Emerging Preference**
- **Figure 4.17: Marine Alignments - Sheets 1- 4**
- **Figure 4.18: Offshore Scheme Emerging Preference and Alternative**

- **Figure 6.1: Suffolk Onshore Scheme Preferred Option**
- **Figure 6.2: Kent Onshore Scheme Preferred Option**
- **Figure 6.3: Offshore Scheme Preferred Option**
- **Figure 7.1: Suffolk Onshore Scheme Design Evolution – HVAC Connection**
- **Figure 7.2: Suffolk Onshore Scheme Design Evolution – Saxmundham Converter Station**
- **Figure 7.3: Suffolk Onshore Scheme Design Evolution – Underground HVDC Cables and Landfall**
- **Figure 7.4: Suffolk Onshore Scheme – Proposed Project**
- **Figure 7.5: Kent Onshore Scheme Design Evolution – HVAC Connection**
- **Figure 7.6: Kent Onshore Scheme Design Evolution – Minter 400 kV Substation and Minster Converter Station**
- **Figure 7.7: Kent Onshore Scheme Design Evolution – Underground HVDC Cables and Landfall**
- **Figure 7.8: Kent Onshore Scheme – Proposed Project**
- **Figure 7.9: Offshore Scheme Design Evolution – Marine Cable**
- **Figure 7.10: Offshore Scheme - Proposed Project**

1.3 Background and Need

1.3.1 In June 2019, the UK became the first major economy to pass legislation to end its contribution to global warming and bring all greenhouse gas emissions to net zero by 2050, putting clean growth at the heart of our modern industrial strategy and seizing the economic opportunities that transition to a greener economy creates.

1.3.2 The Government has set out a clear and consistent set of strategic objectives and a long-term policy framework as detailed in the following publications:

- The Ten Point Plan for a Green Industrial Revolution (Ref 1);
- Net Zero Strategy: Build Back Greener (Ref 2); and
- British Energy Security Strategy (Ref 3).

1.3.3 The latest publication, that sets out the Government's blueprint for the future of energy in the country is entitled Powering Up Britain (Ref 4) and was published in March 2023. It sets out the 'Department for Energy Security and Net Zero' manifesto for the future with a focus on energy security, consumer security, climate security and economic security.

1.3.4 The department's mission is to replace imported fossil fuels with cheaper, cleaner, domestic sources of energy. Energy security and net zero are two sides of the same coin. The energy transition in line with net zero is one of the greatest economic opportunities for this country.

1.3.5 Consistent with the Government's Net Zero target, there has been, and continues to be, growth in the volume of renewable and zero carbon generation that is seeking to connect to the electricity transmission system in the East Anglia and South East regions.

1.3.6 UK Government policy clearly sets out the critical requirement for significant reinforcement of the transmission system to facilitate the connection of renewable energy sources and to transport electricity to where it is used. Electricity network infrastructure is therefore needed to ensure that energy can be transported from where it is generated to where it is used.

1.3.7 The independent review of Net Zero concluded that the transition to net zero is the economic opportunity of the 21st century, driving investment, jobs and creating significant opportunity across the UK.

1.3.8 Energy networks will be a critical enabler for the clean energy transition, however, the scale and pace of investment needed to meet the UK's decarbonisation targets are significant; for example, achieving the ambition of up to 50 GW offshore wind by 2030 requires industry to deliver over six times the amount of electricity transmission network infrastructure in the next eight years than has been built in the past 30 years.

1.3.9 National Grid sits at the heart of Britain's energy system, connecting millions of people and businesses to the energy they use every day. Overall, National Grid will be investing around £15bn in the UK over 5 years to upgrade our networks and support the UK's net zero ambition. This includes connecting low carbon sources of energy; preparing for the widespread roll out of clean transport and low-carbon heat; and innovating across new technologies needed for an increasingly flexible energy system. National Grid aim to support an affordable and fair transition to net zero, in which nobody is left behind.

1.3.10 The Great Grid Upgrade is the largest overhaul of the electricity grid in generations. National Grid's infrastructure projects across England and Wales are helping to connect more renewable energy to your homes and businesses.

1.3.11 Multiple significant reinforcements are needed to the transmission system up and down the east coast to:

- facilitate the connection of future sources of renewable and low carbon power generation along the coast, such as offshore wind farms, nuclear power, and interconnectors;
- enable the transport of all this new proposed power from where it is produced to where it is needed, to centres of demand; and
- meet security of supply quality standards and ensure National Grid can continue to play our part in connecting millions of people reliably to the energy they need every day.

1.3.12 The network is planned and operated under a set of standards designed to ensure there are no widespread electricity supply interruptions. These standards ensure that, for given operational and fault scenarios:

- the electricity system frequency is maintained within statutory limits;
- no part of the network is overloaded beyond its capability; and
- voltage performance stays within acceptable statutory limits, and the system remains electrically stable.

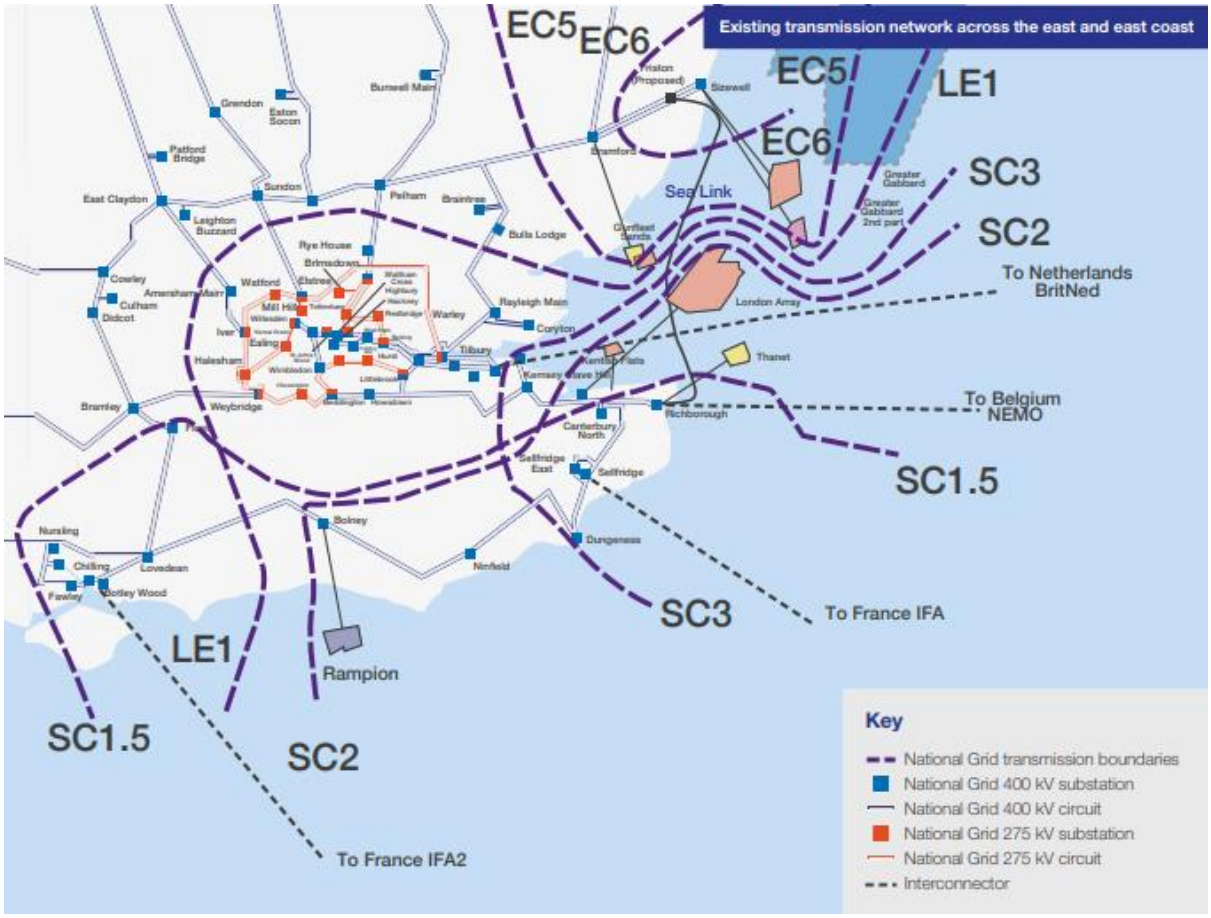
How do network boundaries work?

1.3.13 To understand current and future demands on the electricity network, the concept of network boundaries is used. A boundary splits the system into sections and shows where there are high-power flows between parts of the network. When flows across a network boundary are forecast to be above the capability of the network, there are two options to manage this:

- Pay electricity generators on one side of the boundary to reduce the energy they produce (and in turn pay generators on the other side of the boundary to compensate for the shortfall). This then reduces the flows of electricity across the boundary. When National Grid Electricity System Operator (ESO) pay generators to do this, these are called ‘constraint payments’.
- Increase the capability of the network to allow more electricity to flow.

1.3.14 The relevant boundaries are illustrated on **Image 1.1**.

Image 1.1: Relevant Network Boundaries



1.3.15 The existing transmission network infrastructure in the East Anglia and South East areas was not originally designed to accommodate such large volumes of generation capacity, that is planned to connect here. The network will require significant reinforcements in the form of new substations and transmission circuits to provide both connections for these new customers, and to ensure that power can be transferred securely to the onshore demand centres to meet the needs of electricity consumers in Britain.

1.3.16 Without reinforcement, the existing network is insufficient to accommodate the connection of the proposed new power sources.

The Need for reinforcement in East Anglia

1.3.17 The national electricity transmission system in East Anglia is encompassed by the EC5 boundary.

1.3.18 Like much of the high voltage electricity transmission network across the country, the network in East Anglia was largely developed in the 1960s. It was built to supply consumer demand from homes and businesses in the region, centred around Norwich and Ipswich.

1.3.19 For many years the only significant power stations generating in the East Anglia region were the Sizewell A and the Sizewell B nuclear power stations, Spalding North and Sutton Bridge gas fired power stations, and some further smaller 132 kV connected gas fired power stations.

1.3.20 A large loop runs from Walpole in the north of the region to Pelham and Rayleigh/Tilbury in the south, via Norwich and Bramford. In addition, two 400 kV overhead lines form radial circuits that connect Sizewell B to Bramford substation, these circuits cross Sizewell Generation Group (also known as EC6). The coastline and relatively shallow waters around East Anglia are attractive for the connection of offshore wind projects, including the large East Anglia Round 3 offshore zone that lies directly to the east. The existing nuclear generation site at Sizewell is one of the approved sites selected for new nuclear generation development. New interconnector projects are also contracted to connect within this area.

1.3.21 The growth in offshore wind, nuclear generation and interconnector capacities connecting behind this boundary greatly increase the power transfer requirements out of the region as local total generation will exceed local demand. Generation capacity is expected to grow substantially in the coming years. In the East Anglia region, connection agreements have been signed for new generation; these future connection agreements comprise a large volume of offshore wind generation (including East Anglia Offshore Wind), gas-fired generation, energy storage projects, a nuclear power station (at Sizewell C) and interconnectors to Europe.

1.3.22 The existing high voltage electricity network in East Anglia does not have the capability needed to reliably and securely transport all the energy that will be connected while meeting the Security and Quality of Supply Standard (SQSS). Several network reinforcement projects are planned to address the shortfall of which Sea Link is one.

1.3.23 In addition to reinforcing the EC5 boundary, by connecting Sea Link into the transmission system at the proposed Friston substation it also reinforces the Bramford-Sizewell radial circuits, which are due to carry additional power from offshore wind, new nuclear and interconnectors, so offering additional constraint savings to the consumer.

The Need in the South East

1.3.24 The south of England transmission region includes boundaries LE1, SC1, SC1.5, SC2 and SC3. The LE1 boundary almost exclusively imports power from the north and west of England into the South East.

1.3.25 The wider South East area is made up of the 400 kV and 275 kV network which connects generation and demand in the major towns and cities of the wider South East and Midlands regions. Power flows in the region are determined by the need to meet domestic demand in the South East as well as imports and exports to Europe via interconnectors.

1.3.26 As more energy is pulled across London and into Kent, power flows across LE1 are set to increase. Demand for electricity will grow; interconnectors will exchange more energy with European countries to help balance intermittent sources of power. As a result, the electricity transmission network in the South East will need to be reinforced to ensure it is able to continue operating safely and securely.

1.3.27 Without reinforcement the capacity of the East Anglia and South East existing network is insufficient to accommodate the connection of the proposed new power sources.

2. Proposed Project Development

2.1 Introduction

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

2.2 National Grid approach to project development and delivery

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

2.2.2 Options appraisal is a robust and transparent process that is used to compare options and to assess the positive and negative effects, those options may have across a wide range of criteria including environmental, socio-economic, technical and cost factors, as set out in National Grid's approach to options appraisal (Ref 5). Each of the options are appraised in accordance with this guidance. This guidance was developed by National Grid to provide a thorough and consistent approach to the appraisal of network reinforcement options. It represents the best practice approach to inform the decision-making process. The aim of the guidance is to ensure that decisions regarding the technology options and/or location of infrastructure are based on a full understanding of the implications of each option using a wide range of criteria.

2.2.3 Options Appraisal is underpinned by a set of overarching principles that reflect National Grid's statutory duties, which assist in decision-making and help achieve an appropriate balance between competing interests that must be considered in Options Appraisal. These principles are that:

- Using or adapting existing infrastructure will generally be of benefit/advantage compared with creating new infrastructure.
- Shorter routes will generally be of benefit/advantage compared with longer routes, as smaller scale infrastructure projects are generally likely to have lower environmental, safety, sustainability and cost implications (for comparable technology options).
- Financially less-expensive options, both in terms of capital and lifetime cost, will generally be of benefit/advantage, as these support National Grid's statutory duty under Section 9 of the Electricity Act 1989 to develop and maintain an 'efficient, co-ordinated and economical' transmission network.
- Options which avoid or reduce and mitigate impacts on environmental or socio-economic constraints will generally be of benefit/advantage compared with those which have likely significant residual effects, as less environmentally or socially damaging routes support National Grid's statutory duty under Schedule 9 of the Electricity Act 1989 to 'have regard to the desirability of preserving amenity' and will more readily achieve consent.

2.2.4 The guidance (Ref 5) sets out the topics (environment, socio-economic, technical and cost) and sub-topics that should be considered as part of the options appraisal.

2.2.5 At each stage of the options appraisal process, a clearly defined methodology has been used to inform the decision-making process. This has included technical inputs from engineers and environmental specialists to inform the decisions and design. The assessment has drawn on data and evidence collected from both, desktop studies and site visits. Decision making has also taken into account the feedback from prescribed bodies defined in the Planning Act 2008 (, and the local community, and will continue to take account of the feedback from the prescribed and non-prescribed bodies alongside feedback from the local community through an extensive programme of engagement and consultation. In addition, the Proposed Project has been subject to periodic internal challenge and review process to ensure the robustness of the decision made in the light of a changing environmental baseline related to technical, physical and economic matters.

2.2.6 Decisions about the Proposed Project have considered National Grid's statutory obligations set out in Sections 9 and 38 of the Electricity Act 1989, its licence requirements and all other relevant considerations including the relevant National Policy Statements (NPS). The options appraisal has also considered other policy and guidance when making judgements and decisions on the Proposed Project including the Horlock Rules (Ref 6) and Holford Rules (Ref 7).

2.2.7 **Image 2.1** shows where the options appraisal sits within National Grid's approach to project development and delivery, as set out in the National Grid publication 'Our Approach to Consenting' (Ref 8).

2.2.8 The Proposed Project is currently at the Defined Proposal and Statutory Consultation stage.

Image 2.1: National Grid's approach to project development and delivery



3. Summary of the Strategic Proposal

3.1 Introduction

3.1.1 A range of strategic options that might address the network reinforcement needs were identified and appraised at a strategic level. These appraisals considered the likely environmental and socio-economic effects, technical issues, and costs that would be associated with each strategic option. The network performance of each strategic option was also modelled to determine the benefits. The appraisal and modelling results informed judgements regarding the relative merits of the options and ensured that the final Strategic Proposal would meet National Grid's statutory duties under the Electricity Act 1989, including the requirement to bring forward proposals that are 'economic, efficient and coordinated' and that would comply with the relevant planning policies for which the consents would be granted.

3.1.2 A Strategic Options Report (Ref 9) has been prepared by National Grid, and has been published as part of Statutory Consultation. This sets out the strategic options that have been considered for the Proposed Project, and the reasons for the selection of the preferred strategic option. It also includes information about wider reinforcements in the East Anglia area, which are interactive with the need case.

3.2 Background to the Proposed Project

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

3.2.2 Strategic options were developed that explored links between the South East of England and East Anglia that could provide the reinforcement required. This work identified that a connection between East Anglia and Richborough in Kent provided this reinforcement, this was then reflected in the 2019/2020 Network Options Assessment (NOA) (Ref 11). Solutions which resolve capacity requirements of the Sizewell Generation Group and SC2 Kent boundary are the only options that satisfy the needs case.

3.2.3 Additional network studies in East Anglia were then undertaken to confirm which connection point provided the best value to customers whilst reducing potential environmental and socio-economic impacts. These studies identified that the HVDC Link needed to connect into the Sizewell area in order to meet the needs of the Sizewell Generation Group, which would require additional infrastructure if the capacity provided by the 2GW HVDC link were not connected to the group.

3.2.4 The 2020/2021 NOA (Ref 11) also identified the reinforcements that were required to the network in East Anglia and National Grid undertook a similar exercise to investigate solutions that could provide this wider reinforcement. The Sizewell to Richborough HVDC Link (by this point named the 'Sea Link Project') was included as part of this exercise to confirm it remained the preferred solution under all scenarios.

3.3 Strategic Options Considered for the Proposed Project

3.3.1 Following the identification of the need for the reinforcement to connect into the Sizewell area in East Anglia and into the South East of England, four alternative strategic options were identified and assessed:

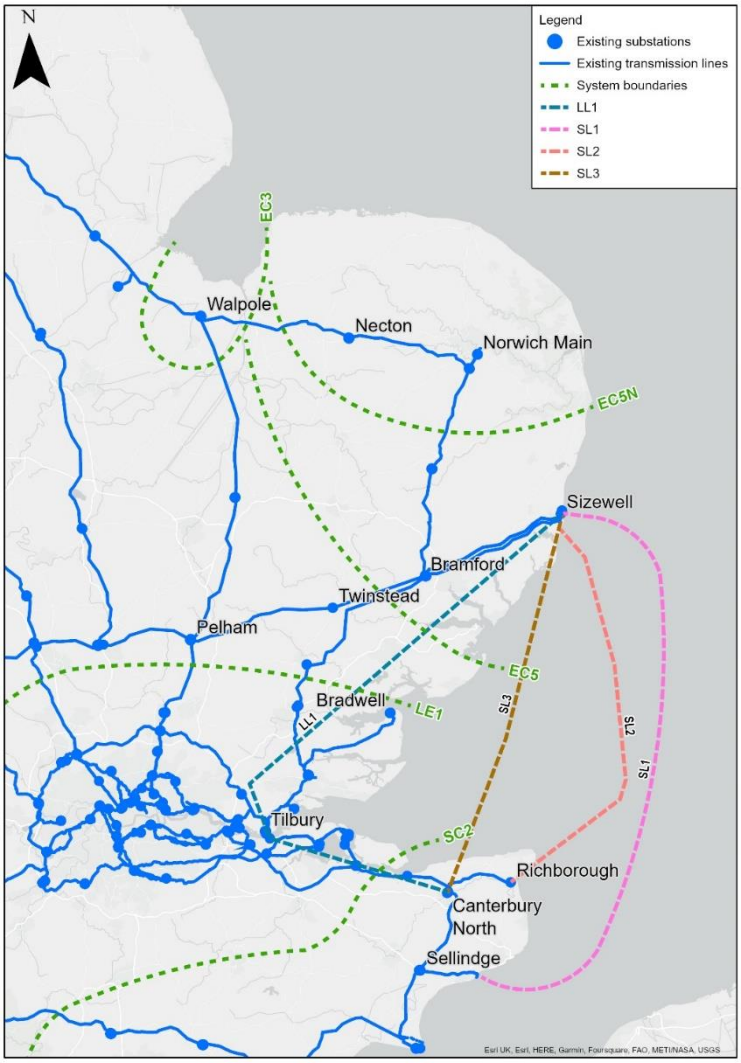
- SL1 – Sizewell area and Sellindge subsea approx. 180 km;
- SL2 – Sizewell area and Richborough subsea approx.120 km;
- SL3 – Sizewell area and Canterbury subsea approx. 120 km; and
- LL1 – Sizewell area and Canterbury onshore approx. 220 km.

3.3.2 For each of the strategic options, the technology options available for transmission system reinforcement, environmental and socio-economic constraints, lifetime costs of each technology option, as well as initial capital cost were considered.

3.3.3 Two technology options were considered for the three offshore options: AC Subsea cable and HVDC Subsea cable. Four technology options were considered for the onshore option: overhead line (OHL), underground cables, Gas Insulated Lines (GIL) and onshore HVDC.

3.3.4 The location of these four strategic options is shown on **Image 3-1.**

Image 3-1: Strategic Options considered



3.3.5 This assessment of these four strategic options considered:

- environmental and socio-economic constraints;
- technology options available and the associated technical considerations; and
- the capital and lifetime costs of each technology option.

3.3.6 The assessment of the four options concluded the following:

- Option LL1 (Sizewell to Canterbury) would have the lowest capital cost connection, but with a higher lifetime cost than the offshore HVDC solutions. Option LL1 would be subject to increased costs for crossing of the River Thames (likely by tunnel) and for any underground cable sections. Option LL1 was also found not to pass the technical and benefits filters in the options appraisal methodology, and therefore this option was not carried forward for environmental and socio-economic evaluation.
- None of the environmental and socio-economic impacts of the remaining offshore options SL1, SL2 and SL3 were considered to present in-principle issues that could not be mitigated with careful consideration of routeing and use of appropriate technologies to specific constraints, as is consistent with the existing and emerging National Policy Statements (NPSs) against which proposals for nationally significant infrastructure projects are assessed.
- The lowest cost subsea option was equal between options SL2 and SL3 (a connection from Sizewell Area to Richborough or Canterbury over a distance of 145 km utilising a 2000 MW Voltage Source Converter (VSC) HVDC connection).
- From an environmental and socio-economic perspective, option SL2 was preferred to option SL3 due to the marine constraints off the north Kent coast and onshore siting opportunities close to Richborough substation.

3.3.7 Accordingly, the assessment concluded that option SL2 would best balance overall technical, cost, environmental and socio-economic considerations.

4. Summary of the Options Identification Stage

4.1 Introduction

4.1.1 Having identified the preferred Strategic Option, National Grid undertook a Corridor and Preliminary Routeing and Siting Study (CPRSS) (Ref 12). This process is summarised below.

4.2 Approach to Routeing and Siting

4.2.1 A staged approach was adopted to identify corridors and preliminary routeing and siting options for the Proposed Project, considering environmental and socioeconomic factors as well as technical and engineering design considerations, and cost.

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

4.2.3 Each of the options identified for the converter site Areas and cable route corridors were appraised in accordance with National Grid's approach to options appraisal (Ref 5).

4.2.4 In addition to above and in the absence of guidance for specific siting of converter stations, the Horlock Rules (Ref 6) have been applied. Although these were developed for the siting of substations, they were considered appropriate to use when identifying and appraising converter site Areas.

4.2.5 The steps undertaken for the Proposed Project in this staged approach are summarised below.

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

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

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

- access to the proposed onshore grid connection point;
- suitability of ground conditions (e.g., areas of low elevation, avoidance of estuarine habitats);
- potential for site access;
- avoidance of existing infrastructure as well as major development either consented or currently in the application process; and
- high level consideration of potential key environmental and socio-economic constraints such as populated areas and ecological designations (landfall areas of search were not necessarily ruled out on the basis of these potential constraints and were taken forward in order to be subjected to an initial routeing and siting environmental and socio-economic options appraisal).

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

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

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

4.2.12 **Table 4.1** presents the topics and criteria that were considered.

Table 4.1: Appraisal Topics

Environment	Socio-economic	Technical	Cost
Landscape and visual	Settlement and Population	Technical Complexity	Capital cost
Historic environment (terrestrial and marine)	Tourism and Recreation (terrestrial and marine)	Construction / project delivery issues	Lifetime cost
Biological environment (terrestrial and marine)	Infrastructure (terrestrial and marine)	Suitability of Technology	
Physical environment (terrestrial and marine)	Land Use (ownership/type)	Network Capacity	
	Traffic and Access	Network Efficiencies/Benefits	
	Shipping and Navigation	Commercial / regulatory / third party issues	
	Planning - Future development and receptors (including planning applications and allocations, planning policy designations and marine plans)		

4.2.13 Details of the environmental and socio-economic sub-topics that were considered at the routeing and siting stage are detailed in **Appendix B.**

4.2.14 The following sections provide a summary of the outcome of routeing and siting process in Suffolk (hereafter referred to as the Suffolk Onshore Scheme), Kent (hereafter referred to as the Kent Onshore Scheme) and in marine waters (hereafter referred to as the Offshore Scheme) and a summary of the options that were consulted on as part of non-statutory consultation.

4.3 Suffolk Onshore Scheme

Network connection points considered

4.3.1 The preferred strategic option identified the Sizewell area as the area on the network the Proposed Project was required to connect, in order to meet the Needs Case as described in Section 2. Three potential points of connection were identified within the Sizewell area, and these were appraised as part of the routeing and siting appraisal.

4.3.2 These connection points are illustrated on **Figure 4.1: Suffolk Network Connection Points in Appendix A** and were:

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

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

Study area

4.3.4 The routeing and siting study area in Suffolk extended from Hollesley in the south to Dunwich in the north along the Suffolk coast, and inland to Wickham Market.

Landfall Areas Of Search Considered

4.3.5 Five landfall areas of search were initially identified in Suffolk. These are illustrated on **Figure 4.2: Suffolk Landfall Areas of Search - Sheets 1- 4 of Appendix A**. The southernmost area of search(S1) was identified to the south of Aldeburgh, north of the Alde and Ore River. A second Area of search was identified between Aldeburgh and Thorpeness (S2). A third area of search was identified between Thorpeness and Sizewell (S3). This area was further split down into two sub areas, south (S3) and north (S3N). A fourth area (S4) at Sizewell and the northern most area of search was identified to the north of Sizewell south of Minsmere (S5).

Summary of appraisal outcomes

Terrestrial constraints

4.3.6 All five landfall areas of search are within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) which was unavoidable within the study area.

Landfall area of search S1

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

Landfall area of search S2

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

Landfall area of search S3

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

Landfall area of search S4

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

Landfall area of search S5

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

Summary of relevant marine alignments

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

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

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

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

Summary of appraisal outcomes

4.3.16 Landfall area of search S1 was relatively unconstrainted from a marine approach perspective but terrestrially had access and flood risk constraints and constraints associated with the onward terrestrial routeing.

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

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

4.3.19 Landfall area of search S4 was significantly constrained both on the offshore approach and terrestrially by the presence of the existing Sizewell B Nuclear Power Station and the proposed Sizewell C Nuclear Power Station development.

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

4.3.21 These factors were considered when selecting the preferred option to take forward, as set out later in this section.

Converter Site Areas Considered

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

4.3.23 Nine converter site Areas (A – I) were initially identified.

4.3.24 Due to there being a number of potential network connection points in the Sizewell area, converter site Areas were identified for each connection point, but some Areas provided a connection into more than one of the connection points. **Table 4.2** lists the converter station Areas appraised for each connection point. A description of the Areas is provided below. The Areas are illustrated on **Figure 4.3: Suffolk Converter Site Areas - Sheets 1- 4 of Appendix A.**

Table 4.2: Suffolk converter site Areas – connection points

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

Converter site Area A

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

Converter site Area B

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

Converter site Area C

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

Converter site Area D

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

Converter site Area E

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

Converter site Area F

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

Converter site Area G

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

Converter site Area H

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

Converter site Area I

4.3.33 Area I is located to the east of Lower Hacheston and is bounded to the north by the A12. The existing 400 kV overhead lines and railway line cross the far southeastern boundary of the Area. A small area of Flood Zone 2 and 3 is located in the northeastern corner the Area, associated with the River Ore.

Summary of appraisal outcomes

4.3.34 Of the possible connection points in the Sizewell area, only the Sizewell B substation is currently in existence; all the other proposed connection points would require the installation of a new substation, either proposed through another project in the area, or installed as part of this Proposed Project. Connecting into the existing Sizewell B[1] or consented Sizewell C substation would require taking over two of the super grid transformer (SGT) circuits feeding the existing Leiston 132 kV substation by connecting into the 400 kV circuits feeding the SGTs. This would require the installation of two new 400/132 kV SGTs in the converter station site with new 400 kV cables connecting into the existing Sizewell B or consented Sizewell C substation, and new 132 kV cables connecting the SGTs in the converter station with the Leiston 132 kV substation. The 400 kV cable route to the substation would require either using the corridor allocated to the existing 132 kV connection or routeing through Sizewell Marshes SSSI. A connection into either the existing or proposed Sizewell substation would also need to consider the works to construct the proposed Sizewell C Nuclear Power Station as the program of works would overlap. This could have programme implications for the delivery of this Proposed Project in line with the needs case and to meet the required connection date.

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

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

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

4.3.38 Converter site Area C was constrained by the existing access, however the development of the proposed Theberton bypass as part of the proposed Sizewell C development, would alleviate some of these constraints if developed in time.

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

[1] Sizewell B substation is nearing the end of its design life; therefore, replacement or refurbishment works may be required as either part of the Proposed Project or as a separate project (if a connection to Sizewell B substation were to be taken forward).

4.3.40 Converter site Areas E and F both had good access from the A1094 but were considered constrained by the proximity to the Suffolk Coast and Heaths AONB in terms of the potential for setting impacts.

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

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

4.3.43 Due to the existing and proposed energy development within the study area coupled with the proximity of the Suffolk Coast and Heaths AONB in this locality the environmental and socio-economic appraisal concluded that an underground HVAC connection would be preferred to an overhead line HVAC connection between the converter site options areas and any of the connection points.

4.3.44 These factors were considered when selecting the preferred option to take forward, as set out later in this section.

Route Corridors Considered

4.3.45 Corridors were developed that could connect each of the landfall areas of search to each of the converter site Areas.

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

- five corridors from each of the five landfall areas of search to the four converter site Areas that could connect into the existing and proposed Sizewell substations **Figure 4.4: Suffolk Terrestrial Route Corridors Sizewell Connection - Sheets 1 to 4 of Appendix A**;
- five corridors from each of the five landfall areas of search to the seven converter site Areas that could connect into the proposed Friston substation **Figure 4.5: Suffolk Terrestrial Route Corridors Proposed Friston Connection – Sheets 1 – 4 of Appendix A;** and
- five corridors from each of the five landfall areas of search to the five converter site Areas that could connect into the existing 400kV overhead line **Figure 4.6: Suffolk Terrestrial Route Corridors New Connection – Sheets 1 - 4 of Appendix A.**

Summary of appraisal outcomes

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

4.3.48 All three green corridors as illustrated on **Figure 4.4 to Figure 4.6 of Appendix A** that connected with the southernmost of the five landfall areas of search S1, south of Aldeburgh, would require an extensive crossing of the Alde-Ore Estuary, which is designated as the Alde-Ore Estuary Ramsar, SPA and SSSI and the Alde-Ore & Butley Estuaries SAC. These corridors would also interact with the same designated sites around the settlements of Iken and Snape. A large proportion of the green corridors are also within Flood Zone 2 and 3 and would require the longest cable route within the Suffolk Coast and Heaths AONB of all the corridors.

4.3.49 The three blue corridors as illustrated on **Figure 4.4 to Figure 4.6 of Appendix A** that connected into the southern part of the landfall area of search S3 between Thorpeness and Sizewell would need to cross a section of Sandlings SPA and the Leiston – Aldeburgh SSSI and would likely require interaction with the proposed cable routes for the East Anglia One North and East Anglia Two Offshore Wind Farms Projects.

4.3.50 The three purple corridors as illustrated on **Figure 4.4 to Figure 4.6 of Appendix A** that connected into the northern part of this landfall area of search S3N, when considered in isolation, provided an opportunity to avoid sites designated for nature conservation but would entail interaction with the proposed Sizewell C Nuclear Power Station project.

4.3.51 The three orange corridors as illustrated on **Figure 4.4 to Figure 4.6 of Appendix A** that connected to the most northern landfall area of search S5, to the north of Sizewell would need to cross Minsmere-Walberswick Ramsar and SPA, Minsmere to Walberswick Heaths & Marshes SAC and SSSI and Minsmere RSPB Reserve and would entail significant interaction with the proposed Sizewell C Nuclear Power Station project. Four pinch points were identified within the route corridors:

- The first was at a crossing of Leiston Road close to Aldeburgh Golf Course, which would be crossed by all three red corridors connecting to the landfall area of search S2.
- The second of these was located between the B1353 and Leiston Road and would require cable routes to cross the Sandlings SPA, the Leiston – Aldeburgh SSSI, and a section of the golf course, as well as having a pinch point at the crossing of Leiston Road. This pinch point would affect the three blue corridors connecting to landfall area of search S3.
- The third pinch point was to the south of Aldringham at the crossing of the Hundred River. This area is constrained by the Hundred River itself, the crossing of the B1353 and the B1122, and an area of woodland and properties. In addition, the cables for the East Anglia One North and Two Offshore Wind Farms are proposed to be routed through this same pinch point. This area would need to be routed through (depending on which converter site Area is selected) by the three purple corridors connecting to landfall area of search S3N or by all three blue corridors connecting to landfall area of search S3 to avoid the second pinch point.
- The fourth pinch point was to the northwest of Leiston and is associated with the offsite works for the proposed Sizewell C Nuclear Power Station including an area that has recently been established for ecological mitigation measures related to that project. Depending on which converter site Area is selected, this area would need to be routed through by the three purple corridors connecting to landfall area of search S3N.

4.3.52 Significant engineering and environmental constraints associated with a connection into either the existing or proposed Sizewell substations meant that these options were not preferred. Connecting to a new connection point in the area, with an associated additional substation, was also not preferred as there would be no environmental or socio-economic, technical, or economic benefit over connecting into an existing (where possible) or proposed substation. The proposed Friston substation (which is now consented) was therefore identified as the preferred connection point. As a consequence, those converter site Areas (Area A and Area I) which were not identified for a Friston connection were discounted alongside the associated terrestrial corridors.

4.3.53 Landfall area of search S4 was identified as being significantly constrained from a terrestrial perspective as no onward terrestrial route corridor was identified from this landfall area of search due to the existing and proposed Sizewell Nuclear Power Stations. The marine approach was also constrained by the number of cable crossings, therefore this option was not taken forward.

4.3.54 Whilst the marine alignment to landfall area S1 was relatively unconstrained, the terrestrial green corridor was constrained technically by two large river crossings of the Alde and Ore River which would also require a crossing of the Alde-Ore and Butley SAC in two places and the Alde-Ore Estuary SPA and SSSI in three places. A large proportion of this corridor was also within the Flood Zone and this corridor would require the longest route within the Suffolk Coast and Heaths AONB. Access to this corridor was also very limited, in particular in the area between the two large river crossings due to the nature and scale of the existing road network. As such area S1 was discounted

4.3.55 The marine approach to landfall area S3 was significantly constrained by the presence of rocky reefs. Onward terrestrial routeing within the blue corridor would also likely require a crossing of Sandlings SPA and Leighton-Aldeburgh SSSI although the potential for significant effects were considered likely to be reduced through the use of trenchless construction techniques (subject to confirmation through further studies and ground investigations).

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

4.3.57 The marine approach to the landfall area S2 had fewer constraints, however the Leiston – Aldeburgh SSSI and North Warren RSPB reserve could not be avoided. The use of trenchless construction techniques (subject to confirmation through further studies and ground investigations) would reduce the impacts at this landfall. The red terrestrial route corridor from this landfall area of search also included the pinch point along Leiston Road.

4.3.58 The northern part of the landfall area of search S3 (S3N) could avoid the area of rocky reef which significantly constrained the marine approach to S3; however, the presence of existing and proposed cables at this landfall area and in the nearshore environment constrained potential marine alignments. The purple terrestrial route corridor connecting to this landfall area of search could not avoid either of the two following pinch points. The first of these pinch points is on the route to the south of Aldringham; This route would have to cross the Leiston Aldborough SSSI and then the Hundred River. This area is constrained by the Hundred River itself, the crossing of the B1353 and the B1122, and an area of woodland and properties. In addition, the cables for the East Anglia One North and Two Offshore Windfarms are proposed to be routed through this same pinch point. The second pinch point is to the north and northwest of Leiston, associated with the offsite works for the proposed Sizewell C Nuclear Power Station including an area that has been establishing for several years in readiness for it to be a suitable reptile receptor site essential to mitigate effects related to that project. It would not be possible to replace this receptor habitat as it would not mature in time to provide a suitable receptor site.

4.3.59 Converter site Area B was constrained as this site is within the Suffolk Coast and Heaths AONB and overlaps with an area that has been established for the proposed Sizewell C Nuclear Power Station ecological mitigation, which has been maturing for a number of years and would be very difficult, if not impossible, to replace. Area C would also result in a significantly longer onshore cable route if landfall area of search S2 and the red corridor were selected. Area C was also constrained by the existing access. Area D is considered constrained by planned future development plans to the north included the proposed Sizewell C rail head and poor site access along the existing road network that would require routing of traffic through Leiston. Area G was significantly constrained by future development plans on the eastern side of the A12 and Area H was constrained by a new connection point on the existing 400kV OHL. Areas E and F were both in close proximity to the Suffolk Coast and Heaths AONB and therefore setting impacts were a consideration for both. The landscape character of Area F is more open than Area E, and Area E provided a greater opportunity to mitigate both through the use of existing and additional screening. Both Areas had good access to the strategic highway network. Area E would result in a shorter onshore cable route from either landfall area of search S2 and the red corridor, or else landfall area of search S3N and the purple corridor.

4.3.60 On balance the preferred solution identified was landfall area of search S2 connecting to a converter site Area E via the red corridor with a connection back to the network through the proposed Friston substation.

4.3.61 Whilst Area E was constrained at the landfall due to presence of terrestrial nature conservation sites, it was identified that trenchless installation methods could be used to reduce or avoid potential impacts. However, as further survey work was required to confirm the feasibility of using trenchless techniques at this landfall it was considered prudent to also progress an alternative. This alternative was landfall area of search S3N and a connection to converter site Area E via the purple corridor with a connection back to the network through the proposed Friston substation.

4.3.62 Area E was the preferred converter station area prior to the investigation of coordination, which is discussed below.

Stakeholder Feedback And Option Refinement

4.3.63 Through engagement prior to non-statutory consultation, Suffolk County Council and East Suffolk District Council encouraged National Grid to explore opportunities to coordinate with the interconnector projects being proposed by National Grid Ventures (NGV) in the area, namely Nautilus Interconnector and LionLink (formally known as EuroLink) Interconnector, which would require similar onshore infrastructure.

4.3.64 Coordination may mean a variety of different things, from sharing of data and site survey information, sharing construction materials such as stone for temporary access tracks (if projects are constructed in sequence) through to physical co-location or even sharing infrastructure.

4.3.65 Whilst it is possible to share certain types of infrastructure, for example car parks, accesses, and landscaping, the sharing of large-scale infrastructure would not necessarily realise benefits as there would be no reduction in the size of development or its footprint.

4.3.66 National Grid has explored the concept of co-locating converter stations, sharing cable corridors and consolidating landfalls as part of the exploration of coordination. These elements of coordination are considered to reduce the potential spread of infrastructure through a rural environment, concentrating development in a single area. It could also allow for sharing some elements of infrastructure, such as temporary and permanent access, and allows for shared mitigation. This is explained in the following sections.

4.3.67 National Grid has backchecked and reviewed all potential converter sites/Areas that were identified independently through both NGV's non-statutory consultation for the Nautilus Project[2] and the routeing and siting option appraisal for the Proposed Project described above. This backcheck and review considered whether it was feasible for any of the converter site Areas to accommodate up to three co-located converter stations and whether there were any additional sites that should be investigated/appraised further for co-location opportunities (this is described further in the next section).

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

4.3.69 Seven sites were identified as potentially offering opportunities for coordination, some of which aligned with the original converter station Areas identified for Sea Link, and some that had not been previously considered. These are illustrated on **Figure 4.7: Potential Coordinated Converter Station Sites – Sheets 1 to 4 of Appendix A**.

Potential coordinated (co-located) converter station sites considered

4.3.70 A summary of key considerations for each of the seven sites is illustrated **Figure 4.7: Potential Coordinated Converter Station Sites – Sheets 1 to 4 of Appendix A** and is described in the following sections.

[2] At the time of routeing and siting, potential converter station sites for LionLink were not known, only those for the proposed Nautilus Project. The outputs of the exploration of coordination and co-location with NGV fed into the routeing and siting that was subsequently undertaken for LionLink which they consulted on in October 2022.

Site 1

4.3.71 Site 1 was contiguous with part of converter site Area E and offered good existing screening to the north of the site and good construction access to the strategic road network. It is close to the Suffolk Coast and Heaths AONB so setting was a consideration for this site. However, the site offered good opportunities for mitigation in keeping with the existing landscape character. This site also offered the shortest overall onshore cable route.

Site 2

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

Site 3

4.3.73 Site 3 was located further from the Suffolk Coast and Heaths AONB but in close proximity to the settlement of Saxmundham. There was good existing screening along the western and southern edges of the site, this along with the topography of the local area would limit the intervisibility between the settlement and the site. Access to this site is constrained and would need to be routed through the settlement of Saxmundham if taken off the B1119. An alternative opportunity does exist to take permanent construction access from the B1121. This would require construction of a permanent access route and a potential crossing of the River Fromus or the railway line.

Site 4

4.3.74 Site 4 was contiguous with part of converter site Area C and was located further away from the Suffolk Coast and Heaths AONB and offers good existing screening and additional screen planting could be developed in keeping with the existing landscape character. Access to this site was challenging as it is accessed via small country roads; however, Site 4 did have the benefit of the proposed new link road being developed as part of the proposed Sizewell C Nuclear Power Station albeit the cumulative impact with this development would be a consideration. The site contains the former RAF Leiston Airfield, therefore this non-designated asset would need to be considered further if taken forward for development.

Site 5

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

Site 6

4.3.76 Site 6 was contiguous with converter site Area D and located approximately 1.5 km from the Suffolk Coast and Heaths AONB at its closet point. The site is located to the west of the settlement of Leiston and north of the settlement of Knodishall. There are a number of woodland blocks and shelterbelts which did offer some opportunity for existing screening and integration of mitigation planting. There are a number of historical designated assets within the settlements of Leiston and Knodishall but these are well screened by existing vegetation surrounding the assets. Similar to Site 5, this site is located further from the strategic road network and routeing construction traffic through settlements was considered unlikely to be avoidable.

Site 7

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

Potential for coordinated (co-located) landfalls

4.3.78 As set out above landfall area S2 interacts with the Leiston - Aldeburgh SSSI and North Warren RSPB reserve but had fewer constraints on the marine approach and was not constrained by the presence of any other existing or proposed infrastructure.

4.3.79 As set out above the majority of landfall S3 was considered significantly constrained in the immediate offshore environment due to the presence of the bedrock reef of the Coralline Crag formation which is an important feature when considering coastal processes. Opportunities to reduce interaction with this feature were identified to the northern and southern ends of the landfall area of search however the southern extent of the landfall is spatially constrained by the proposed East Anglia One North and East Anglia Two Offshore Windfarm developments.

4.3.80 Whilst reducing interaction with the bedrock reef of the Coralline Crag compared to S3, the routeing and siting process identified that landfall S3N had constraints associated with existing and proposed onshore and offshore infrastructure. When appraised as a landfall for the Proposed Project and as described in the sections above this landfall was identified as alternative to take forward. When considered as co-located landfall it was identified that whilst landfall maybe achieved with two sets of cables but with significant technical complexity it was deemed unlikely that landfall could be made with three sets of cables due to the space available.

4.3.81 The appraisal identified that only landfall area of search S2 could potentially deliver a co-located landfall solution for three sets of cables.

Potential for coordinated (co-located) terrestrial route corridors

4.3.82 The assessment of the co-located terrestrial route corridors identified the same constraints as those identified for the red, blue and purple corridors appraised for the Proposed Project.

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

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

Suffolk Onshore Scheme preferred option

4.3.85 Following a backcheck of the initial preferred option for the Proposed Project and taking account of the appraisal findings of potential co-located options, Converter Site 1 and Site 3 were identified as emerging preferences for the Proposed Project and sites which could also accommodate co-location with other projects. Site 1 was in the originally preferred converter Area E, whereas Site 3 was a new site for the Sea Link project, having originally been identified by National Grid Ventures as part of the Nautilus site selection process.

4.3.86 Landfall S2 and the red corridor remained the emerging preference and this option was also identified as potentially providing for a co-located landfall and cable route with other projects.

4.3.87 Landfall S3N and the purple corridor remained an alternative option until further studies and survey work had been undertaken to determine the installation technique. However, this option could not facilitate a co-located landfall or terrestrial cable route to either Converter Site 1 or Site 3.

Suffolk Onshore Scheme At Non-Statutory Consultation

4.3.88 The Suffolk Onshore Scheme consulted on at non-statutory consultation comprised of:

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

4.3.89 As described above there were options for the location of the infrastructure which makes up the Suffolk Onshore Scheme. These options were consulted on as part of non-statutory consultation.

4.3.90 There were five options in total which are listed below:

- Suffolk Site 1 Emerging Preference – this is illustrated on **Figure 4.8: Suffolk Site 1 Emerging Preference of Appendix A**;
- Suffolk Site 3 Emerging Preference – this is illustrated on **Figure 4.9: Suffolk Site 3 Emerging Preference of Appendix A**;
- Suffolk Site 1 Alternative – this is illustrated on **Figure 4.10: Suffolk Site 1 Alternative of Appendix A**;
- Suffolk Site 3 Alternative (Option 1) – this is illustrated on **Figure 4.11: Suffolk Site 3 Alternative (Option 1) of Appendix A**; and
- Suffolk Site 3 Alternative (Option 2) – this is illustrated on **Figure 4.12: Suffolk Site 3 Alternative (Option 2) of Appendix A.**

4.3.91 The graduated swathes shown on **Figure 4.8 to Figure 4.12** illustrated the area within the preferred corridors, where, based on the understanding of baseline conditions at the time, the HVAC connection, converter station site and underground HVDC cables were likely to be routed/sited.

4.4 Kent Onshore Scheme

Network Connection Point

4.4.1 The preferred strategic option identified Richborough substation as the network connection point in Kent as described in section 2. This was used as the basis for defining the routeing and siting study area and the identification of landfall areas of search, converter site Areas and terrestrial route corridors in Kent.

Routeing And Siting Study Area

4.4.2 The routeing and siting study area in Kent extended from Herne Bay on the north Kent coast to Kingsdown on the east Kent coast and, inland, to the settlement of Wingham.

Landfall Areas Of Search Considered

Areas of search

4.4.3 Six landfall areas of search were identified in Kent, which were split geographically across Pegwell Bay, Broadstairs and the north Kent coast. These are illustrated on **Figure 4.13: Kent Landfall Areas of Search - Sheets 1 to 4 of Appendix A**. One area of search (K1) was identified within Pegwell Bay, which stretched from the settlement of Ramsgate to the settlement of Deal. One area (K1a) was identified at Broadstairs at North Foreland between the settlements of Margate and Broadstairs. Four areas of search (K2, K3, K4 and K5) were identified along the north Kent coast between the settlements of Herne Bay and Birchington.

Summary of appraisal outcomes

Terrestrial constraints

Landfall area of search K1 (Pegwell Bay)

4.4.4 Landfall area of search K1 in Pegwell Bay was broadly split into two. The area to the north of the mouth of the River Stour, where the intertidal area is wide (approximately 2 km) and the area to the south of the mouth of the River Stour where the intertidal area gradually narrows towards the south.

4.4.5 The whole of the landfall area of search is designated as the Thanet Coast and Sandwich Bay Ramsar and SPA, Sandwich Bay SAC and Sandwich Bay to Hacklinge Marshes SSSI. These designations were unavoidable within this landfall area, albeit the width of the designations narrows towards the south due to the narrowing of the intertidal area. There would therefore potentially be more opportunity to avoid direct impacts on the designated sites through the use of trenchless installation methods (subject to confirmation through further studies and ground investigations) towards the south of the area of search. Sandwich Bay and Pegwell Bay National Nature Reserve (NNR) is located within this landfall area but could be avoided by landing the cable to the south of the River Stour.

4.4.6 Five Golf courses are present within this landfall area. From north to south these are: St Augustine's, Stonelees, Princes, Royal St George's and Royal Cinque Ports.

4.4.7 To the south of the River Stour there are extensive areas of terrestrial flood zone which were not avoidable. Access to this same area was also limited due to the existing road network.

Landfall area of search K1a (Broadstairs)

4.4.8 Landfall area of search K1a is located at North Foreland to the north of Broadstairs. The whole of the landfall area falls within the following designated sites, Thanet Coast and Sandwich Bay Ramsar and SPA and Thanet Coast SAC, SSSI and Marine Conservation Zone (MCZ). Whilst all these designated sites would be unavoidable, trenchless installation methods could be used to avoid direct effects (subject to confirmation through further studies and ground investigations). Due to the width of both the SAC and MCZ designations, potential direct effects on these sites were considered unlikely to be avoidable with the use of trenchless installation methods.

4.4.9 North Foreland Golf Course is located within this landfall area of search and was unavoidable.

4.4.10 Joss Bay, a recreational beach, is located within this landfall area of search but could be avoided.

Landfall areas of search K2, K3, K4 & K5 (North Kent Coast)

4.4.11 Landfall areas of search K2 and K3 are located on the north Kent coast between the settlements of Birchington and Reculver. Thanet Coast and Sandwich Bay Ramsar and SPA and Thanet Coast SSSI and MCZ are unavoidable across both landfall areas of search, but Thanet Coast SAC is avoidable within K3.

4.4.12 Both areas are within extensive areas of Flood Zone 2 and 3 and access to both landfall areas of search was limited and constrained by the presence of the railway line with suitable access for construction traffic across the railway.

4.4.13 Landfall areas of search K4 and K5 are located between the settlements of Reculver and Herne Bay. Thanet Coast and Sandwich Bay Ramsar and SPA and Thanet Coast SSSI were unavoidable across both areas of search. Thanet Coast MCZ was unavoidable within K4 but could be avoided within K5. Other than at the Thanet Coast MCZ, trenchless installation methods (subject to confirmation through further studies and ground investigations) could potentially be used to avoid directly impacting on these designated sites.

4.4.14 Reculver Country Park was unavoidable within K4, and K5 was significantly constrained by the settlement of Herne Bay.

Summary of relevant marine alignments

4.4.15 It was considered likely that marine alignments to landfall area of search K1 would potentially need to be routed within Goodwin Sands SAC due to the requirement to cross other marine cables within sufficient water depth for navigational safety. A landfall to the north of the River Stour would result in direct impacts on the Pegwell Bay designated sites, however it was considered likely that this would be limited to a short-term temporary impact and that the more sensitive saltmarsh habitats could be avoided by using trenchless installation methods (subject to confirmation through further studies and ground investigations).

4.4.16 The marine approach to landfall area of search K1a was relatively unconstrainted, although the landfall area of search overlapped with Joss Bay, meaning there could be a greater temporary recreational impact during construction at this landfall location.

4.4.17 All marine approaches to landfall areas of search K2 to K5 would need to be routed through the Outer Thames Estuary SPA. Due to shipping and navigation constraints, in conjunction with the bathymetry of the area, it was not possible to identify feasible marine corridors and subsequent alignments to the west of Margate and Long Sands SAC. All marine alignments that approached the landfall areas of search K2 to K5 would need to cross Margate and Long Sands SAC. Due to the benthic interest features that support the designation of this site there was the potential for marine alignments to landfall areas of search K2 to K5 to result in permanent habitat loss within this site.

4.4.18 Significant constraints were also identified on the marine route alignments approaching landfalls on the north Kent coast from a physical environment perspective, as it was considered unlikely that an area of mobile sandbanks could be avoided. This would present a cable exposure and engineering risk. It was also likely that routes through this area would interact with key anchorage areas offshore at Margate.

Overall summary of appraisal outcomes

4.4.19 Landfall area of search K1 was constrained by the marine approach associated with the potential interaction with Goodwin Sands MCZ, however it was considered likely that potential effects at the landfall on the designated sites for nature conservation would be limited to short-term temporary impacts. Landfall areas to both the north and the south of the mouth of the River Stour would be constrained by the golf courses. Construction access would be constrained for landfalls to the south of the river and there would also be more interaction with the Flood Zone.

4.4.20 The marine approach to landfall area of search K1a was relatively unconstrained, and it was also considered likely that any impacts on the designated sites for nature conservation would be temporary and short term. The North Foreland golf course would be unavoidable. Joss Bay was considered avoidable within this search area.

4.4.21 The marine approaches to the landfalls on the north Kent coast (K2 to K5) were significantly constrained by the potential for permanent habitat loss within Margate and Long Sands SAC and the technical and engineering risks associated with potential cable exposure. Terrestrially K5 was significantly constrained by the settlement with Herne Bay and areas of search K2, K3 and K4 by access.

Converter Site Areas Considered

Areas

4.4.22 Two converter site Areas were identified within the routeing and siting study area. Area A is located adjacent to Richborough Energy Park and Area B is located to the north and south of the A299 and adjacent to Manston Business Park. These are illustrated on **Figure 4.14: Kent Station Site Areas – Sheets 1 to 4 of Appendix A**.

Summary of appraisal outcomes

Converter site Area A

4.4.23 Richborough Energy Park and Richborough Port are located within Area A which provided an opportunity to site the converter station within an area adjacent to similar infrastructure or industrial land uses. Part of the Sandwich Bay to Hacklinge Marshes SSSI extends into this area, but converter station siting could avoid this designation. Part of this area is within the Flood Zones 2 and 3 but there were opportunities to site a converter station outside of these zones. The network connection point (Richborough substation) was located within this area therefore reducing the length of HVAC connection back to the network.

Converter site Area B

4.4.24 There is one designated site within Area B, an Anglo-Saxon cemetery and associated remains at Monkton Scheduled Monument; this is located immediately adjacent to the south of the A299, to the north of Monkton. The area contains Manston Business Park, Columbus Avenue Industrial Estate, and an area with larger scale agricultural buildings. Manston Airport is located to the southeast. Whilst the existing development in this area is not related to energy there were opportunities to site a converter station adjacent to these other industries. Area B is located further from the network connection point at Richborough substation and development of a converter site in this area would require approximately 5 km of HVAC connection.

Route Corridors Considered

Route corridors

4.4.25 Seven route corridors were identified, three corridors (green, red, and blue) from landfall area of search K1, one corridor (green) from landfall area of search K1a and three corridors from the landfall areas of search on the north Kent coast (blue corridor from K2, red corridor from K3 and a green corridor from K4). No corridor was identified from landfall area of search K5 due to the terrestrial constraints. These corridors are illustrated on **Figure 4.15: Kent Route Corridors - Sheets 1 - 4 of Appendix A**.

Summary of appraisal outcomes

4.4.26 Of the three corridors that connected with the Pegwell Bay K1 landfall area of search, the red and blue corridors were significantly constrained from a traffic and access perspective, with key issues including access to the east of the River Stour and weight restrictions on local roads around the Sandwich Bay Estate and Royal St George and Royal Cinque Ports golf courses.

4.4.27 All three of these corridors interacted with several coastal nature conservation designations at the landfall as described in Section 3.1.2 with the blue corridor having the potential for the smallest direct interaction.

4.4.28 Both the red and the blue corridors extended across a large area of Flood Zone 2 and 3 and would require several watercourses associated with the River Stour to be crossed. The blue corridor would require crossing the River Stour at a point where it is designated as a Ramsar, SAC, SPA and SSSI; although, if feasible, the river could potentially be crossed using trenchless techniques (subject to confirmation through further studies and ground investigations).

4.4.29 Both the green and red corridors intersected with golf courses; however, it was proposed that a trenchless technique, if feasible (subject to confirmation through further studies and ground investigations) would be used at these locations to reduce disturbance.

4.4.30 The green corridor which connects to the landfall area of search K1a at Broadstairs crossed a linear belt of development between the settlements of Margate and Ramsgate. This would require routeing the cable along either Star Lane or Farley Road, both of which are heavily constrained by several connected planning allocations for housing as well as a proposed extension to the cemetery. These constraints span the entire corridor west of the Westwood Industrial Estate and these factors significantly constrained this corridor.

4.4.31 The three corridors connecting the landfall areas of search located on the north Kent coast (K2, K3 and K4) were all significantly constrained from a traffic and access perspective, due to a weight restricted bridge, sensitive receptors and carriageway widths that were inadequate to allow two-way Heavy Goods Vehicle (HGV) movements. It was likely that extensive mitigation would be required, even during temporary construction work, to facilitate safe access and to reduce other environmental effects (congestion, delays) that could arise because of additional HGV construction traffic on poorly suited roads. Careful routeing of the cables could have avoided access issues around the Minster Marshes.

4.4.32 The green and red corridors interacted extensively with areas of Flood Zones 2 and 3 and both had a high number of watercourse crossings in comparison to the blue corridor.

4.4.33 There are several scheduled monuments located within each of these three corridors, however the blue corridor was considered the most constrained, with a combination of scheduled monuments and a proposed planning allocation in the south of Birchington, creating a pinch point that reduced the ability to route away from and around these sites.

Identification of the initial preferred option

4.4.34 The marine alignments to the north Kent coast were significantly constrained due to exposure risks to the cable and the potential for permanent habitat loss within Margate and Long Sands SAC.

4.4.35 The terrestrial green corridor from landfall K1a was significantly constrained due to the linear belt of settlement which would require the cables to be installed within the public highway for a section and the planning allocations within this corridor. All three corridors from the landfalls along the north Kent coast (green, red and blue) were significantly constrained due to traffic and access and needing to cross the railway to obtain access to the landfall.

4.4.36 All three corridors that connected with the Pegwell Bay landfall area of search K1 interact with sites designated for their nature conservation value; whilst the blue corridor would reduce that interaction, it was the longest corridor of the three and would require a crossing of the River Stour at a point where is it designated as a Ramsar, SAC, SPA and SSSI. Access to the red corridor was limited and this corridor would also require a crossing of the River Stour. Both the red and green corridors would require a crossing of a golf course. Whilst the green corridor interacted with a larger area of the designated sites for nature conservation this would be temporary and short term and this corridor represented the most direct connection to either of the converter site Areas and had fewer river and road crossings. Converter site Area A facilitated the siting of a converter station close to existing similar infrastructure and reduced the lengths of both HVDC cable from a landfall in Pegwell Bay and the HVAC connection back to the network at Richborough Substation, when compared to Area B.

4.4.37 Landfall K1, Pegwell Bay green corridor to converter site Area A was identified as the initial preferred solution for the Kent Onshore Scheme.

Stakeholder Feedback And Option Refinement

4.4.38 Following engagement with other developers who subsequently submitted planning applications (and obtained consent) for other energy developments within Richborough Energy Park, a backcheck and review was undertaken, as these proposed developments significantly constrained the Proposed Project being able to connect into the existing network at Richborough substation. As a result, a new substation and an alternative HVAC connection (either by overhead line or underground cables) was identified. This directly connected onto the existing Richborough to Canterbury 400 kV overhead line. A review was undertaken of the routeing and siting options in Kent based on this revised connection point and, following this review, the conclusions on the landfall Area, cable corridors and converter site Area all remained unchanged.

Kent Onshore Scheme Description at Non-statutory Consultation

4.4.39 The Kent Onshore Scheme consulted on at non-statutory consultation is illustrated on **Figure 4.16: Kent Emerging Preference of Appendix A** and comprised of:

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

4.4.40 The graduated swathes shown on **Figure 4.16: Kent Emerging Preference of Appendix A** illustrated the area within the preferred corridors, where, based on the understanding of baseline conditions at the time the HVAC connection, converter station site and underground HVDC cables were likely to be routed/sited.

4.5 Offshore Scheme

Network Connection Points

4.5.1 The preferred strategic option identified Richborough substation as the network connection point in Kent and the Sizewell Area as the preferred connection point in Suffolk. This was used as the basis for defining the routeing and siting study area.

Study Area

4.5.2 The routeing and siting study area for the Offshore Scheme extended from Mean High-Water Spring (MHWS) on the Kent coast (from Herne Bay on the north Kent coast to Kingsdown on the east Kent coast) to MHWS on the Suffolk Coast (from Hellesley in the south to Dunwich in the north).

Landfall Areas Of Search Considered

Areas of search - Suffolk

4.5.3 Five landfall areas of search were initially identified in Suffolk. These are illustrated on **Figure 4.2: Suffolk Landfall Areas of Search - Sheets 1- 4 of Appendix A**. The southernmost area of search (S1) was identified to the south of Aldeburgh, north of the Alde and Ore River. A second area of search was identified between Aldeburgh and Thorpeness (S2). A third area of search was identified between Thorpeness and Sizewell (S3). This area was further split down into two sub areas, south (S3) and north (S3N). A fourth area (S4) at Sizewell and the northern most area of search was identified to the north of Sizewell, south of Minsmere (S5).

Areas of search - Kent

4.5.4 Six landfall areas of search were identified in Kent, which were split geographically across Pegwell Bay, Broadstairs, and the north Kent coast. These are illustrated on **Figure 4.13: Kent Landfall Areas of Search - Sheets 1 to 4 of Appendix A**. One area of search (K1) was identified within Pegwell Bay, which stretched from the settlement of Ramsgate to the settlement of Deal. One area (K1a) was identified at North Foreland between the settlements of Margate and Broadstairs. Four areas of search (K2, K3, K4 and K5) were identified along the north Kent coast between the settlements of Herne Bay and Birchington.

Indicative Marine Alignments Considered

4.5.5 Due to the extensive geographical study area in the marine environment and large-scale nature of many of the constraint features, in order to perform a meaningful routeing appraisal in the marine environment it was necessary to identify indicative marine alignments (500m wide, representing a typical offshore working corridor) connecting the identified landfall areas of search in Suffolk to those in Kent. These were developed based on the following criteria:

- shortest route possible to reduce the cable length, which in turn reduces the manufacturing and installation cost as well as the environmental and security footprint;
- avoidance of environmentally sensitive areas where possible;
- avoidance of areas that have restricted movement i.e., anchorages;
- avoidance of known wrecks and areas of archaeological importance;
- avoidance of offshore existing and proposed installations (renewable, oil/gas, wells/platforms, etc.);
- limiting the need to cross in-service cables and pipelines and, where crossings would be necessary, corridors and alignments were routed to ensure the crossing angle would be optimal and water depth would be sufficient for navigational safety;
- routed to consider shipping density, i.e., anchorage areas, high density shipping lanes;
- avoidance of hazardous seabed terrain (e.g., bedrock outcrop and mobile sediments) where possible, ensuring the cable would be protected by achieving an acceptable depth of burial; and
- limiting the impact on third-party considerations including seasonal fishing activities, local tourist trade, and military practice zones.

Summary of appraisal outcomes

4.5.6 The Offshore Scheme and associated indicative marine alignments were divided into three main sections, the approach to landfalls in Suffolk (landfalls and alignments with prefix S), the central section (alignments with prefix C) and the approach to the Kent landfalls (landfalls and alignments with prefix K). These are shown on **Figure 4.17: Marine Alignments - Sheets 1- 4 of Appendix A.**

Marine alignments and landfalls (up to MHWS) – Suffolk

4.5.7 The section of the Suffolk coast within the routeing and siting study area has a number of nature conservation designations, with all potential marine alignment options interacting with these designations to varying degrees on the approach to the landfall.

4.5.8 All marine alignment options approaching the Suffolk coast intersect with the Outer Thames Estuary SPA and the Southern North Sea SAC.

4.5.9 Marine alignment options S1 and S2 are not constrained in the offshore environment.

4.5.10 Marine alignment option S2 intersects with the Leiston-Aldeburgh SSSI and The Haven, Aldeburgh Local Nature Reserve (LNR) both of which extend onto the foreshore, however the use of a trenchless technique, if feasible, at the landfall could mitigate impacts.

4.5.11 Marine alignment option S3 is considered significantly constrained in the immediate offshore environment due to the rocky reefs comprised of cemented limestone-rich shells known as the Coralline Crag, which is an important feature for coastal processes. This alignment also intersects with the Leiston-Aldeburgh SSSI at landfall; however, the use of a trenchless technique, if feasible, at the landfall could mitigate impacts.

4.5.12 Marine alignment option S3 is also constrained in the immediate offshore by the proposed export cable route of the East Anglia One North and East Anglia Two developments.

4.5.13 Landfall area of search S3 and associated marine alignment option S3N is less constrained by the Coralline Crag in the immediate offshore environment however this location is constrained by the presence of existing infrastructure, namely the Concerto submarine telecommunications cable and the export cables of Greater Gabbard and Galloper offshore windfarms as well as the proposed (and consented) Sizewell C Nuclear Power Station development.

4.5.14 Landfall area of search S4 and associated marine alignment option S4 is constrained by the existing Sizewell B Nuclear Power Station site including the intake/outtake pipes located in the immediate offshore area in front of Sizewell B.

4.5.15 Landfall area of search S5 intersects with the Minsmere-Walberswick Heaths and Marshes SSSI/SAC and the Minsmere-Walberswick SPA/Ramsar at the landfall including in the intertidal area, however the use of a trenchless technique, if feasible, at the landfall could mitigate impacts.

4.5.16 Landfall areas of search S4 and S5 and associated marine alignment options S4 and S5 are more constrained than the other options due to the additional number of offshore crossings that would be required and also the proposed Sizewell C development.

Summary of relevant terrestrial constraints – Suffolk

4.5.17 All landfall areas of search in Suffolk are within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB).

4.5.18 Whilst the marine alignment to landfall area S1 was relatively unconstrained, the terrestrial green corridor was constrained technically by two large river crossings of the Alde and Ore River, which would also require a crossing of the Alde, Ore and Butley Estuaries SAC in two places and the Alde-Ore Estuary SPA and SSSI in three places. A large proportion of this corridor is within the Flood Zone and this corridor would require the longest route within the Suffolk Coast and Heaths AONB. Access to this corridor was also very limited, in particular in the area between the two large river crossings.

4.5.19 The marine approach to the landfall area S2 has fewer constraints, however the Leiston-Aldeburgh SSSI and North Warren RSPB reserve could not be avoided. The use of trenchless construction techniques would reduce impacts at this landfall. The red terrestrial route corridor from this landfall area of search also includes the pinch point along Leiston Road. The majority of the landfall area of search is within Flood Zone 2 and 3, depending on the installation technique, construction works within these zones are potentially avoidable.

4.5.20 Landfall area of search S3 was significantly constrained from a marine approach perspective. Onward terrestrial routeing from landfall S3 within the blue corridor would likely require a crossing of the Sandlings SPA and Leiston-Aldeburgh SSSI although the potential for significant effects would likely be reduced through the use of trenchless construction techniques.

4.5.21 The purple terrestrial route corridor connecting to S3 landfall area of search and marine alignment option S3N could avoid the designated sites for ecological conservation but could not avoid either of the two following pinch points. The first being a pinch point to the south of Aldringham at the crossing of the Hundred River. This area is constrained by the Hundred River itself, the crossing of the B1353 and the B1122, and an area of woodland and properties. In addition, the proposed cables for the East Anglia One North and Two Offshore Windfarms are proposed to be routed through this same pinch point. The second being a pinch point to the northwest of Leiston associated with the offsite works for the proposed Sizewell C Nuclear Power Station including an area which has recently been established for ecological mitigation measures related to that project.

4.5.22 Landfall area of search S4 was identified as being significantly constrained from a terrestrial perspective as no onward terrestrial route corridor was identified from this landfall area of search, as it is significantly constrained by the existing Sizewell B Nuclear Power Station and the proposed Sizewell C Nuclear Power Station development.

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

4.5.24 The onward terrestrial corridor for landfall area of search S5 also crosses a large area of the proposed Sizewell C Nuclear Power Station development area which could significantly constrain the ability to route through this area and also have programme implications associated with construction sequencing of the two developments.

Overall summary – Suffolk

4.5.25 When considering marine constraints alone there was a preference for Landfalls S1, S2 and S3 with associated marine alignment options S1, S2 and S3N respectively.

4.5.26 When considering the constraints from both a terrestrial and marine perspective, on balance, landfall area of search S2 was preferred with associated marine alignment option S2 connecting to the red corridor. An alternative marine alignment option of S3N connecting to the northern part of landfall area of search S3 connecting to the terrestrial purple corridor was proposed at that stage. This alternative was included as further ground investigations were required to inform final decision making.

Marine alignments and landfalls (up to MHWS) - Kent

4.5.27 The section of the Kent coast within the routeing and siting study area has a number of national and international nature conservation designations, with all potential marine alignment options interacting with several of these designations, to varying degrees, on approach to the landfall areas of search.

4.5.28 Detailed consideration has therefore been given to the potential activities associated with cable installation and operation on the type of features for which the sites are designated, the distribution of the features within the sites and the sensitivity and recoverability of the features. The extent of interaction and potential for mitigation were also considered.

4.5.29 Marine alignment sections connecting into landfalls K2, K3 and K4 were determined to be the least preferred options from a nature conservation perspective due to the length of interaction with the Margate and Long Sands SAC and the interaction with the Thanet Coast SSSI/ MCZ and the Thanet Coast & Sandwich Bay SPA/Ramsar. Sections K2 and K3 also intersect with the Thanet Coast SAC.

4.5.30 Several significant constraints were also identified around the marine alignment sections K2, K3 and K4 approaching landfalls on the North Kent coast from a physical environment perspective. It is unlikely that mobile sandbanks could be avoided, some of which may be exposed at low tide, which presents a considerable exposure and engineering risk. It is also likely that there would be some interaction with key anchorage areas offshore of Margate.

4.5.31 All routes making landfall at K1 in Pegwell Bay intersect with the Sandwich Bay to Hacklinge Marshes SSSI, Sandwich and Pegwell Bay NNR, Sandwich Bay SAC, Thanet Coast & Sandwich Bay SPA/Ramsar and the Goodwin Sands MCZ.

4.5.32 K1a at Broadstairs also intersects with areas designated for their nature conservation value - Thanet Coast SAC/SSSI/MCZ and Thanet Coast & Sandwich Bay SPA/Ramsar.

4.5.33 Although the K1a marine alignment to landfall area of search K1a and all marine alignments to landfall area of search K1 are all constrained from a biological environment perspective, there was a slight preference for K1a at Broadstairs. This is because the extent of interaction is smaller, and it would also be possible to avoid potential interaction with the Goodwin Sands MCZ in the offshore environment. There was a preference for marine alignments making landfall to the south in Pegwell bay as the extent of interaction with the designations is reduced towards the south of this landfall area.

4.5.34 Based on the available desktop information it was initially considered that the Goodwin Sands MCZ could not be avoided by the identified marine alignments connecting to landfalls in Pegwell Bay. This interaction is due to the routeing in this area being constrained, to the east, by the Goodwin Sandbank – routeing over the Goodwin Sandbank could increase the risk of cable exposure during the lifetime of the cable. This could subsequently result in the requirement for additional rock protection associated with any remedial works, potentially resulting in permanent habitat loss. To the west routeing is constrained by the Ramsgate dredged channel and an area of sandwave fields.

4.5.35 Additionally, when routeing east out from Pegwell Bay, in order to head north the route must cross the Nemo Link cable and the Thanet Offshore Windfarm export cables, requiring the placement of rock protection on the seabed at these locations, potentially resulting in permanent habitat loss, including within the Goodwin Sands MCZ. The water depths in this area are very shallow, slowly gaining depth moving to the east. In order to ensure alignment with guidance regarding reductions in water depths that could pose a hazard to marine vessels (reduction of no more than 5% of water depth – advice from Maritime Coastal Agency), proposed crossing locations should be located in areas with a suitable water depth.

4.5.36 Considering the factors described above (dredged areas, acceptable navigational depths and seabed features) routeing within the northwest corner of the Goodwin Sands MCZ was considered likely to be unavoidable.

4.5.37 Marine routeing into Broadstairs (landfall area of search K1a) would require fewer marine cable crossings than the routes connecting into Pegwell Bay (landfall area of search K1) as there would be no requirement to cross with Thanet Offshore Windfarm export cables and the Nemo Link interconnector. However, landfall areas of search K1a is located at a popular recreational beach location, meaning there could be a greater temporary recreational impact during construction at this landfall location.

4.5.38 Although landfalls in Pegwell Bay (landfall area of search K1) would interact with designated sites, these could be largely mitigated by using trenchless techniques). This would avoid/reduce the need to trench across areas of saltmarsh and intertidal habitat, which could potentially result in greater habitat loss and water quality effects.

4.5.39 It has been assumed that access to the seaward end of the trenchless solution in the intertidal area will be from the sea by a marine vessel or limited terrestrially to the site of the disused hoverport, to avoid impacts to the sensitive saltmarsh habitat in the northern part of the bay.

Summary of relevant terrestrial constraints – Kent

4.5.40 Of the three corridors that connect with the Pegwell Bay K1 landfall area of search, the red and blue corridors are significantly constrained from a traffic and access perspective, with key issues including access to the east of the River Stour and weight restrictions on local roads around the Sandwich Bay Estate and Royal St George and Royal Cinque Ports golf courses.

4.5.41 All three corridors that connect with the Pegwell Bay landfall area of search K1 interact with sites designated for their coastal nature conservation value; whilst the blue corridor reduces that interaction, it is the longest corridor of the three and would require a crossing of the River Stour at a point where is it designated as a Ramsar, SAC, SPA and SSSI, although, if feasible, the river could potentially be crossed using trenchless techniques (subject to confirmation through further studies and ground investigations).

4.5.42 Access to the red corridor is limited and this corridor would require several watercourses associated with the River Stour to be crossed. Both the red and green corridors would require a crossing of a golf course. Whilst the green corridor interacts with a larger area of the designated sites for nature conservation, this would be temporary and short term and this corridor represents the most direct connection to either of the converter site Areas and has fewer river and road crossings.

4.5.43 Both the red and the blue corridors extend across a large area of Flood Zone and would require several watercourses associated with the River Stour to be crossed. The blue corridor would require crossing the River Stour at a point where is it designated as a Ramsar, SAC, SPA and SSSI; although, if feasible, the river could be crossed using trenchless techniques. The green and red corridors interacted extensively with areas of Flood Zones 2 and 3, with a higher number of watercourse crossings when compared to the blue corridor.

4.5.44 Both the green and red corridors intersect with golf courses; however, it is proposed that a trenchless technique, if feasible (subject to confirmation through further studies and ground investigations), would be used at these locations to reduce disturbance.

4.5.45 The green corridor which connects to the landfall area of search K1a at Broadstairs crosses a linear belt of development between the settlements of Margate and Ramsgate. This would require routeing the cable along either Star Lane or Farley Road, both of which are heavily constrained by several connected planning allocations for housing as well as a proposed extension to the cemetery. These constraints span the entire corridor west of the Westwood Industrial Estate and these factors significantly constrain this corridor.

4.5.46 The three corridors connecting the landfall areas of search located on the north Kent coast (K2, K3 and K4) were all significantly constrained from a traffic and access perspective, due to weight restricted bridge, sensitive receptors, and carriageway widths that are inadequate to allow two-way HGV movements. It is likely that extensive mitigation would be required, even during temporary construction work, to facilitate safe access and reduce other environmental effects that could arise because of additional HGV construction traffic on poorly suited roads. Careful routeing of the cables could avoid access issues around the Minster Marshes.

4.5.47 In relation to scheduled monuments located within each of the three corridors, the blue corridor was considered the most constrained with a combination of scheduled monuments and a proposed planning allocation in the south of Birchington, creating a pinch point that reduced the ability to route away from and around these sites.

Overall summary – Kent

4.5.48 When considering marine constraints alone there is a preference for landfall area of search K1a with associated marine alignment K1a.

4.5.49 When considering the constraints from both a terrestrial and marine perspective, on balance, landfall area of search K1 with associated marine alignment section K1c is preferred.

Marine alignments – central section

4.5.50 The central section of the offshore route is common to both the Suffolk and Kent alignment options. All central indicative marine alignments intersect with the Outer Thames Estuary SPA and Southern North Sea SAC.

4.5.51 There is a particularly constrained area within the central section where the northeastern extent of the Margate and Long Sands SAC abuts the Sunk TSS. Also present are several aggregate extraction areas and deep-water shipping channels.

4.5.52 In addition, there are three proposed projects in this area, namely the NeuConnect Interconnector and the proposed Five Estuaries and North Falls Offshore Windfarms and associated export cables, as well as the existing Greater Gabbard and Galloper Offshore Windfarms.

4.5.53 Considering the potentially conflicting constraints relating to the biological environment, shipping and navigation and existing and proposed new infrastructure in this central section the emerging marine routeing preferences were discussed with marine stakeholders, including nature conservation bodies, port authorities and other developers to obtain their feedback to help inform decision making.

4.5.54 The draft outputs of the marine options appraisal were presented to stakeholders to help inform the decision making and reduce potential for consenting risk. This was undertaken in advance of the planned project-specific marine survey (summer 2021), to ensure the most likely route was surveyed.

4.5.55 The most significant marine survey route refinements based on stakeholder feedback were in the following areas:

- northeast of the Margate and Long Sands SAC; and
- southwest of Thanet Offshore Windfarm.

4.5.56 These are discussed further below.

Northeast of the Margate and Long Sands SAC

4.5.57 The original proposed marine alignments in this area are the black routes shown on **Figure 4.17: Marine Alignments - Sheets 1- 4 of Appendix A.** These routes provided suitable seabed conditions for cable installation (geology and topography), whilst also being the most direct route to the Suffolk landfalls.

4.5.58 The route alignments were refined as a result of feedback from:

- Natural England;
- Maritime and Coastguard Agency;
- Trinity House;
- Port of London Authority;
- Harwich Haven Authority;
- Port of Felixstowe;
- North Falls Offshore Windfarm (OWF);
- Five Estuaries Offshore Windfarm; and
- the aggregate extraction operators of Areas 508, 509/3, 510/1 and 510/2 (**Figure 4.17: Marine Alignments - Sheets 1- 4 of Appendix A.**

4.5.59 Natural England expressed concerns regarding the potential impacts of crossing the proposed NeuConnect cable within the Margate and Long Sands SAC as the material required for the crossing would introduce hard substrate into a naturally sandy environment, which could permanently change the protected features in this site. Natural England also advised that their preference was for the project to avoid any cable installation in the protected site.

4.5.60 The navigational bodies also expressed concerns regarding the cable routeing in this area, specifically in relation to the potential for a reduction of navigable depths because of rock protection at the potential crossing with NeuConnect. Concerns were also raised relating to cable installation in this area, due to the high shipping density caused by the Long Sands Head Deep shipping channel; however, it was agreed that the implementation of a robust vessel management plan during installation could mitigate this issue.

4.5.61 The aggregate operators advised that their preference was for the route to be located to the east of Area 510/2 to reduce interaction with their operations (**Figure 4.17: Marine Alignments - Sheets 1- 4 of Appendix A (Sheet 2))**.

4.5.62 Based on the above stakeholder feedback the black marine alignment furthest to the east (C8) was identified as this alternative (**Figure 4.17: Marine Alignments - Sheets 1- 4 of Appendix A**) which:

- routes to the east of aggregate extraction Area 510/2; and
- crosses NeuConnect in deep waters outside Margate and Long Sands SAC and Long Sands Two Way Shipping Channel.

4.5.63 However, following consultation with the developers of North Falls Offshore Windfarm, it was established that they had identified the same area for their proposed export cable route, and they were undertaking their offshore survey imminently **(Figure 4.17: Marine Alignments - Sheets 1- 4 of Appendix A (Sheet 2)).** As such, the route was reviewed again to try to avoid potential complications regarding crowding and installation and an alternative C8A was identified.

4.5.64 Discussions with Five Estuaries Offshore Windfarm highlighted potential constraints of the C8A alternative with their proposed export cable route **(Figure 4.17: Marine Alignments - Sheets 1- 4 of Appendix A (Sheet 2)).**

4.5.65 Due to the proximity to the Sunk TSS, and the associated high shipping density to the north and east of these proposed export cable corridors, and the shallower waters and sensitive benthic habitats of the Margate and Long Sands SAC to the west, it was determined that a further deviation needed to be identified.

4.5.66 Factoring in the parameters (shipping density and water depth) provided by the navigational bodies, an additional marine alignment section, referred to as C8B was identified. This refined route alignment:

- avoided the higher density shipping areas in the Sunk TSS; and
- kept the crossings of the proposed NeuConnect cable and North Falls and Five Estuaries offshore windfarms export cables in deeper water and out of the busy shipping lanes.

4.5.67 This results in a route deviating east to the centre of the Sunk TSS approach channels, where the shipping density is lower and the crossings could be in deeper water, routeing north through the centre of the Sunk TSS, where the shipping density is again lower, before routing west, north of the Harwich and Port of Felixstowe approach channel to avoid the higher shipping density in this area. The revised route received the support of the navigational bodies.

Southwest of Thanet OWF

4.5.68 The original preferred marine routeing in this area was the black route shown on **Figure 4.17: Marine Alignments - Sheets 1- 4 of Appendix A** (marine alignment section C4). This route provided suitable seabed conditions for cable installation (geology and topography). However, following stakeholder engagement the route needed to be refined because of feedback from the Port of London Authority, who expressed significant concerns regarding the potential decrease in water depths that would occur where the route would cross the proposed GridLink interconnector.

4.5.69 The Port of London Authority advised that because this area is an important area for shipping, and water depths are too shallow, they would not be able to support the routeing as originally proposed. They also advised that the Thanet Extension Offshore Windfarm DCO application, the export cable from which was also proposed to be in this area, was refused by the Secretary of State due to potential impacts on shipping and navigation.

4.5.70 An alteration to the route was made, which required a slight deviation to the original marine alignment section C4, referred to as C4A **(Figure 4.17: Marine Alignments - Sheets 1- 4 of Appendix A)** to increase the water depth of the crossing by an additional 3.5m. The Port of London Authority and other navigational bodies were consulted on the refined route and have advised that they are satisfied with the modification made to the route.

Summary

4.5.71 Considering the above factors, the emerging preference option from marine appraisal perspective was marine alignment central section's C8B and C4A.

Offshore Scheme Description At Non-Statutory Consultation

4.5.72 The Offshore Scheme comprised of a marine HVDC cable from preferred landfall area of search S2 or alternative landfall area of search S3 in Suffolk, to landfall area of search K1 in Kent. Marine alignment sections S2 or S3N, C8B, C4A and K1c were preferred.

4.5.73 As described above in section 3, landfall area of search S2 was identified as the emerging preference landfall and S3N was identified as an alternative option. Therefore, in addition to the Offshore Scheme Emerging Preference an alternative marine route to landfall area of search S3N was consulted on as part of non-statutory consultation.

4.5.74 The Offshore Scheme as consulted on at non-statutory consultation is shown on **Figure 4.18: Offshore Scheme Emerging preference and Alternative of Appendix A.**

5. Summary Of Non-Statutory Consultation Feedback

5.1 Introduction

5.1.1 This section summarises the non-statutory consultation feedback relevant to the option selection and design evolution of the Proposed Project. A full summary of the non-statutory consultation feedback is presented within the Non-Statutory Consultation Report (Ref 13).

5.2 Non-statutory Consultation Feedback

5.2.1 The following sections summarise the feedback received relevant to the section of options. There had been a substantial amount of engagement with marine stakeholders prior to the launch of the non-statutory consultation, which is why there appears to be little feedback on marine matters below.

5.2.2 Feedback received from the general public is summarised under the subheadings of "Suffolk" and "Kent". Feedback from organisations and groups is summarised under the subheadings of "Prescribed bodies" and "Non-prescribed bodies".

Coordination Of Projects

Suffolk

5.2.3 Many respondents expressed the view that all major energy projects currently proposed in East Suffolk should be coordinated, thus reducing the scale of industrialisation and minimising impacts on the area. Suggestions included using multipurpose interconnectors and a single location for all landfall, grid entry and converter stations.

Kent

5.2.4 This was not a key theme for the public.

Prescribed bodies

5.2.5 Many respondents expressed the view that all major energy projects underway in the Suffolk area should be coordinated in order to reduce cumulative impacts. Concerns about coordination were regarding the potential need for a significant amount of land to host coordinated infrastructure, and the national security risk posed from the concentration of energy supply in one area.

Non-prescribed bodies

5.2.6 Many respondents expressed the view that all energy projects underway in East Anglia should be coordinated, in an effort to reduce cost, construction, environmental and societal impacts. Some respondents referenced the new Offshore Coordination Support Scheme, which was launched at the end of 2022, as an opportunity for National Grid, along with other energy companies, to integrate project proposals.

Need

Suffolk

5.2.7 Some respondents appreciated the need to expand renewable energy infrastructure but questioned the need to develop in the Suffolk area. Most respondents cited intrusion and impacts on Suffolk's Coast and Heaths AONBs and designated wildlife sites as factors for why they believe this Project should not be constructed in Suffolk. The need for grid reinforcement was questioned, with future North Sea windfarms and a Modular Offshore Grid being referenced as sufficient schemes.

Kent

5.2.8 Some respondents showed support for plans to improve the UK's power network distribution and increase its security and flexibility. Others questioned the need to develop in the Kent area, referencing impacts on residents and local wildlife as concerns.

Prescribed bodies

5.2.9 Whilst some respondents supported principles of the Proposed Project, namely de-carbonisation of energy supply, others felt the needs case of such a major project in the proposed location was unclear.

Non-prescribed bodies

5.2.10 While some respondents supported the principle of renewable energy generation, the need for the Proposed Project was questioned. Reasons given included that the perceived negative impacts on all proposed areas would be too high, there are multiple other nationally significant energy projects in development in East Suffolk which is an area that has relatively low demand for electricity power, and that such projects do not contribute to renewable energy generation or energy security.

Alternatives

Suffolk

5.2.11 Proposed Project locations prompted concerns from respondents who felt the development would be too imposing. The use of brownfield sites, such as the Isle of Grain or Bradwell, areas without environmental protection and offshore grids or facilities with onshore connections were suggested by respondents as suitable alternatives.

Kent

5.2.12 Many respondents expressed the view that the proposed converter station should be located on a brownfield site, such as Richborough or River Stour Old Docks.

Prescribed bodies

5.2.13 Some respondents suggested locating infrastructure closer to areas requiring more power would be a better solution, namely London and the southeast. The use of brownfield sites was also suggested, as was the exploration of offshore facilities to situate infrastructure.

Non-prescribed bodies

5.2.14 Respondents expressed the view that as much infrastructure as possible should be located offshore. Many respondents called for the exploration of alternative site and route options for onshore infrastructure, if offshore would not be possible, namely existing brownfield locations such as Bradwell and Great Yarmouth (Suffolk), and the Isle of Grain and Tilbury (Kent).

Design

Suffolk

5.2.15 Of those in support of the Proposed Project, some stated their location and routing preference would be whichever had the least impact. Many respondents expressed the view that the current Proposed Project designs should be re-evaluated, suggesting that new designs implementing shorter cable routes, using existing infrastructure and offshore networks would have less impact. Additional information was requested regarding the width of a combined cable corridor (a Sea Link cable corridor combined with up to two other project cable corridors), as they felt they could not comparatively evaluate the impacts of a single and combined cable corridor option without this information. Questions were raised regarding the proposed width of the trenches for cable routes.

Kent

5.2.16 Many respondents expressed the view that cables should be underground so as not to impact bird safety or the visual landscape. Respondents suggested cables should be routed within, or as close to as possible, existing cable corridors, and have minimal impacts on ecology, using techniques such as moling. Design suggestions regarding the converter station included reducing its scale, a cylindrical design to mirror Oast houses (a form of architecture historical to Kent) and painting it green to blend in with the rural landscape).

Prescribed bodies

5.2.17 Some respondents requested more detail concerning the design of the Proposed Project in the event of coordination with other energy projects. Respondents suggested that National Grid consider independent professional advice on all design aspects and design the Proposed Project with as little residual impacts as possible, such as using the smallest possible cable routes and the least damaging drilling techniques.

Non-prescribed bodies

5.2.18 A key theme was the design of the Proposed Project in relation to the routeing of the cables and the siting of the converter station. Impacts were cited on biodiversity, local roads, landscape and the livelihoods of local residents.

Landfall Location

Suffolk

5.2.19 This was not a key theme for the public.

Kent

5.2.20 This was not a key theme for the public.

Prescribed bodies

5.2.21 Concerns were raised about the proposed landfall locations, with respondents citing ecological, archaeological and transportation constraints as grounds for the conduction of further assessments to inform design change. Some respondents requested that National Grid have consideration for the possibility of coordinating landfall locations for multiple energy projects; the principle of coordination was supported, but concern was had for the capability of the proposed landfall locations to accommodate more than one project.

Non-prescribed bodies

5.2.22 Some respondents commented that the proposed landfall locations would have detrimental impacts on biodiversity and suggested that National Grid look at alternative locations and means of construction such as all underground.

Onshore Route Location

Suffolk

5.2.23 This was not a key theme for the public.

Kent

5.2.24 This was not a key theme for the public.

Prescribed bodies

5.2.25 This was not a key theme for prescribed bodies.

Non-prescribed bodies

5.2.26 Some respondents felt that the proposed onshore route locations should be revised, citing that, in the Suffolk area, they disrupt a Sizewell evacuation route and sensitive ecology and terrain, and in the Kent area, they disrupt biodiverse wildlife sites, namely Pegwell Bay.

Cumulative Impacts

Suffolk

5.2.27 Many respondents raised concerns about the impacts of multiple projects in East Suffolk. These concerns related to lasting impacts on the natural landscape, local wildlife and biodiversity, tourism and quality of life. Some respondents queried whether, following the development of this Proposed Project, more projects would be developed in the same location in future.

Kent

5.2.28 Some respondents suggested that long-term surveys examining any impacts of Proposed Project development should be conducted, as well as consideration for residents' mental health and quality of life. Ecological damage from existing infrastructure in the Kent area was mentioned, with respondents questioning the effects of additional industrialisation.

Prescribed bodies

5.2.29 Several respondents stated that the full cumulative impacts of the Proposed Project should be assessed in combination with other consented and planned developments in the area, together with a comprehensive package of mitigation measures where avoidance of impacts is not possible.

Non-prescribed bodies

5.2.30 Some respondents questioned whether the cumulative impacts of the development of multiple major energy projects in East Suffolk have been considered by National Grid and other energy companies, including the displacement of the resident population and large-scale industrialisation on a natural landscape largely responsible for the local visitor economy.

Landscape and Visual

Suffolk

5.2.31 Many respondents expressed their interest in maintaining East Suffolk's Heritage Coastline, AONB and protected landscapes including heathland, forest and acid grassland. Some respondents were concerned about whether the appearance and height of the proposed infrastructure would visually impact the natural landscape.

Kent

5.2.32 Respondents were concerned about the visual impact of the Proposed Project on Kent's natural landscape, especially regarding the implementation of overhead cables on the Minster Marshes.

Prescribed bodies

5.2.33 Concerns were had for the protection of sensitive landscapes such as heathland, woodland and marshes. If avoidance is not possible, respondents requested there be minimal impacts on the region's natural landscape. Further landscape assessments were requested by respondents, to ensure all potential impacts have been accounted for. The appearance of any infrastructure associated with the Proposed Project was requested to be designed in accordance with its location's landscape.

Non-prescribed bodies

5.2.34 Comments were received with regard to the development of the Proposed Project within the AONBs in Suffolk. Respondents considered the Proposed Project to be unacceptable in nationally designated landscapes and that it would have an adverse effect on the landscape and the setting of listed buildings.

Ecology And Biodiversity

Suffolk

5.2.35 Many respondents raised concerns about the impact of construction on Suffolk's wildlife and biodiversity, referencing AONBs, the North Warren Nature Reserve, the Minsmere RSPB Reserve, the Suffolk Sandlings, Leiston, Aldeburgh SSSIs, the Suffolk Wildlife Trust Reserves including the Dingle Marshes, Walberswick National Nature Reserve and National Trust Dunwich Heath, as particularly ecologically sensitive.

Kent

5.2.36 Many respondents raised concerns about the impacts of the Proposed Project on local wildlife, particularly in ecologically sensitive areas such as Pegwell Bay and the Minster Marshes. The protection of badgers, grass snakes, and most notably, birds, including swans, geese, owls, raptors, cranes, falcons and turtle doves, were a priority for many. Respondents expressed the view that overhead cables would disrupt bird migration and cause bird fatalities, should they fly into the overhead lines.

Prescribed bodies

5.2.37 Concerns were raised about the impacts of Proposed Project development on local wildlife and ecology. Wetlands, woodland and the general Aldeburgh area were deemed particularly ecologically sensitive by respondents, home to a range of birdlife, amphibians and other wildlife that must be protected.

Non-prescribed Bodies

5.2.38 The safety and protection of local wildlife and ecology was a concern. Specific areas within the Suffolk area were deemed ecologically sensitive including Leiston, Aldeburgh, Minsmere and North Warren. Reasons given included that these areas are diverse habitats such as coastal wetlands, marshes, heathland and woodland, home to rare bird species, deer, amphibians and other valuable wildlife. Areas in the Kent area deemed ecologically sensitive by respondents included the Minster Marshes and Pegwell Bay, citing concerns for special terrain, seals and rare bird species that could be disturbed by infrastructure development.

Cultural Heritage And Archaeology

Suffolk

5.2.39 This was not a key theme for the public.

Kent

5.2.40 This was not a key theme for the public.

Prescribed bodies

5.2.41 Some respondents raised concerns about the impacts of Proposed Project development on areas of cultural heritage and archaeology, particularly the Heritage Coast, World War Two related historical sites, listed buildings and farms, and Roman and medieval sites. A full suite of archaeological assessments, including desktop and field evaluations, was requested by respondents to be conducted on all elements of the Proposed Project as soon as possible, to inform its continued planning and design.

Non-prescribed bodies

5.2.42 This was not a key theme for non-prescribed bodies.

Socio-Economics Recreation And Tourism

Suffolk

5.2.43 Many respondents raised concerns about construction and development affecting Suffolk's tourism, a main driver behind its local economy. Construction disruption and noise concerns impacting recreational use, including bird watching, hiking and concerts, subsequently affecting quality of life and mental health, were mentioned by local residents, as were impacts on the local housing market. Some respondents felt farming would be affected, citing loss of income and food production as potential outcomes. Protecting Aldeburgh Golf club was of particular interest amongst respondents, owing to its historical significance and members who bring income to the town.

Kent

5.2.44 Concerns were raised regarding the impacts of new infrastructure on Kent's local tourism, citing its natural landscape as a significant attraction. Many respondents questioned whether recreational activities such as walking, fishing and bird watching would be affected by the Proposed Project, particularly around the Pegwell Bay area. The protection of St. Augustine's Golf Club was also a priority for some respondents.

Prescribed bodies

5.2.45 Respondents questioned the impacts of an increased number of construction workers in the local area. Respondents wanted to highlight to National Grid that there may be potential pressures on workforce acquirement given that the proposed construction period of the Proposed Project could coincide with other projects in the local area. The potential opportunity for temporary employment and training presented by the Proposed Project was welcomed. Respondents were concerned about the impacts of construction on East Suffolk's tourism economy, citing its natural landscapes and AONB's as popular tourist destinations. Concerns about the impacts of construction on the recreation and leisure of local residents, such as walking and wildlife observing, namely around Pegwell Bay in the Kent area, were raised.

Non-prescribed bodies

5.2.46 Concerns regarding the impacts of construction and development on tourism in East Suffolk were raised, citing the area's natural landscape and coastline as a significant attraction for visitors, as well as The Aldeburgh Festival. There were concerns for the mental well-being of residents as a consequence of disruptions associated with the Proposed Project to recreation, such as birdwatching, walking and cycling.

Traffic And Transport

Suffolk

5.2.47 Some respondents expressed concerns about construction traffic and obstructed road access, with one suggestion for construction staff to operate feeder transport as opposed to individual vehicles. Some respondents questioned the ability to accommodate increased traffic and construction trucks citing concerns over existing roads being narrow and susceptible to flooding and damage. Increased demand on alternative routes through small villages was also a concern.

Kent

5.2.48 This was not a key theme for the public.

Prescribed bodies

5.2.49 Concerns were raised about the accumulation of construction traffic from coinciding energy projects proposed in the Suffolk area. Existing road structure including hazardous junctions, narrow roads, and aged structures were raised by respondents as reasons why it is unsuitable for construction traffic and transport. Detailed traffic and transport assessments were requested. Also requested was a commitment from National Grid to fund any damage repair caused by vehicles associated with the development of the Proposed Project.

Non-prescribed bodies and the public

5.2.50 Some respondents raised concerns about construction traffic on fragile road networks in East Suffolk, asking for further traffic assessments to be conducted. Concern was had for road accessibility regarding emergency services, especially around the Sizewell nuclear power stations in event of an emergency.

5.3 EIA Scoping

5.3.1 The project submitted a request for a scoping opinion at the same time as the non-statutory consultation was launched. Whilst the purpose of scoping and the scoping opinion is to set out and provide comment on the proposed scope of the EIA rather than feedback on the options, a small number of comments were received as part of the scoping opinion (Ref 14) that related to options and design decisions and these have been taken into account in the selection of the preferred option.

Coordination Of Projects (Suffolk Only)

5.3.2 The coordination of Projects within Suffolk was a key theme which was adopted within the Planning Inspectorate's scoping opinion (Ref 14) at section 2.1.

"*The Inspectorate encourages the Applicant to make effort to coordinate the delivery of the Proposed Development with other relevant developments in the area. This may include sharing infrastructure requirements eg converter stations and/or cabling, where possible in effort to reduce the cumulative impacts and significant effects*".

5.3.3 Although options to share infrastructure are limited, as summarised in paragraph 4.3.65 above, coordination has been progressed in the form of co-location.

Options

5.3.4 Limited comments were received in relation to preferences for the selection of one option over another, however Natural England did express a preference for the Suffolk converter station to be on Site 3 over Site 1, due to Site 3 being located further from the Suffolk Coast and Heaths AONB.

6. Option selection

6.1 Introduction

6.1.1 This section outlines the reasons why certain options were selected whilst others were discounted, with reference to the outcomes of non-statutory consultation and those issues which have influenced the selection of the preferred option.

6.1.2 Backchecks on the selection of the preferred option will be undertaken, as appropriate, as the Proposed Project develops.

6.2 Suffolk onshore scheme

Emerging preferences vs alternative options

6.2.1 Five options were consulted on as part of the non-statutory consultation, two emerging preference options from landfall area of search S2 through to converter station Sites 1 or 3 and three alternative options from landfall area of search S3N as illustrated on **Figure 4.8 to Figure 4.12** of **Appendix A**.

6.2.2 Landfall area of search S2 was identified as the emerging preference as it avoided both nearshore constraints and a number of terrestrial pinch points as explained in section 2, as well as being able to facilitate co-location with other projects. It was however acknowledged that landfall area of search S2 was constrained by the Leiston – Aldeburgh SSSI and the North Warren RSPB Reserve which are designated for their nature conservation value. Whilst feedback was received as part of non-statutory consultation with regards to the presence and the sensitivities of the designated sites at the landfall area of search S2, no different or additional information was received.

6.2.3 The emerging preference options (Site 1 emerging preference and Site 3 emerging preference) could provide opportunity for the co-location of up to three projects within the same corridor. Further technical studies have also been undertaken since non-statutory consultation which, subject to the results of ground investigations, confirmed that a trenchless crossing beneath the designated sites, in order to avoid direct effects is achievable. This, coupled with feedback relating to the opportunity to coordinate with other proposed projects, means that landfall area of search S2 remains the emerging preference.

6.2.4 Having regard to feedback received through non-statutory consultation and National Grid's ongoing work, no different or additional information has altered the preliminary conclusions in respect of the two emerging preference options being preferred to the three alternative options.

Site 1 Emerging Preference vs Site 3 Emerging Preference

Converter station sites

Landscape and visual

6.2.5 Whilst both sites are located outside of the Suffolk Coast and Heaths AONB, Site 1 is closer to this designation and therefore there is more potential for impacts on the setting of this designation.

6.2.6 Whilst Site 1 is in closer proximity to the Suffolk Coast and Heaths AONB the site is surrounded by a number of areas of mature planting including Great Wood, Foxburrow Covert and Ten Acre Covert, all of which provide opportunity to utilise this existing screening and to integrate additional screen planting into the existing landscape character. It is noted that Great Wood is designated as Ancient Woodland and therefore a standoff from this designation would be required.

6.2.7 There is limited intervisibility between Site 1 and nearby settlements and the local road network because of intervening mature vegetation, however there are some properties and farmsteads interspersed in the local landscape that would be likely to experience close proximity views.

6.2.8 Site 1 is located close to the Sandlings Walk recreational route; however, there is limited intervisibility due to the existing intervening mature coverts. Views would also likely be experienced from road users travelling along the A1094 although mature roadside hedgerow planting would provide a degree of screening to views.

6.2.9 The local Public Right of Way (PRoW) network crosses Site 1 therefore there is likely to be a need to temporarily and/or permanently divert the PRoW network. The site would also result in close proximity views from visual receptors on such routes.

6.2.10 Site 3 is further from the Suffolk Coast and Heaths AONB and the potential for an impact on the setting of this designation is therefore considered unlikely.

6.2.11 The site is in close proximity to Bloomfields's Covert and other mature tree belts and copses providing opportunity to integrate additional screening into the wider green infrastructure network and potentially providing opportunity to reinstate historical pockets of woodland.

6.2.12 Site 3 has landscape value in terms of function and distinctiveness as it forms part of the open gateway into the settlement of Saxmundham, therefore development of this site would increase the likelihood of adverse landscape effects and impacts on the setting of the settlement.

6.2.13 There is potential intervisibility with residential receptors on the edge of Saxmundham and residential properties in immediate proximity and farmsteads interspersed in the local landscape.

6.2.14 The local PRoW network crosses Site 3 therefore there is likely to be a need to temporarily and/or permanently divert the PRoW network. The site would also result in close proximity views from visual receptors on such routes. There are likely to be open views from the B1119, which represents a key vehicular route on the approach to Saxmundham, noting opportunities for landscape mitigation.

Historic environment

6.2.15 The closest designated asset to Site 1 is Grade II Listed Billeaford Hall which is located adjacent to the northern boundary of the site. The closest designated asset to Site 3 is the Grade II Listed Wood Farmhouse which is located adjacent to the western boundary of the site. There are a number of other designated assets to the west and south of Site 3 although existing woodland blocks and topography provide limited intervisibility with the site. Whilst there are designated assets adjacent to both sites, it is likely that screening could be incorporated more easily into the existing landscape character at Site 1 due to the existing woodland network and the existing screening around the asset itself.

Biological environment

6.2.16 Site 1 is located adjacent to Great Wood which listed on the Ancient Woodland Inventory and designated as a County Wildlife Site.

6.2.17 Whilst Site 1 is adjacent to Ancient Woodland it is likely an appropriate 15 m buffer (standoff) could be maintained between the development and the designation thereby avoiding loss or deterioration of the woodland. Opportunities may also exist to strengthen the green infrastructure network around the site.

6.2.18 Site 3 is not adjacent to any designated sites although an area of woodland (Bloomfield's Covert) and other mature tree belts and copses are located adjacent to the site. It is likely that appropriate buffers could be maintained between development on this site and the mature woodland blocks. Opportunities may also exist to strengthen the green infrastructure network around the site.

6.2.19 Protected species surveys have not yet been undertaken to confirm presence or absence, but due to the habitats present within and surrounding each site it is likely there is a greater potential for protected species to be present within Site 1. This will continue to be backchecked as more survey data is gathered.

Physical environment

6.2.20 Both sites are located within Flood Zone 1 and Source Protection Zone 3 and both sites are located on agricultural land which is anticipated to have a very low potential for significant contamination to be present. Both sites are relatively flat with Site 1 gently sloping from northeast to southwest and Site 3 gently sloping from west to east.

6.2.21 Site 1 is located on freely draining slightly acid but base rich sandy soils, there is a lower risk of soil compaction or plastic deformation of these soil types during stripping and handling. Site 3 is located on slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils. These soils can be difficult to handle or traffic without the risk of compaction and negative impacts to their structure.

Socio-economics

6.2.22 Site 1 is located in close proximity to the Sandlings Walk recreational route, however there is limited intervisibility with users of this walk due to the existing intervening mature coverts.

6.2.23 The local PRoW network crosses both Sites 1 and 3 therefore there is likely to be a need to temporarily and/or permanently divert the PRoW network should either site be developed. The sites would also result in close proximity views from receptors on such routes.

6.2.24 There are some properties and farmsteads interspersed in the local landscape around both Site 1 and Site 3, some of which would be likely to experience close proximity views.

6.2.25 There are a number of visitor accommodation units close to the southwest and south of Site 1 which may experience views of the site and to the northeast of Site 3.

6.2.26 Site 3 is adjacent to the settlement of Saxmundham, however it is unlikely development at this site would lead to the severance of community facilities.

6.2.27 Site 1 is located adjacent to the A1094 and B1069 both of which would facilitate good access into the site. However, it has been noted through consultation that Blackheath Corner, which is the T junction between B1069 Snape Road and A1094 Aldeburgh Road, is an accident blackspot that would need to be considered in any access strategy for this site.

6.2.28 Feedback from non-statutory consultation also indicated that the rail bridge on the A1094 to the east of the junction with the A12 is potentially unsuitable to Abnormal Indivisible Loads (AIL), therefore an alternative route for AIL deliveries to Site 1 may need to be identified.

6.2.29 Site 3 is located adjacent to the B1119 however taking construction access off this road would require construction traffic to be routed through the centre of the settlement of Saxmundham. To avoid this, it is likely that a new access would need to be created off the B1121 either to the south of Saxmundham crossing the River Fromus or off the B1121 to the north of Saxmundham crossing the railway.

6.2.30 All the land within Site 1 is currently provisionally graded as a mixture of Agriculture Land Classification (ALC) Grade 3 and 4, therefore it is unlikely there will be large areas of Best and Most Versatile (BMV) land present. The whole of Site 1 is within the Countryside Stewardship (middle tier) agreement. The land within Site 3 is provisionally mapped at ALC grades 3 and 2, therefore there is a greater potential for the presence of BMV land within this site. A section of Site 3 is currently under entry level plus Higher Level Stewardship (environmental stewardship agreement).

6.2.31 Site 1 is located entirely within a minerals consultation area, whereas Site 3 is partly located within a minerals consultation area.

Technical considerations

6.2.32 Site 1 has a slightly steeper gradient than Site 3 therefore there is the potential that more earthworks would be required in order to construct the converter station. Site 3 is less spatially constrained than Site 1 therefore potentially providing more ability to microsite both permanent and temporary infrastructure within the site to avoid other constraints.

6.2.33 As set out above there is good access to Site 1 off the A1094 and B1069 noting the constraints associated with Blackheath Corner and the rail bridge. Site 3 would require an off-network access to be able to facilitate construction traffic accessing the site without passing through the centre of the settlement of Saxmundham.

Cable corridors

6.2.34 The cable corridors for both options are contiguous from the landfall through to Site 1. Both options would require a trenchless crossing beneath the Leiston – Aldeburgh SSSI and North Warren RSPB Reserve to reduce direct impacts and whilst avoidable both options would require temporary construction in proximity to the Sandlings SPA.

6.2.35 Both options would either need to cross the pinch point at the B1122 Leiston Road and to the north of Aldeburgh Golf Course for which there is a planning application to extend north or cross Leiston Road further south and route through the golf course.

6.2.36 Whilst Site 1 emerging preference has an overall shorter cable route than Site 3 emerging preference (6.5 km compared to 11 km), the HVAC cable is longer for Site 1 than it is for Site 3, 3.5 km and 1.5 km respectively. Due to the greater number of cables required for underground HVAC, this section has a greater working width typically 60 m compared with 40 m for a HVDC cable. Therefore, whilst the overall cable route is longer for Site 3 the additional temporary land take is not proportionate to the additional length. Overall, however there is more potential for temporary effects on more receptors for Site 3 than Site 1 and more potential for physical impacts on unknown or unrecorded archaeology due to the additional length.

Cost

6.2.37 There was little difference in the cost between the two options, Site 1 emerging preference had a capital cost of approximately £1,461 million to £1,513 million (depending on the HVAC technology choice in Kent) and Site 3 emerging preference had a capital cost of approximately £1,455 million to £1,507 million (depending on the HVAC technology choice in Kent).

6.3 Selection Of The Proposed Project: Suffolk Onshore Scheme

6.3.1 As set out above, landfall area of search S2 was consulted on as the emerging preference. Whilst feedback was received regarding the designated nature consideration sites within landfall area of search S2, and having regard to non-statutory consultation feedback and National Grid's ongoing work, no different or additional information emerged that altered the preliminary conclusion of the two emerging preference options being preferred to the three alternative options. The emerging preference options (Site 1 emerging preference and Site 3 emerging preference) which utilise landfall area of search S2 could provide opportunity for co-location of up to three projects within the same corridor. In addition, further technical studies have been undertaken since non-statutory consultation which have confirmed that, subject to the results of ground investigations, a trenchless crossing beneath the designated sites to avoid direct effects is achievable. Therefore, landfall area of search S2 remains the emerging preference. This landfall could also accommodate co-location with the NGV projects.

6.3.2 With regards to Site 1 emerging preference and Site 3 emerging preference, the Site 1 converter station is closer to the Suffolk Coast and Heaths AONB which could potentially result in an impact on the setting of this designation which is unlikely on Site 3. There is direct access to Site 1 from the existing road network whereas Site 3 would require an off highway network access to be created to avoid routeing construction traffic through the settlement of Saxmundham. Site 1 is more spatially constrained due to the location of existing woodland blocks within the site therefore Site 3 would provide more potential to microsite the converter station if co-located with other projects. Site 1 would also likely require more earthworks due to the slightly steeper gradient on the site.

6.3.3 Overall Site 3 would require a longer cable route and temporary land take. There would be more potential for temporary effects on more receptors for Site 3 than Site 1 and more potential for physical impacts on unknown or unrecorded archaeology due to the additional length. Site 1 however would require a longer length of HVAC cable than Site 3 which has a wider construction swathe.

6.3.4 On balance, overall Site 3 emerging preference has been identified as the preferred option for the Suffolk Onshore Scheme. This is illustrated on **Figure 6.1: Suffolk Onshore Scheme Preferred Option of Appendix A**. Site 3 converter station will be referred to as the proposed Saxmundham Converter Station in the subsequent sections.

Consideration of coordination and co-location with other projects

6.3.5 Many respondents to the non-statutory consultation expressed the view that all major energy projects currently proposed in East Suffolk should be coordinated, thus reducing the perceived spread of industrialisation and reducing impacts on the area.

6.3.6 Both emerging preference options were identified at non-statutory consultation as being able to facilitate co-location of up to three HVDC projects. The potential impacts of each of the options would be the same as described above although temporary land take for the cable routes and permanent land take at the converter station sites would be greater under a co-located scenario. However, the overall land take would be less than if all three projects developed independent cable routes and converter station sites.

6.3.7 Whilst Site 1 and Site 3 are similar in area, there are more areas of vegetation within Site 1 that spatially constrain the site, this may limit opportunities to microsite up to three converter stations and the implementation of a landscape mitigation strategy. Site 3 is more open in landscape character, therefore the placement of up to three converter stations within this site is likely to be more prominent in the landscape, however the site is less spatially constrained and therefore would allow for a comprehensive mitigation strategy.

6.3.8 As set out above the cable corridors are contiguous from the landfall through to Site 1. The area to the east of Friston and Grove Wood is spatially constrained due to the presence of Grove Wood, residential properties and farmsteads and the location of the proposed Scottish Power Renewables (SPR) East Anglia One North and East Anglia Two projects. Whilst both options could accommodate co-location through this section, Site 3 emerging preference would require HVDC cables through this section whereas Site 1 emerging preference would require HVAC cables through this section. Therefore, there may be more limited opportunity to microsite cables for Site 1 emerging preference due to the wider swathe required for HVAC.

6.3.9 On balance, Site 3 emerging preference has been identified as the preferred option for co-location, as well as being the preferred option for the Proposed Project alone (for the reasons described in paragraph 1.1.1 above).

6.4 Kent Onshore Scheme

6.4.1 As part of the Kent Onshore Scheme the technology choice of making the HVAC connection via either an overhead HVAC line or an underground HVAC cable was left open for feedback through non-statutory consultation process.

6.4.2 Many respondents to non-statutory consultation expressed the view that cables should be underground so as not to impact bird safety or landscape and visual receptors. Respondents also suggested that cables should be routed within, or as close as possible, to existing cable corridors, and have minimal impacts on ecology, using techniques such as “moling”.

Landscape And Visual

6.4.3 The Kent Onshore Scheme is not within any nationally designated landscapes. Both, overhead and underground options would require the installation of above ground infrastructure, pylons for the overhead line option and a cable sealing end compound for the underground option in order to make the connection to the existing Richborough to Canterbury 400 kV overhead line. The overhead line option would result in greater operational landscape and visual impacts; however, these could be reduced through routeing. The soil conditions of the low-lying marshland within the fluvial floodplain of the River Stour may also make reinstatement of any underground cable route more challenging, therefore temporary construction effects of the underground option may endure longer than in other soil types.

Historic Environment

6.4.4 There are a number of designed assets within the settlement of Minster to the north as well as Richborough Fort scheduled monument to the south. The overhead line option would therefore have more potential for setting impacts than the underground option however these could be reduced through routeing. The underground option would have more potential for direct physical impacts on non-designated recorded and unrecorded archaeology.

Biological Environment

6.4.5 Sandwich Bay to Hacklinge Marshes SSSI is partly located within the HVAC connection Area. The railway and adjacent habitats are designated as a local wildlife site “TH12 Woods and Grassland, Minster Marshes”. Immediately north and land to the south of the River Stour is also designed as “DO21 Ash Level and South Richborough Pasture” local wildlife site. Depending on the location of the converter station and the connection point to the existing overhead line the section of SSSI could either be avoided by routeing of both options, or if it cannot be avoided by routeing, either oversailed with an overhead line or crossed using a trenchless technique with an underground cable, thereby avoiding the potential for direct effects. It is unlikely that the local wildlife sites could be avoided by either option. The underground option would result in greater temporary land take and habitat loss. Permanent habitat loss for the overhead line option would be limited to the pylon foundations and, for the underground cable, the area of the cable sealing end compound, which is typically 116 m x 63 m. Water vole are known to be present in the Minster Marshes. Due to the construction footprint for the underground option, there is more potential for temporary impacts on water vole habitat compared with the overhead line option. The overhead line introduces the potential for collision risk with certain bird species, therefore mitigation in the form of bird diverters may be required if this option is progressed.

Physical Environment

6.4.6 The existing Richborough to Canterbury 400 kV overhead line within the HVAC Area is wholly located within Flood Zones 2 and 3; therefore, the underground cable option would require a cable sealing end compound to be located within these flood zones. Whilst the overhead line option would also be located within Flood Zone 2 and 3, flood water could ingress around the pylon feet.

6.4.7 The geology comprises tidal flat deposits (superficial) overlying the Thanet Formation (bedrock), with the Thanet classified as a Secondary A aquifer. Below the Thanet is the Chalk, classified as a Principal aquifer. The tidal flat deposits may include layers of peat which is characterised by very high moisture contents, high compressibility and low shear strength and can present a significant constraint to development. The ground conditions are anticipated to be characterised by soft and compressible materials with shallow groundwater, and therefore are unlikely to stay open unsupported during excavations. Therefore, underground cable open trenches may require trench support and also dewatering.

6.4.8 The soil types present are loamy and clayey soils (fine textured) of the coastal flats, with naturally high groundwater. These soils will be difficult to handle or traffic without the risk of compaction and potentially negative impacts to their structure and could be wet and plastic for long periods. The overhead line option would require a smaller construction area and less handling of soils compared with the underground cable option.

Socio-Economics

6.4.9 There are limited socio-economic receptors within or adjacent to the HVAC connection Area to differentiate between the options. The Saxon Shore Way is located along the south bank of the River Stour. There is the potential for temporary and permanent impacts on the users of this trail during the construction and operation of both options.

6.4.10 It is likely the construction traffic would use the same accesses regardless of the option although there is a potential for construction traffic figures to differ between options.

Technical Considerations

6.4.11 The underground cable option would require a trenchless crossing beneath the railway and depending on where the connection is made to the existing Richborough to Canterbury 400 kV overhead line, a trenchless crossing of the River Stour. Access to the south of the River Stour within the HVAC Area is limited therefore should the connection be made to the south of the River Stour either by overhead line or underground cable, construction traffic would require a temporary bridge crossing of the River Stour.

6.4.12 As set out above the ground conditions and soil types present could make soil handing for the underground cable option and the associated trenchless crossings technically challenging.

Cost

6.4.13 The capital cost difference between the overhead line option and the underground cable option was approximately £52 million irrespective of the option chosen for the Suffolk Onshore Scheme.

6.4.14 Suffolk Onshore Scheme Site 1 emerging preference had a capital cost of approximately £1,461 million (overhead line in Kent) to £1,513 million (underground cable in Kent) and Suffolk Onshore Scheme site 3 emerging preference had a capital cost of approximately £1,455 million (overhead line in Kent) to £1,507 million (underground cable in Kent).

6.5 Selection Of The Proposed Project: Kent Onshore Scheme

6.5.1 There are environmental and technical constraints and opportunities associated with both options. Due to the ground conditions and requirement for trenchless crossings it is likely that the underground cable option would have greater temporary impacts during construction than the overhead line option.

6.5.2 Both options would require permanent above ground infrastructure, the overhead line option has a greater potential for permanent impacts on landscape character, setting of historical assets and bird collision risk. The underground option would require a permanent compound within Flood Zones 2 and 3 and more potential for physical impacts on non-designed heritage assets and a greater amount of permanent habitat loss.

6.5.3 On balance the overhead line option has been identified as the preferred option for the Kent Onshore Scheme as it avoids the need to site a permanent compound within Flood Zones 2 and 3, technical constraints associated with construction and reducing impacts in relation to the potential for physical impacts on non-designated heritage assets and a greater amount of permanent habitat loss. The potential for greater landscape and visual, setting and bird collision risk from the overhead line option are recognised and have been, and will continue to be, considered and reduced as much as possible through the development of the design of the Proposed Project and the inclusion of mitigation such as bird diverters where required.

6.5.4 The Kent Onshore Scheme preferred option is illustrated on **Figure 6.2: Kent Onshore Scheme Preferred Option of Appendix A**. The Kent converter and substation station will be referred to as the proposed Minster 400 kV Substation and Converter Station in subsequent sections.

6.6 Offshore Scheme

6.6.1 As described above in section 3 landfall area of search S2 was identified as the emerging preference landfall and S3N was identified as an alternative option. Therefore, in addition to the Offshore Scheme Emerging Preference and alternative marine route to landfall area of search S3N was consulted on as part of non-statutory consultation.

6.6.2 Landfall area of search S2 was identified as the emerging preference as it avoided both nearshore constraints and a number of terrestrial pinch points as explained in sections 3 and 5, as well as being able to facilitate coordination and co-location with other projects. The alternative landfall area of search S3N was included until further work had been undertaken to confirm the feasibility of a trenchless crossing technique beneath these designated sites to avoid any direct effects on these sites at landfall area of search S2 and to review feedback received as part of the non-statutory consultation. Having regard to feedback received prior to and during non-statutory consultation and National Grid's ongoing work no different or additional information has altered the preliminary conclusions in respect of the emerging preference option being preferred to the alternative option.

6.6.3 Further technical studies have been undertaken since non-statutory consultation which subject to the results of ground investigations have confirmed a trenchless crossing beneath the designated sites in order to avoid direct effects is achievable. This coupled with feedback relating to the need to coordinate with other proposed projects means that landfall area of search S2 remains the emerging preference.

6.7 Selection Of The Proposed Project: Offshore Scheme

6.7.1 For the reasons set out above and an overall marine preference for landfall area of search S2 as set out in section 4 the marine corridor emerging preference remains the preferred option for the offshore scheme. This is illustrated on **Figure 6.3: Offshore Scheme Preferred Option of Appendix A.**

7. Design Development Of The Proposed Project

7.1 Introduction

7.1.1 This section provides a summary of how the design of the Proposed Project has evolved from the preferred option described in section 6 to the Proposed Project (including the draft Order Limits) as presented at Statutory Consultation, as a result of design development. Where relevant, this includes information about consultation feedback and how this has influenced the evolution of the Proposed Project; however, most of the feedback was relatively high level, relating to protecting the local environment, consideration of offshore solutions, and relocating the project out of Suffolk.

7.2 Suffolk Onshore Scheme

7.2.1 The proposed Suffolk Onshore Scheme comprises of:

- A connection from the existing transmission network via Friston Substation, including the substation itself. Friston Substation already has development consent as part of other third-party projects. If Friston Substation has already been constructed under another consent, only a connection into the substation would be constructed by the Sea Link project.
- A high voltage alternating current (HVAC) underground cable of approximately 1.7 km in length between the proposed Friston Substation and a proposed converter station (below).
- A 2 GW high voltage direct current (HVDC) converter station up to 26 m high plus external equipment (such as lightning protection & railings for walkways) near Saxmundham.
- A HVDC underground cable connection of approximately 10 km in length between the proposed converter station near Saxmundham, and a transition joint bay (TJB) approximately 900m inshore from a landfall point (below) where the cable transitions from onshore to offshore technology.
- A landfall on the Suffolk coast (between Aldeburgh and Thorpeness).

7.2.2 The proposals in Suffolk have been developed for Sea Link as a standalone project, but also include opportunities to co-locate infrastructure for up to two further projects at the converter station site, cable corridors and the landfall location.

Proposed Friston Substation

7.2.3 Friston Substation already benefits from development consent granted to Scottish Power Renewables (SPR), pursuant to ‘The East Anglia ONE North Offshore Wind Farm Order 2022’ and ‘The East Anglia TWO Offshore Wind Farm Order 2022’.

7.2.4 The proposed Friston Substation is included in the Proposed Project to achieve a comprehensive consenting position in time for the Proposed Project. The proposed Friston substation included within the Proposed Project would comprise a 400 kV substation, containing primarily gas insulated switchgear (GIS) within a GIS building, but also include air insulated elements.

7.2.5 The Friston substation is likely to comprise one or more buildings which could house services, storage workshop, and relay room along with a backup diesel generator. The substation compound would include hard and soft landscaping, the substation will be enclosed by a fence and would contain a parking area and access road.

7.2.6 Delivery of the Friston Substation would also require the removal of one existing 4ZW 400 kV overhead line pylons, and installation of two new pylons on the 4ZW 400 kV overhead line. It could also include the re-conductoring of a short length of the 4ZW 400 kV overhead line.

7.2.7 The location of the proposed Friston substation is illustrated on **Figure 7.4: Suffolk Onshore Scheme – Proposed Project of Appendix A** and the proposed infrastructure required for the Proposed Project is shown indicatively in red on **Design Drawing S42_S/TDD/SS/0003**.

7.2.8 National Grid is proposing to construct Friston substation as part of the Proposed Project. The infrastructure required for the Proposed Project is shown indicatively in red on **Design Drawing S42_S/TDD/SS/0003**. A short section of re-conducting on the existing 4ZW overhead line may be required, in the event that the proposed Friston substation is constructed by National Grid as part of the Proposed Project. This is illustrated on **Figure 7.1: Suffolk Onshore Scheme Design Evolution – HVAC Connection of Appendix A**.

7.2.9 Should the proposed Friston substation be installed under the current consent secured by SPR, the works required for the Proposed Project would be limited to the installation of new GIS bays and additional switch gear and bus bars, all within the boundary of the substation. This is illustrated indicatively in red on **Design Drawing S42_S/TDD/SS/0001**.

Proposed HVAC Connection

7.2.10 The proposed HVAC connection would be located between the proposed Friston substation and the proposed Saxmundham Converter Station. It would be routed northwest from the proposed Friston substation for approximately 1.6 km to the south of the B1119 and north of the B1121. The length of the connection could increase depending upon the micro siting of the Saxmundham Converter Station.

7.2.11 The feedback received did not suggest any specific reroutes but did reinforce a more general need to minimise the impact of the route on the local landscape, habitats, roads and tourism and recreation.

7.2.12 The graduated swathe for the underground HVAC cables at non-statutory consultation was shown through the centre of the Site 3 Emerging Preference corridor. The draft Order Limits broadly follow the graduated swathe as shown on **Figure 7.1: Suffolk Onshore Scheme Design Evolution – HVAC Connection of Appendix A**.

7.2.13 The draft Order Limits narrow to the northwest of the proposed Friston substation to take the most direct route to the proposed Saxmundham Converter Station site but remain wide to the west of Fristonmoor Lane to allow for further micro siting of the Saxmundham Converter Station within the site, and, as a consequence flexibility in the route of the HVAC cables to the converter station.

7.2.14 The proposed HVAC connection would be sited within the Limits of Deviation (LoD) as illustrated on **Figure 7.4: Suffolk Onshore Scheme – Proposed Project of Appendix A**.

Proposed Saxmundham Converter Station

7.2.15 The indicative location of the Saxmundham Converter Station within the proposed site is illustrated on **Figure 7.4: Suffolk Onshore Scheme – Proposed Project of Appendix A**. A typical arrangement for the Saxmundham Converter Station is illustrated on **Design Drawing S42_S/TDD/SS/0015**.

7.2.16 The feedback received did not suggest any specific design related matters other than to look for opportunities to reduce the height of the converter station, which will be considered. Feedback did reinforce a more general need to minimise the impact of the route on the local landscape, habitats, roads and tourism and recreation.

7.2.17 The graduated swathe for the converter station at non-statutory consultation was shown in the south of the site Area. Taking account of feedback received and further environmental and technical studies, the indicative location of Saxmundham Converter Station within the draft Order Limits is in the far south of the site Area adjacent to Bloomfield's Covert as shown on **Figure 7.2: Suffolk Onshore Scheme Design Evolution – Saxmundham Converter Station of Appendix A**. The indicative location of Saxmundham Converter Station has been identified to utilise the existing screening of Bloomfield's Covert and the tree belt to the south of the site, reducing the potential for landscape and visual effects from the settlement of Saxmundham, B1119 and individual properties to the south, west and north of the site. Siting the proposed Saxmundham Converter Station in this location also utilises the existing screening to reduce the potential for setting effects on a number of Grade II Listed properties to the west and south of the site.

7.2.18 The draft Order Limits remain wide in this location around the whole site that was consulted on as part of non-statutory consultation to allow for the potential for co-location with the NGV proposed projects in the area, to allow for possible mitigation planting and to allow enough flexibility for co-location with NGV's converter stations.

7.2.19 The draft Order Limits extend beyond the previous Site 3 Emerging Preference corridor in the following locations:

- Approximately 200 m to the southwest through Bloomfield's Covert to allow for a potential temporary drainage outfall during construction.
- To the west by approximately 850 m, crossing the River Fromus to the B1121, and to the northwest by approximately 850 m crossing the B1119 and the railway line to the B1121 Main Road. These are to facilitate temporary construction access to Saxmundham Converter Station to avoid the need to route construction traffic through the centre of the settlement of Saxmundham.
- Lastly to the north of the B1119 to the west of Workhouse Lane by approximately 40 m, this is to facilitate landscape planting should the site be developed as a co-located site with the NGV proposed projects in the area.

7.2.20 The proposed Saxmundham Converter Station would include a DC hall, converter transformers, valve hall, reactor hall, AC switchyard, control building, strategic spare parts building, Low Voltage (LV) electricity supply, fire deluge pump house, car parking, a permanent access road and landscaping.

7.2.21 The proposed Saxmundham Converter Station would be up to 6.5 ha in area (excluding landscaping) and the valve halls could be up to 26 m in height excluding lightning protection, aerials, walkways, fall arrest equipment and potential architectural treatments (such as soft landscaping).

7.2.22 The design of this structure, in terms of the building form and the cladding materials, will be developed alongside consultation and stakeholder feedback and design principles will be provided with the application for development consent.

Proposed Underground HVDC Cables And Suffolk Landfall

7.2.23 Protecting Aldeburgh Golf club was a key theme in responses. The feedback received did not suggest any specific reroutes but did reinforce a more general need to minimise the impact of the route on the local landscape, habitats, roads and tourism and recreation.

7.2.24 The draft Order Limits broadly follow the previous graduated swathe from the landfall, across Leiston and Snape Road, through to the crossing of Sandlings Walk as illustrated on **Figure 7.3: Suffolk Onshore Scheme Design Evolution – Underground HVDC Cables and Landfall of Appendix A.** From the crossing of Sandlings Walk (to the south of School Road) the draft Order Limits cross Grove Road to the north of Laurel Covert, this is within the corridor but to the south of the graduated swathe. This avoids the need for temporary construction activities on both sides of several properties with temporary construction activity from both the HVAC connection and the underground HVDC cables. The draft Order Limits re-join the graduated swathe at Fristonmoor Lane but remains wide from Fristonmoor Lane to the proposed Saxmundham Converter Station. This is to allow for further micro siting of the Saxmundham Converter Station within the site, and, as a consequence flexibility in the route of the underground HVDC cables to the converter station.

7.2.25 The proposed HVDC underground cables would be routed from the proposed Saxmundham Converter Station to the proposed Suffolk Landfall. They would be routed southeast from Saxmundham Converter Station passing to the north of the proposed Friston substation, south of Great Wood and north of the A1094. They would then be routed to the north of Old Broom Covert and Eight Acre Covert crossing the B1122 Leiston Road to the TJB located to the north of Warren Hill Lane and south of Sandlings SPA. The total length of the HVDC cable will depend upon the final micro siting of the Saxmundham Converter Station.

7.2.26 The Offshore Scheme has been refined on the approach to the Suffolk landfall. This refinement follows a combination of analysis of the marine survey data collected in summer 2021, and further advances in the Proposed Project design to identify a proposed location of the transition joint bay (TJB) to facilitate a trenchless crossing of the designated sites.

7.2.27 The landfall will be a committed trenchless crossing under Leiston – Aldeburgh SSSI and North Warren RSPB Reserve.

7.2.28 The draft Order Limits extend by approximately 350 m beyond the Site 3 Emerging Preference corridor along Sandlings Walk to the B1122 Leiston Road, this is to facilitate mobilisation and maintenance accesses by small vehicles or on foot.

7.2.29 The proposed underground HVDC cables and landfall would be sited within the LoD as illustrated on **Figure 7.4: Suffolk Onshore Scheme – Proposed Project of Appendix A**.

7.3 Kent Onshore Scheme

7.3.1 The proposed Kent Onshore Scheme would comprise:

- A landfall point on the Kent coast at Pegwell Bay.
- A TJB approximately 800m inshore to transition from offshore HVDC cable to onshore HVDC cable, before continuing underground for approximately 2 km to a new converter station (below).
- A 2 GW HVDC converter station, up to 26 m high plus external equipment (such as lightning protection & railings for walkways), near Minster. A new substation would be located immediately adjacent.
- Removal of approximately 1 km of existing HVAC overhead line, and installation of approximately 2.25 km of new HVAC overhead line from the substation near Minster and the existing Richborough to Canterbury overhead line.

Proposed HVAC Connection

7.3.2 The HVAC connection from the existing Richborough to Canterbury 400 kV overheard line to the proposed Minster 400 kV substation would be made via a new approximately 1 km section of double overhead line. The proposed new section of overhead line would be routed to the northeast from the existing Richborough to Canterbury overhead line, crossing the River Stour and a section of railway, and connecting into the proposed Minster 400kV substation.

7.3.3 Feedback indicated a preference to limit the length of the section of overhead line. Respondents expressed the view that overhead cables would disrupt bird migration and cause bird fatalities, should they fly into the cables. Other than this, the feedback received did not suggest any specific reroutes but did reinforce a more general need to minimise the impact of the route on the local landscape, habitats, roads, and tourism and recreation.

7.3.4 The graduated swathe within the Kent Onshore Scheme Emerging Preference corridor at non-statutory consultation was shown to the north of the River Stour. However, taking account of feedback and further environmental and technical studies the HVAC connection in combination with the proposed Minster 400 kV substation and Minster Converter Station (proposed to be located within the same compound) has been routed within the south of the non-statutory consultation corridor to reduce the length of overhead line as far as possible. The proposed overhead line is therefore routed from the proposed Minster 400 kV substation to the existing Richborough to Canterbury 400 kV overhead line to the south of the River Stour. This has taken into account the potential for views from the settlement of Minster to the north and potential setting effects on the historic statutory designated sites within the settlement of Minster as well and from Richborough Fort scheduled monument to the south. Reducing the length of the HVAC connection also reduces both temporary habitat loss during construction and any permanent habitat loss associated with the pylon footprints. The location of the draft Order Limits within the Kent Onshore Scheme Emerging Preference corridor is shown on **Figure 7.5: Kent Onshore Scheme Design Evolution – HVAC Connection of Appendix A**. Consideration will be given to the need for bird diverters to reduce the risk of bird strike.

7.3.5 The draft Order Limits extend approximately 600 m beyond the Kent Onshore Scheme Emerging Preference corridor in the southeast in order to facilitate the replacement of an existing pylon on the existing Richborough to Canterbury 400 kV overhead line and along Whitehouse Drove to facilitate a mobilisation access in order to install a temporary bridge crossing of the River Stour. The proposed pylon type has not been selected; this will be determined through further environmental considerations, including ornithological surveys and landscape and heritage surveys, as well as stakeholder engagement and consultation feedback. The potential pylon types under consideration are a steel lattice low height pylon and a steel lattice standard height pylon. Indicative illustrations of these pylon types are shown on **Design Drawing S42_T/TDD/SS/3006**. Indicative illustrations of these pylon types are shown on **Design Drawing S42_T/TDD/SS/3006** .

7.3.6 The proposed HVAC connection would be sited within the LoD as illustrated on **Figure 7.8: Kent Onshore Scheme – Proposed Project of Appendix A**.

Proposed Minster 400 Kv Substation and Minster Converter Station

7.3.7 Non-statutory consultation feedback relating to the siting and the design of Minster 400 kV substation and Minster Converter Station included:

- Design suggestions regarding the converter station included reducing the scale, being built in cylindrical form to appear as Oast Houses (a form of architecture historical to Kent) and painting it green to blend in with the rural landscape.
- The appearance of any infrastructure associated with the Proposed Project was requested to be designed in accordance with the location's landscape.
- Concerns were raised regarding the impacts of new infrastructure on Kent's local tourism, citing its natural landscape as a significant attraction.

7.3.8 At non-statutory consultation the graduated swathe for the converter station was shown in the south of the site Area within the Kent Onshore Scheme Emerging Preference corridor.

7.3.9 Taking account of feedback received and further environmental and technical studies the proposed location of Minster 400 kV substation and Minster Converter Station within the draft Order Limits is in the far south of the of the site Area, to the south of Minster Stream and as illustrated on **Figure 7.6: Kent Onshore Scheme Design Evolution – Minter 400 kV Substation and Minster Converter Station of Appendix A.**

7.3.10 As the HVAC connection in Kent is being made directly onto the existing Richborough to Canterbury overhead line there is a requirement for a new substation to be sited adjacent to Minister Converter Station. The proposed Minster 400 kV substation and Minster Converter Station are indicatively located to the north of Richborough Energy Park and a section of Sandwich Bay to Hacklinge Marshes SSSI, and to the west of the A256 as illustrated on **Figure 7.8: Kent Onshore Scheme – Proposed Project of Appendix A.** An indicative combined layout of Minster 400 kV substation and Minster Converter Station is illustrated on General Arrangement **Drawing S42_K/IGA/PS/2002**.

7.3.11 The proposed location of Minster 400 kV substation and Minster Converter Station has been identified to keep the infrastructure as close as possible to existing energy infrastructure within Richborough Energy Park and the sewage works to the south. This means that they would be visible but set within the context of other energy infrastructure in available views from the settlement of Minster to the north, rather than being visible within the more open marsh landscape and in proximity to the settlement of Minster. This has also taken account of potential setting effects on the historic statutory designated sites within the settlement of Minster as well and from Richborough Fort scheduled monument to the south. Siting within the south of the Kent Onshore Scheme Emerging Preference corridor and Area does bring the proposed infrastructure closer to a section of Sandwich Bay to Hacklinge Marshes SSSI, however a buffer would be maintained between the Proposed Project and this designated site.

7.3.12 An indicative arrangement for the proposed Minster 400 kV substation is illustrated on **Design Drawing S42_K/TDD/SS/2001** and would comprise a 400 kV substation, anticipated to contain primarily gas insulated switchgear (GIS) within a GIS building, but also including air insulated elements.

7.3.13 A typical arrangement for the proposed Minster converter station is illustrated on **Design Drawing S42_K/TDD/SS/2002**.The proposed Minster Converter Station would comprise of a DC hall within which the converter transformers would be housed, valve hall, reactor hall, AC switchyard, control building, strategic spare parts building, Low Voltage (LV) electricity supply, fire deluge pump house, car parking, a permanent access road and landscaping.

7.3.14 The proposed Minster 400 kV Substation and Minster Converter Station site would be up to 9 ha in area (excluding landscaping) and the valve halls of the Converter Station could be up to 26 m in height (excluding lightning protection, aerials, walkways, fall arrest equipment and potential architectural treatments (such as soft landscaping)).

7.3.15 The design of this structure, in terms of the building form and the external materials, will be developed alongside consultation and stakeholder feedback and design principles will be provided with the application for development consent.

Proposed Underground Hvdc Cables And Kent Landfall

7.3.16 Respondents suggested cables should be routed within, or as close to as possible, existing cable corridors, and have minimal impacts on ecology, using techniques such as ‘moling’. The protection of St. Augustine’s Golf Club was also a priority for some respondents, as was the need to minimise impacts in the Pegwell Bay area. The feedback received did not suggest any specific reroutes but did reinforce a more general need to minimise the impact of the route on the local landscape, habitats, roads, and tourism and recreation.

7.3.17 The graduated swathe for the underground HVDC cables at non-statutory consultation was shown through the centre of the Kent Onshore Scheme Emerging Preference corridor. The draft Order Limits broadly follows the graduated swathe as shown on **Figure 7.7: Kent Onshore Scheme Design Evolution – Underground HVDC Cables and Landfall in Appendix A**.

7.3.18 The draft Order Limits remain wide to the west of the A256 Richborough Way due to the potential for unrecorded archaeology within this area. Further surveys including a geophysical survey will be undertaken as the Proposed Project develops to enable micro-routeing through this area to reduce the potential for effects on any unrecorded archaeology.

7.3.19 The draft Order Limits also remain wide to the east of the A256 Richborough Way in order to facilitate access off Ebbsfleet Lane into the field to the west of St Augustine's Golf Course to install the underground HVDC cable and provide access the TJB which is proposed within this same field.

7.3.20 The approach to the landfall has been refined following the analysis of the marine survey data collected in summer 2021, avoidance of Cliffsend historical landfill site, and an offset required from the existing Nemo Link cables within Pegwell Bay.

7.3.21 The landfall would be a committed trenchless crossing under the sensitive saltmarsh habitat within the Pegwell Bay designated sites and this trenchless crossing will also include St Augustine's and Stonelees Golf Course.

7.3.22 The draft Order Limits extend beyond the Kent Onshore Scheme Emerging Preference corridor to the south by approximately 300 m and the north by approximately 60 m in a number of locations; these are to facilitate mobilisation and maintenance accesses by small vehicles or on foot.

7.3.23 The proposed underground HVDC cables would be routed from the proposed Minster Converter Station to the Kent landfall. From the proposed Minster Converter Station would be routed east to the north of Richborough Energy Park and the sewage works crossing the A256 to a TJB located to the west of St Augustine's Golf Club.

7.3.24 The proposed underground HVDC cables and landfall would be sited within the LoD as illustrated on **Figure 7.8: Kent Onshore Scheme – Proposed Project of Appendix A**.

7.4 Offshore Scheme

7.4.1 Following feedback from non-statutory consultation, stakeholder engagement and further environmental, socio-economic and technical studies, the Offshore Scheme has been refined from the Marine Corridor Emerging Preference to the draft Order Limits as shown on **Figure 7.9: Offshore Scheme Design Evolution – Marine Cable of Appendix A**.

7.4.2 There are three areas where the Offshore Scheme Boundary has either been widened or refined from the Marine Corridor Emerging Preference to the current draft Order Limits. The reasons for these refinements are explained in the sections below.

Area 1 – Approaches to Suffolk landfall

7.4.3 The Offshore Scheme has been refined on the approach to the Suffolk landfall (S2 Landfall Area of Search).

7.4.4 This refinement follows a combination of analysis of the marine survey data collected in summer 2021 and further advances in the Proposed Project design to identify a proposed landfall location within the wider S2 landfall area of search. Refinements of the Offshore Scheme boundary at the Suffolk landfall have also been made in consideration of the location of the onshore TJB and also the location of the proposed trenchless crossing beneath the Leiston – Aldeburgh SSSI and North Warren RSPB Reserve. This is illustrated on **Figure 7.9: Offshore Scheme Design Evolution – Marine Cable of Appendix A**.

Area 3 – North of the sunk TSS

7.4.5 Area 3 located North of the Sunk TSS has now been extended from the Marine Corridor Emerging Preference to the draft Order Limits as illustrated on **Figure 7.9: Offshore Scheme Design Evolution – Marine Cable of Appendix A.**

7.4.6 This extension at Area 3 follows stakeholder engagement feedback from the Harwich Haven Authority regarding concerns to shipping and navigation and a subsequent request to move the cable route north of the W1 buoy and out of the existing pilotage area. This extension of the boundary allows for flexibility in route optimisation at this location and also to reduce the risk to shipping and navigation.

Area 5 – Approaches to kent landfall

7.4.7 Area 5 located at approaches the Kent landfall (K1) has now been refined from the Marine Corridor Emerging Preference to the Offshore Scheme boundary **Figure 7.9: Offshore Scheme Design Evolution – Marine Cable of Appendix A.**

7.4.8 This refinement follows a combination of analysis of the marine survey data collected in summer 2021 and further advances in the Proposed Project design which consider engineering and construction activities. This has considered the location of the Cliffsend historical landfill site and the standoff required from the existing Nemo Link cables within Pegwell Bay.

The Offshore Scheme

7.4.9 The Offshore Scheme comprises of proposed marine HVDC cables which would be routed from the TJB at the Suffolk landfall located between the settlements of Aldeburgh and Thorpeness to the TJB at the Kent landfall located within Pegwell Bay to the south of the settlement of Cliffsend. The marine HVDC cables would be routed south from the Suffolk landfall through a section of the Outer Thames Estuary SPA and to the west of the existing Greater Gabbard and Galloper offshore wind farms. They would then head east through the Sunk TSS turning south to route around Margate and Long Sands SAC and between a number of mineral aggregate sites. The marine HVDC cables would then continue south to the east of London Array offshore wind farm and west of Thanet offshore windfarm, before turning west to make landfall in Pegwell Bay.

7.4.10 The proposed marine HVDC cables and landfall would be sited within the LoD as illustrated on **Figure 7.10: Offshore Scheme - Proposed Project of Appendix A**.

8. Description of the Proposed Project

8.1.1 The Proposed Project involves the reinforcement of the electricity transmission network between Suffolk and Kent, predominantly via offshore High Voltage Direct Current (HVDC) link, but with onshore elements to connect into the transmission network. The proposed Project is split into three elements, as follows.

8.2 The Suffolk Onshore Scheme

- A connection from the existing transmission network via Friston Substation, including the substation itself. Friston Substation already has development consent as part of other third-party projects. If Friston Substation has already been constructed under another consent, only a connection into the substation would be constructed by the Sea Link project.
- A high voltage alternating current (HVAC) underground cable of approximately 1.7 km in length between the proposed Friston Substation and a proposed converter station (below).
- A 2 GW high voltage direct current (HVDC) converter station up to 26 m high plus external equipment (such as lightning protection & railings for walkways) near Saxmundham.
- A HVDC underground cable connection of approximately 10 km in length between the proposed converter station near Saxmundham, and a transition joint bay (TJB) approximately 900m inshore from a landfall point (below) where the cable transitions from onshore to offshore technology.
- A landfall on the Suffolk coast (between Aldeburgh and Thorpeness).

8.2.1 The proposals in Suffolk have been developed for Sea Link as a standalone project, but also include opportunities to co-locate infrastructure for up to two further projects at the converter station site, cable corridors and the landfall location.

8.3 The Offshore Scheme

- Approximately 130 km of subsea HVDC cable, running between the Suffolk landfall location (between Aldeburgh and Thorpeness), and the Kent landfall location at Pegwell Bay.

8.4 The Kent Onshore Scheme

- A landfall point on the Kent coast at Pegwell Bay.
- A TJB approximately 800m inshore to transition from offshore HVDC cable to onshore HVDC cable, before continuing underground for approximately 2 km to a new converter station (below).
- A 2 GW HVDC converter station, up to 26 m high plus external equipment (such as lightning protection & railings for walkways), near Minster. A new substation would be located immediately adjacent.
- Removal of approximately 1 km of existing HVAC overhead line, and installation of approximately 2.25 km of new HVAC overhead line from the substation near Minster and the existing Richborough to Canterbury overhead line.

8.4.1 The project also includes modifications to sections of existing overhead lines in Suffolk and Kent, diversions of third-party assets, and land drainage from the construction and operational footprint. It also includes opportunities for environmental mitigation, compensation and enhancement (which could include hedgerow creation, native tree planting or funding local wildlife groups). The construction phase will involve various temporary construction activities including overhead line diversions, working areas for construction equipment and machinery, site offices, storage, accesses, bellmouths, and haul roads, as well as watercourse crossings and the diversion of public rights of way (PROWs).

9. Next Steps

9.1 Introduction

9.1.1 The feedback from the 2022 non-statutory consultation and scoping together with further technical and environmental work has led to the development of the Proposed Project which is set out in this document.

9.1.2 National Grid considers that the current project proposals strike the right balance between all of its statutory duties.

9.2 Next steps

9.2.1 National Grid is undertaking statutory consultation on its current proposals between 24 October and 18 December 2023.

9.2.2 During the coming months further environmental and site-based surveys studies will be undertaken which, alongside the feedback and outcomes of the 2023 statutory consultation, will further refine the proposed location of the substations, HVAC connections, converter stations, underground HVDC cable and marine HVDC cable and the location of areas required temporarily for the construction of the Proposed Project within the draft Order Limits.

9.2.3 The Proposed Project will be the subject of environmental impact assessments and there will be on-going consultation with stakeholders, interested parties and members of the public. A Preliminary Environmental Information Report (PEIR) has been provided as part of statutory consultation.

9.2.4 As with previous stages National Grid's initial decisions will be backchecked in the light of the findings of these further studies and assessments and new material information.

9.2.5 National Grid expects to submit an application for the Proposed Project in autumn 2024.

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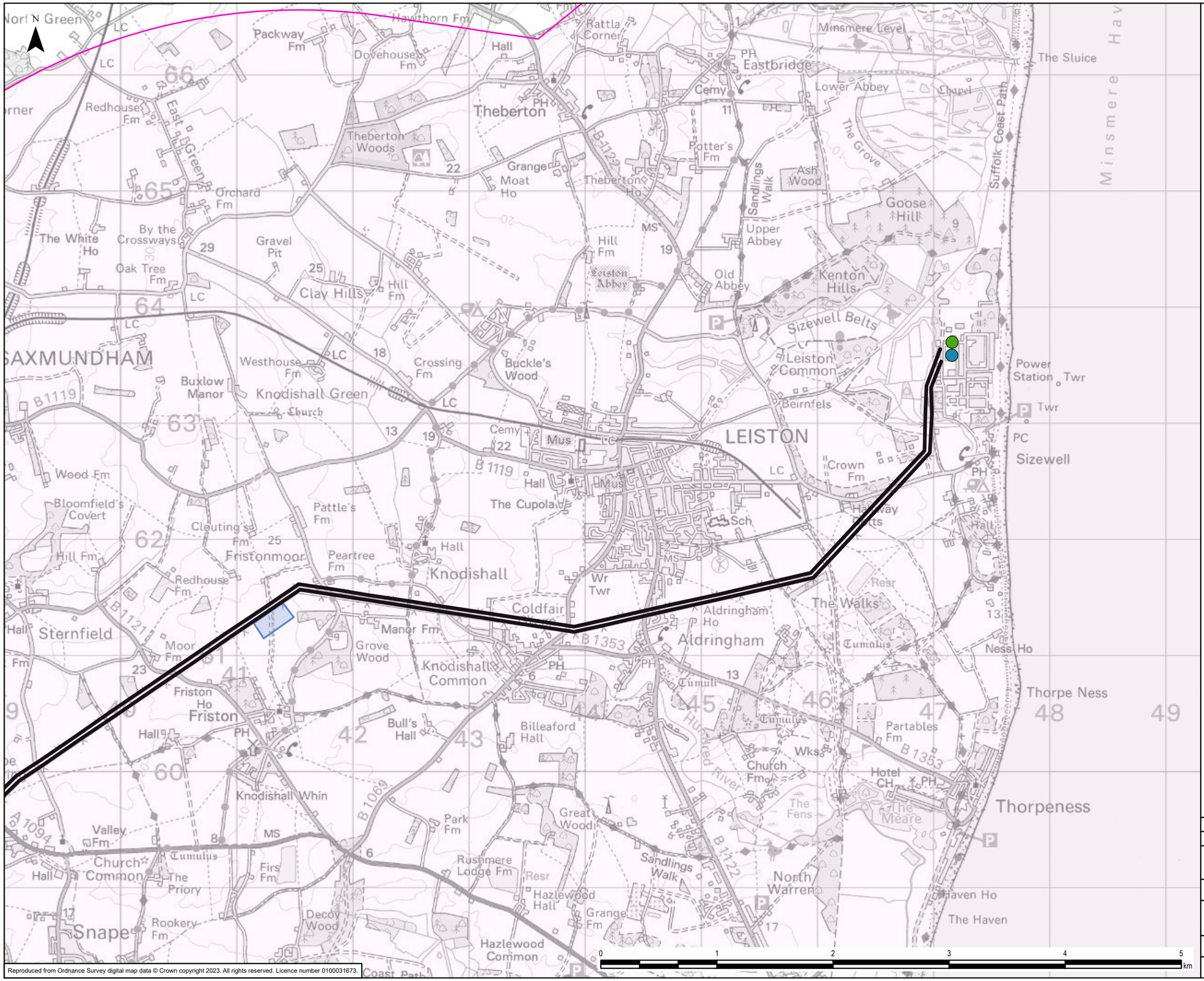
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Appendix A Figures

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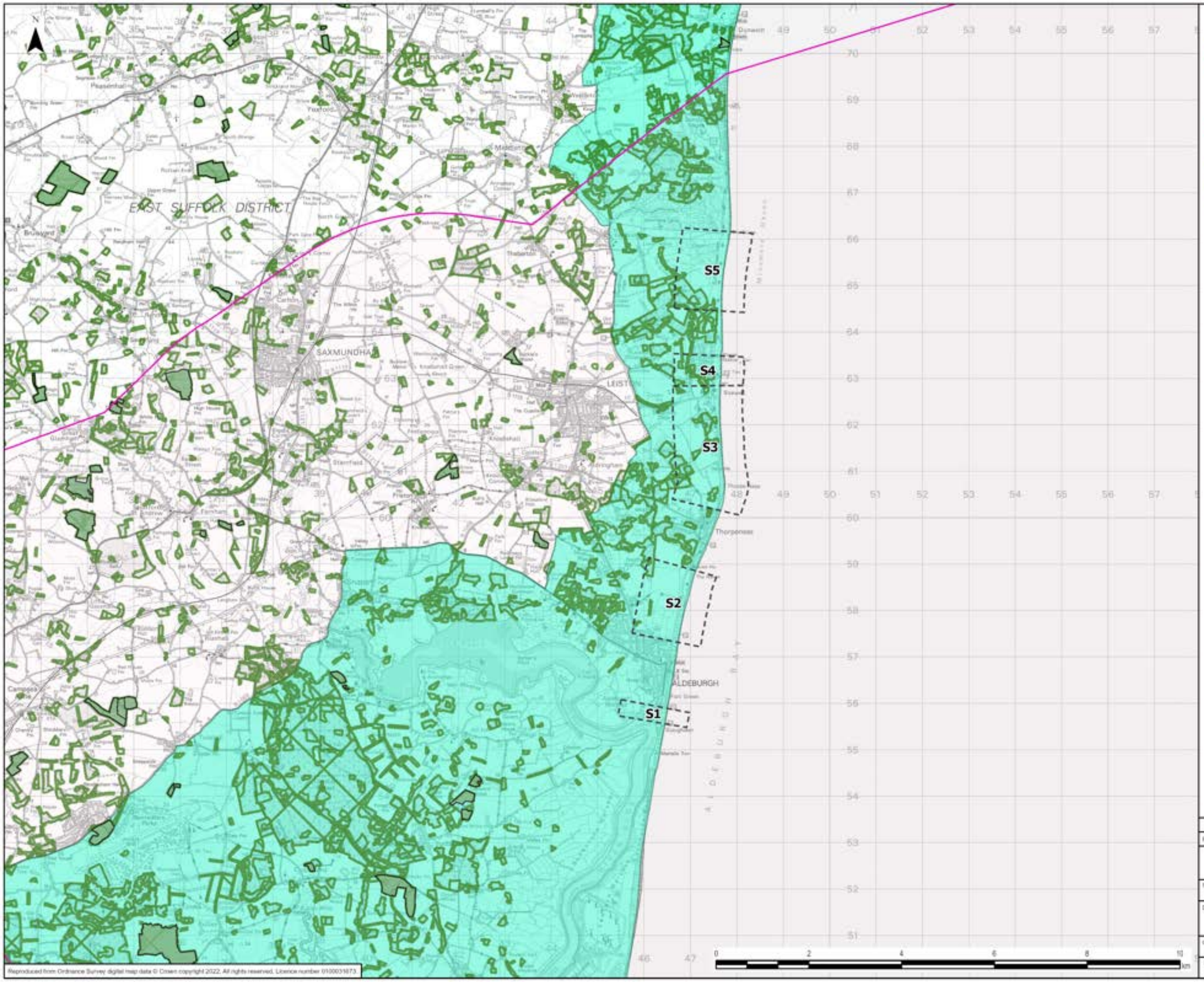
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Legend

- Routeing and Siting Study Area
- Landfall Area of Search
- Area of Outstanding Natural Beauty
- National Woodland Inventory
- Ancient Woodland

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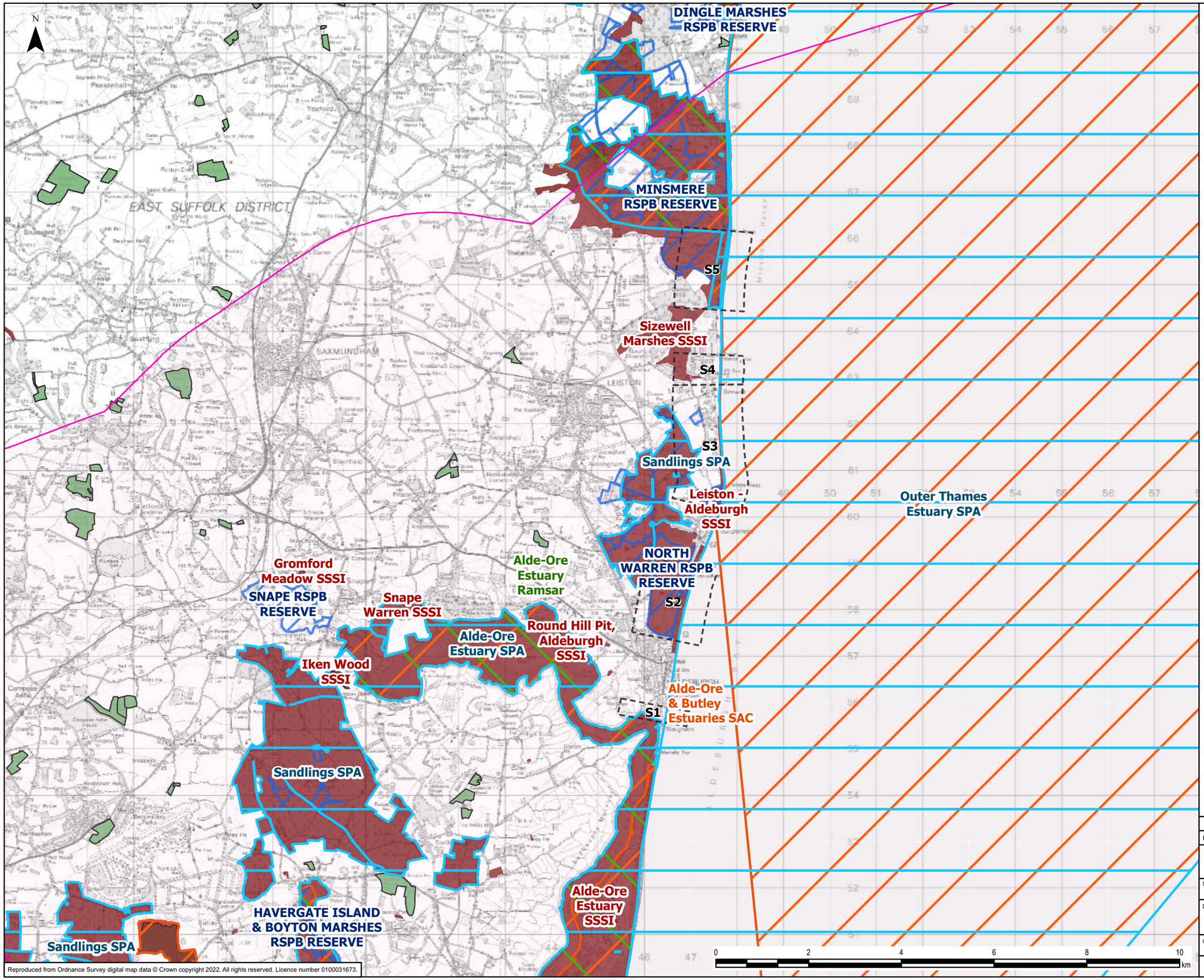
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Legend

- Routeing and Siting Study Area
- Landfall Area of Search
- Ancient Woodland
- Site of Special Scientific Interest
- RSPB Reserve
- Special Area of Conservation
- Ramsar
- Special Protection Area

Rev	Date	Description			
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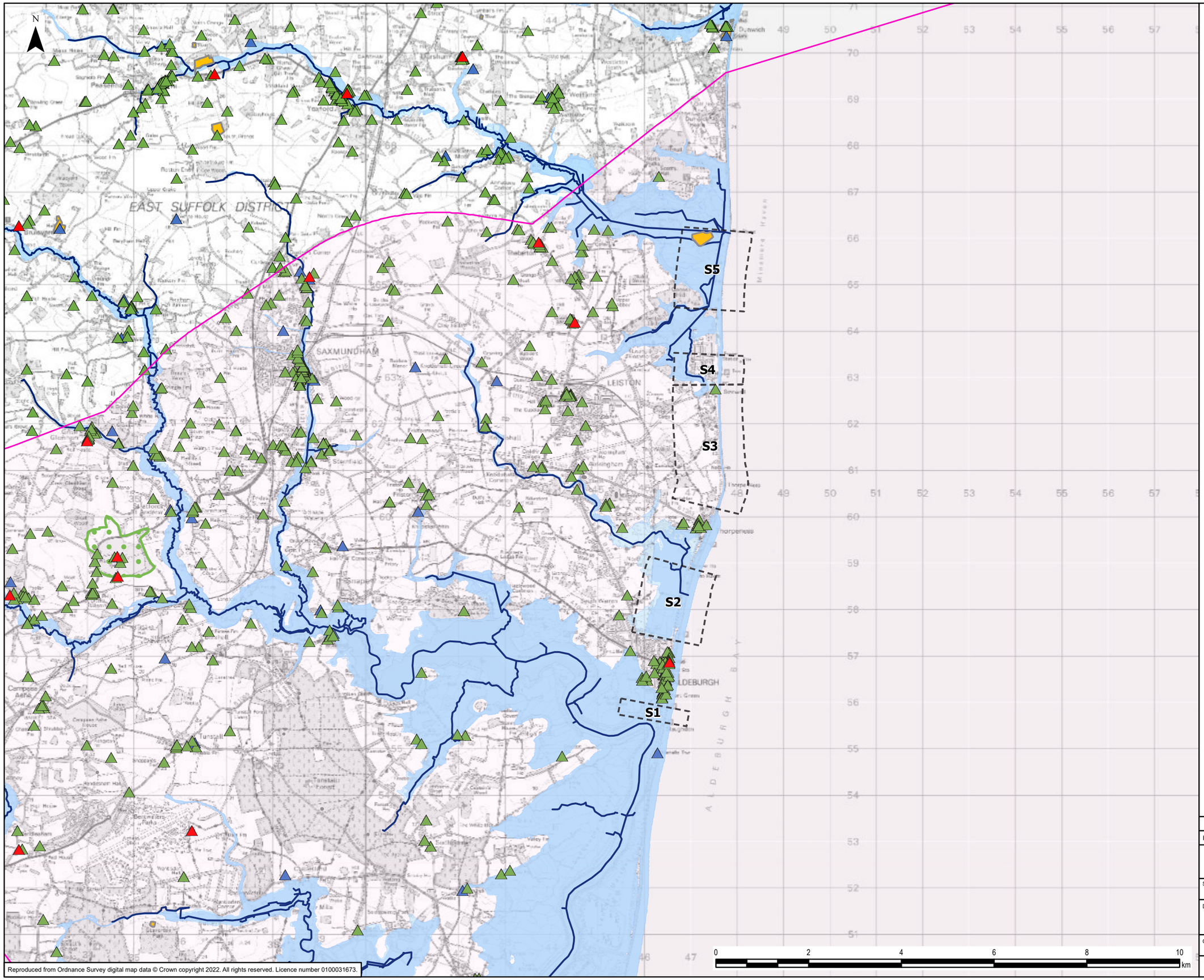
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Legend

- Routeing and Siting Study Area
- Landfall Area of Search
- Listed Buildings - Grade I
- Listed Buildings - Grade II
- Listed Buildings - Grade II*
- Parks and Gardens - Grade II
- Scheduled Monuments
- Main Rivers
- Flood Zone 2
- Flood Zone 3

Rev	Date	Description	GIS	Chk	App
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nationalgrid

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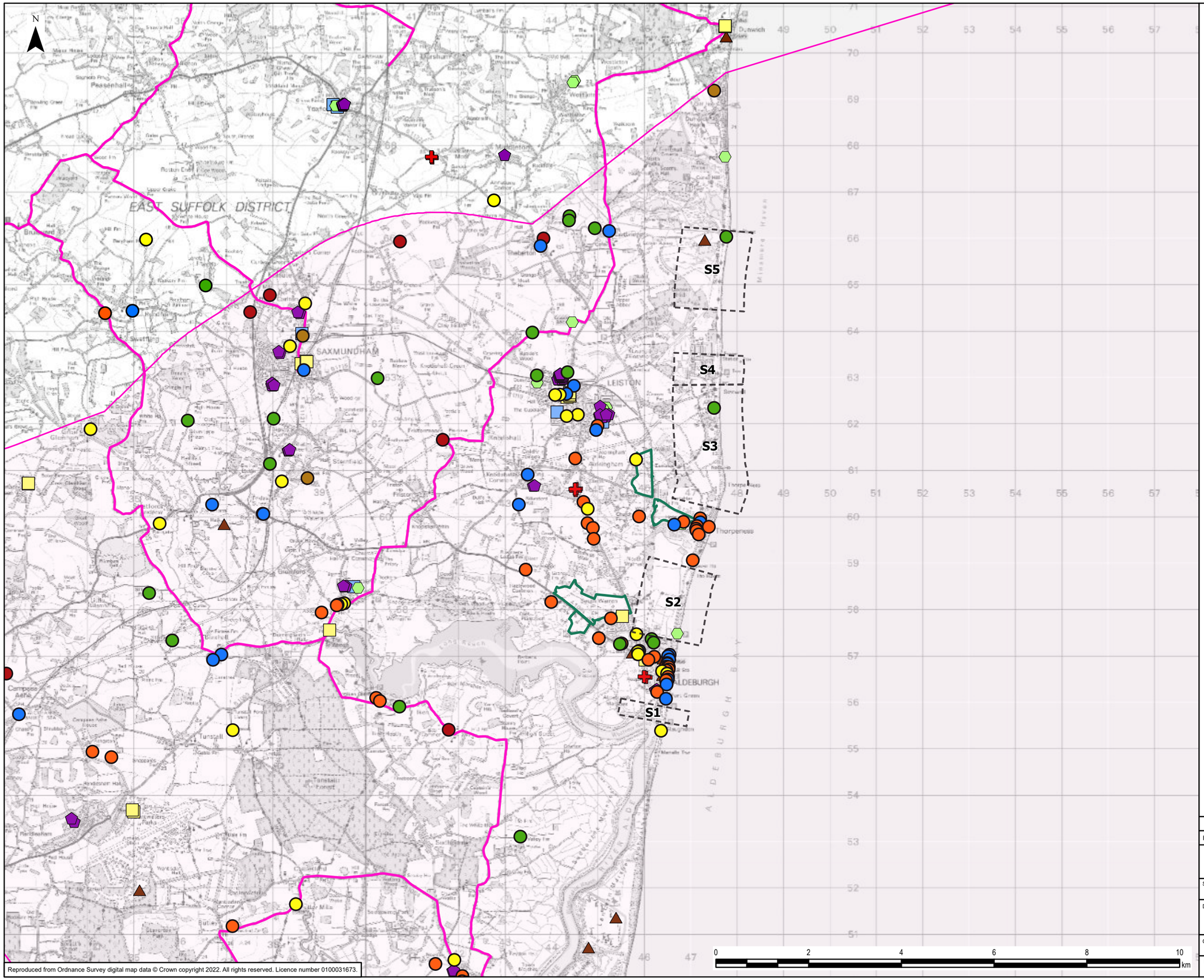
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Legend

- Routeing and Siting Study Area
- Landfall Area of Search
- Bed and Breakfast
- Campsite
- Caravan Park
- Guest House
- Holiday Park
- Hotel
- Touring Park
- Cultural Facility
- Education
- Heritage
- Leisure Facility
- Medical
- Sports And Leisure Centre & Sports Club
- National Cycle Network
- Golf Course

Rev	Date	Description	GIS	Chk	App
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EAST SUFFOLK DISTRICT

SAXMUNDHAM

ALDEBURGH

A

B

C

D

E

F

G

H

I

Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Proposed Friston Substation
- Converter Site Option Areas
- Area of Outstanding Natural Beauty
- National Woodland Inventory
- Ancient Woodland

0 1 2 3 4 5 km

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Rev	Date	Description	GIS	Chk	App
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EAST SUFFOLK DISTRICT

MINSMERE RSPB RESERVE

Sizewell Marshes SSSI

Leiston - Aldeburgh SSSI

Sandlings SPA

NORTH WARREN RSPB RESERVE

Alde-Ore & Butley Estuaries SAC

Outer Thames Estuary SPA

Round Hill Pit, Aldeburgh SSSI

Alde-Ore Estuary SPA

Alde-Ore Estuary SSSI

Alde-Ore Estuary Ramsar

Sandlings SPA

Snape Warren SSSI

Sandlings SPA

SNAPE RSPB RESERVE

Gromford Meadow SSSI

Iken Wood SSSI

Sandlings SPA

A

B

C

D

E

F

G

H

I

SAXMUNDHAM

LEISTON

ALDEBURGH

Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Proposed Friston Substation
- Converter Site Option Areas
- Ancient Woodland
- Site of Special Scientific Interest
- RSPB Reserve
- Special Area of Conservation
- Ramsar
- Special Protection Area

0 1 2 3 4 5 km

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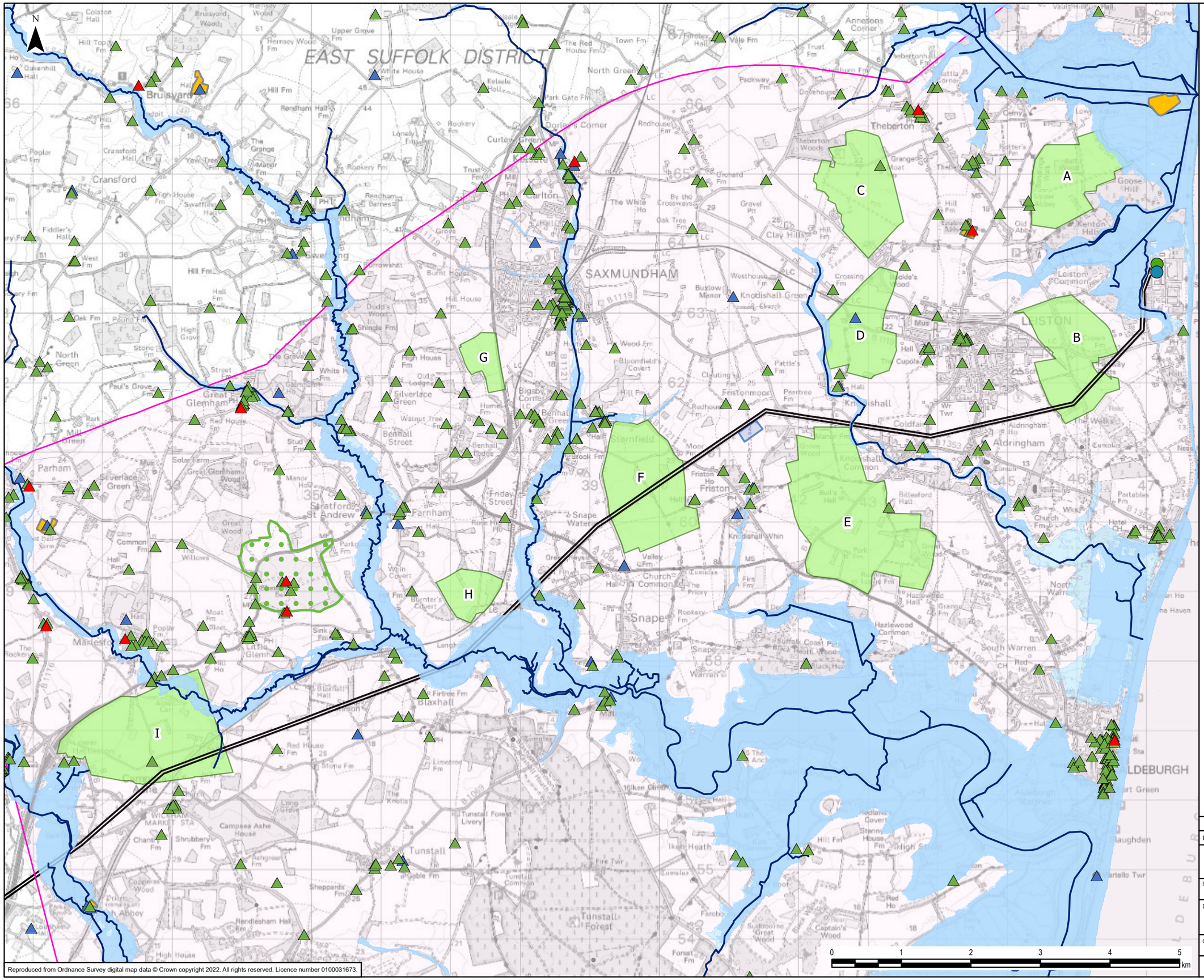
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Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Proposed Friston Substation
- Converter Site Option Areas
- Listed Buildings - Grade I
- Listed Buildings - Grade II
- Listed Buildings - Grade II*
- Parks and Gardens - Grade II
- Scheduled Monuments
- Main Rivers
- Flood Zone 2
- Flood Zone 3

Rev	Date	Description	GIS	Chk	App
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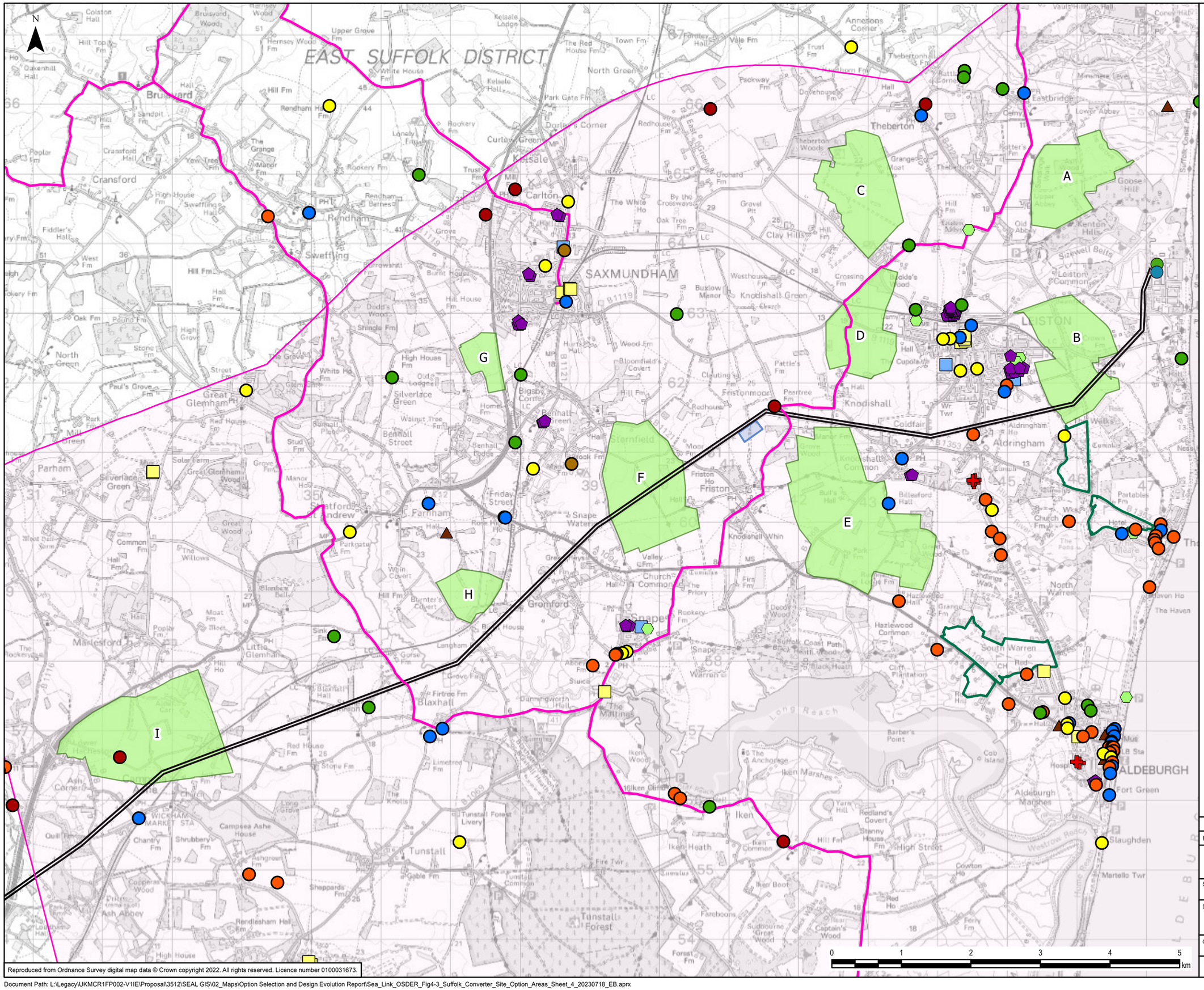
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Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Proposed Friston Substation
- Converter Site Option Areas
- Bed and Breakfast
- Campsite
- Caravan Park
- Guest House
- Holiday Park
- Hotel
- Touring Park
- Cultural Facility
- Education
- Heritage
- Leisure Facility
- Medical
- Sports And Leisure Centre & Sports Club
- National Cycle Network
- Golf Course

0 1 2 3 4 5 km

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EAST SUFFOLK DISTRICT

SAXMUNDHAM

Theberton

Thorpeness

ALDEBURGH

Minsmere Haven

A

B

C

D

S1

S2

S3

S4

S5

Legend

- Routeing and Siting Study Area
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Converter Site Option Areas

Sizewell Connection Points Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange
- Landfall Area of Search
- Area of Outstanding Natural Beauty
- National Woodland Inventory
- Ancient Woodland

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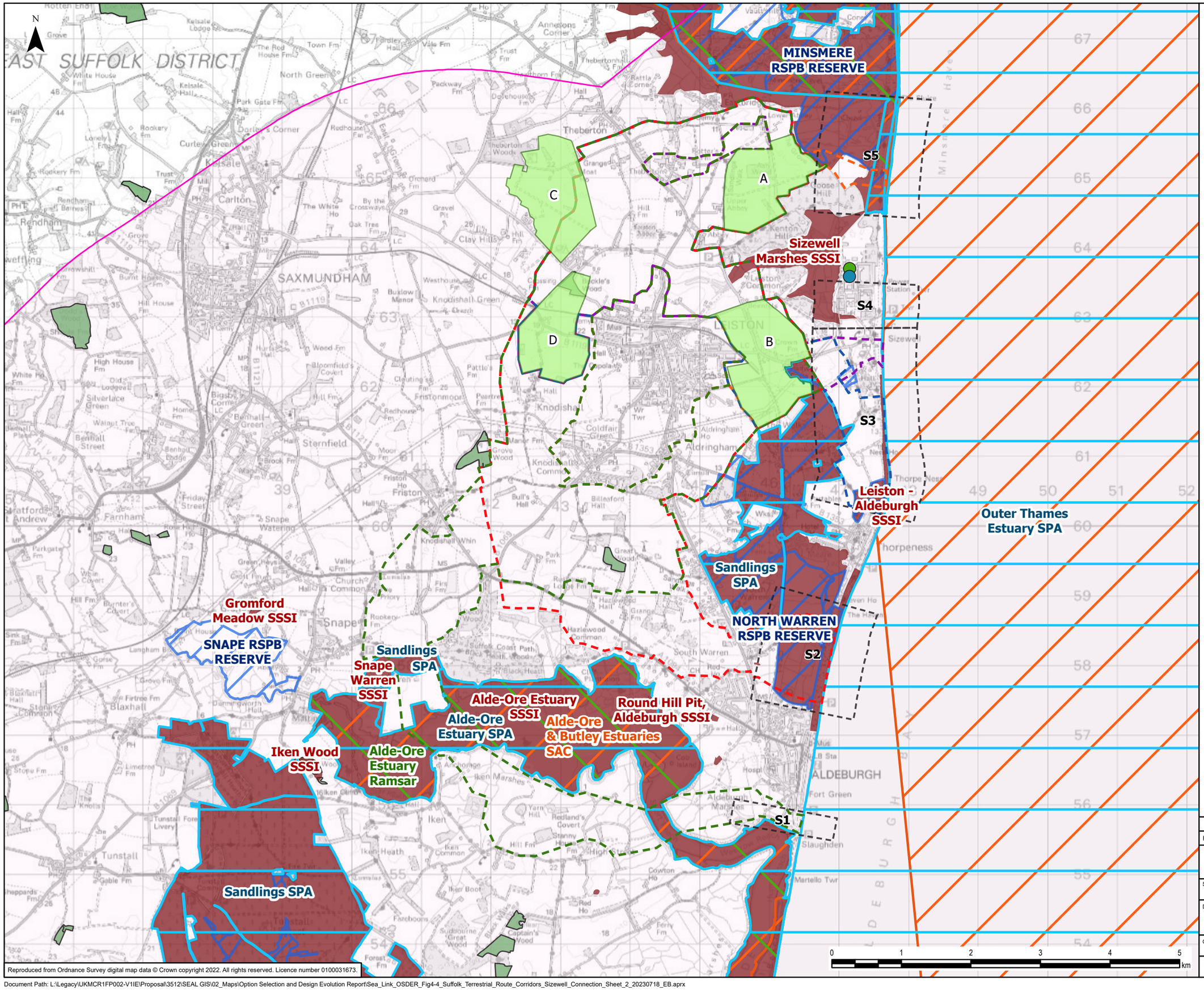
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Legend

- Routeing and Siting Study Area
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Converter Site Option Areas

Sizewell Connection Points Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange
- Landfall Area of Search
- Ancient Woodland
- Site of Special Scientific Interest
- RSPB Reserve
- Special Area of Conservation
- Ramsar
- Special Protection Area

Rev	Date	Description	GIS	Chk	App
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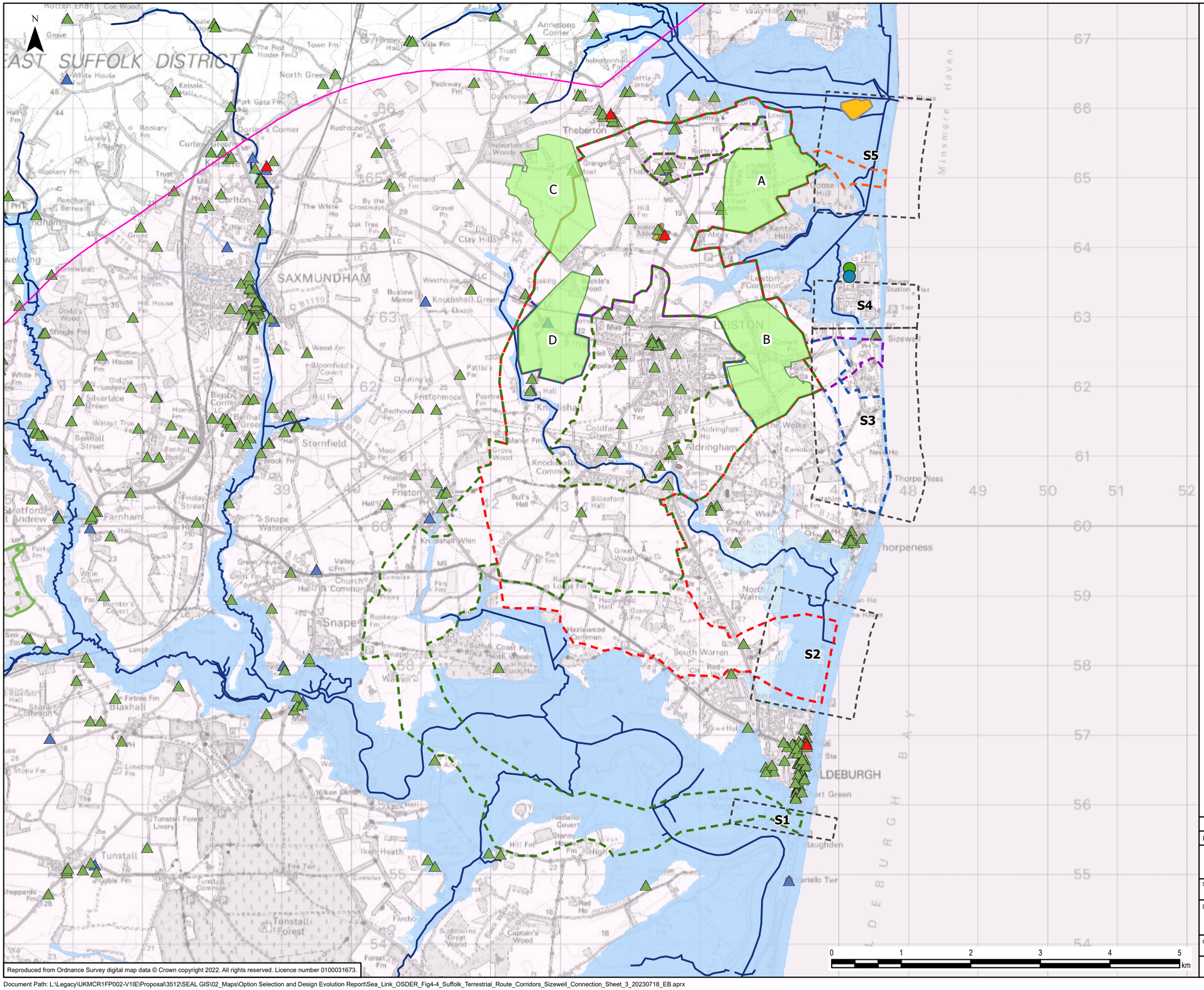
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Legend

- Routeing and Siting Study Area
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Converter Site Option Areas

Sizewell Connection Points Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange
- Landfall Area of Search
- Listed Buildings - Grade I
- Listed Buildings - Grade II
- Listed Buildings - Grade II*
- Parks and Gardens - Grade II
- Scheduled Monuments
- Main Rivers
- Flood Zone 2
- Flood Zone 3

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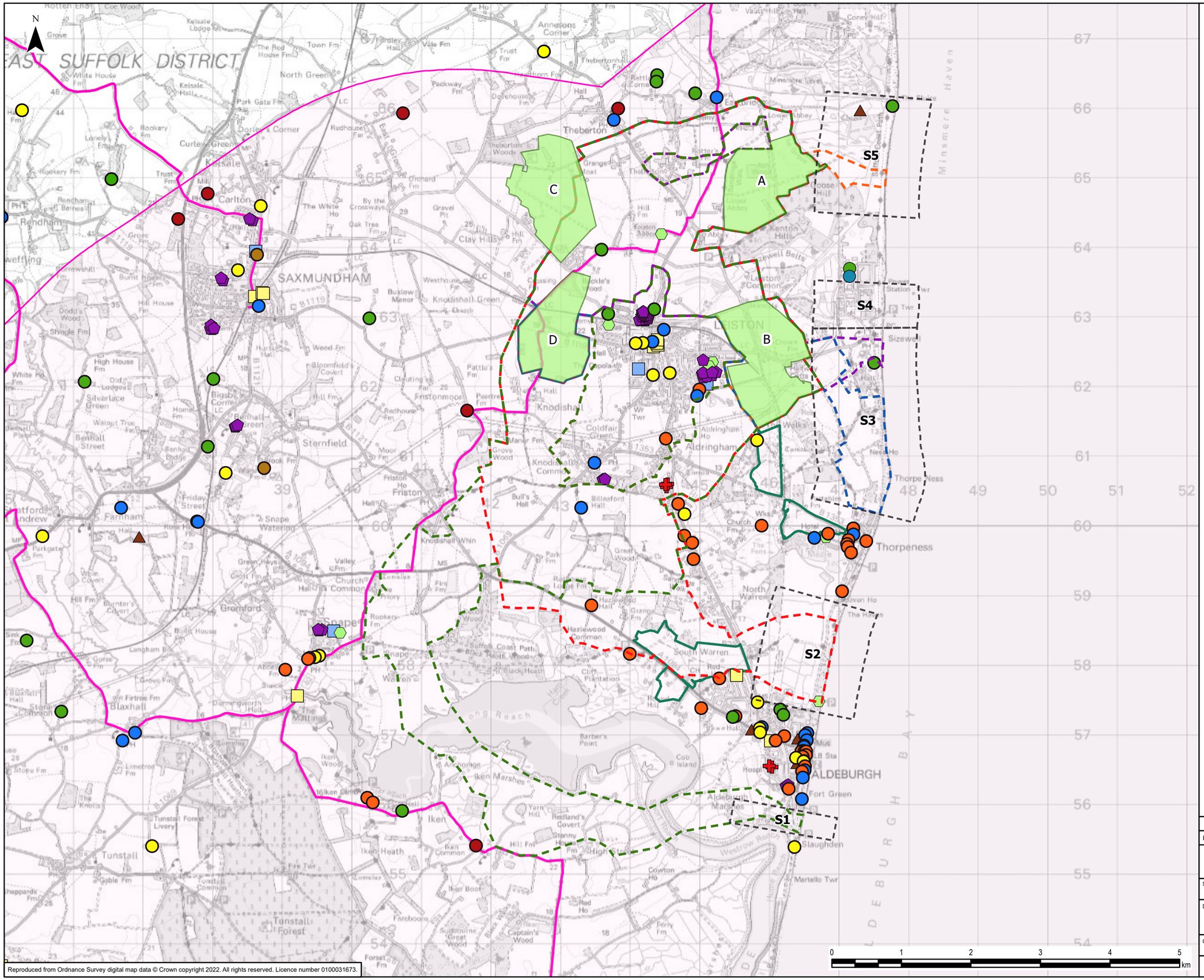
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Legend

- Routeing and Siting Study Area
- Proposed Sizewell Substation
- Existing Sizewell Substation
- Converter Site Option Areas

Sizewell Connection Points Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange
- Landfall Area of Search
- Bed and Breakfast
- Campsite
- Caravan Park
- Guest House
- Holiday Park
- Hotel
- Touring Park
- Cultural Facility
- Education
- Heritage
- Leisure Facility
- Medical
- Sports And Leisure Centre & Sports Club
- National Cycle Network
- Golf Course

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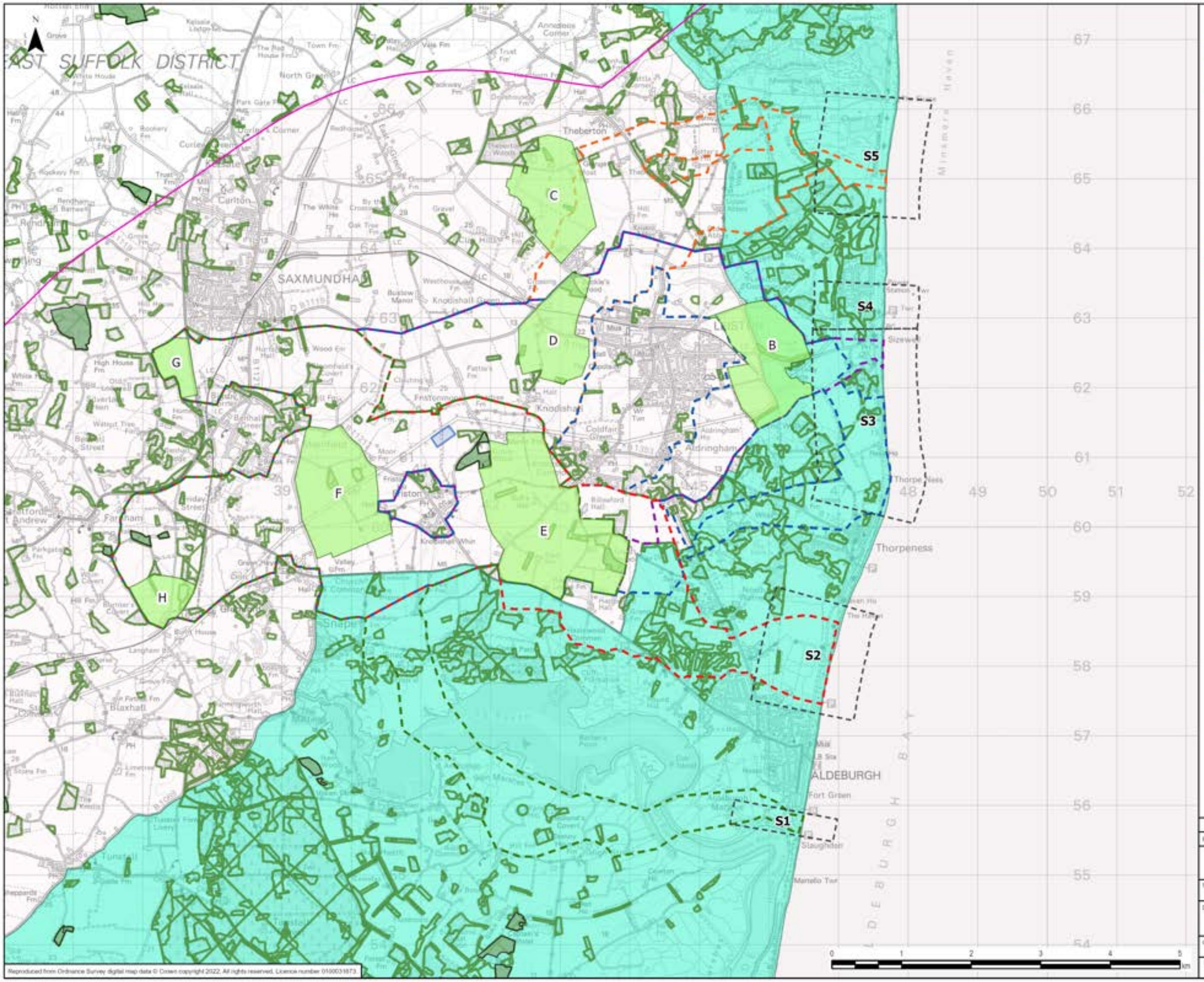
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Legend

- Routeing and Siting Study Area
- Proposed Friston Substation
- Landfall Area of Search
- Converter Site Option Areas

Proposed Friston Substation Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange
- Area of Outstanding Natural Beauty
- National Woodland Inventory
- Ancient Woodland

Rev	Date	Description	Drn	Chk	App
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N

EAST SUFFOLK DISTRICT

MINSMERE RSPB RESERVE

S5

Sizewell Marshes SSSI

S4

S3

Leiston - Aldeburgh SSSI

Outer Thames Estuary SPA

Sandlings SPA

NORTH WARREN RSPB RESERVE

S2

Alde-Ore & Butley Estuaries SAC

S1

C

D

B

G

F

E

H

Gromford Meadow SSSI

SNAPE RSPB RESERVE

Sandlings SPA

Snape Warren SSSI

Alde-Ore Estuary Ramsar

Alde-Ore Estuary SPA

Round Hill Pit, Aldeburgh SSSI

Alde-Ore Estuary SSSI

Iken Wood SSSI

Sandlings SPA

0 1 2 3 4 5 km

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Legend

- Routeing and Siting Study Area
- Proposed Friston Substation
- Landfall Area of Search
- Converter Site Option Areas

Proposed Friston Substation Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange
- Ancient Woodland
- Site of Special Scientific Interest
- RSPB Reserve
- Special Area of Conservation
- Ramsar
- Special Protection Area

Rev	Date	Description	GIS	Chk	App
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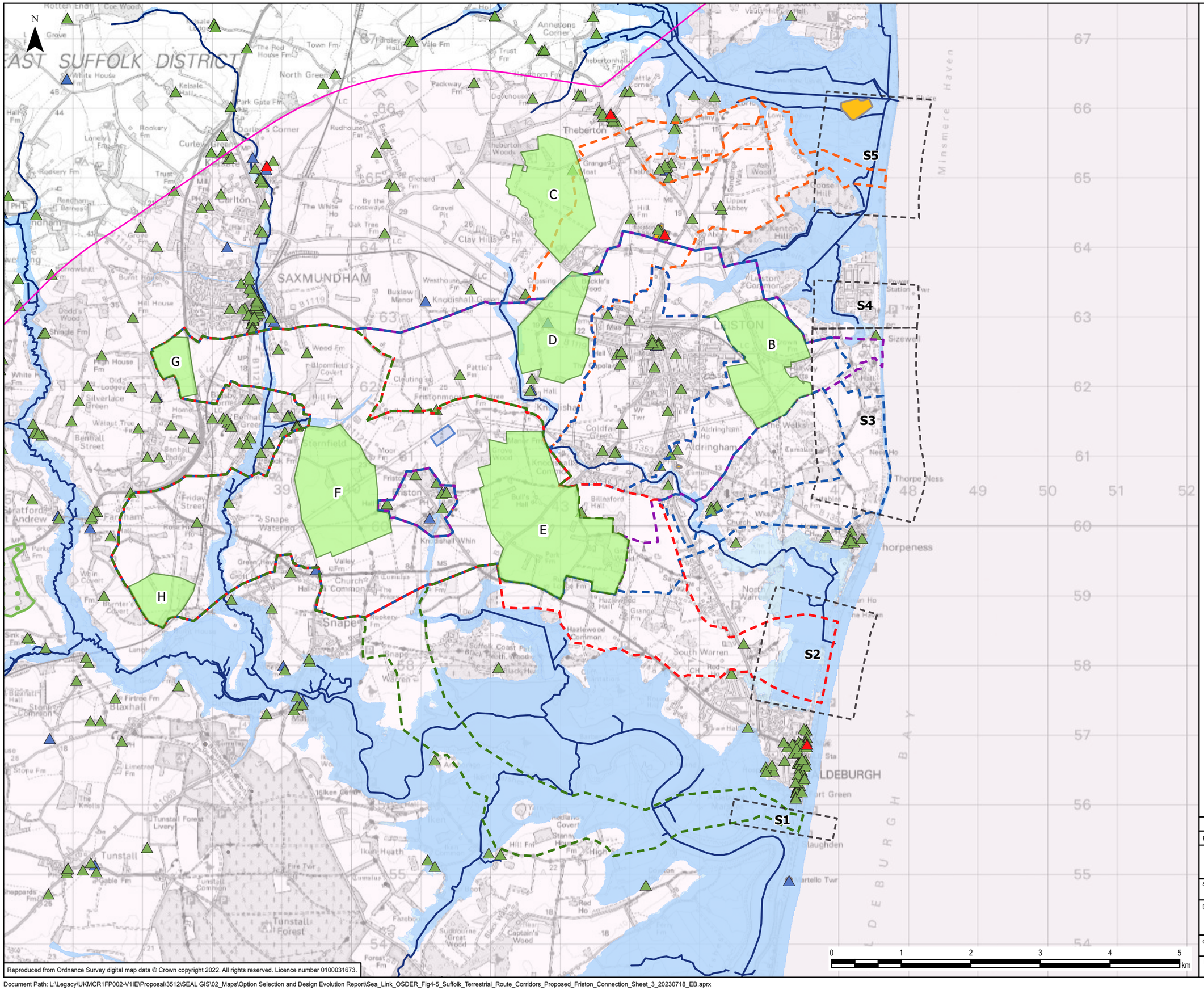
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Legend

- Routeing and Siting Study Area
- Proposed Friston Substation
- Landfall Area of Search
- Converter Site Option Areas

Proposed Friston Substation Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange
- Listed Buildings - Grade I
- Listed Buildings - Grade II
- Listed Buildings - Grade II*
- Parks and Gardens - Grade II
- Scheduled Monuments
- Main Rivers
- Flood Zone 2
- Flood Zone 3

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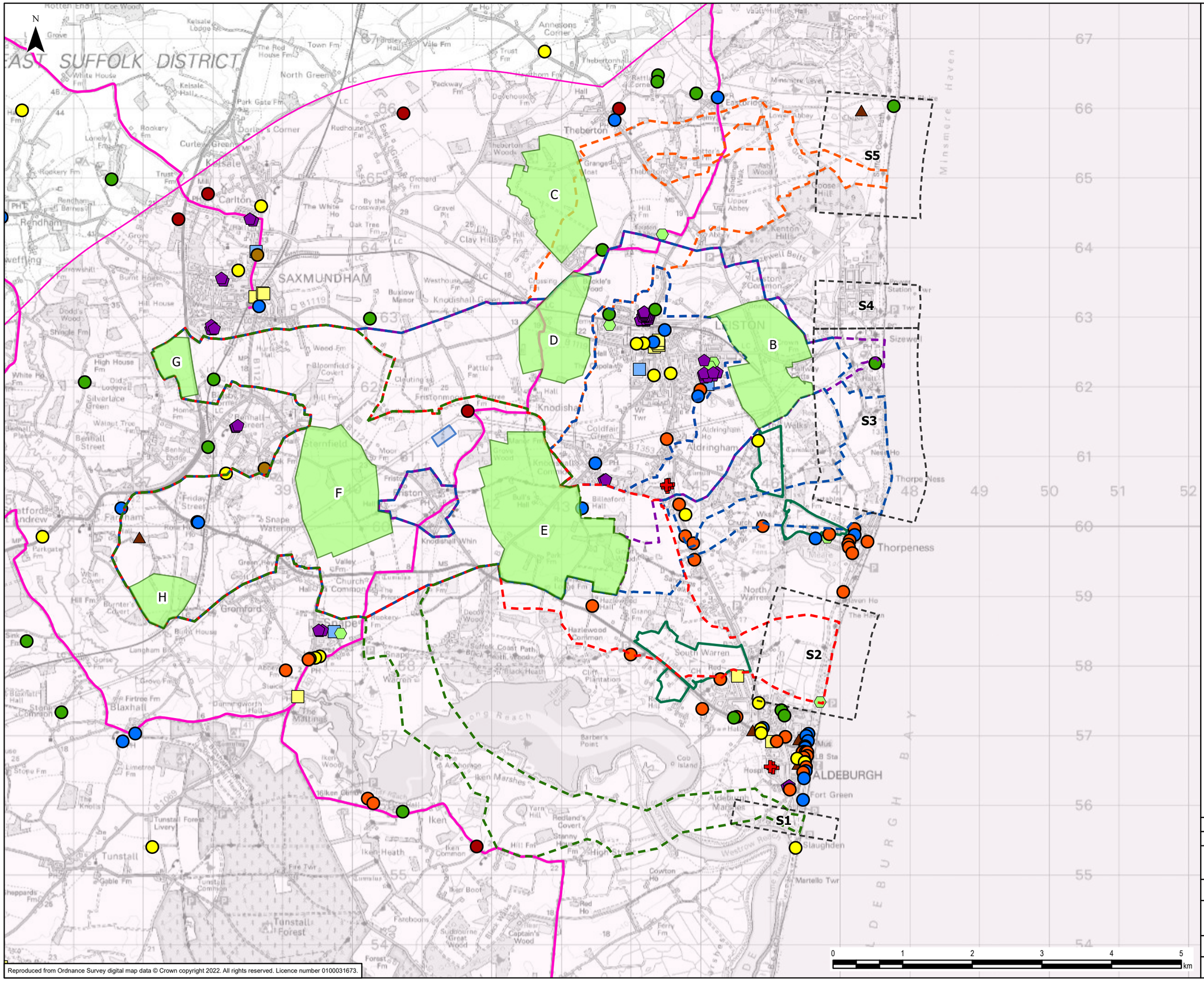
Document Title: SUFFOLK TERRESTRIAL ROUTE CORRIDORS PROPOSED FRISTON CONNECTION - SHEET 3

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

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FIGURE 4-5	1:50,000	A3	1	0

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Legend

- Routeing and Siting Study Area
- Proposed Friston Substation
- Landfall Area of Search
- Converter Site Option Areas

Proposed Friston Substation Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange
- Bed and Breakfast
- Campsite
- Caravan Park
- Guest House
- Holiday Park
- Hotel
- Touring Park
- Cultural Facility
- Education
- Heritage
- Leisure Facility
- Medical
- Sports And Leisure Centre & Sports Club
- National Cycle Network
- Golf Course

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Document Title: SUFFOLK TERRESTRIAL ROUTE CORRIDORS PROPOSED FRISTON CONNECTION - SHEET 4

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EAST SUFFOLK DISTRICT

FRAMLINGHAM

SAXMUNDHAM

ALDEBURGH

S1

S2

S3

S4

S5

B

D

E

F

H

I

Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Landfall Area of Search
- Converter Site Option Areas

New Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange
- Area of Outstanding Natural Beauty
- National Woodland Inventory
- Ancient Woodland

0 1 2 3 4 5 km

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Rev	Date	Description	Drn	Chk	App
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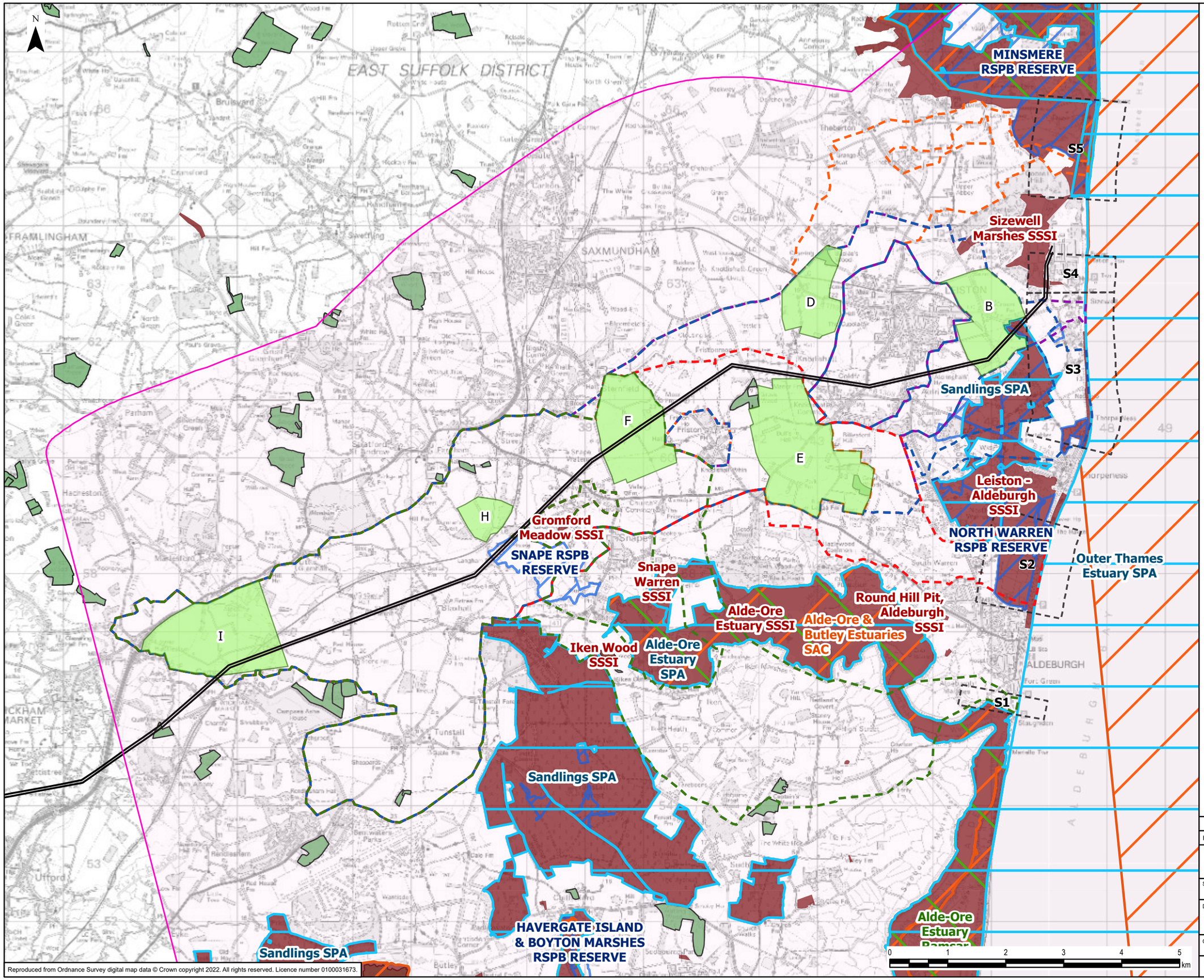
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Document Title: SUFFOLK TERRESTRIAL ROUTE CORRIDORS NEW CONNECTION - SHEET 1

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Document Ref	Scale	Format	Sheets	Rev
FIGURE 4-6	1:60,000	A3	1	0

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Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Landfall Area of Search
- Converter Site Option Areas

New Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange
- Ancient Woodland
- Site of Special Scientific Interest
- RSPB Reserve
- Special Area of Conservation
- Ramsar
- Special Protection Area

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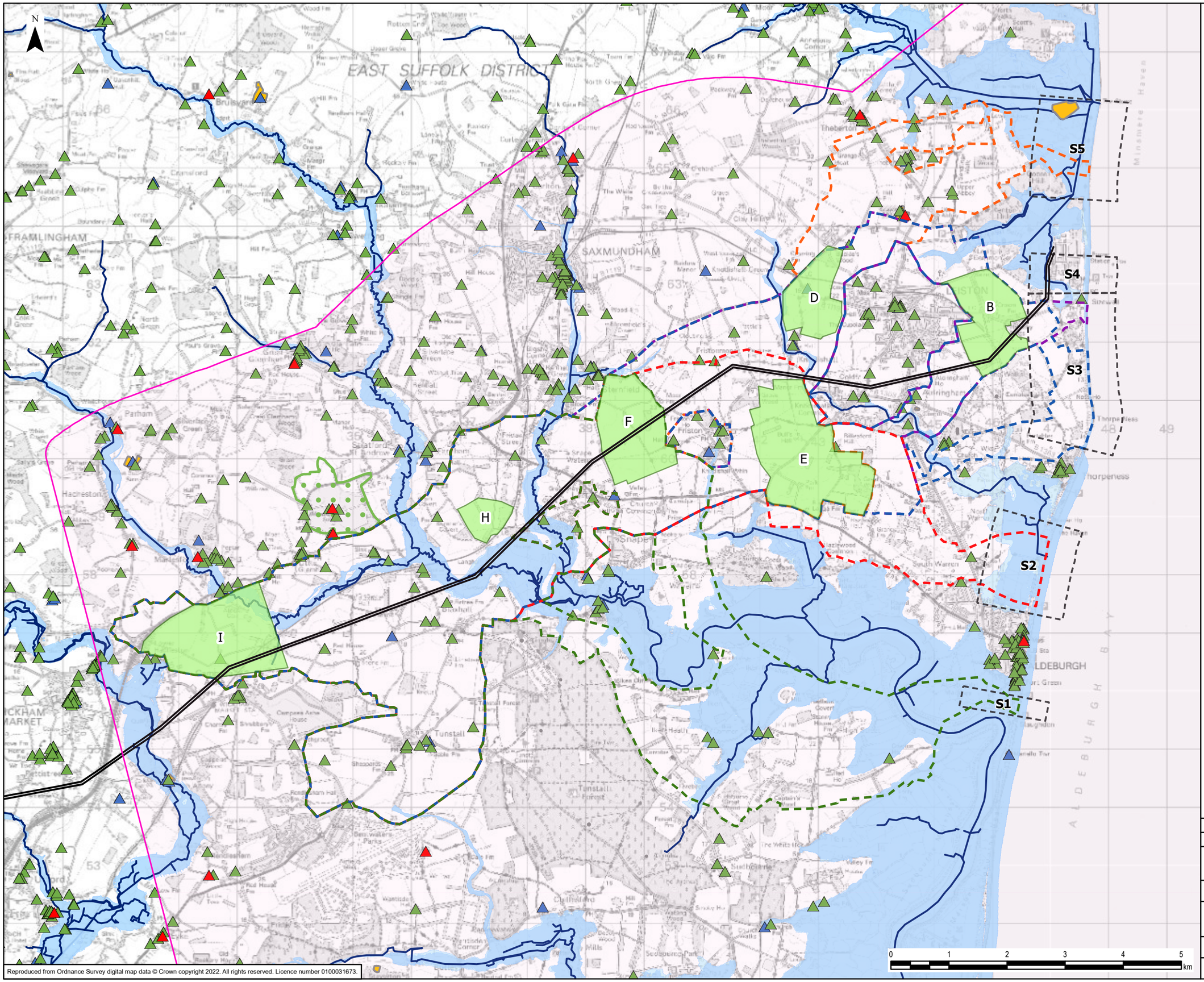
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Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Landfall Area of Search
- Converter Site Option Areas

New Connection Point Terrestrial Corridors

- Green
- Red
- Blue
- Purple
- Orange
- Listed Buildings - Grade I
- Listed Buildings - Grade II
- Listed Buildings - Grade II*
- Parks and Gardens - Grade II
- Scheduled Monuments
- Main Rivers
- Flood Zone 2
- Flood Zone 3

Rev	Date	Description			
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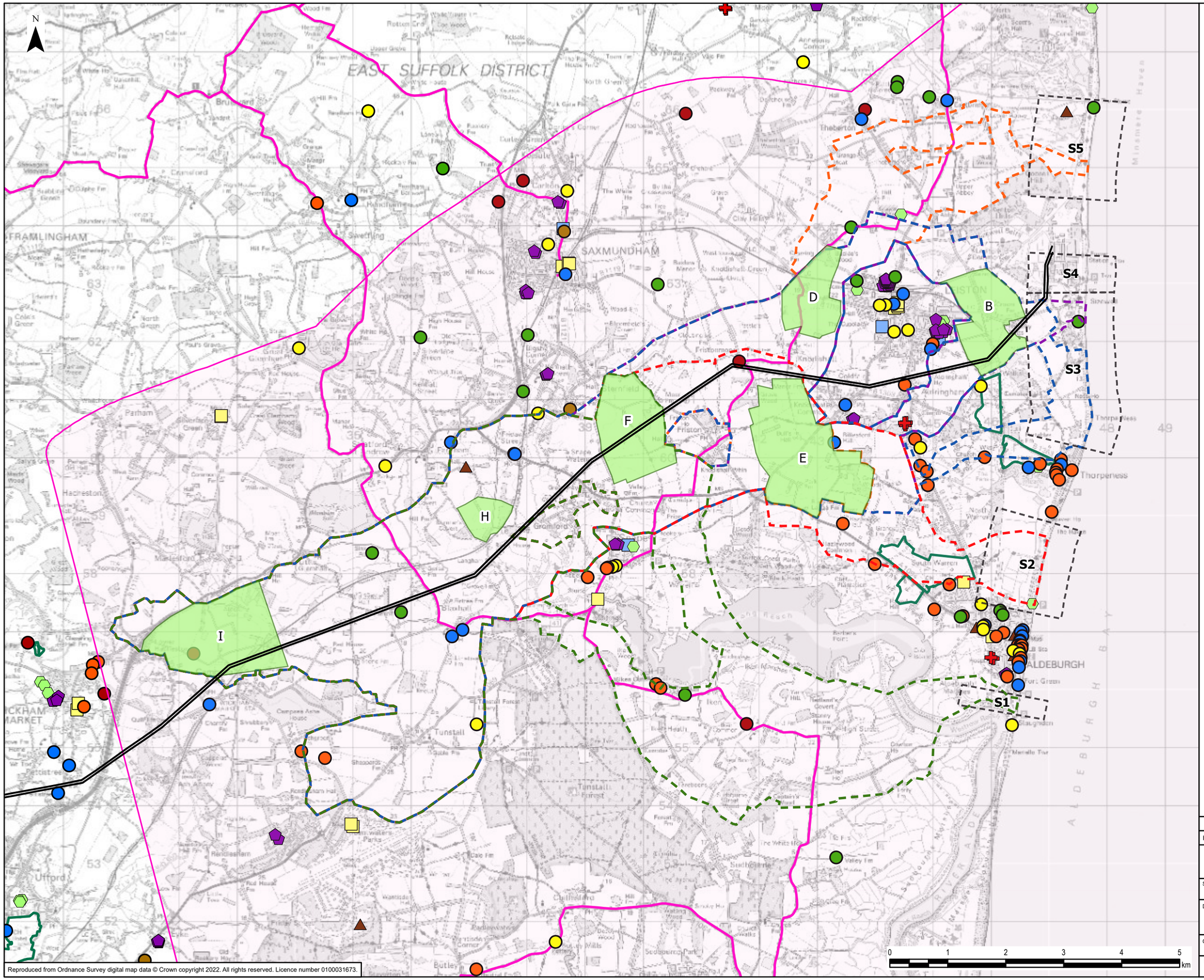
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N
EAST SUFFOLK DISTRICT
FRAMLINGHAM
SAXMUNDHAM
Framlingham
Saxmundham
Leiston
Aldeburgh
Thorpeness
Tunstall
Tunstall Forest
Blaxhall
Butley
Ufford
Hacheston
Parham
Marlesford
Rendlesham
Sutton Hoo
Orford
Eastbridge
Snape
Aldeburgh Golf Club
A1094
A12
A1120
A1152
A1095
A1121
A1122
A1094
A1120
A1152
A1095
A1121
A1122
A12
A1094
A1120
A1152
A1095
A1121
A1122
A12
A1094
A1120
A1152
A1095
A1121
A1122
A12

EAST SUFFOLK DISTRICT

SAXMUNDHAM

Site 1
Site 2
Site 3
Site 4
Site 5
Site 6
Site 7

A
B
C
D
E
F
G
H
I

Legend

- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Converter Site Option Areas
- Potential Coordinated Converter Station Sites
- Area of Outstanding Natural Beauty
- National Woodland Inventory
- Ancient Woodland

0 1 2 3 4 km

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Rev	Date	Description	Drn	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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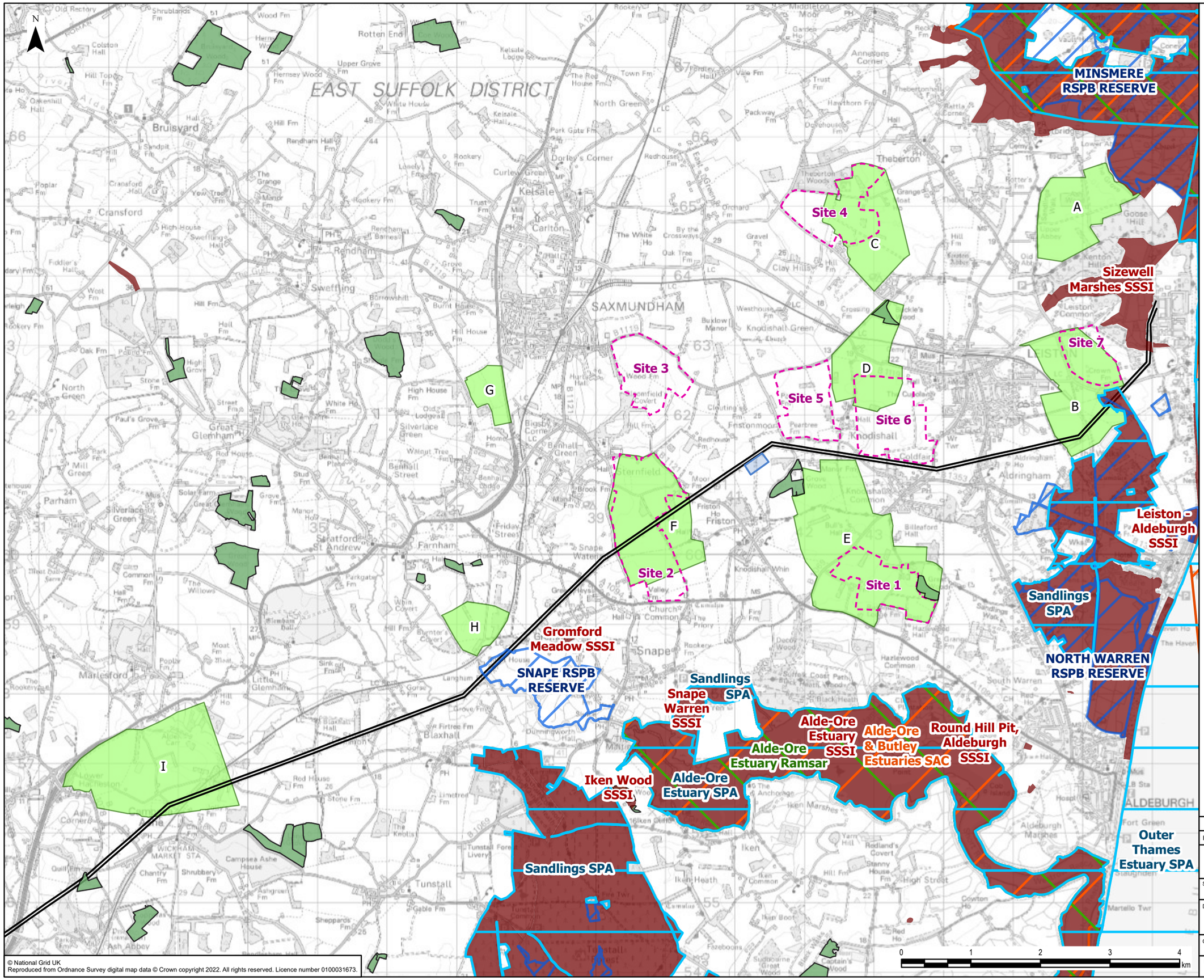
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Document Title: POTENTIAL COORDINATED CONVERTER STATION SITES - SHEET 1

Creator	Date	Checker	Date	Approver	Date
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref	Scale	Format	Sheets	Rev
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Legend

- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Converter Site Option Areas
- Potential Coordinated Converter Station Sites
- Ancient Woodland
- Site of Special Scientific Interest
- RSPB Reserve
- Special Area of Conservation
- Ramsar
- Special Protection Area

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Rev	Date	Description			
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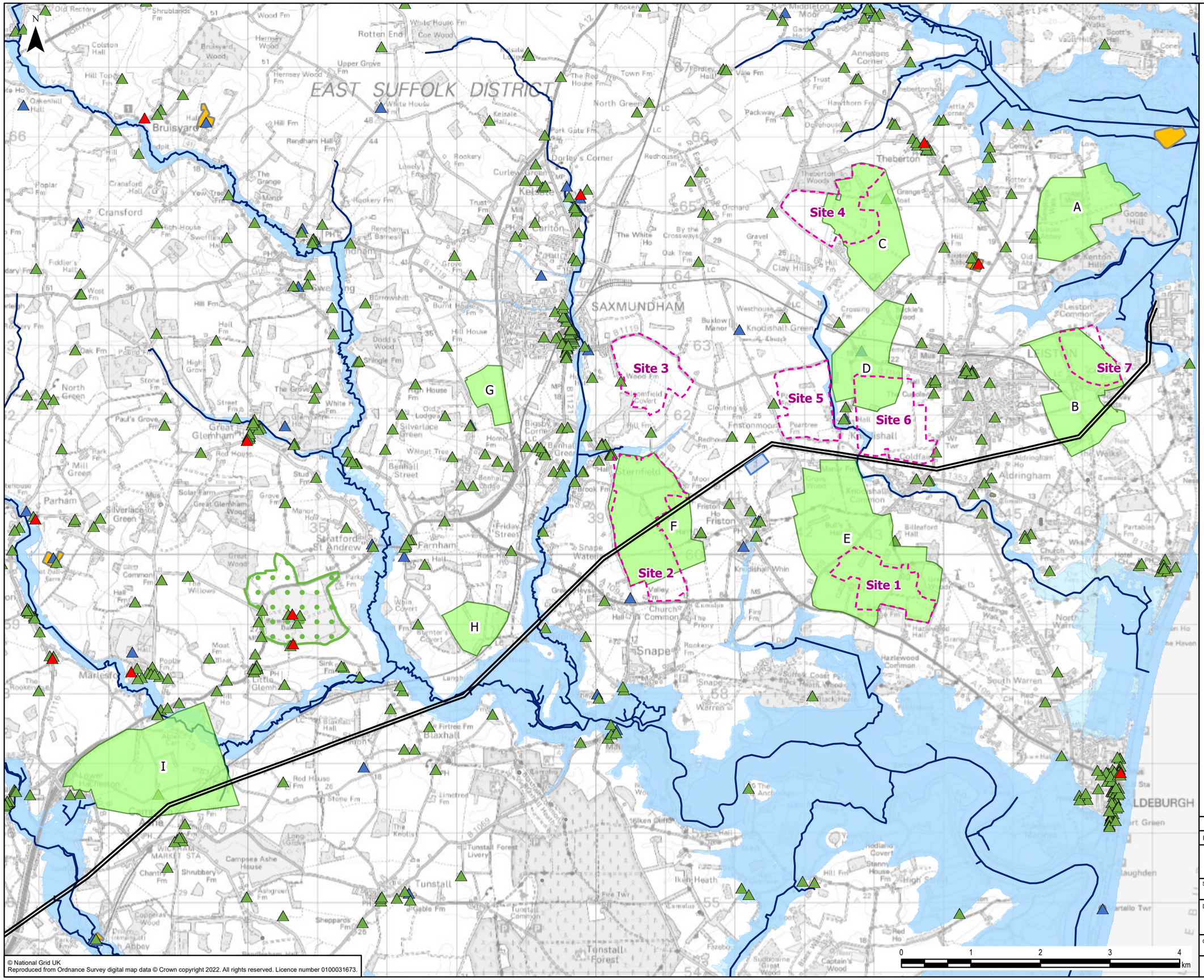
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Document Title: POTENTIAL COORDINATED CONVERTER STATION SITES - SHEET 2

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Legend

- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Converter Site Option Areas
- Potential Coordinated Converter Station Sites
- Listed Buildings - Grade I
- Listed Buildings - Grade II
- Listed Buildings - Grade II*
- Parks and Gardens - Grade II
- Scheduled Monuments
- Main Rivers
- Flood Zone 2
- Flood Zone 3

Rev	Date	Description	GIS	Chk	App
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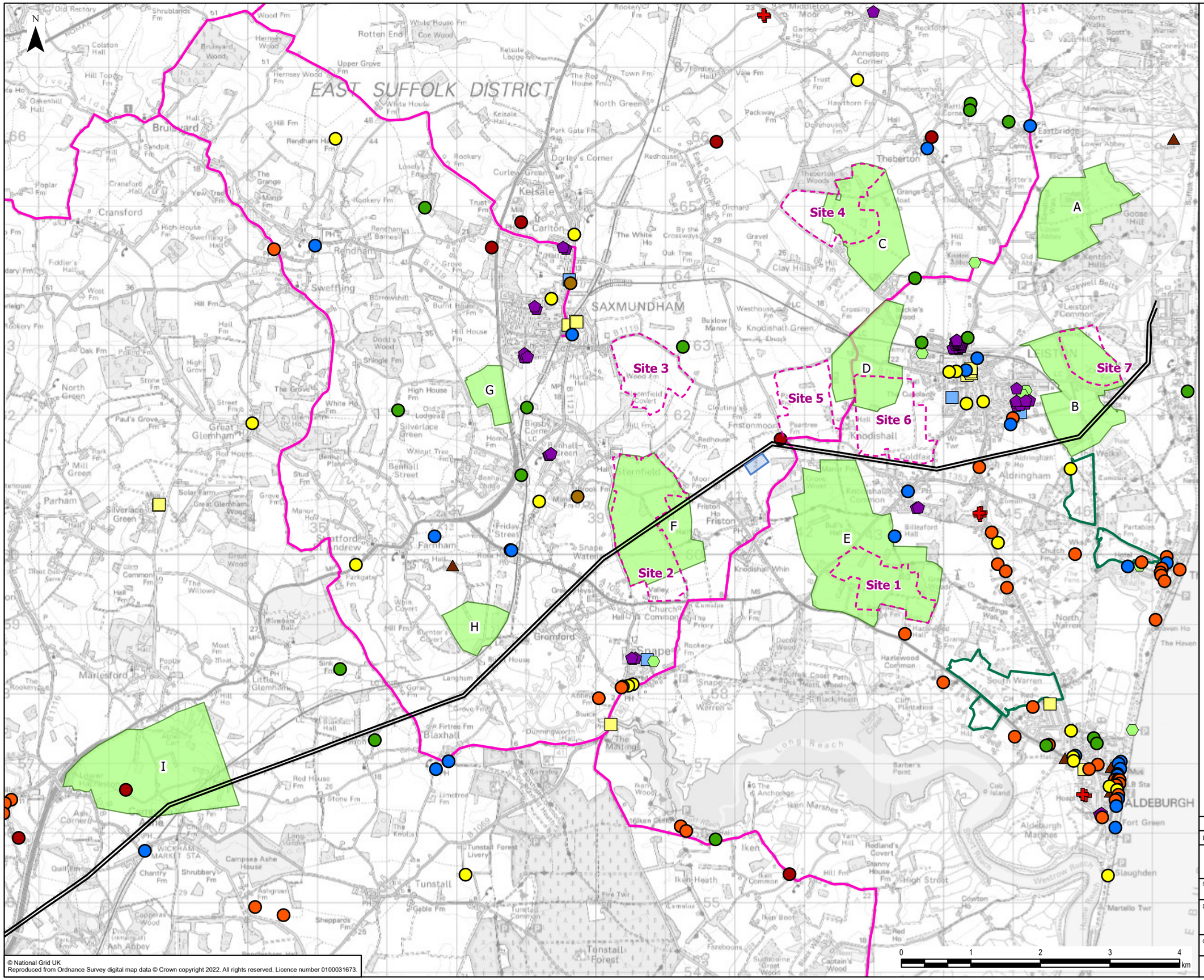
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Legend

- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Converter Site Option Areas
- Potential Coordinated Converter Station Sites
- Bed and Breakfast
- Campsite
- Caravan Park
- Guest House
- Holiday Park
- Hotel
- Touring Park
- Cultural Facility
- Education
- Heritage
- Leisure Facility
- Medical
- Sports And Leisure Centre & Sports Club
- National Cycle Network
- Golf Course

Rev	Date	Description	GIS	Chk	App
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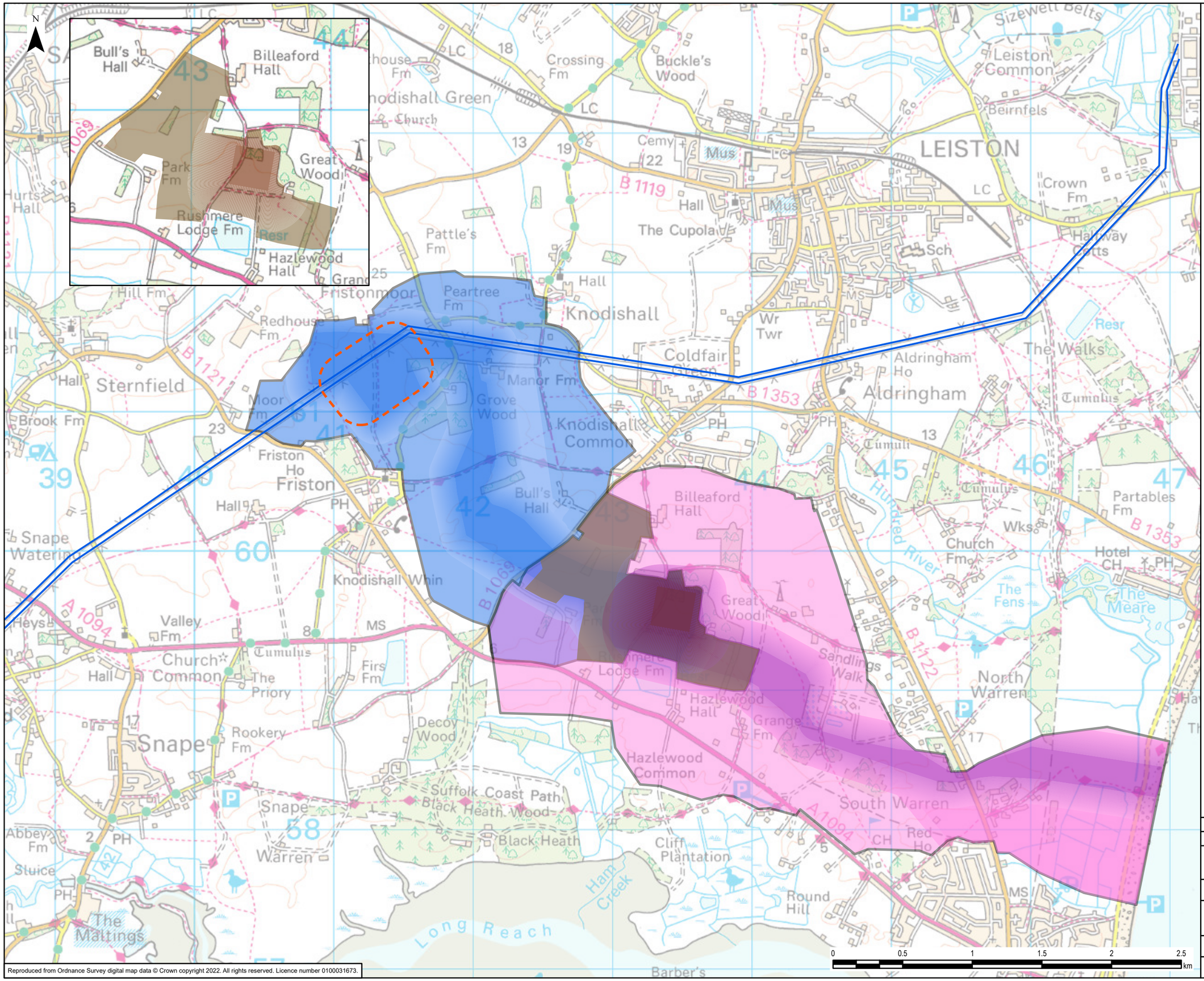
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Legend

- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Suffolk Converter Station Site 1
- Preferred HVDC Graduated Swathe
- Preferred HVDC Corridor
- HVAC Graduated Swathe
- HVAC Corridor

Rev	Date	Description	GIS	Chk	App
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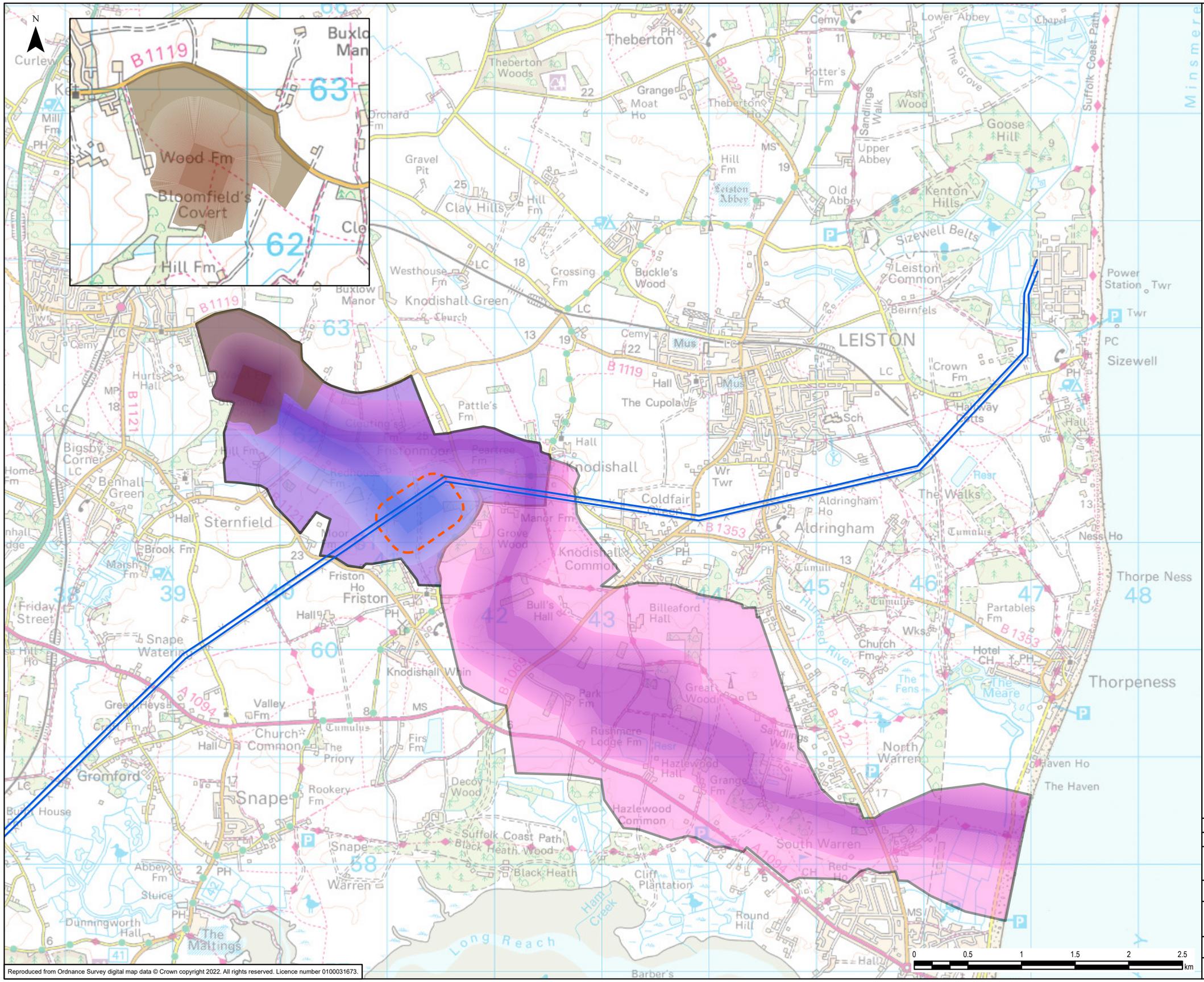
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FIGURE 4-8	1:25,000	A3	1	0

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Legend

- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Suffolk Converter Station Site 3
- Preferred HVDC Graduated Swathe
- Preferred HVDC Corridor
- HVAC Graduated Swathe
- HVAC Corridor

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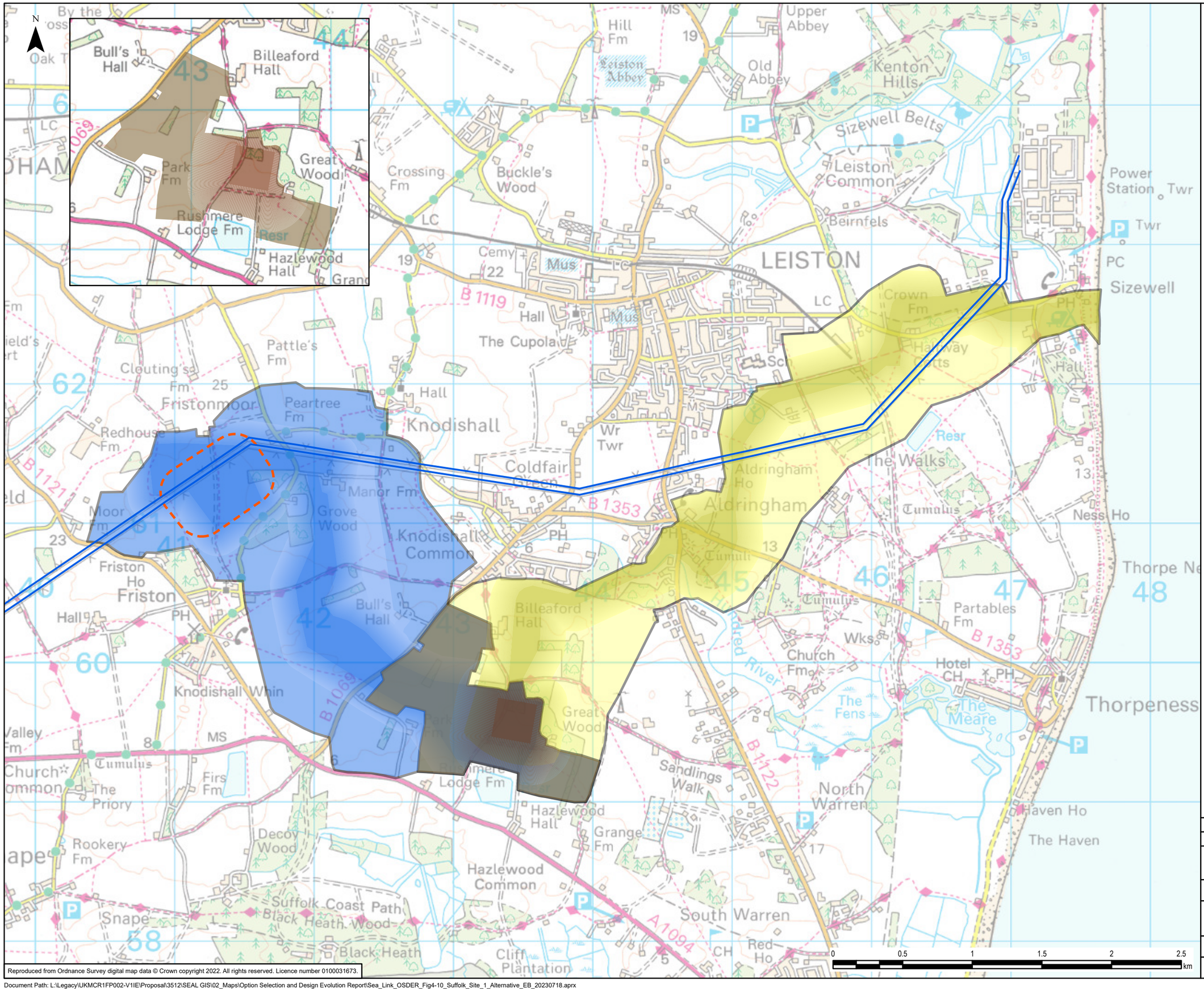
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Legend

- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Suffolk Converter Station Site 1
- Alternative HVDC Graduated Swathe
- Alternative HVDC Corridor
- HVAC Graduated Swathe
- HVAC Corridor

Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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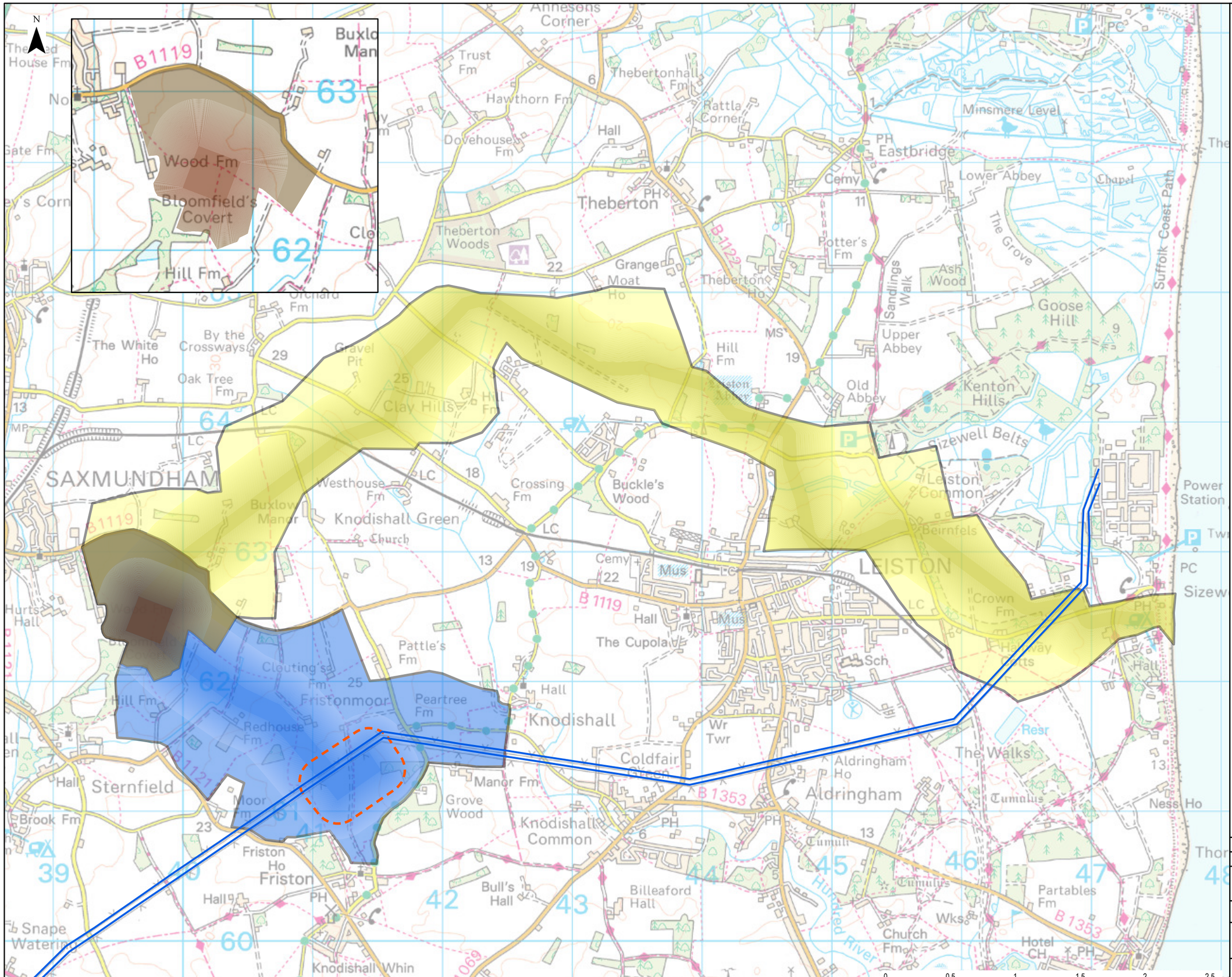
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FIGURE 4-10	1:25,000	A3	1	0

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Legend

- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Suffolk Converter Station Site 3
- Alternative HVDC Graduated Swathe
- Alternative HVDC Corridor
- HVAC Graduated Swathe
- HVAC Corridor

Rev	Date	Description	GIS	Chk	App
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Document Title: SUFFOLK SITE 3 ALTERNATIVE (OPTION 1)

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EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

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FIGURE 4-11	1:27,500	A3	1	0

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N

Legend

National Grid Overhead Line - 400kV

Proposed Friston Substation

Suffolk Converter Station Site 3

Alternative HVDC Corridor

HVAC Graduated Swathe

HVAC Corridor

0 0.5 1 1.5 2 2.5 km

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Document Title: SUFFOLK SITE 3 ALTERNATIVE (OPTION 2)

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EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4-12	1:30,000	A3	1	0

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N

MARGATE

K1a

NORTH FORELAND

K5

K4

K3

K2

BROADSTAIRS

ISLE OF THANET

THANET DISTRICT

RAMSGATE

K1

K1

DOVER DISTRICT

DEAL

THE DOWNS

0 2 4 6 8 10 km

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Legend

- Routeing and Siting Study Area
- Landfall Area of Search
- Area of Outstanding Natural Beauty
- National Woodland Inventory
- Ancient Woodland

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0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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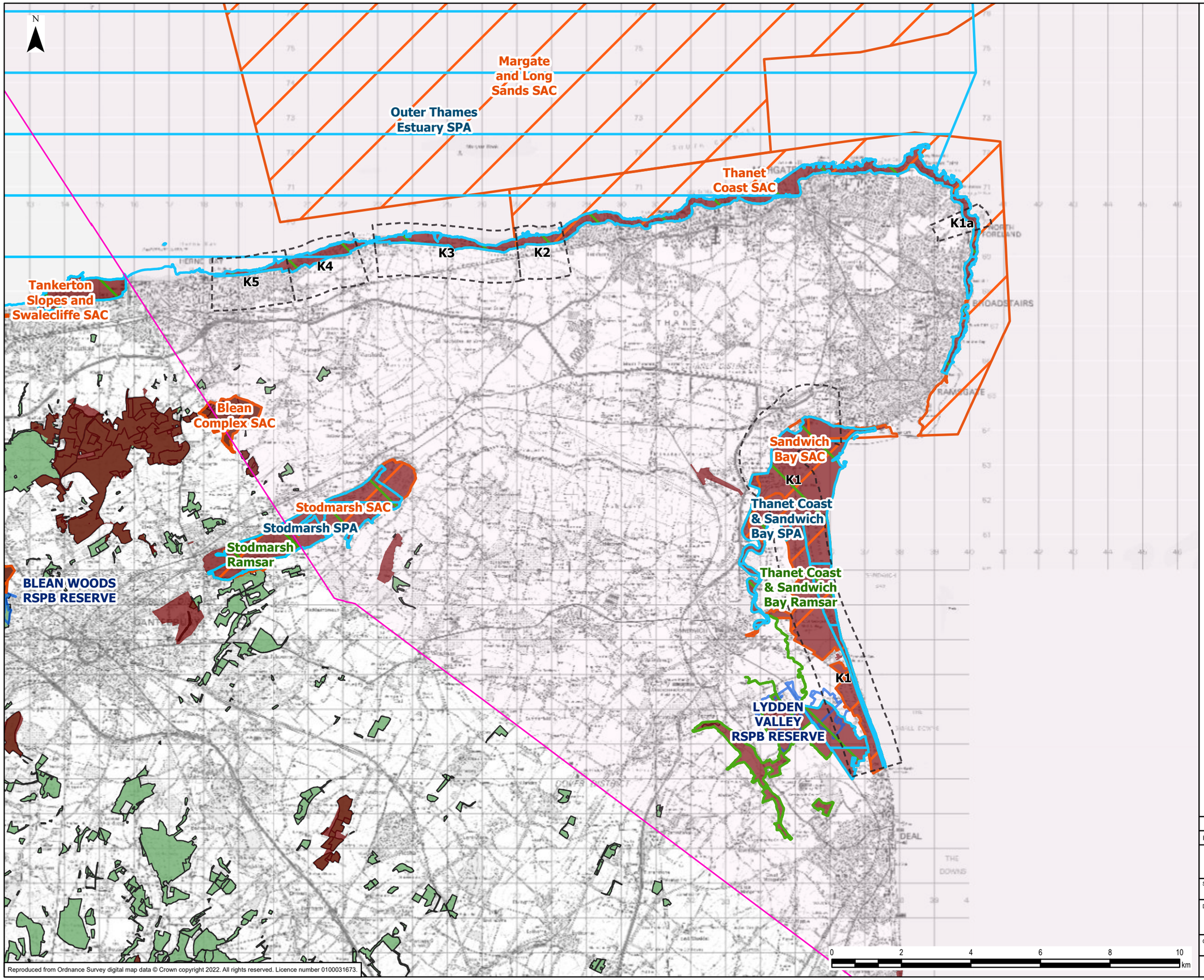
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Document Title: KENT LANDFALL AREAS OF SEARCH SHEET 1

Creator	Date	Checker	Date	Approver	Date
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref	Scale	Format	Sheets	Rev
FIGURE 4-13	1:100,000	A3	1	0

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Legend

- Routeing and Siting Study Area
- Landfall Area of Search
- Ancient Woodland
- Site of Special Scientific Interest
- RSPB Reserve
- Special Area of Conservation
- Ramsar
- Special Protection Area

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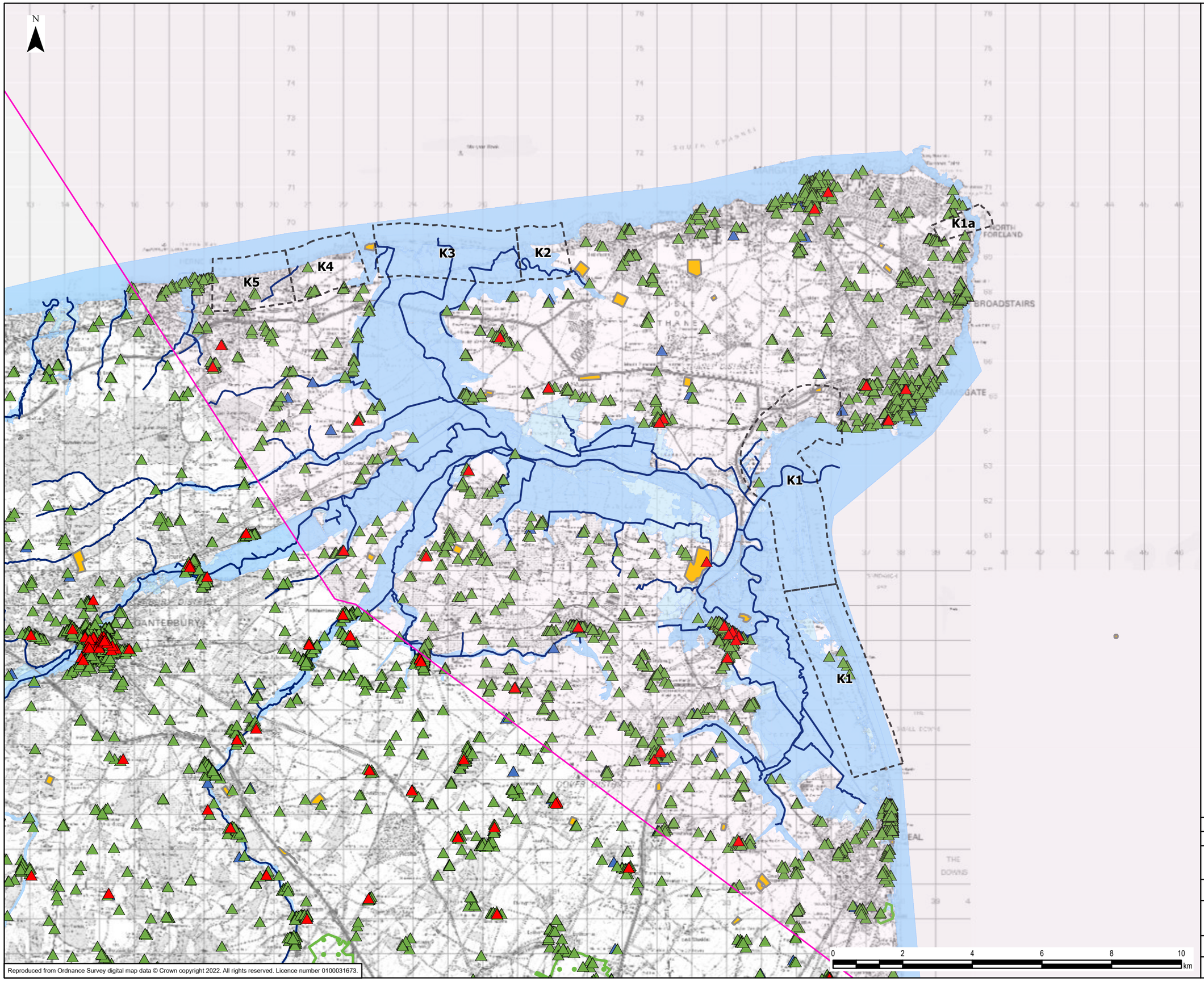
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Document Title: KENT LANDFALL AREAS OF SEARCH SHEET 2

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Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4-13	1:100,000	A3	1	0

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Legend

- Routeing and Siting Study Area
- Landfall Area of Search
- Listed Buildings - Grade I
- Listed Buildings - Grade II
- Listed Buildings - Grade II*
- Parks and Gardens - Grade II
- Scheduled Monuments
- Main Rivers
- Flood Zone 2
- Flood Zone 3

Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

nationalgrid

Scheme: SEA LINK

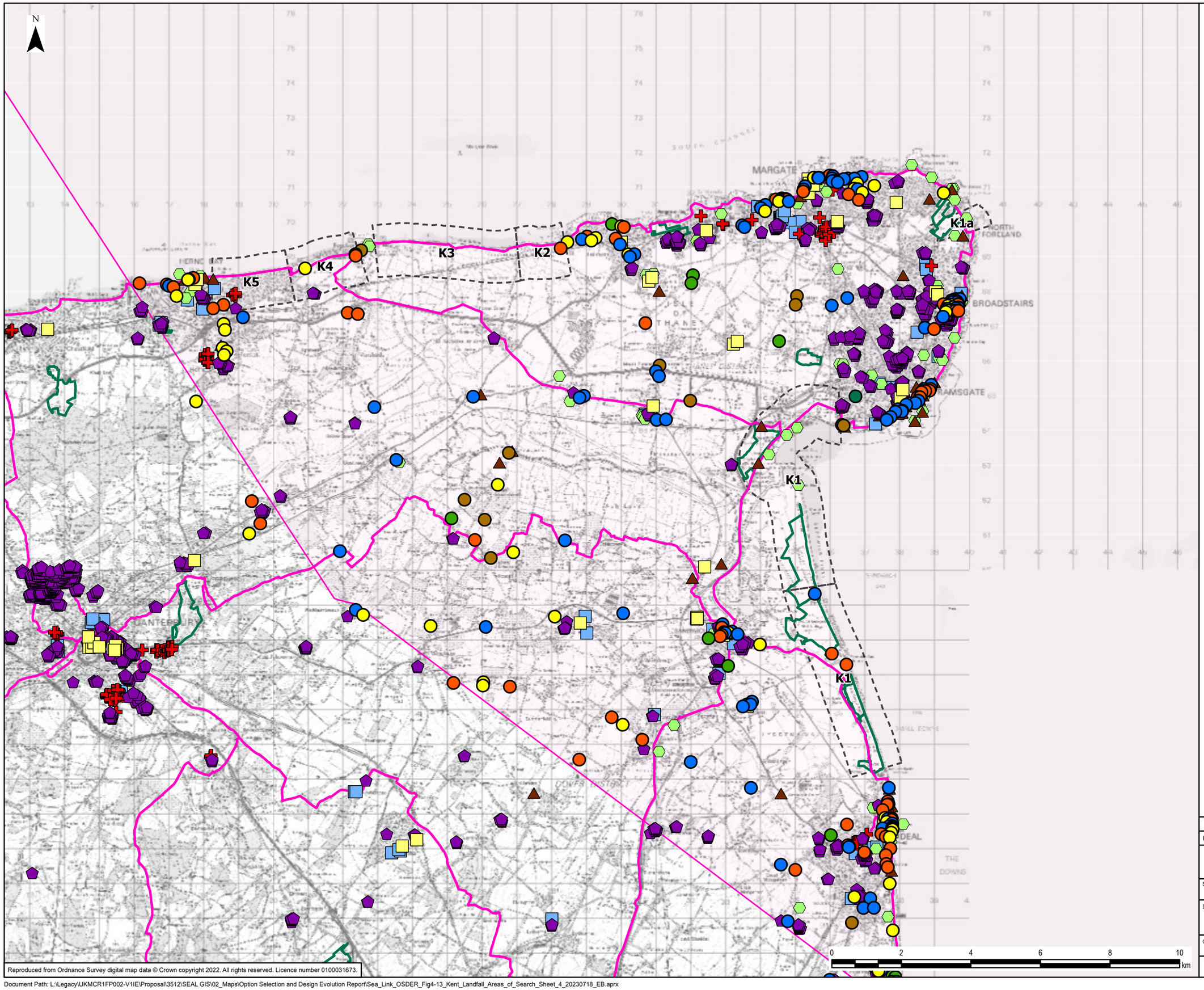
Document Title: KENT LANDFALL AREAS OF SEARCH SHEET 3

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4-13	1:100,000	A3	1	0

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Legend

- Routeing and Siting Study Area
- Landfall Area of Search
- Bed and Breakfast
- Campsite
- Caravan Park
- Guest House
- Holiday Park
- Hotel
- Touring Park
- Cultural Facility
- Education
- Heritage
- Leisure Facility
- Medical
- Sports And Leisure Centre & Sports Club
- National Cycle Network
- Golf Course

Rev	Date	Description			
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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Document Title: KENT LANDFALL AREAS OF SEARCH SHEET 4

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4-13	1:100,000	A3	1	0

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N

Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Richborough Substation
- Converter Site Option Areas
- National Woodland Inventory
- Ancient Woodland

A

B

ISLE OF THANET

THANET DISTRICT

St Nicholas at Wade

Marshside

Chislet Marshes

Sarre

Monkton

Minster

Cliffs End

Manston

Lydden

Birchington

Westgate-on-Sea

Margate

Ramsgate

Pegwell Bay

Chislet

Upstreet

West Stourmouth

East Stourmouth

Ash Level

Preston

Elmstone

Wingham

Wingham Green

Ickham

Bramling

Ash

Westmarsh

Upper Goldstone

Lower Goldstone

Cop Street

Westbere

Westbere

Sandwich

Great Stonar

SANDWICH BAY

Sandwich Flats

Marshborough

Woodnesborough

Richborough Port

Shell Ness

Sandwich Bay Estate

Royal St George's Golf Links

Monkton Marshes

Minster Marshes

Ash Level

0 1 2 3 4 5 km

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Rev	Date	Description	Drn	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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Scheme: SEA LINK

Document Title: KENT CONVERTER SITE OPTION AREAS SHEET 1

Creator	Date	Checker	Date	Approver	Date
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref	Scale	Format	Sheets	Rev
FIGURE 4-14	1:50,000	A3	1	0

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N

Outer Thames Estuary SPA

Thanet Coast SAC

Thanet Coast & Sandwich Bay SPA

Thanet Coast & Sandwich Bay Ramsar

Thanet Coast SSSI

B

A

Stodmarsh SPA

Stodmarsh SSSI

Stodmarsh Ramsar

Stodmarsh SAC

Preston Marshes SSSI

Thanet Coast SAC

Thanet Coast & Sandwich Bay SPA

Sandwich Bay to Hacklinge Marshes SSSI

Sandwich Bay SAC

LYDDEN VALLEY RSPB

Thanet Coast & Sandwich

0 1 2 3 4 5 km

Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Richborough Substation
- Converter Site Option Areas
- Ancient Woodland
- Site of Special Scientific Interest
- RSPB Reserve
- Special Area of Conservation
- Ramsar
- Special Protection Area

Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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Document Title: KENT CONVERTER SITE OPTION AREAS SHEET 2

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
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N

A

B

Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Richborough Substation
- Converter Site Option Areas
- Listed Buildings - Grade I
- Listed Buildings - Grade II
- Listed Buildings - Grade II*
- Parks and Gardens - Grade II
- Scheduled Monuments
- Main Rivers
- Flood Zone 2
- Flood Zone 3

0 1 2 3 4 5 km

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Rev	Date	Description	GIS	Chk	App
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Document Title: KENT CONVERTER SITE OPTION AREAS SHEET 3

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

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FIGURE 4-14	1:50,000	A3	1	0

Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Option Selection and Design Evolution Report\Sea_Link_OSDER_Fig4-14_Kent_Converter_Station_Site_Option_Areas_Sheet_3_20230718_EB.aprx

N

Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Richborough Substation
- Converter Site Option Areas
- Bed and Breakfast
- Campsite
- Caravan Park
- Guest House
- Holiday Park
- Hotel
- Touring Park
- Cultural Facility
- Education
- Heritage
- Leisure Facility
- Medical
- Sports And Leisure Centre & Sports Club
- National Cycle Network
- Golf Course

Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

nationalgrid

Scheme: SEA LINK

Document Title: KENT CONVERTER SITE OPTION AREAS SHEET 4

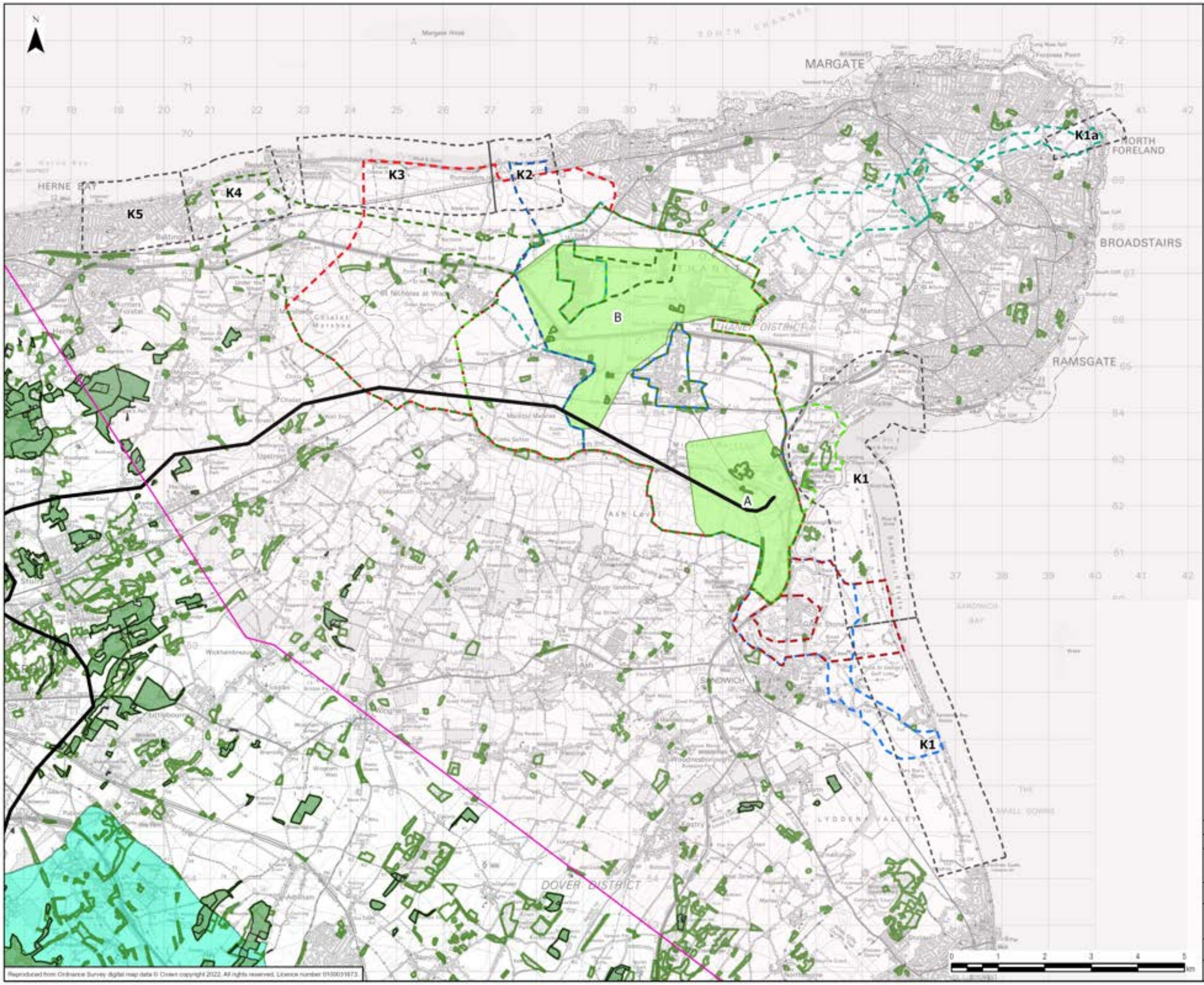
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Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4-14	1:50,000	A3	1	0

0 1 2 3 4 5 km

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Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Landfall Area of Search
- Converter Site Option Areas

North Kent Coast Terrestrial Corridors

- Green
- Red
- Blue

Broadstairs Terrestrial Corridor

- Green

Pegwell Bay Terrestrial Corridors

- Green
- Red
- Blue

- Area of Outstanding Natural Beauty
- National Woodland Inventory
- Ancient Woodland

Rev	Date	Description	Drawn	Chk	Appr
0	19/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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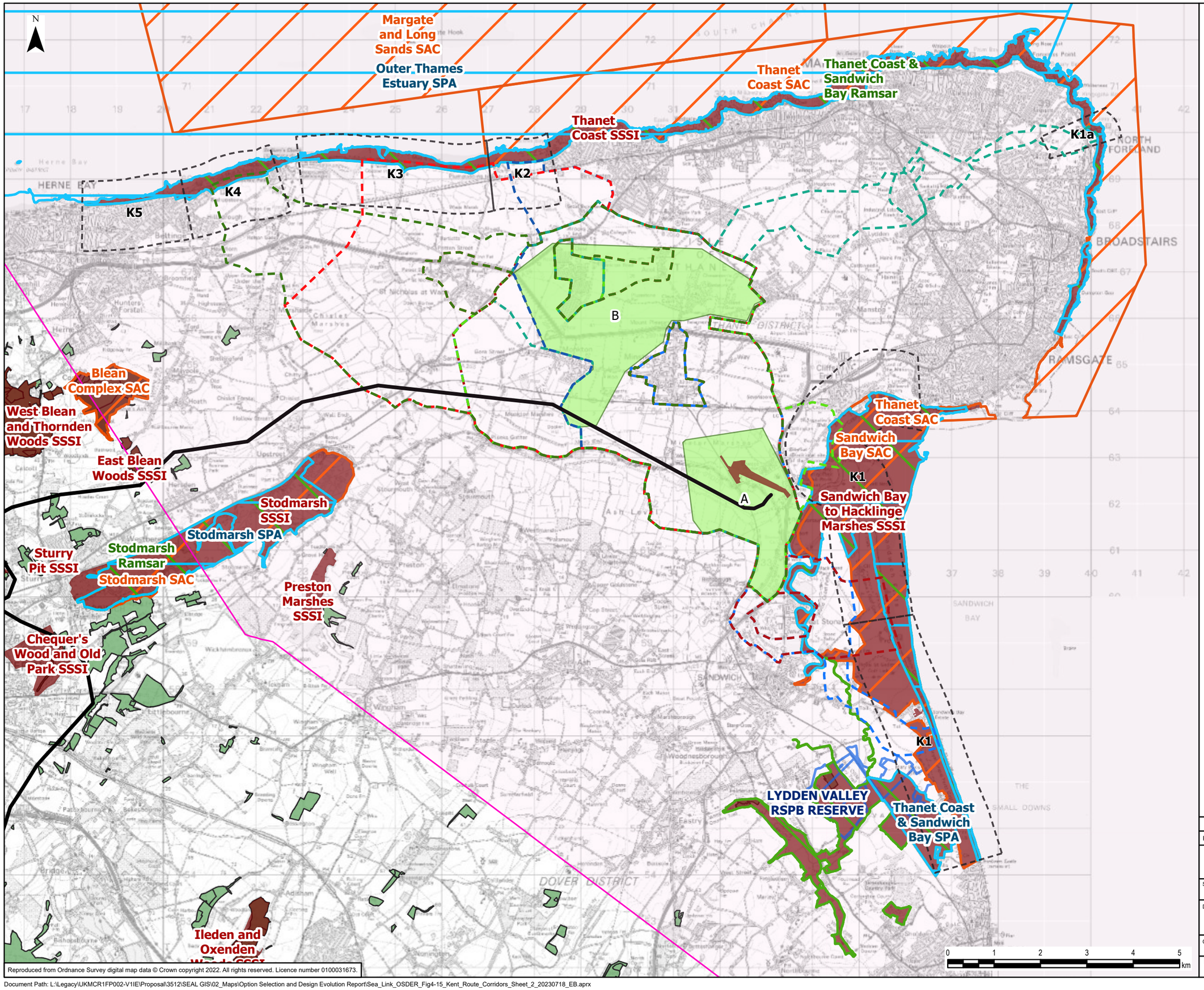
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Document Title: KENT ROUTE CORRIDORS SHEET 1

Creator	Date	Checker	Date	Approver	Date
EB	19/07/2023	DF	19/07/2023	NP	19/07/2023

Document Ref	Scale	Format	Sheets	Rev
FIGURE 4-15	1:75,000	A3	1	0

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Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Landfall Area of Search
- Converter Site Option Areas

North Kent Coast Terrestrial Corridors

- Green
- Red
- Blue

Broadstairs Terrestrial Corridor

- Green

Pegwell Bay Terrestrial Corridors

- Green
- Red
- Blue

- Ancient Woodland
- Site of Special Scientific Interest
- RSPB Reserve
- Special Area of Conservation
- Ramsar
- Special Protection Area

Rev	Date	Description			
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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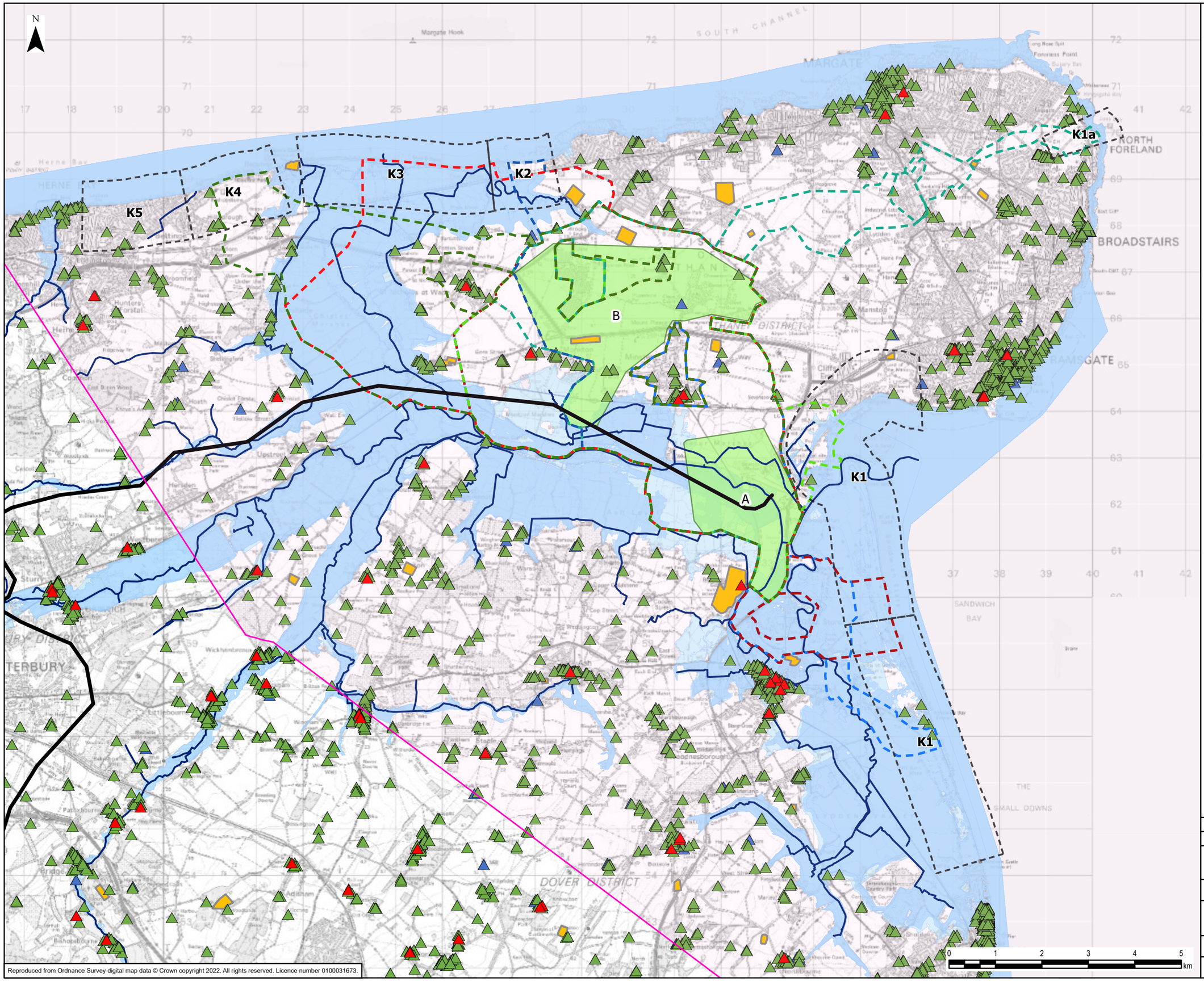
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Document Ref:	Scale:	Format:	Sheets:	Rev:
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Document Path: L:\Legacy\UKMCR1FP002-V1IE\Proposal\3512\SEAL GIS\02_Maps\Option Selection and Design Evolution Report\Sea_Link_OSDER_Fig4-15_Kent_Route_Corridors_Sheet_2_20230718_EB.aprx



Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Landfall Area of Search
- Converter Site Option Areas

North Kent Coast Terrestrial Corridors

- Green
- Red
- Blue

Broadstairs Terrestrial Corridor

- Green

Pegwell Bay Terrestrial Corridors

- Green
- Red
- Blue
- Listed Buildings - Grade I
- Listed Buildings - Grade II
- Listed Buildings - Grade II*
- Parks and Gardens - Grade II
- Scheduled Monuments
- Main Rivers
- Flood Zone 2
- Flood Zone 3

Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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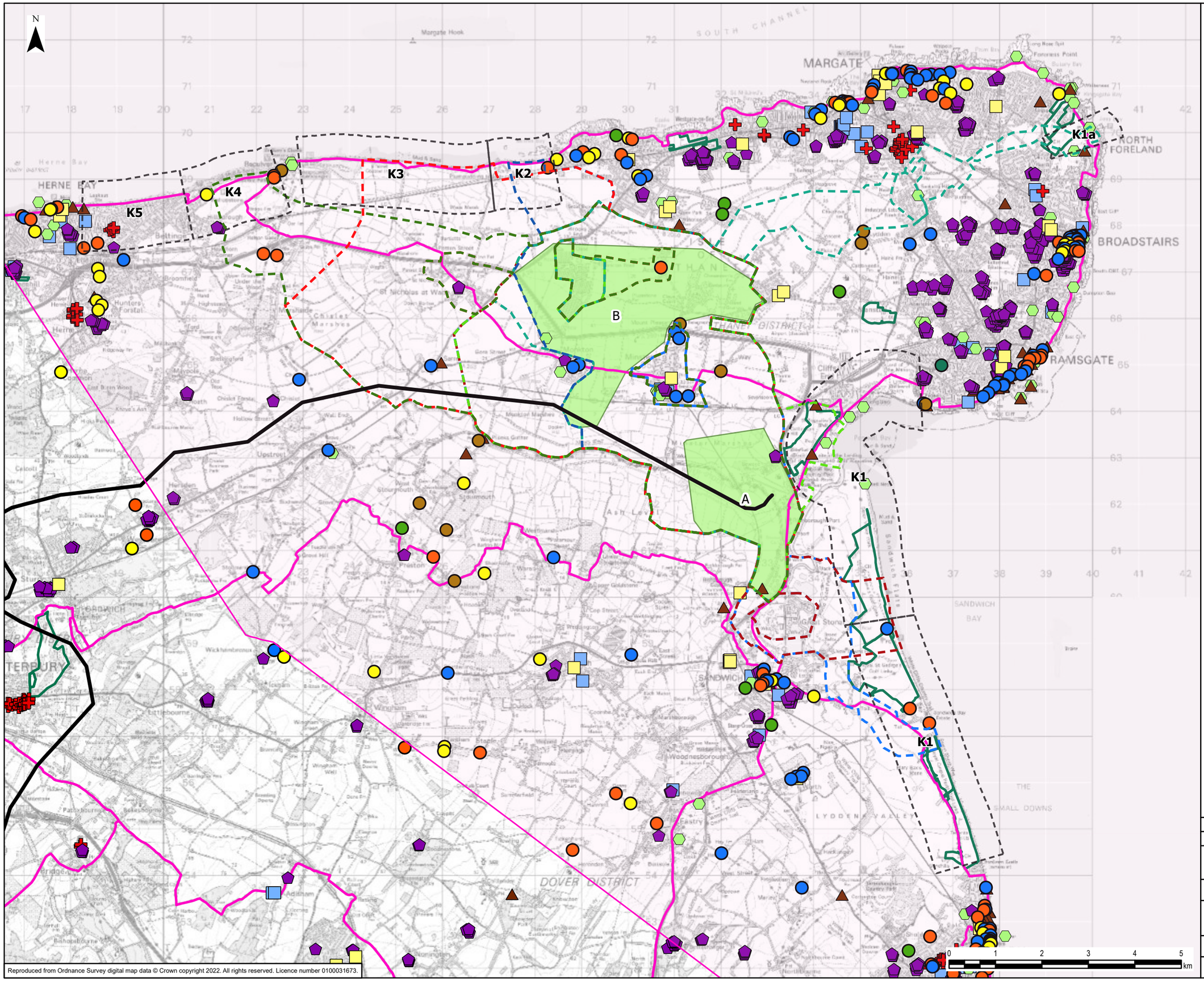
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Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4-15	1:75,000	A3	1	0

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Legend

- Routeing and Siting Study Area
- National Grid Overhead Line - 400kV
- Landfall Area of Search
- Converter Site Option Areas

North Kent Coast Terrestrial Corridors

- Green
- Red
- Blue

Broadstairs Terrestrial Corridor

- Green

Pegwell Bay Terrestrial Corridors

- Green
- Red
- Blue

- Bed and Breakfast
- Campsite
- Caravan Park
- Guest House
- Holiday Park
- Hotel
- Touring Park
- Cultural Facility
- Education
- Heritage
- Leisure Facility
- Medical
- Sports And Leisure Centre & Sports Club
- National Cycle Network
- Golf Course

Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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Document Title: KENT ROUTE CORRIDORS SHEET 4

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EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

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FIGURE 4-15	1:75,000	A3	1	0

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N

Legend

National Grid Overhead Line - 400kV

Kent Converter Station Site

Preferred HVDC Graduated Swathe

Preferred HVDC Corridor

HVAC Graduated Swathe

HVAC Corridor

0 0.5 1 1.5 2 2.5 km

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Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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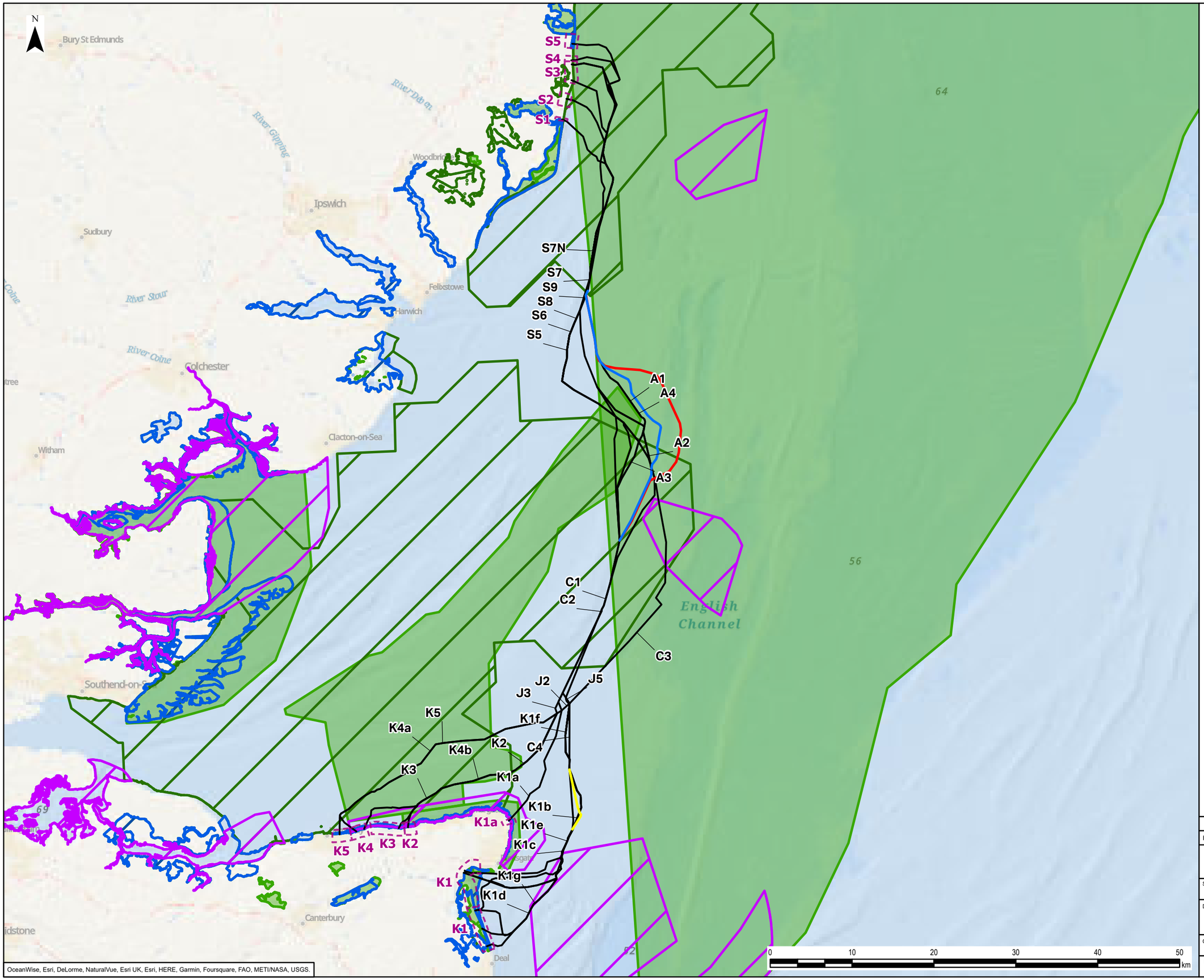
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Document Title: KENT EMERGING PREFERENCE

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
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Legend

- Marine Alignment
- Alignment C4A
- Alignment C8A
- Alignment C8B
- Landfall Area of Search
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Ramsar
- Marine Conservation Zone

Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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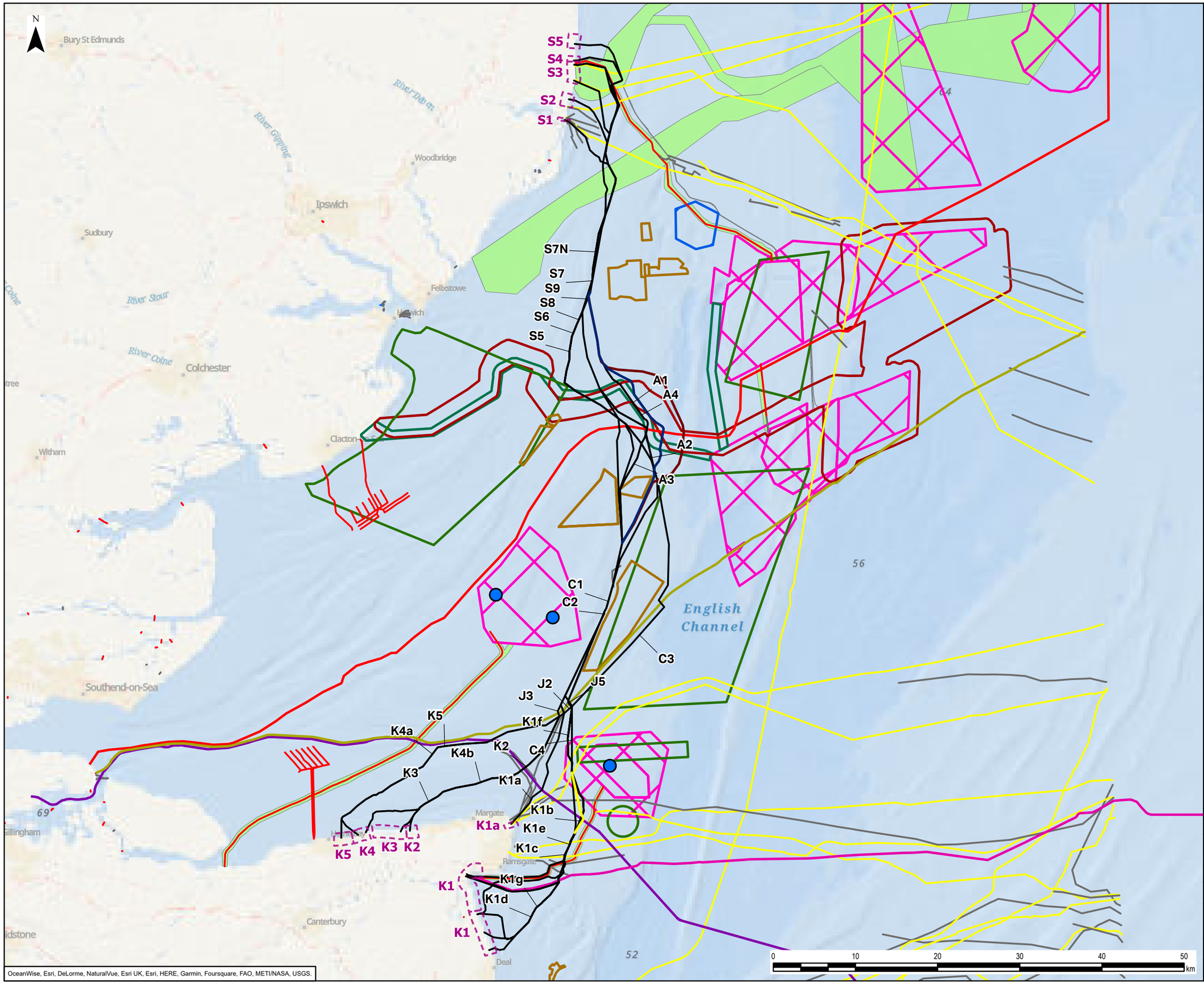
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Document Title: MARINE ALIGNMENTS SHEET 1

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EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4-17	1:425,000	A3	1	0

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Legend

- Marine Alignment
- Alignment C4A
- Alignment C8A
- Alignment C8B
- Landfall Area of Search
- Offshore Substation
- BritNed
- NeuConnect
- Nemo Link
- GridLink
- Mooring cable/chain
- Power line
- Telephone
- Undefined
- Offshore Wind Farm Export Cable
- Offshore Wind Farms & Site Agreements
- North Falls Cable Corridors
- Five Estuaries Offshore Site Investigation
- Military Practice Area
- Mineral & Aggregate Extraction Site
- Areas of Identified Tidal Stream Resource (TIDE 1)

Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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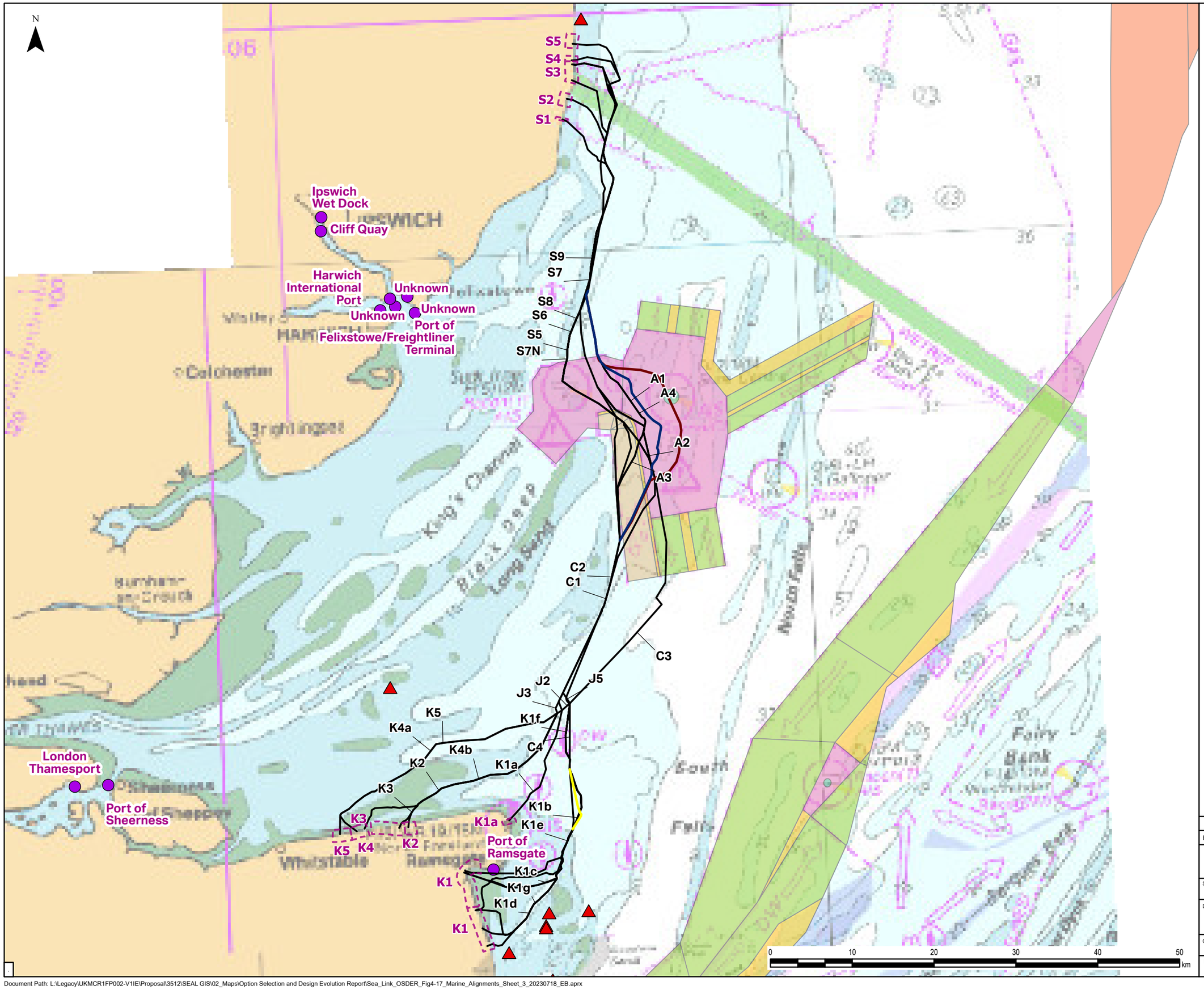
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Document Title: MARINE ALIGNMENTS SHEET 2

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EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4-17	1:425,000	A3	1	0

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Rev	Date	Description			
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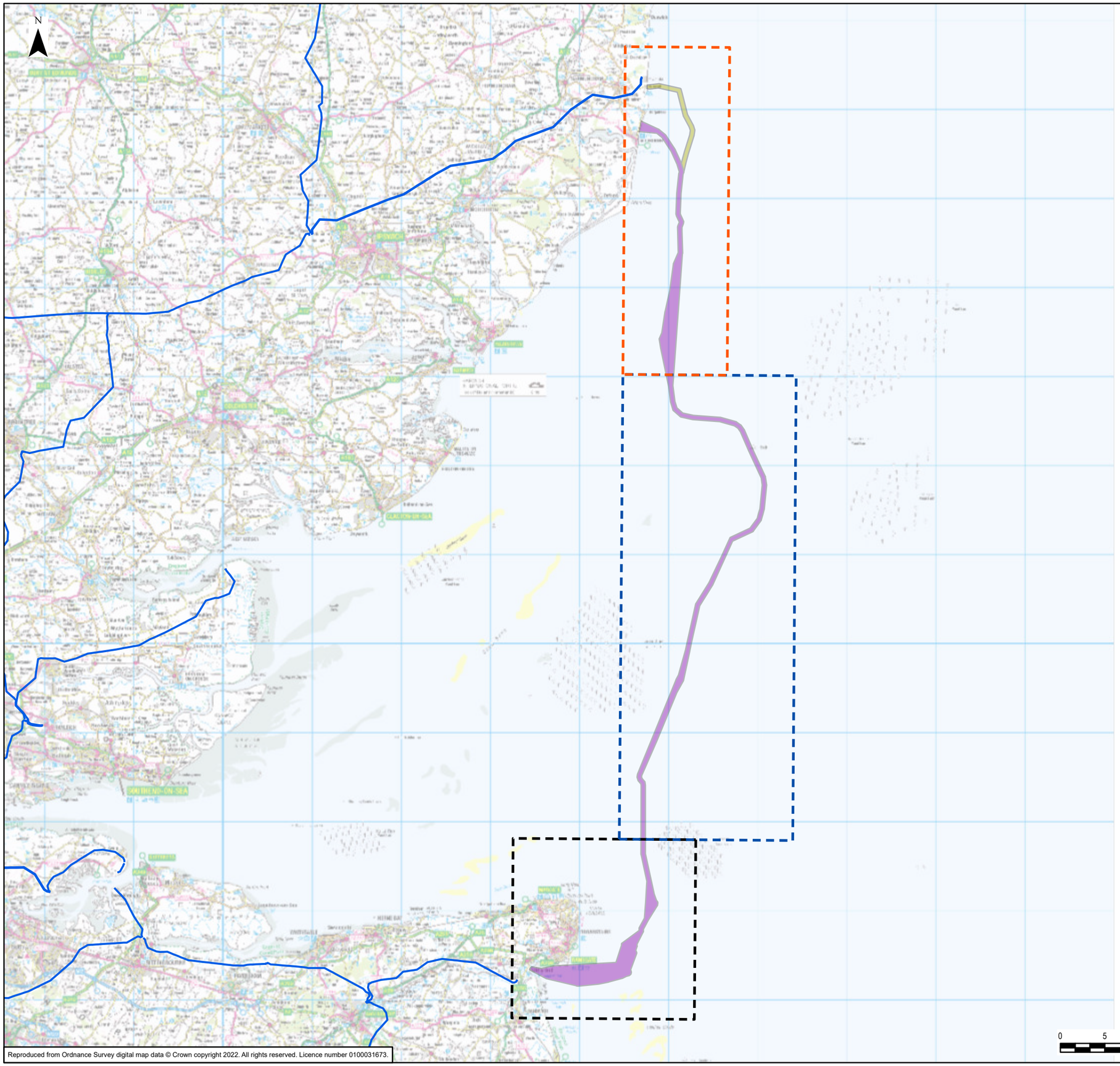
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EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

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FIGURE 4-17	1:425,000	A3	1	0

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Legend

- National Grid Overhead Line - 400kV
- Marine Corridor Emerging Preference
- Marine Corridor Alternative
- Suffolk Marine Corridor
- Central Marine Corridor
- Kent Marine Corridor

Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	KS

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Scheme: SEA LINK

Document Title: OFFSHORE SCHEME EMERGING PREFERENCE AND ALTERNATIVE

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	KS	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 4-18	1:425,000	A3	1	0

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N

Legend

National Grid Overhead Line - 400kV

Proposed Friston Substation

Suffolk Converter Station Site 3

Preferred HVDC Graduated Swathe

Preferred HVDC Corridor

HVAC Graduated Swathe

HVAC Corridor

0 0.5 1 1.5 2 2.5 km

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Document Title: SUFFOLK ONSHORE SCHEME PREFERRED OPTION

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	KS	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
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N

Legend

National Grid Overhead Line - 400kV

Kent Converter Station Site

Preferred HVDC Graduated Swathe

Preferred HVDC Corridor

HVAC Graduated Swathe

HVAC Corridor

0 0.5 1 1.5 2 2.5 km

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Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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Scheme: SEA LINK

Document Title: KENT ONSHORE SCHEME PREFERRED OPTION

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 6-2	1:20,000	A3	1	0

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N

Legend

- National Grid Overhead Line - 400kV
- Marine Corridor Emerging Preference
- Suffolk Marine Corridor
- Central Marine Corridor
- Kent Marine Corridor

0 5 10 15 20 25 km

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Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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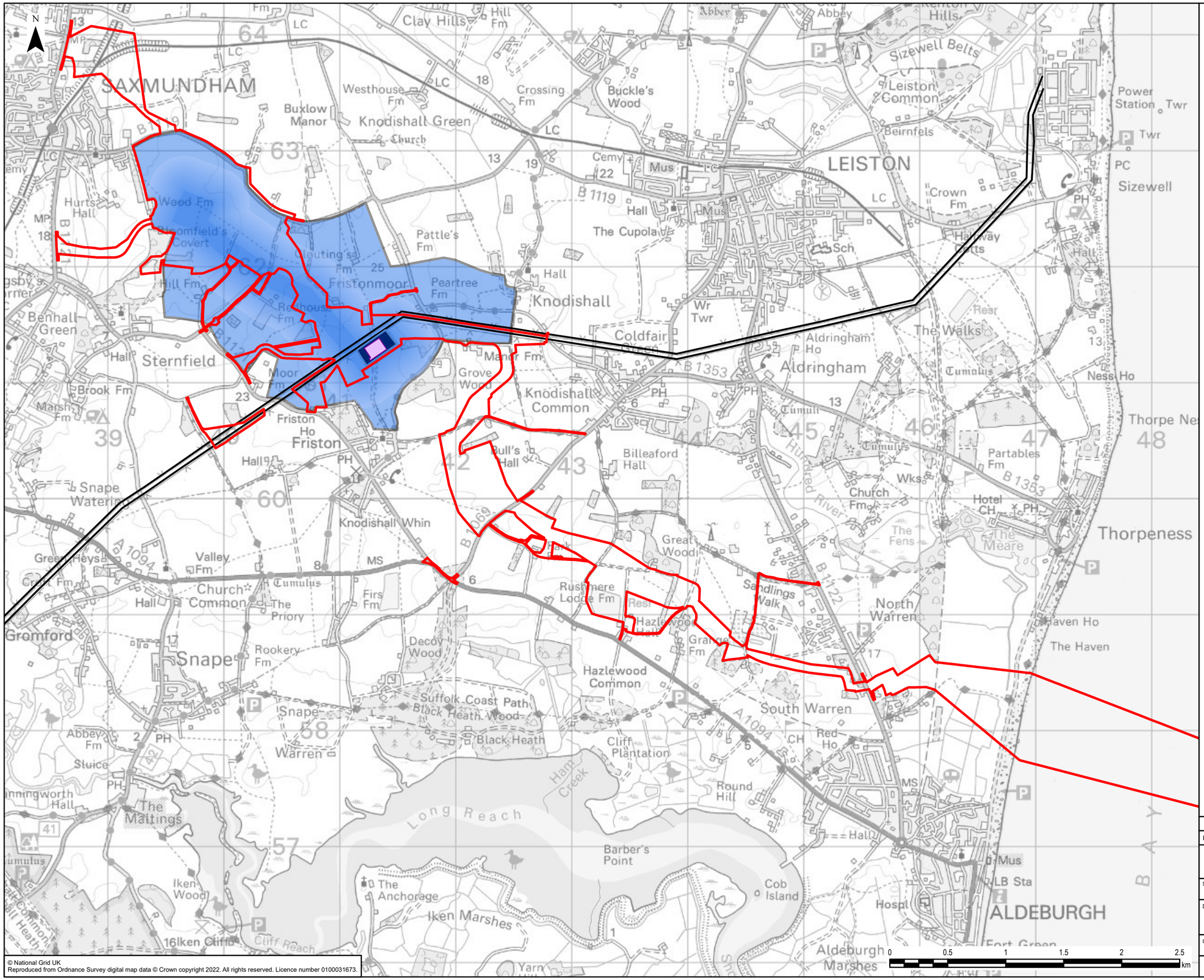
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Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 6-3	1:425,000	A3	1	0

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Legend

- Draft Order Limits
- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Proposed Friston Substation Indicative Location
- HVAC Corridor Graduated Swathe
- HVAC Corridor

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0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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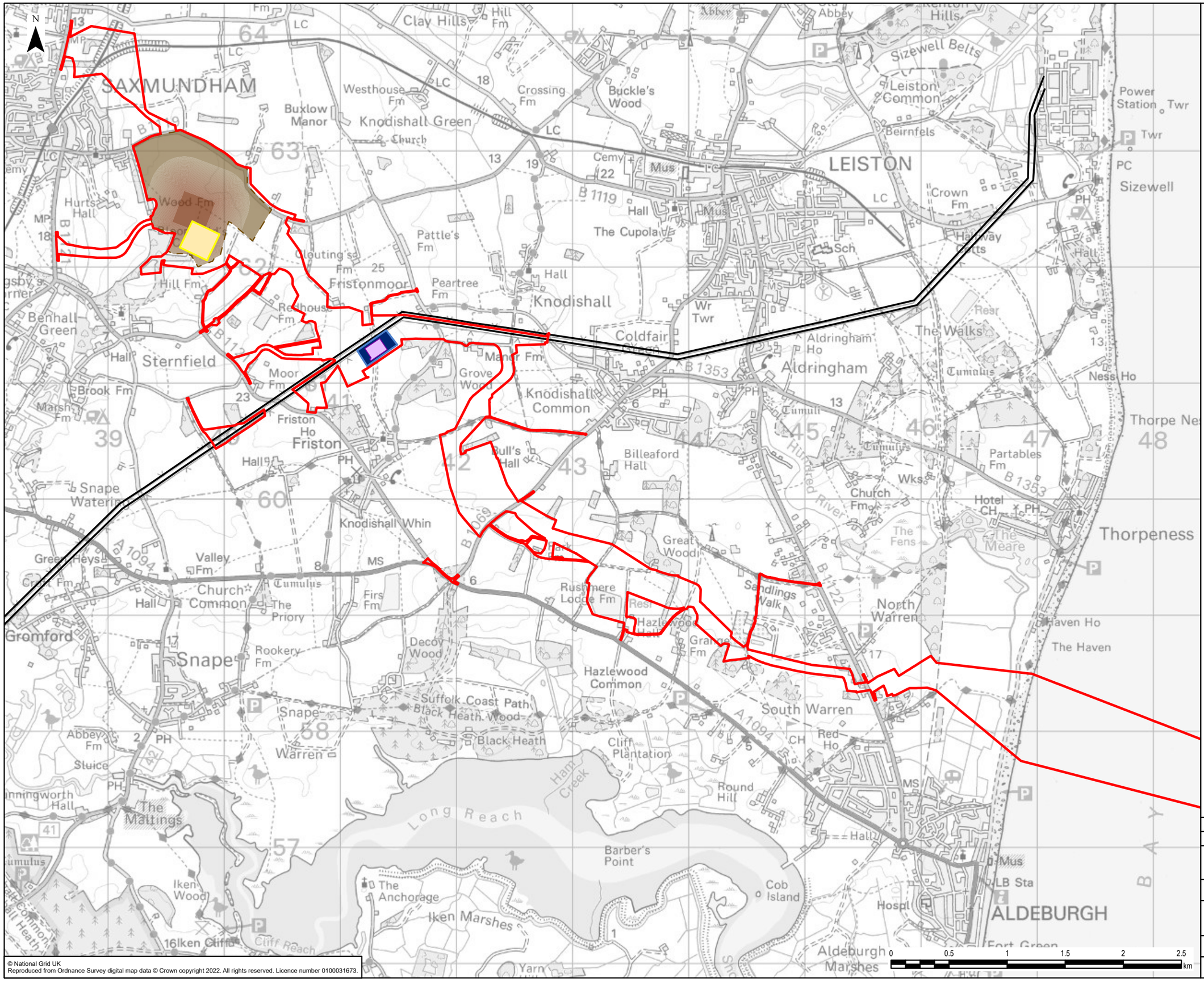
Scheme: SEA LINK

Document Title: SUFFOLK ONSHORE SCHEME DESIGN EVOLUTION - HVAC CONNECTION

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
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Legend

- Draft Order Limits
- National Grid Overhead Line - 400kV
- Proposed Friston Substation
- Proposed Saxmundham Converter Station Indicative Location
- Proposed Friston Substation Indicative Location
- Update Consultation Suffolk Converter Site Option Site 3
- Suffolk Converter Site 3 Emerging Preference

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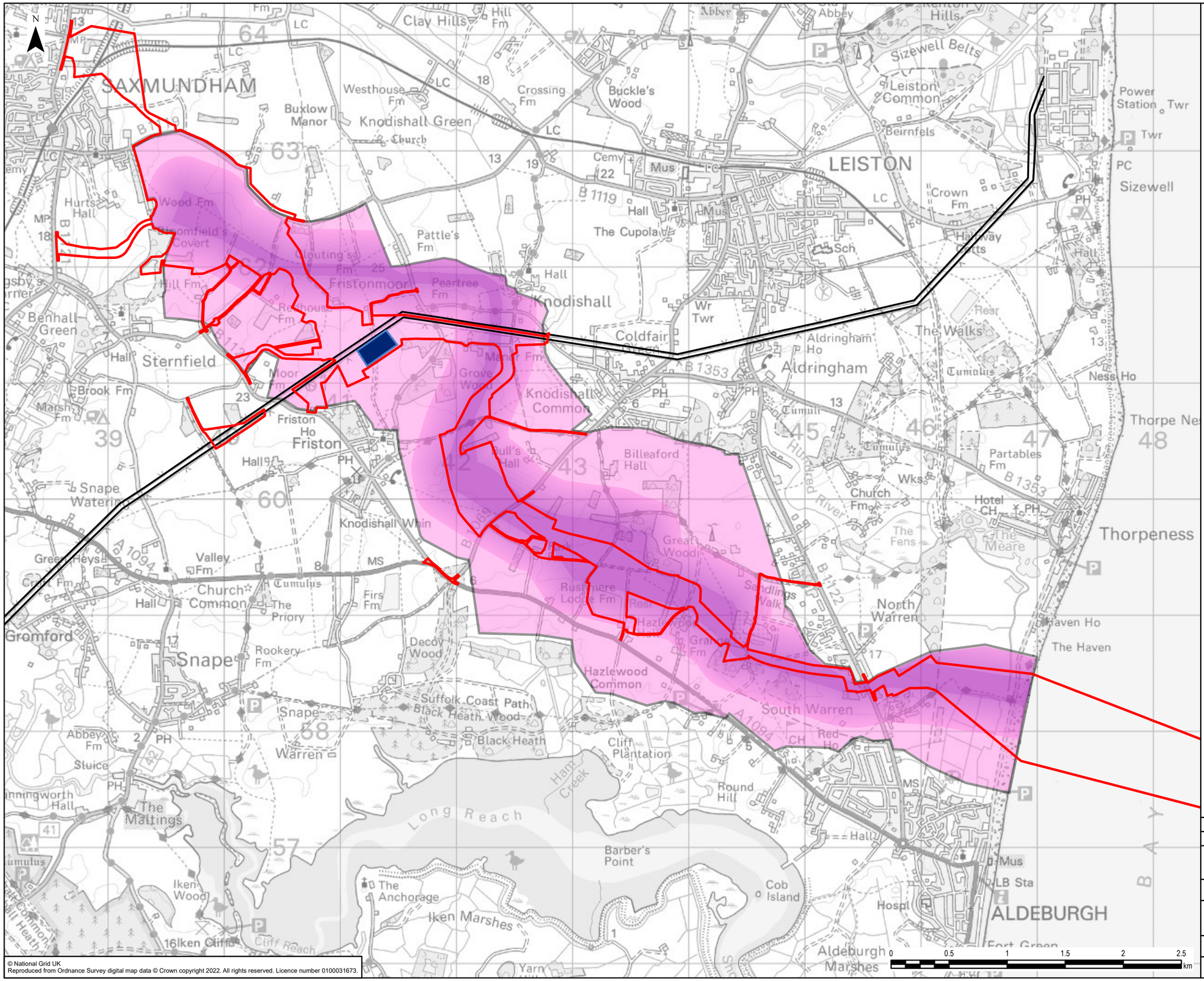
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Document Title: SUFFOLK ONSHORE SCHEME DESIGN EVOLUTION - SAXMUNDHAM CONVERTER STATION

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
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Legend

- Draft Order Limits
- Proposed Friston Substation
- National Grid Overhead Line - 400kV
- HVDC Corridor Graduated Swathe
- HVDC Corridor

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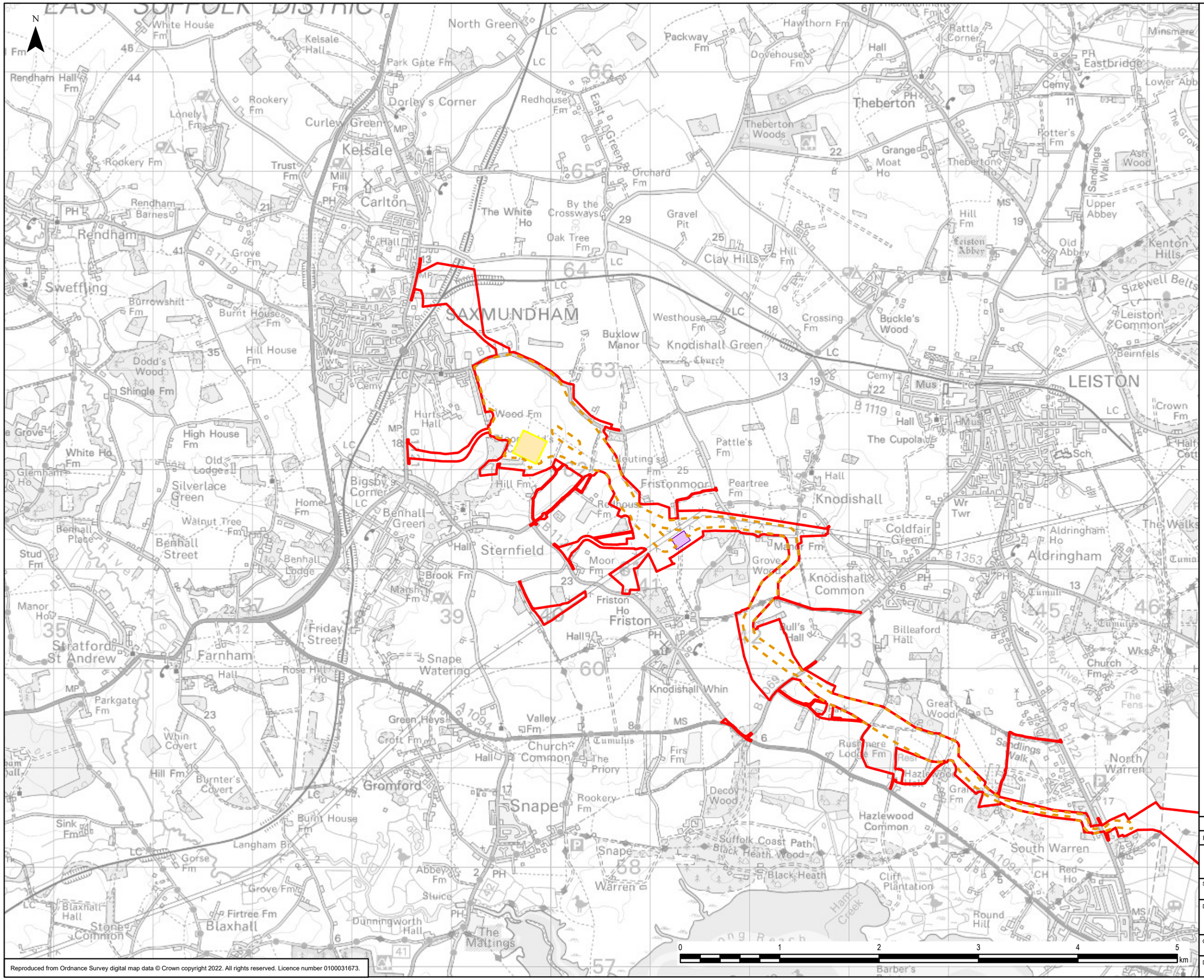
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Document Title: SUFFOLK ONSHORE SCHEME DESIGN EVOLUTION - UNDERGROUND HVDC CABLES AND LANDFALL

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
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Legend

- Draft Order Limits
- Lateral Limits of Deviation
- Proposed Friston Substation Indicative Location
- Proposed Saxmundham Converter Station Indicative Location

Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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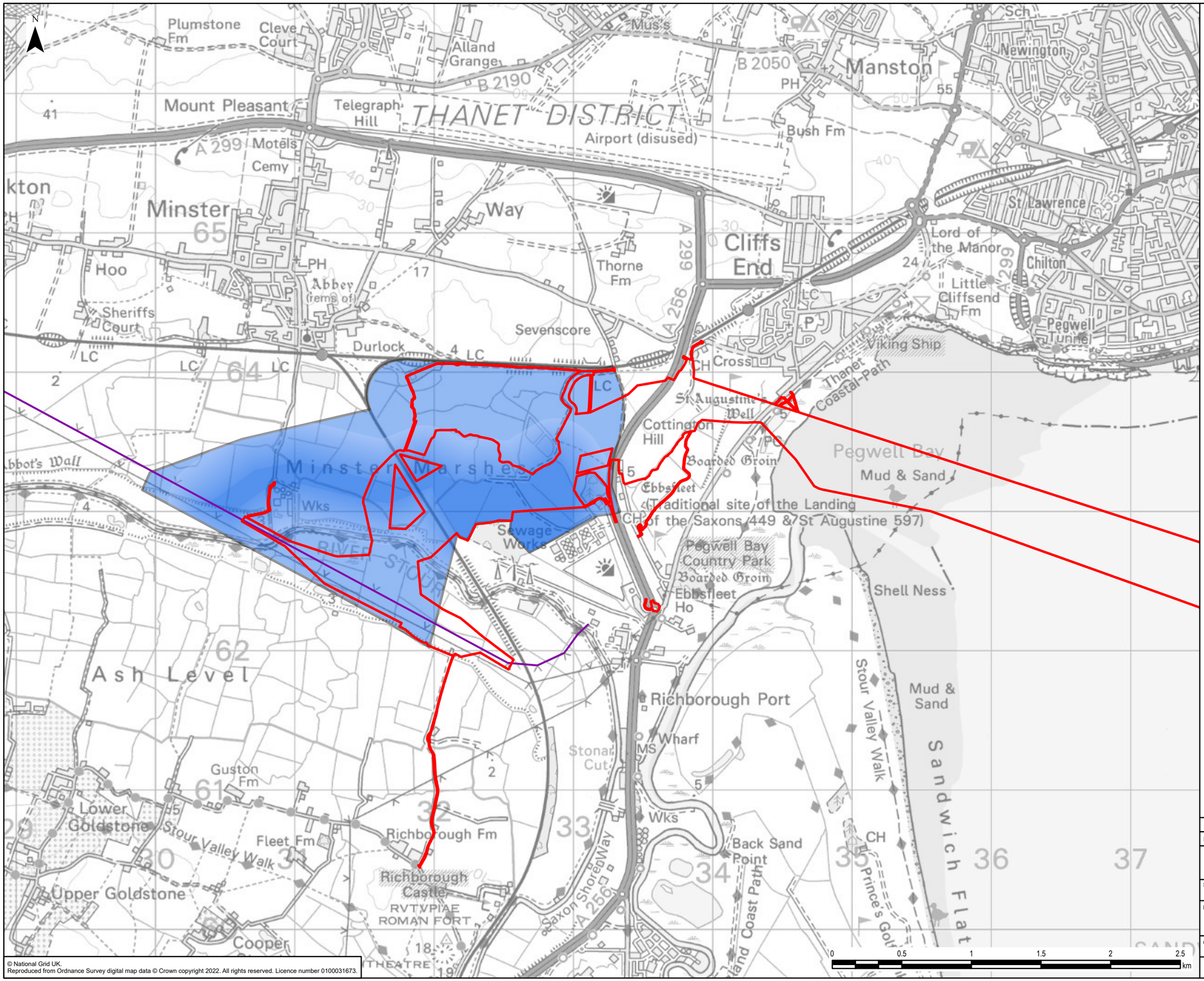
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Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 7-4	1:35,000	A3	3	0

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0 0.5 1 1.5 2 2.5 km

Legend

- Draft Order Limits
- National Grid Overhead Line - 400kV
- HVAC Corridor Graduated Swathe
- HVAC Corridor

Rev	Date	Description			
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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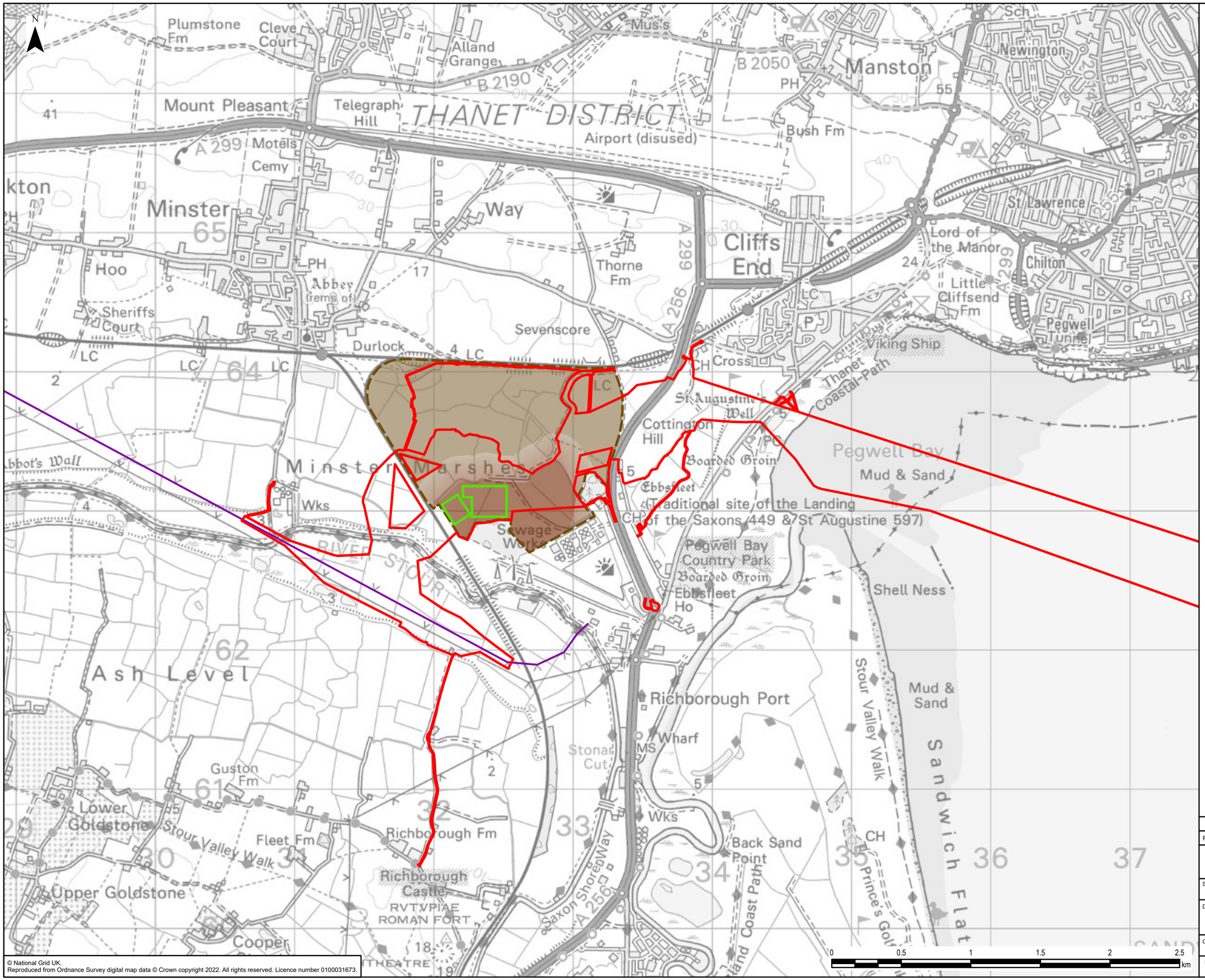
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Document Title: KENT ONSHORE SCHEME DESIGN EVOLUTION - HVAC CONNECTION

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
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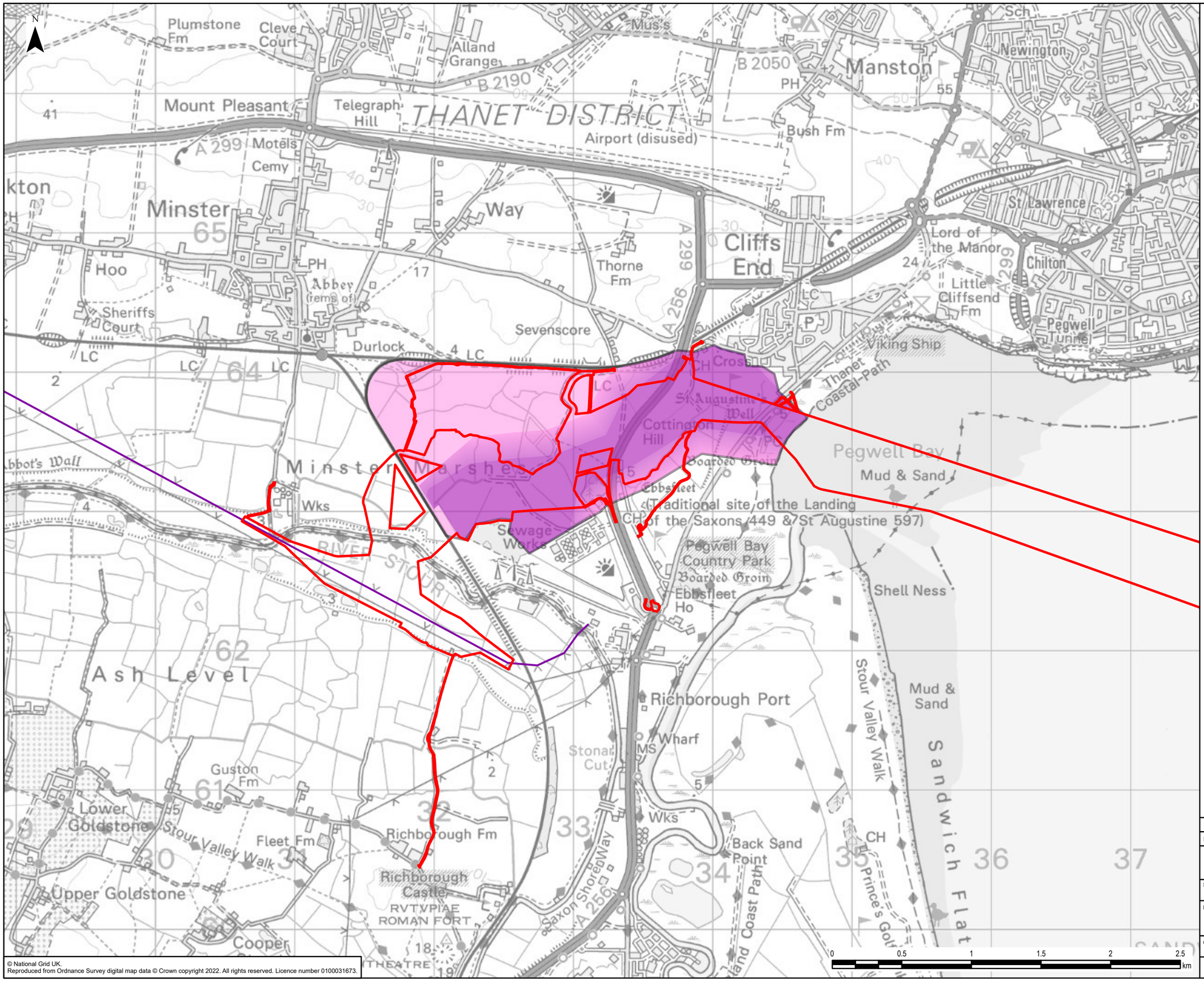
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Document Title: KENT ONSHORE SCHEME DESIGN EVOLUTION - MINSTER 400KV SUBSTATION AND MINSTER CONVERTER STATION

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

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Legend

- Draft Order Limits
- National Grid Overhead Line - 400kV
- HVDC Corridor Graduated Swathe
- HVDC Corridor

Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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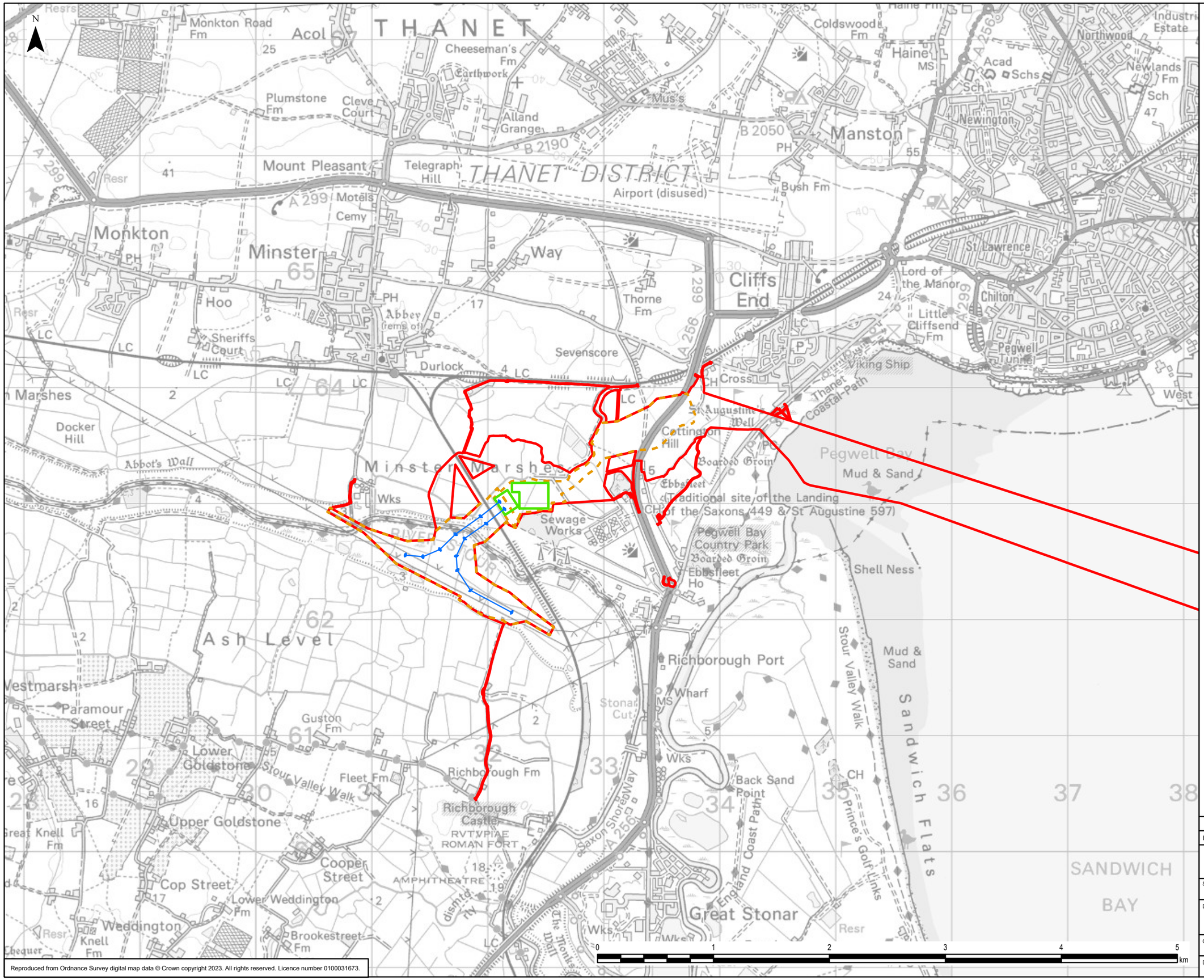
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Document Title: KENT ONSHORE SCHEME DESIGN EVOLUTION - UNDERGROUND HVDC CABLES AND LANDFALL

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EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

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Legend

- Draft Order Limits
- Proposed Minster 400 kV Substation and Minster Converter Station Indicative Location
- Proposed HVAC Connection Indicative Location
- Lateral Limits of Deviation

Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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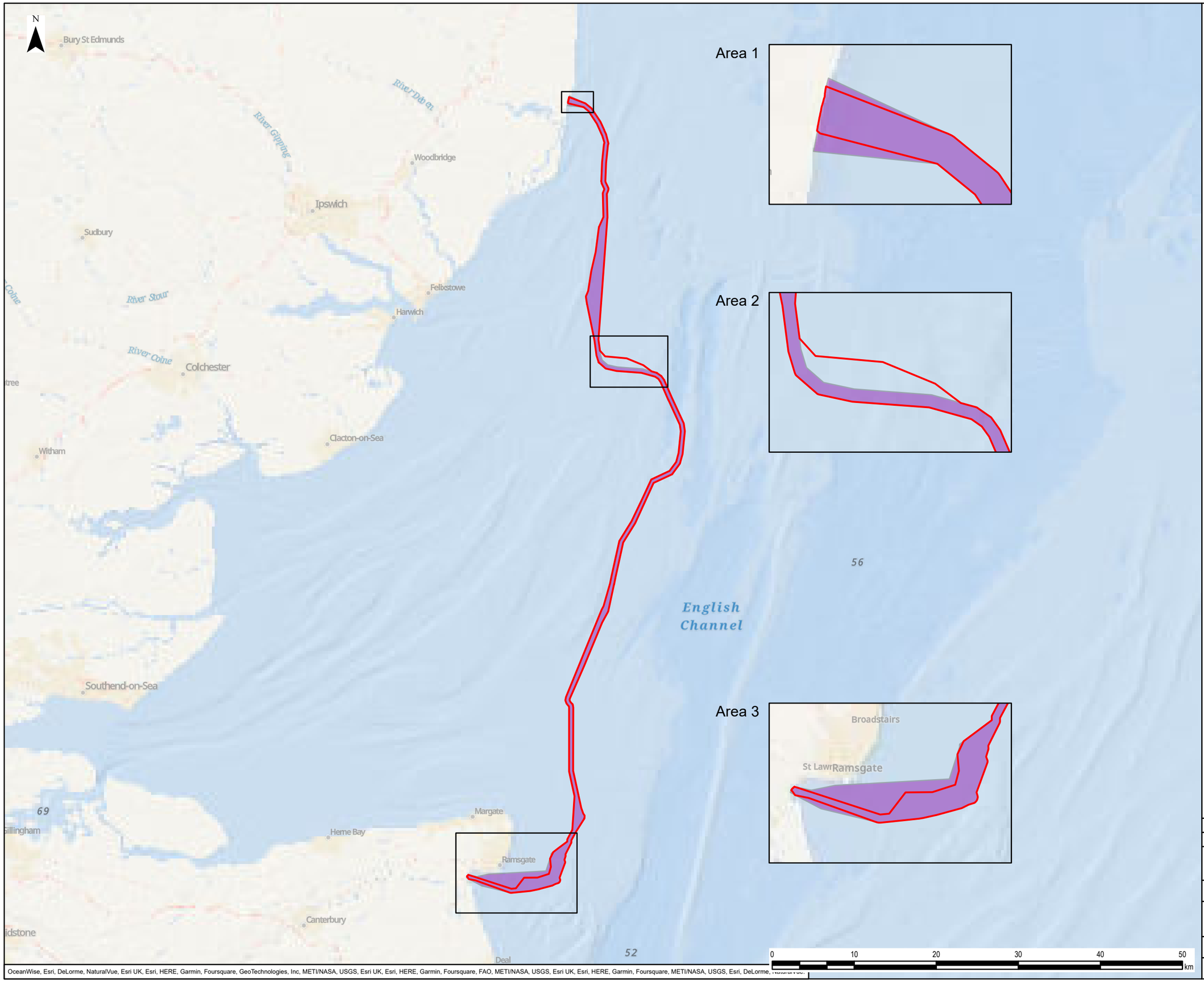
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FIGURE 7-8	1:30,000	A3	1	0

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Legend

- Offshore Scheme Draft Order Limits
- Marine Corridor Emerging Preference

Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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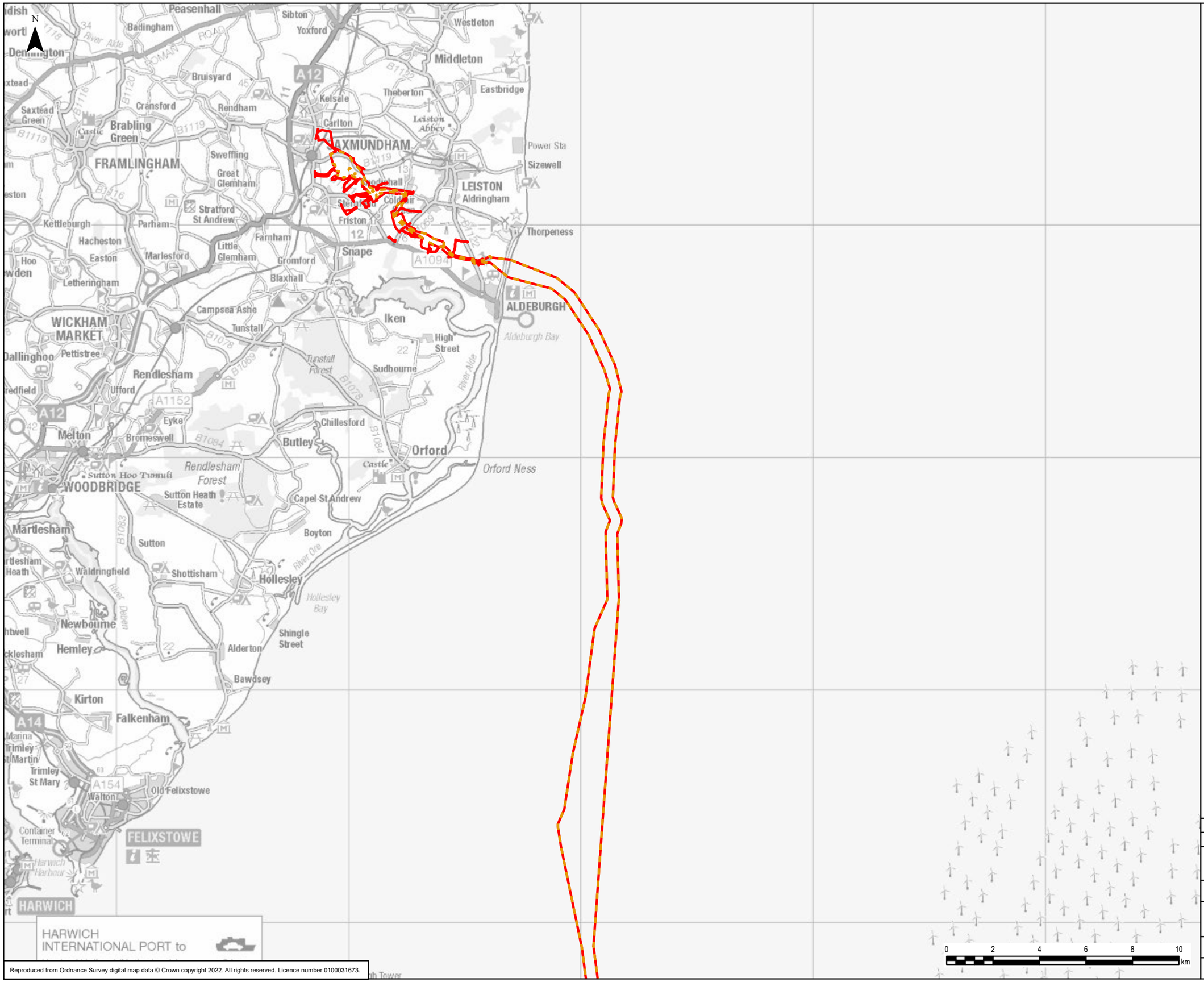
Document Title: OFFSHORE MARINE SCHEME DRAFT ORDER LIMITS- SHEET 4 OF 5

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
FIGURE 7-9	1:425,000	A3	1	0

OceanWise, Esri, DeLorme, NaturalVue, Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS, Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS, Esri UK, Esri, HERE, Garmin, Foursquare, METI/NASA, USGS, Esri, DeLorme,

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Legend

- Draft Order Limits
- Lateral Limits of Deviation

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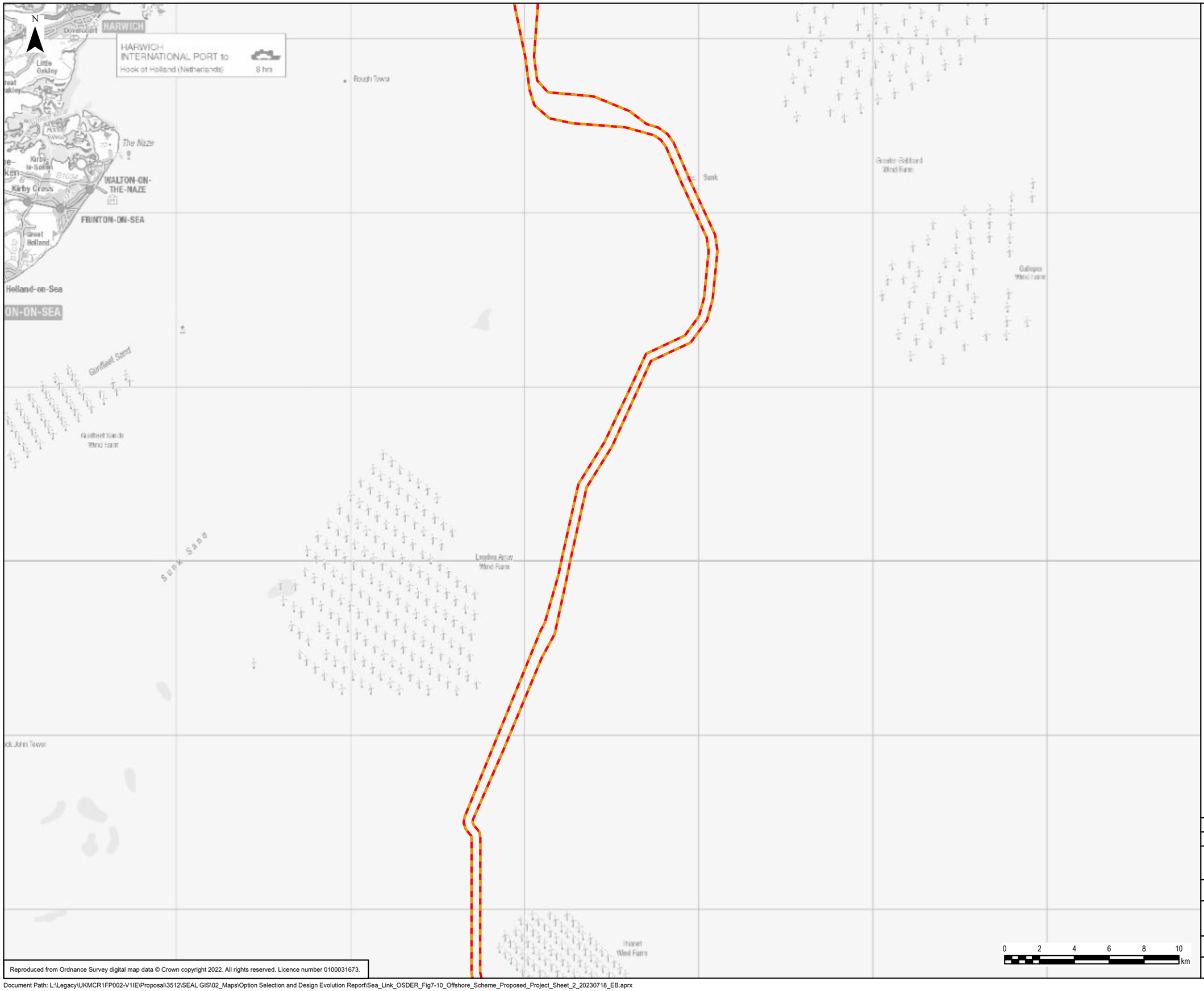
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EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

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Legend

- Draft Order Limits
- Lateral Limits of Deviation

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Rev	Date	Description	GIS	Chk	App
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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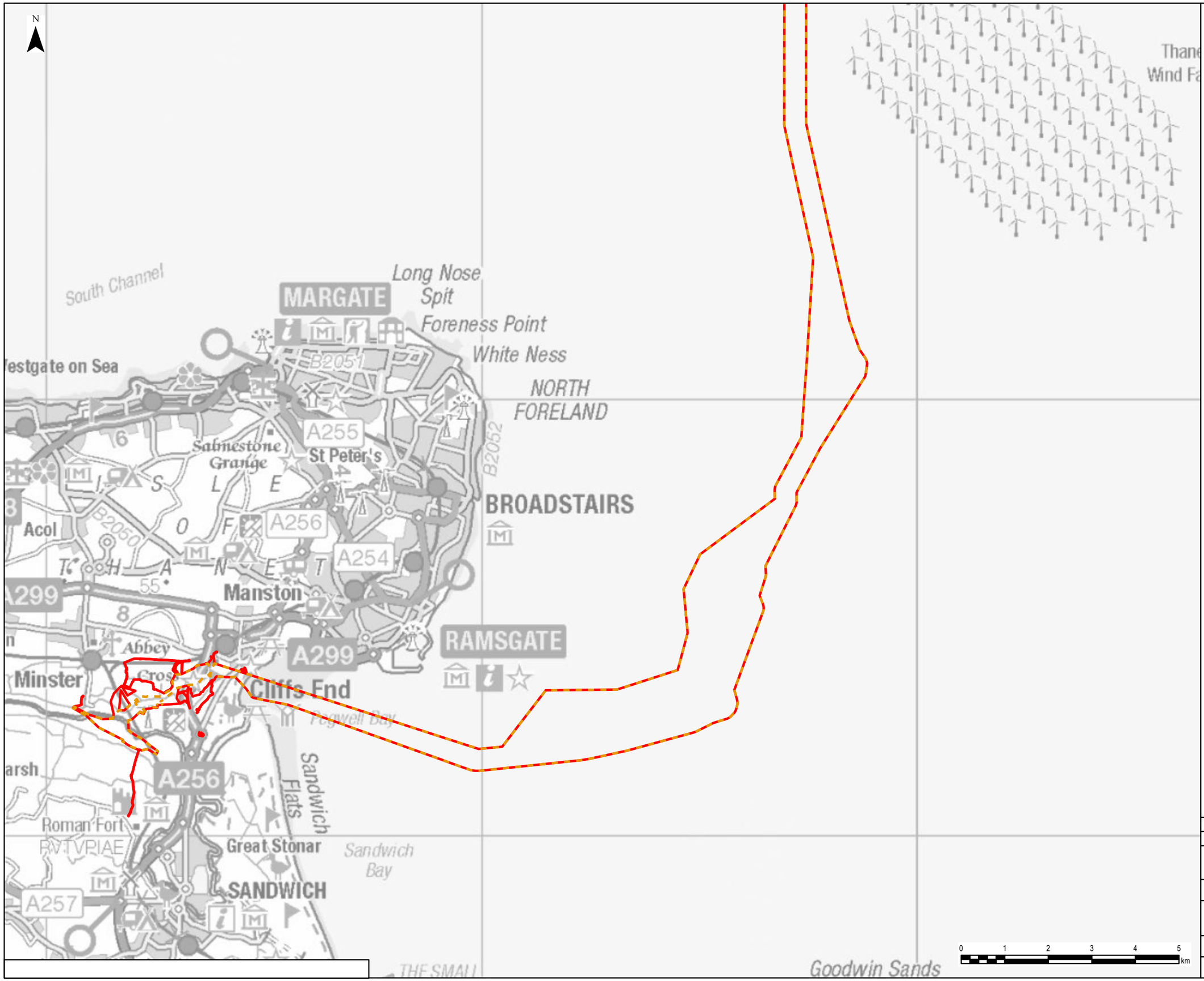
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Legend

- Draft Order Limits
- Lateral Limits of Deviation

Rev	Date	Description			
0	18/07/2023	OPTION SELECTION AND DESIGN EVOLUTION REPORT	EB	DF	NP

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Scheme: SEA LINK

Document Title: OFFSHORE SCHEME PROPOSED PROJECT SHEET 3 OF 3

Creator:	Date:	Checker:	Date:	Approver:	Date:
EB	18/07/2023	DF	18/07/2023	NP	18/07/2023

Document Ref:	Scale:	Format:	Sheets:	Rev:
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Appendix B Environmental and Socio-economic considerations

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Landscape and Visual	
National Parks	Primary consideration as expansive designation with limited opportunity to avoid if within the study area. Highly sensitive to above ground transmission infrastructure.
Areas of Outstanding Natural Beauty (AONBs)	Primary consideration as expansive designation with limited opportunity to avoid if within the study area. Highly sensitive to above ground transmission infrastructure.
Heritage Coasts	Coastal site which is defined rather than designated to conserve the best stretches of undeveloped coast. Highly sensitive to above ground infrastructure but limited in extent (confined to coastal areas).
National Trails	Long distance footpaths generally through areas designated for their landscape quality (AONBs, National Parks). Users of the National Trails are sensitive to above ground transmission infrastructure but sensitivity is likely to vary dependant on the specific location on the trail.
National Character Areas	A natural subdivision of England based on a combination of landscape, biodiversity, geodiversity and economic activity. National Grid have undertaken a high-level appraisal of those character areas relevant to the study areas in terms of their value and sensitivity to both a new overhead line and underground cable.
Marine Character Areas	Highlight the key natural, cultural and perceptual influences that make the character of each seascape distinct and unique. Limited sensitivity to marine cables but more sensitive to offshore substations and coastal infrastructure.

Historic Environment	
World Heritage Sites	Is a landmark or area which is selected by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as having cultural, historical, scientific or other form of significance, and is legally protected by international treaties. With regards to the study area they are discrete sites which are easily avoided however are highly sensitive to above ground transmission infrastructure.
Conservation Areas	Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance.
Scheduled Monuments	Is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State (SoS) for Digital, Culture, Media and Sport. Highly sensitive to direct effects from underground and above ground transmission infrastructure, however, generally they are discrete sites that are avoidable. Also sensitive to indirect setting effects. The sensitivity to setting effects varies dependant on the monument and the surrounding landform and landcover and at this stage National Grid have not assessed the sensitivity of each site.
Registered Parks and Gardens	Is a Register of Historic Parks and Gardens of special historic interest and are graded in a similar way to Listed Buildings. Sensitive to both direct impacts from underground and above ground transmission infrastructure and setting impacts. Generally, they are discrete sites so direct impacts can be avoided. Sensitivity varies for example a Grade I Park and Garden which has mainly inward facing views would be less sensitive than a Grade II Park and Garden with mainly outward facing views. At this stage National Grid have not undertaken a sensitive assessment of each site.
Listed Buildings	Buildings that are listed for their special architectural and historic interest. It is assumed that all buildings would be avoided in terms of direct effects. Sensitive to indirect setting effects. The sensitivity to setting effects varies dependant on the individual building and the surrounding landform and landcover and at this stage National Grid have not assessed the sensitivity of each site. In general Grade I and II* are considered more sensitive than Grade II.
Registered Battlefields	Register of Historic Battlefields to promote a better understanding of their significance and public enjoyment. There are none within the study area.
Conservation Areas	Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance.
Military Remains	Provides protection to military remains sensitive to direct impacts from underground or above ground transmission infrastructure however they are generally small discrete sites which can be avoided.

Historic Environment	
Protected Wrecks	Designated as being likely to contain the remains of a vessel, or its contents, which are of historical, artistic or archaeological importance. Sensitive to direct impacts from subsea transmission infrastructure however they are generally small discrete sites which can be avoided.

Biological Environment	
European Sites (SACs, SPAs and Ramsar Sites)	SPAs are a designation for the protection of certain over wintering, breeding and on passage bird species, SACs are designated for the protection of certain habitats and species that are most in need of conservation at the European level and a Ramsar site is a wetland site of international importance for nature conservation. The sensitivity of a European site varies depending the technology (overhead vs underground) and the reasons for the designation of the site. In general, coastal sites are more expansive with less opportunity to avoid than inland sites.
Sites of Special Scientific Interest (SSSIs)	National level designation for natural heritage (flora and fauna) as well as for geological and geomorphological reasons. As with Natura 2000 sites their sensitivity to either underground or overhead transmission infrastructure varies both due to the infrastructure and the reasons for the designation of the site.
MCZs	National level designation to protect a range of nationally important, rare or threatened habitats and species. As above their sensitivity to a subsea cable varies both due to the infrastructure and the reasons for the designation of the site.
NNRs	National level designation which were established to protect important habitats, species and geology in addition to a SSSI they also provide a recreational and educational environment. As above their sensitivity to either underground or overhead transmission infrastructure varies both due to the infrastructure and the reasons for the designation of the site.
RSPB Important Bird Areas (IBAs) and Reserves	In general, these are contiguous with the SPAs, Ramsar's and SSSI and protect rare or endangered bird species. IBAs are in general more expansive and their sensitivity to underground or above ground infrastructure varies dependant on the species and the timing of the installation. Reserves are generally more discrete site and also offer an educational and recreational facility.
Ancient Woodland	By definition ancient woodland is a woodland that has existed continuously since 1600 or before however there are different types and the ground flora is important as well as the trees. In general, has a high sensitivity to underground or overhead transmission infrastructure as loss is not considered temporary; however this can be reduced where there are opportunities to span for cross using a trenchless technique.
Local Nature Reserves (LNRs)	LNRs are a statutory designation made under Section 21 of the National Parks and Access to the Countryside Act 1949. LNRs are for people and wildlife. They are places with wildlife or geological features that are of special interest locally.
Local Wildlife Sites (LWSs) / Sites of Importance for Nature Conservation (SINC)	LWSs are wildlife-rich sites selected for their local nature conservation value. They vary in shape and size and can contain important, distinctive and threatened habitats and species. In many parts of the UK, they are the principal wildlife resource but their designation is non-statutory and their only protection comes via the planning system. They are not protected by law like SSSIs or NNRs.

Physical Environment	
Topography	Generally considered under landscape, relevant in relation to Holford Rules 4 and 5: Choose tree and hill backgrounds in preference to sky, backgrounds, wherever possible; and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees. Prefer moderately open valleys with woods where the apparent height of the towers will be reduced, and views of the line will be broken by trees.
Watercourses	Any natural or artificial channel above or below ground through which water flows, such as a river, brook, beck, ditch, mill stream or culvert
Flood Zones	In general development in flood zones 2 and 3 should be avoided in favour of development in flood Zone 1. Almost always impossible for linear projects to avoid development in flood zone 2 and 3 however both underground cables and overhead lines are considered to have a low sensitivity as in the case of the former the effect is temporary and can be managed by good construction practice and construction techniques such as a ducted solution and in the case of the later flood water being able to inundate footprints. The siting of new substations and converter stations has a greater sensitivity as these would result in permanent infrastructure in the floodplain and would require an exception test to be passed as part of any flood risk assessment.
Source Protection Zones (SPZs)	SPZs are defined around large and public potable groundwater abstraction sites. The purpose of SPZs is to provide additional protection to safeguard drinking water quality through constraining the proximity of an activity that may impact upon a drinking water abstraction.
Landfill and Historic Landfill Sites	Areas of land in which waste is/has been deposited. They are carefully designed structures built into the ground so that waste is kept separate from the surrounding environment.
Superficial geology and bedrock geology	Superficial deposits refer to geologically recent unconsolidated sediments whereas bedrock geology is the main mass of rocks forming the Earth that are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.
Marine Environment	Bathymetry Offshore geology

Socio-economics	
Settlement and Population	Urban regions Main settlements Allocation and growth areas Residential density (people per hectare) Educational facilities Medical facilities
Tourism and Recreation	National Cycle Network Visitor attractions Accommodation facilities Historic Landmarks Sports and Leisure Centres and Sports Clubs
Land/Marine Use	Agricultural Land Classification (ALC) Golf Courses Allotments Forest and Country Parks Countryside and Rights of Way Access Land Land Allocations Major Planning Applications Fishing density Shipping and navigation Traffic and access Aquaculture areas Marine extraction and disposal sites Anchorage areas Other sea users
Infrastructure	Transmission network / subsea cables Gas transmission network / subsea pipelines Ports and harbours Aerodromes Offshore windfarms Motorways /Trunk roads Other Roads Railways

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CV34 6DA United Kingdom

Registered in England and Wales
No. 4031152
nationalgrid.com

15. Statutory Consultation Banners



The Great Grid Upgrade

Sea Link

National Grid Electricity Transmission needs to upgrade the electricity transmission network between Suffolk and Kent to connect new renewable and low-carbon energy to homes and businesses.

We are proposing to build a new 2 gigawatt (GW) high voltage direct current link approximately 145 kilometres long and primarily offshore. This project is known as Sea Link.

Our consultation

We want to hear what you think of our plans to help us develop our proposals before we submit an application for development consent to the Planning Inspectorate.

Our consultation is running from 24 October until 18 December 2023. You can take part in the consultation in the following ways:

- **attend a public information exhibition**
- **book an in person, video or telephone appointment to an 'ask the experts' session**
- **attend a webinar**
- **complete a feedback form** – complete and return a feedback form to us. You can do this online on our website, in person at our public information events, or by sending a paper copy feedback form back to us using our freepost address FREEPOST SEA LINK (no stamp or further address details are required). Please get in touch to request a paper copy of the feedback form.

The deadline for feedback is **23:59 on Monday 18 December 2023.** Postal responses will be accepted until **Tuesday 2 January 2024.**

Scan the QR code here to view our consultation documents on our website.

Who are we?

nationalgrid Group PLC

National Grid Electricity Transmission

Owns and manages the high voltage electricity transmission system in England and Wales.

National Grid Electricity Distribution

Owns and operates the electricity distribution networks for the Midlands, the South West of England and South Wales, with 8m customer connections serving a population of over 18m people.

ESO Electricity System Operator

The ESO is legally separate from the rest of National Grid and ensures that Great Britain has the essential energy it needs by making sure supply meets demand every second of every day.

National Grid Ventures

Operates a mix of energy assets and businesses to help accelerate the development of our clean energy future (such as undersea interconnectors that allow the UK to share energy with other European countries).

What is The Great Grid Upgrade?

As we transition to clean, green energy, we need to build new infrastructure, as well as upgrading the existing grid, to bring this clean, green energy from where it's generated to where it's needed by homes and businesses.



A grid that's fit for the future

Investment close to home

More clean energy for all

Energy security

2022 – 2030

October - December 2022
Non-statutory consultation

September - October 2023
Pre-consultation stakeholder briefings

Spring 2024
Update stakeholders

Autumn 2024 – Autumn 2025
Pre-examination, examination and reporting

2026 – 2030
Construction

We are here

October 2022
Environmental impact assessment scoping submitted to the Planning Inspectorate

October - December 2023
Statutory consultation

Autumn 2024
Submission of development consent order application

Winter 2026
Secretary of State decision

In the community

Grid for Good

Grid for Good is our flagship programme that helps increase access to training and employment opportunities for young people. We support students with career coaching and masterclasses.

We've reached over 300 students from four schools across Norfolk, Suffolk and Essex already this year, with more activities to come.

Building the net zero energy workforce

To help achieve net zero by 2050, we discovered that our industry needs to recruit 400,000 jobs between now and 2050.

Find out more about careers, apprenticeships and student placements with National Grid:

University engineering challenge

We are teaming up with our charity partner Generating Genius to run a programme with local universities and progressing MSc research with the University of East Anglia.



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Why we need to build Sea Link

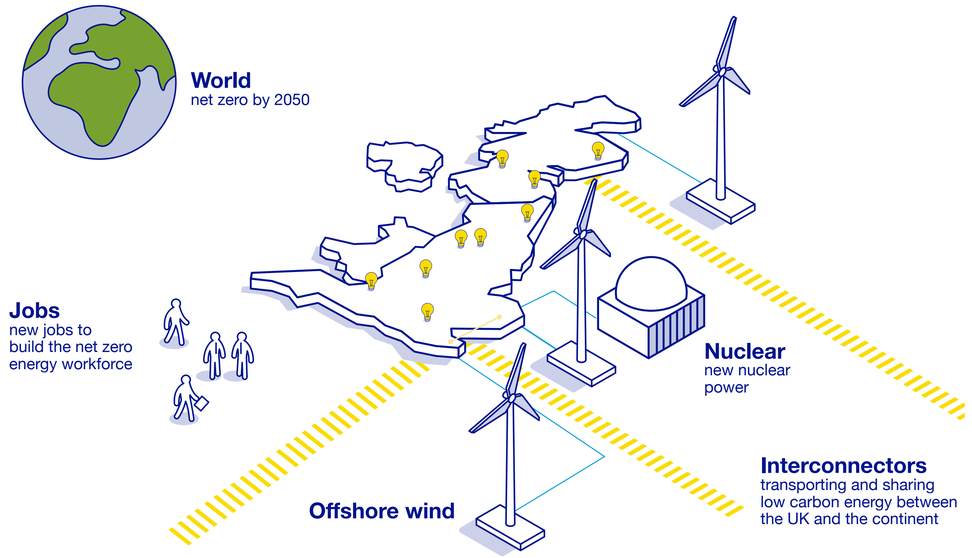
Sea Link would help make sure the grid is ready to transport more secure, cheaper, and cleaner forms of energy and forms part of The Great Grid Upgrade, the largest overhaul of the grid in generations.

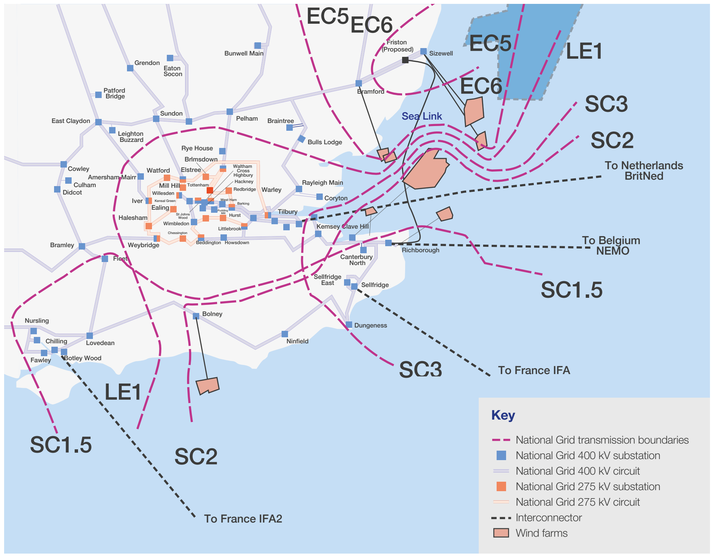
net zero - the UK has set a goal to reach net zero by 2050. To reach net zero we are generating or sharing more low-carbon electricity through offshore wind, nuclear power and interconnectors

how we generate energy is changing - the existing electricity transmission network was not designed to transport electricity from where we increasingly generate it (largely offshore). This means more electricity will be generated in the years ahead than the current network is able to securely and reliably transport

demand is increasing - as a country, electricity demand is forecasted to at least double by 2050, increasing the amount of energy we need to transport to homes and businesses

small scale network change isn't enough - upgrading the existing network as it is today through replacing cables to carry more power etc. will not be enough to carry the amount of future power whilst operating to required standards.





How Sea Link would help to reinforce the network

1. Sea Link would connect new planned generation behind the network boundaries allowing power to be transferred
2. by connecting into the proposed Friston substation, Sea Link would reinforce the Bramford-Sizewell circuits transferring power between transmission boundaries EC5 and the Sizewell Generation Group (EC6 on the adjacent map)
3. connecting into the Kent coast would increase the amount of power that can be transported to and from the south-east, helping to meet domestic demand and imports and exports via interconnectors.

The network today

The network in East Anglia was built in the 1960s and although it can accommodate the level of generation and demand today, this situation will change with the growth of offshore wind, interconnectors and nuclear power.

This means that the amount of power connecting behind the network boundary (referred to as EC5) is far greater than the ability of the network to transport power out of the region.

In the south-east there are several network boundaries where power flows from the north and west of England and across London into Kent. Power flows across boundary LE1 are set to increase as electricity demand is set to grow and along with new interconnectors.

Identifying where the network needs reinforcing

We use the concept of network boundaries to understand network capacity. Where power flows will be higher than the capability of the network there are two options to manage this:

1. pay electricity generators on one side of the boundary to reduce the energy they produce and compensate them for the shortfall
2. increase the capability of the network to allow more electricity to flow.

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Our proposals in Suffolk

Based on feedback, further assessments and surveys we have refined our proposals and reduced the number of landfall locations from two to one and reduced the number of converter station sites from two to one.

As a result, the onshore cable corridor options have reduced from five to one and the offshore cable corridor options from two to one.

1 Proposed Friston substation

The proposed Friston substation would be located immediately to the north of the village of Friston. It would be constructed using gas insulated switchgear technology with a footprint of up to 16,800 square meters.

Modification works would be needed to the adjacent 400 kV overhead line.

Scottish Power Renewables has consent to build the proposed Friston substation, but we are also including it in our proposals for Sea Link, to give us a comprehensive consenting position.

2 High voltage alternating current (HVAC cables)

From the substation, there would be a stretch of HVAC underground cables running northwest, south of the B1119 and north of the B1121, towards the proposed converter station (point 3). The HVAC cable stretch would be approximately 1.7 km in length.

3 Converter station

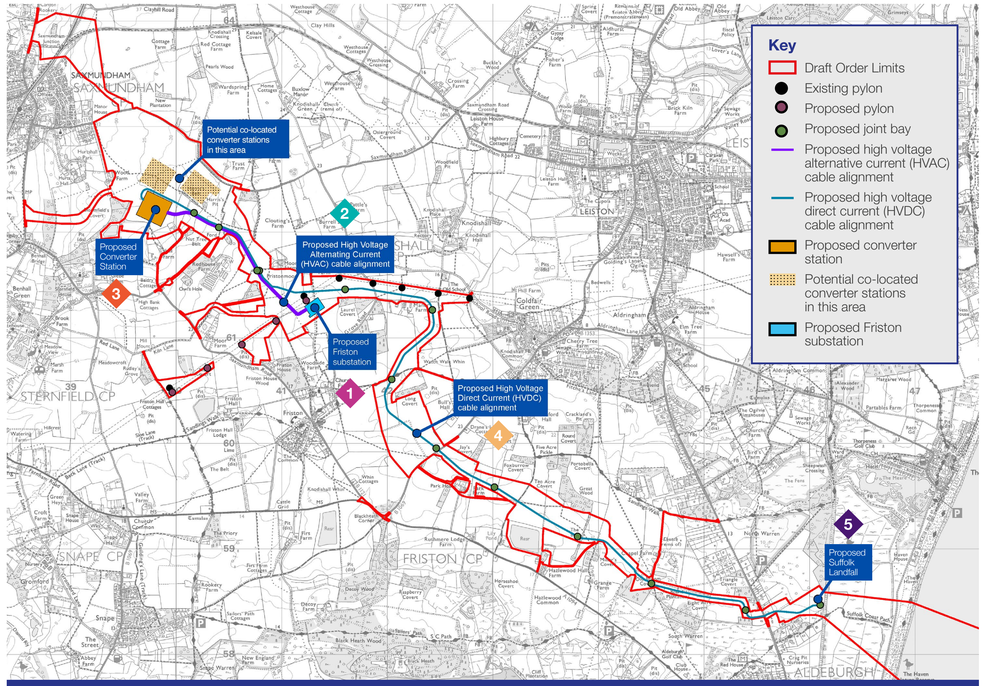
HVAC cables would run into the proposed converter station site located to the east of Saxmundham, and to the south of the B1119.

Converter stations convert alternating current which transmits power into homes and businesses, into direct current which transports power over longer distances, and vice versa.

The converter station would be up to 26 metres in height plus roof mounted equipment (aerials, walkways etc.). Although we would only need one converter station for Sea Link, we are showing illustrative examples of how up to three projects could potentially coordinate with each other and co-locate within the same site.

4 High voltage direct current (HVDC cables)

HVDC cables would run east for approximately 10 km between the proposed converter station and a transition joint bay at the proposed landfall point.



- **a connection from the existing transmission network via the proposed Friston substation, including the substation itself**
- **a high voltage alternating current underground cable of approximately 1.7 km in length between the proposed Friston substation and a proposed converter station**
- **a 2 GW high voltage direct current (HVDC) converter station up to 26 metres high plus external equipment near Saxmundham**
- **a HVDC underground cable connection of approximately 10 km in length between the proposed converter station near Saxmundham, and a transition joint bay where the cable transitions from onshore to offshore technology**
- **a landfall on the Suffolk coast (between Aldeburgh and Thorpeness).**

5 Landfall

A transition joint bay would be needed to transition onshore cables to offshore. This would be located between Aldeburgh and Thorpeness.

Converter station design

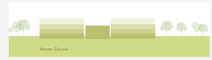
We would also like to hear your views on the design approaches for the converter station that we could explore once we enter the more detailed design stages.

The following illustrations show some possible design principles that may work at the proposed converter station site, based on an initial architectural review:

Enhanced elevations



Colour



Green roof



Agricultural barns



Colour & curve



Kinetic

Coordination and co-location

Our proposals in Suffolk have been developed for Sea Link as a standalone project, but also include opportunities to co-locate infrastructure for up to two further projects (LionLink and Nautilus) being developed by National Grid Ventures. We are showing enough space for co-location in the following areas:

- the converter station site at Saxmundham
- the high voltage direct current and high voltage alternating current cable corridors
- the landfall location.

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Our proposals in Kent

Our proposals in Kent have been developed through feedback, further assessments and ongoing surveys.

1 Landfall

The proposed landfall is located at Pegwell Bay, to the south of Cliffsend. A transition joint bay is needed to transition offshore cables to onshore.

2 High voltage direct current (HVDC cables)

From the transition joint bay, the HVDC cable passes under the A256/Richborough Way and continues west for around 2 km towards the proposed substation.

3 Substation and converter station

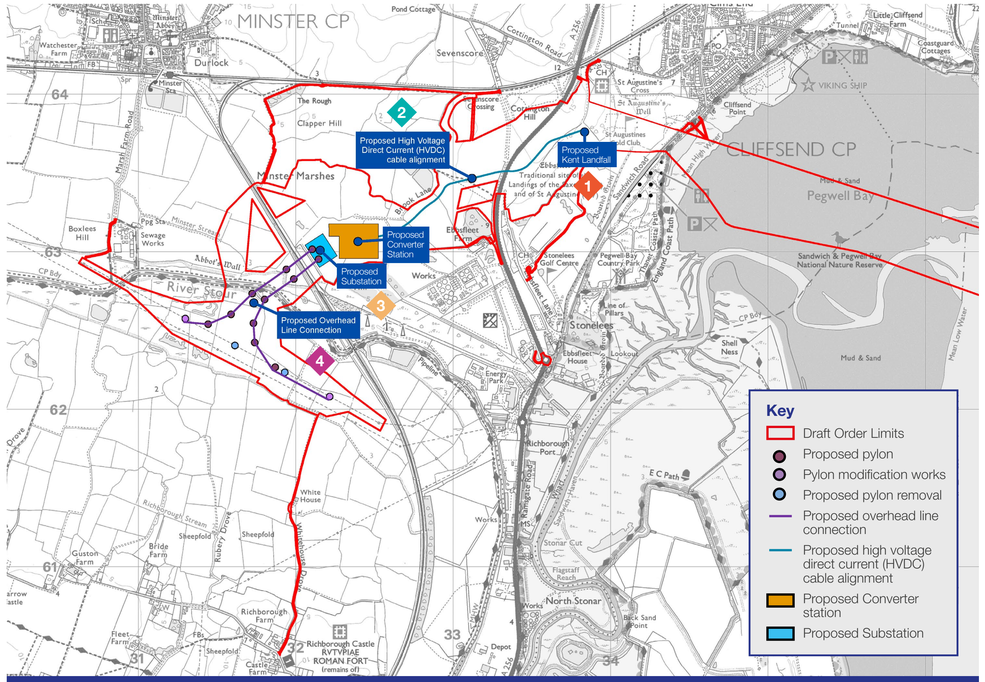
The proposed 400 kV substation and converter station would be located to the north of Richborough Energy Park in Minster.

Converter stations convert alternating current which transmits power into homes and businesses, into direct current which transports power over longer distances and vice versa.

The converter station would be up to 26 metres in height plus roof mounted equipment (aerials, walkways etc.).



Haul road



- **a landfall point on the Kent coast at Pegwell Bay**
- **a transition joint bay to transition from offshore high voltage direct cable (HVDC) to onshore HVDC cable, before continuing underground for approximately 2 km to a proposed new converter station (below)**
- **a new substation immediately adjacent to a converter station**
- **a 2 gigawatt (GW) HVDC converter station, up to 26 m high plus external equipment (such as lightning protection & railings for walkways), near Minster**
- **removal of up to 1 km of existing high voltage alternating current (HVAC) overhead line, and installation of approximately 2.25 km of new HVAC overhead line from the converter station and substation near Minster and the existing Richborough to Canterbury overhead line.**

4 Overhead line connection

We propose to connect the high voltage alternating current (HVAC) from the proposed 400 kV substation at Minster into the existing Richborough to Canterbury 400 kV overhead line through approximately 2.25 km of new overhead line.

The new overhead line would be routed to the southwest of the proposed converter station and substation site, crossing the River Stour and a section of railway.

Converter station design

We would also like to hear your views on the design approaches for the converter station that we could explore once we enter the more detailed design stages.

The following illustrations show some possible design principles that may work at the converter station and substation site, based on an initial architectural review:

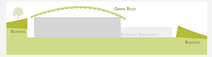
Enhanced elevations



Colour



Green roof



Agricultural barns



Colour & curve



Kinetic



Underground cables

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The Great Grid Upgrade

Sea Link

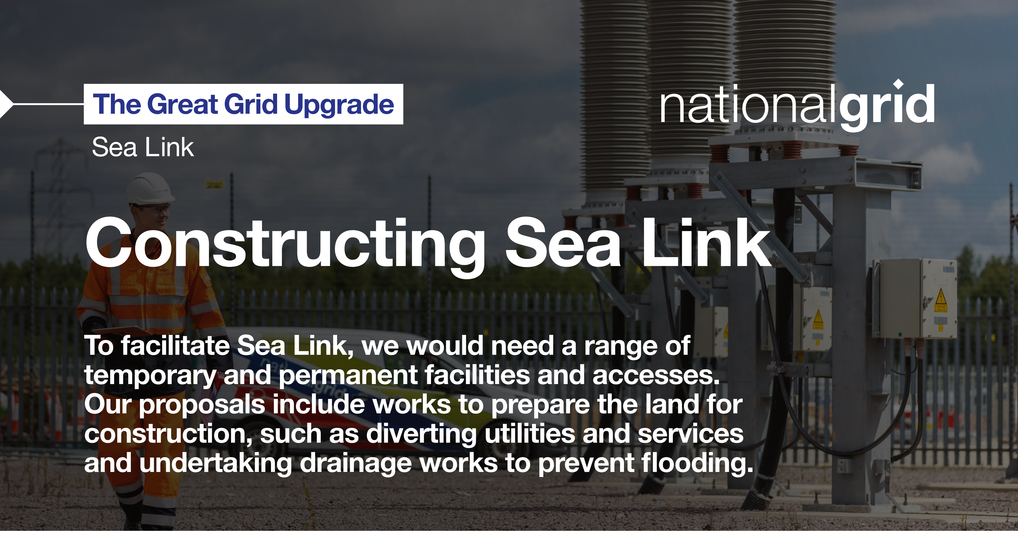
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Our marine proposals

Based on feedback, further assessments and surveys we have refined our proposals and reduced the northern marine corridors from two to one because we have removed the alternative northern landfall option at Sizewell in Suffolk.

Approximately 130 km of subsea high voltage direct current cable, running between the Suffolk landfall location (between Aldeburgh and Thorpeness), and the Kent landfall location at Pegwell Bay.





The Great Grid Upgrade

Sea Link

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Constructing Sea Link

To facilitate Sea Link, we would need a range of temporary and permanent facilities and accesses. Our proposals include works to prepare the land for construction, such as diverting utilities and services and undertaking drainage works to prevent flooding.

The construction phase would involve a range of temporary construction activities, including:

- **Working areas for construction**
- **Site offices and storage**
- **Crossing points across watercourses**
- **Construction vehicular accesses and haul roads**
- **Temporary diversions of public rights of way**

Overall, we expect the construction of Sea Link to span from 2026 to 2030.

Some reinstatement and landscaping works would continue into 2031 once Sea Link is operational. We would need to use different types of infrastructure and construction methods in different areas to build and maintain Sea Link:

Construction compounds

To facilitate construction, we are proposing a number of areas that would temporarily store materials, vehicles, staff welfare facilities etc.

Installing underground cables

For the installation of underground cables, a large construction area is required. Additional working areas would be required beyond the construction corridor for site compounds, storage of construction materials and so on.

We would prepare a range of documents to ensure our activities are coordinated and properly planned, these include:

- construction environmental management plan
- construction traffic management plan
- waste management plan
- code of construction practice.

Use of trenchless crossing

We intend to use an underground (trenchless) construction method in some areas to install the cable.

Trenchless crossing techniques allow us to safely install our cable whilst minimising interaction with the land surface, which reduces the impact on wildlife, traffic, and local communities.

Installing subsea cables

Before we install any subsea cables, we undertake surveys of the installation corridor to refine the route.

There are two methods that can be used to install a marine cable. Both methods use a specialist cable installation vessel.

More information about construction methods can be found on the Construction page of our website.

The Great Grid Upgrade

Sea Link

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Landscape, planting and biodiversity net gain



We are committed to leaving behind an enhanced local environment and delivering on biodiversity net gain.

Sea Link also includes opportunities for environmental mitigation, compensation and enhancement. This means we would reduce and avoid impacting the local environment as far as possible. Where this is not possible, we would look to offset the impact of our activities through environmental compensation.

We would like to hear your feedback on how environmental planting and biodiversity net gain could be delivered, and we will consider these as we develop and refine our strategy. This could include delivering planting close to the site that delivers good environmental outcomes, or by partnering with other organisations.



environmental mitigation, compensation and enhancement, such as hedgerow creation, native tree planting or funding local wildlife groups

at least 10% biodiversity net gain.

Preliminary environmental information report

View our Preliminary environmental information report (PEIR) to find out more about Sea Link and the local environment.

Our PEIR considers the likely significant effects of our proposals on the environment, along with the measures we are proposing to mitigate these impacts. The report, along with a non-technical summary of its findings, is available from our project website, **nationalgrid.com/sealink**.

You can find information on environmental and socioeconomic designated sites within the Sea Link boundary on our project website.

We will continue to carry out our environmental impact work to help us prepare our submission. This will consider key topics such as:

- landscape and visual effects
- traffic and transport
- ecology and biodiversity
- heritage.

Throughout this process we will continue to engage with local authorities, listen to local people, and consider the survey results as we identify potential mitigations.

16. PEIR Non-Technical Summary

The Great Grid Upgrade

Sea Link

Preliminary Environmental Information Report

PEIR Non-Technical Summary

Version A
October 2023



nationalgrid

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Sea Link
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24/10/2023	A	FINAL	First Issue

1. Introduction

1.1 Overview

1.1.1 The Sea Link Project (hereafter referred to as the 'Proposed Project') is a proposal by National Grid Electricity Transmission plc (hereafter referred to as National Grid) to reinforce the transmission network in the South East of England and East Anglia. The Proposed Project is required to accommodate additional power flows generated from renewable and low carbon energy generation. New interconnection with mainland Europe, along both the Kent and Suffolk coastlines, also requires additional power flows and grid re-enforcement in East Anglia and South-east regions.

1.2 Purpose of this Non-Technical Summary

1.2.1 The aim of this Non-Technical Summary (NTS) is to enable the local communities and other stakeholders to understand the likely preliminary environmental effects arising from the Proposed Project, as reported in the Preliminary Environmental information Report (PEIR), in a concise manner which is easily understood and accessible by all. Effects are assessed in terms of how 'significant' they would be, and the Environmental Impact Assessment (EIA) is primarily concerned with 'likely significant effects' and not those unlikely to be significant.

1.2.2 This NTS includes a description of the Proposed Project, a summary of the consultation process, and preliminary environmental information relating to the proposed works.

Table 1-1. What's included

Section	What is it about?
1. Introduction	This Introduction chapter introduces National Grid, what the Proposed Project is, where it is located and why it is needed.
2: Main Alternatives Considered	This chapter explains the alternative designs considered to date and provides a summary of how the design has evolved and developed to date.
3: Project Description	This chapter explains how the Proposed Project would be built (should it be consented), what new electricity infrastructure would be implemented and how long construction would take.
4: Approach and Methodology	This chapter explains how the preliminary assessment has been undertaken and how it has been informed by consultation and stakeholder engagement to date.
5: Preliminary Environmental Assessment – Suffolk Onshore Scheme	This chapter provides a summary of the potential environmental effects arising from the Proposed Project in Suffolk which have been identified to date.

Section	What is it about?
6: Preliminary Environmental Assessment – Kent Onshore Scheme	This chapter provides a summary of the potential environmental effects arising from the Proposed Project in Kent which have been identified to date.
7: Preliminary Environmental Assessment – Offshore Scheme	This chapter provides a summary of the potential environmental effects arising from the Proposed Project offshore which have been identified to date.
8: Project-Wide Effects	This chapter provides a summary of the project wide assessments undertaken for the Proposed Project including climate change, combined effects of onshore and offshore elements, Habitats Regulations Screening, Marine Conservation Zone Assessment and Water Framework Directive Assessment
9: Next Steps	This chapter explains what happens next in the EIA process, and how you can have your say on the proposals.

1.3 What is Sea Link?

1.3.1 National Grid is proposing to reinforce the network between Suffolk and Kent via a new, primarily offshore, 2 GW high voltage direct current (HVDC) link. Additionally onshore infrastructure required to deliver the Proposed Project, including converter stations, substations and new underground and overhead electricity lines, will also be installed.

1.3.2 The Proposed Project has been designed to increase the capability of the network to carry low carbon and renewable energy from where it is generated to homes and businesses across the country.

1.4 Who is National Grid?

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

1.5 Why is Sea Link Needed?

1.5.1 The network in and between East Anglia and the south-east of England needs reinforcing for four main reasons:

- the existing transmission network was not designed to transport electricity from where we increasingly now generate it (largely offshore);
- the growth in offshore wind, interconnectors and nuclear power means that more electricity will be generated in the years ahead than the current network is able to securely and reliably transport;

- as a country, electricity demand is forecasted to at least double by 2050, increasing the amount of energy we need to transport to homes and businesses; and
- upgrading the existing network as it is today (such as through replacing cables to carry more power) will not be enough to carry the amount of future power whilst operating to required standards.

1.5.2 The Proposed Project is just one of several electricity network reinforcements that are needed to ensure the electricity transmission network is fit for the future.

1.6 The Consenting Process for Sea Link

1.6.1 The Planning Act 2008 process was introduced to streamline the decision-making process for major infrastructure projects, making it fairer and faster for communities and applicants alike.

1.6.2 None of the components of the Proposed Project fell within the definition of a 'Nationally Significant Infrastructure Project' (NSIP). In consultation with the relevant Local Planning Authorities (LPA) in Suffolk and Kent, the Proposed Project sought direction from the Secretary of State (SoS) for the Proposed Project to be treated as a development for which development consent is required. This was granted by the SoS.

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

1.6.4 The purpose of the PEIR is to provide early information to allow stakeholders and the local community to develop an informed view of the impacts of the Proposed Project. This process involves identifying potentially significant adverse impacts resulting from the Proposed Project, allowing them to be avoided or minimised where possible, as well as identifying any potential beneficial environmental impacts.

1.6.5 The Development Consent Order (DCO) application for the Proposed Project will be submitted by National Grid in Autumn 2024 which will provide details of the Proposed Project and will be accompanied by an Environmental Statement (ES).

2. Main Alternatives Considered

2.1 Introduction

2.1.1 National Grid undertakes options appraisals during the first stage of project development for all new projects. These often identify a number of different approaches the project could take to achieve its stated purpose, also known as its 'Needs Case', and may include different locations, technologies or designs.

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

2.1.3 At each stage of the options appraisal process for the Proposed Project, a clearly defined methodology has been used to inform the decision making process. This has included technical inputs from engineers and environmental consultants to inform the decisions and design. Decision making has also taken into account the feedback from prescribed bodies and will continue to take into account the feedback from the prescribed bodies alongside feedback from the local community through an extensive programme of engagement and consultation.

2.1.4 Image 2.1 shows where the options appraisal sits within National Grid's approach to project development and delivery, as set out in the National Grid publication 'Our Approach to Consenting'.

2.1.5 The current Proposed Project design is the result of an iterative process that commenced at project inception in 2019, when the initial need to reinforce the network in the South East of England was identified. Environmental, engineering and economic considerations have influenced the optioneering and design evolution process. There have also been extensive discussions with the relevant statutory and non-statutory stakeholders during the development of the Proposed Project, as well as a round of public non-statutory consultation.

Image 2.1. National Grid's approach to project development and delivery



2.2 Strategic Proposal

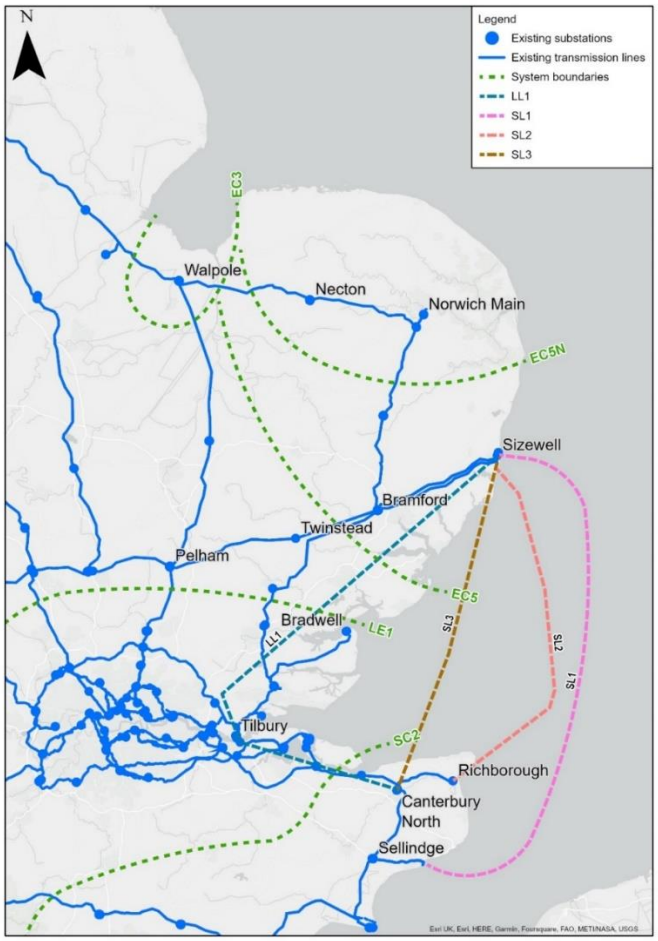
2.2.1 A range of strategic options that might address network needs were identified and appraised at a strategic level. These appraisals considered the likely environmental and socio-economic effects, technical issues, and costs that would be associated with each strategic option.

2.2.2 The need to reinforce the network in the South East of England is driven by a projected increase in interconnector activity between Europe and Kent. Additionally, centres of demand in the South East, including London, are likely to grow. One of the strategic options that was considered was a subsea HVDC link between the South East of England and East Anglia.

2.2.3 Following the identification of the need for the reinforcement to connect into the Sizewell area in East Anglia and into the South East of England, four alternative strategic options were appraised. These are listed below and illustrated on Image 2.2.

- SL1 - Sizewell area and Sellindge substation offshore;
- SL2 - Sizewell area and Richborough substation offshore;
- SL3 - Sizewell area and Canterbury substation offshore; and
- LL1 - Sizewell area and Canterbury substation onshore.

Image 2.2. Schematic of Strategic Options considered for the Proposed Project



2.2.4 As part of the assessment of these four strategic options, National Grid considered the:

- environmental and socio-economic constraints;
- technology options available and the associated technical considerations; and
- the capital and lifetime costs of each option.

2.2.5 SL2 was identified as the preferred strategic option for the Proposed Project.

2.3 Options Identification and Selection

2.3.1 Routeing and siting work was undertaken between 2021 and 2022. The outputs of this process are reported within the Sea Link Corridor and Preliminary Routeing and Siting Study (CPRSS) and Option Selection and Design Evolution Report.

2.3.2 A staged approach was adopted to identify corridors and preliminary routeing and siting options for the Proposed Project, considering environmental and socio-economic factors as well as technical and engineering design considerations, and cost.

2.3.3 Each of the options identified for the converter site option Areas and cable route corridors were appraised in accordance with National Grid's approach to options appraisal. The steps undertaken for the Proposed Project in this staged approach are listed below.

- **Step 1** Identification of the Routeing and Siting Study Area;
- **Step 2** Data Gathering;
- **Step 3** Identification of Landfall Areas of Search;
- **Step 4** Identification of Route Corridors and Site Areas;
- **Step 5** Appraisal of Route Corridors and Site Areas; and
- **Step 6** Identification of the Preferred end-to-end solution.

2.3.4 In Autumn 2022, a non-statutory public consultation was held for a period of eight weeks, between 24 October 2022 and 18 December 2022. This consultation introduced the Proposed Project, explained how National Grid had developed its proposals, and sought the views of the public and stakeholders. Copies of the CPRSS were made available during the 2022 non-statutory consultation.

2.3.5 At statutory consultation, National Grid consulted on five corridor options in Suffolk, these were:

- Suffolk Site 1 Emerging Preference;
- Suffolk Site 3 Emerging Preference;
- Suffolk Site 1 Alternative;
- Suffolk Site 3 Alternative (option 1); and
- Suffolk Site 3 Alternative (option 3).

2.3.6 National Grid consulted on two corridor options for the marine cable, these were:

- Marine Corridor Emerging Preference; and
- Marine Corridor Alternative.

2.3.7 National Grid consulted one corridor in Kent, this was:

- Kent Emerging Preference corridor.

2.3.8 National Grid also consulted on the technology choice in Kent for the High Voltage Alternating Current (HVAC) connection being made by either overhead line or underground cables.

2.3.9 Within the corridors National Grid showed a graduated swathe. The darker areas of the swathe indicated, based information available at the time, a more likely location for the infrastructure within the corridors. This was indicative and subject to further assessment work, and the consultation feedback National Grid received.

2.3.10 The feedback received during the 2022 non-statutory consultation has been carefully reviewed and considered, alongside ongoing environmental and engineering studies. National Grid have also backchecked and reviewed its previous studies to ensure the reasons for the decisions taken have not changed following a review of the non-statutory consultation feedback.

2.3.11 In Suffolk, Site 3 Emerging Preference has been selected as the preferred option. In marine waters, the Marine Corridor Emerging Preference has been selected as the preferred option. In Kent, an overhead line has been selected as the choice of technology for the HVAC connection.

2.3.12 A detailed summary of the routeing and siting appraisal and design evolution relevant to the Proposed Development in Suffolk, Kent and offshore is provided in PEIR **Volume 1 Part 2 Chapter 1 Evolution of the Suffolk Onshore Scheme**, **Part 3 Evolution of the Kent Onshore Scheme** and **Part 4 Evolution of the Offshore Scheme**.

3. Project Description

3.1 Introduction

3.1.1 The Proposed Project involves the reinforcement of the electricity transmission network between Suffolk and Kent, predominantly via offshore high voltage direct current (HVDC) link, but with significant onshore elements to connect into the transmission network. The Proposed Project is split into three distinctive elements, as follows.

3.2 The Suffolk Onshore Scheme

3.2.1 The proposed Suffolk Onshore Scheme would comprise of:

- A connection from the existing transmission network via the proposed Friston Substation, including the substation itself. Friston Substation already has development consent as part of other third-party projects. If Friston Substation has already been constructed under another consent, only a connection into the substation would be constructed by the Proposed Project.
- A HVAC underground cable of approximately 1.7 km in length between the proposed Friston Substation and a proposed converter station (below).
- A 2 GW HVDC converter station up to 26 m high plus external equipment (such as lightning protection and railings for walkways) near Saxmundham.
- A HVDC underground cable connection of approximately 10 km in length between the proposed converter station near Saxmundham, and a transition joint bay (TJB) approximately 900 m inshore from a landfall point (below) where the cable transitions from onshore to offshore technology.
- A landfall on the Suffolk coast (between Aldeburgh and Thorpeness).

3.2.2 The proposals in Suffolk have been developed for Proposed Project as a standalone project, but also include opportunities to co-locate infrastructure for up to two further projects at the converter station, cable corridors and the landfall location.

3.3 Kent Onshore Scheme

3.3.1 The proposed Kent Onshore Scheme would comprise of:

- A landfall point on the Kent coast at Pegwell Bay.
- A TJB approximately 800 m inshore to transition from offshore HVDC cable to onshore HVDC cable, before continuing underground for approximately 2 km to a new converter station (below).
- A 2 GW HVDC converter station, up to 26 m high plus external equipment (such as lightning protection and railings for walkways), near Minster. A new substation would be located immediately adjacent.

- Removal of approximately up to 1 km of existing HVAC overhead line, and installation of approximately 2.25 km of new HVAC overhead line from the substation near Minster and the existing Richborough to Canterbury overhead line.

3.3.2 The Proposed Project also includes modifications to sections of existing overhead lines in Suffolk and Kent, diversions of third-party assets, and land drainage from the construction and operational footprint. It also includes opportunities for environmental mitigation, compensation, and enhancement (which could include hedgerow creation, native tree planting or funding local wildlife groups). The construction phase will involve various temporary construction activities including overhead line diversions, working areas for construction equipment and machinery, site offices, storage, accesses, bellmouths, and haul roads, as well as watercourse crossings and the diversion of public rights of way (PROWs).

3.4 Offshore Scheme

3.4.1 The proposed 130 km marine HVDC cables would be routed from the Suffolk landfall located between the settlements of Aldeburgh and Thorpeness to the Kent landfall located within Pegwell Bay to the south of the settlement of Cliffsend.

3.4.2 The marine HVDC cables would be routed south from the Suffolk landfall through a section of the Outer Thames Estuary SPA and to the west of the existing Greater Gabbard and Galloper offshore wind farms. The cables would head east through the Sunk TSS turning south to route around Margate and Long Sands SAC and between a number of mineral aggregate sites. The marine HVDC cables would then continue south to the east of London Array offshore wind farm and west of Thanet offshore windfarm before turning west to make landfall in Pegwell Bay.

3.4.3 The proposed Offshore Scheme includes three distinct components, which are summarised below:

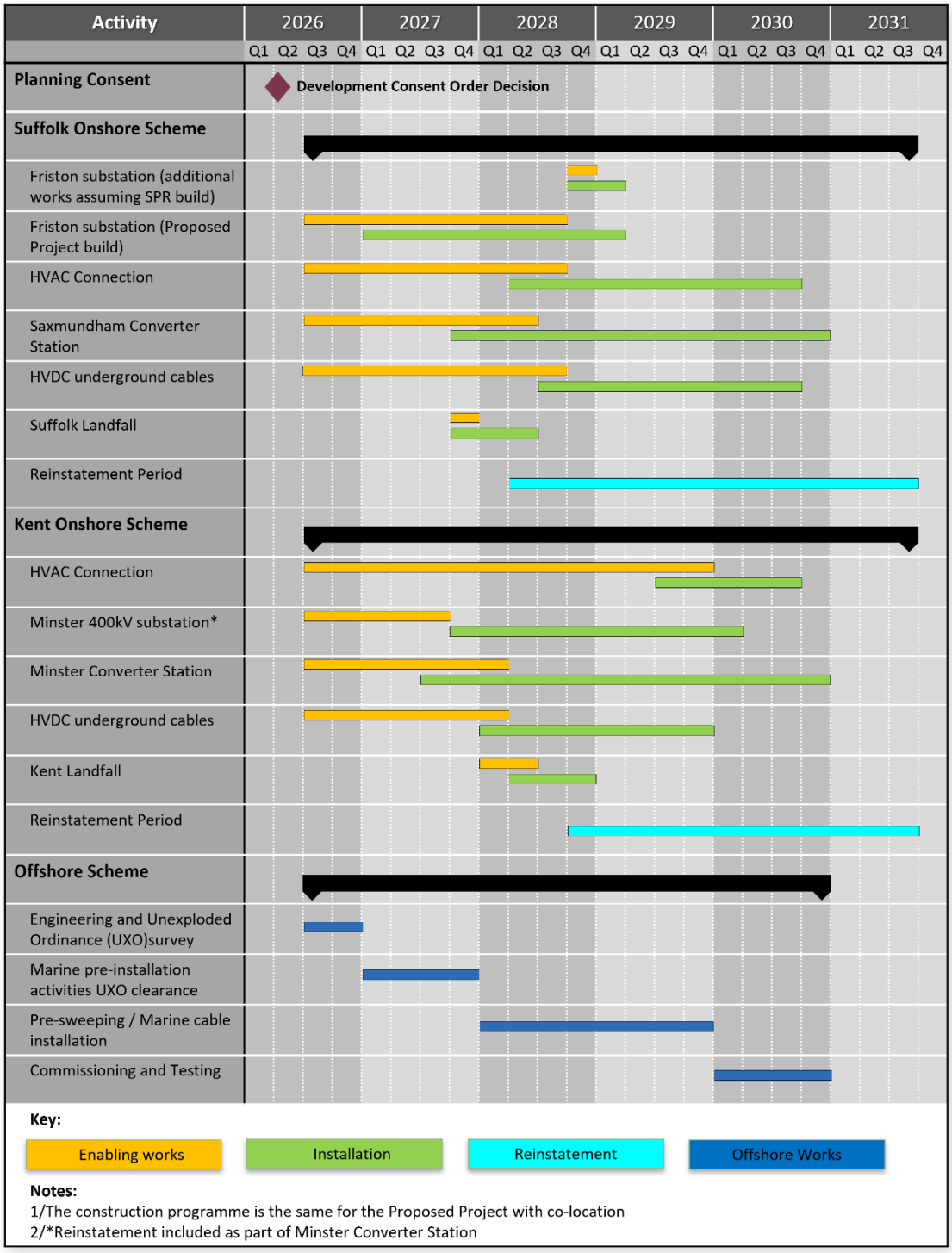
- Suffolk landfall: This is the area where the cable route transitions between the marine and terrestrial environment in Suffolk. This is located between the settlements of Aldeburgh and Thorpeness. Trenchless installation techniques are proposed here to reduce disturbance to the intertidal environment;
- Marine HVDC cable route: This is the cable route from the landfall in Suffolk to the landfall in Kent. The marine HVDC cable route is up to 130 km in length; and
- Kent landfall: this is the area where the cable route transitions between the marine and terrestrial environment in Kent, located in the Pegwell Bay area to the south of the settlement of Cliffsend. Trenchless installation techniques are proposed here to reduce disturbance to the intertidal environment.

3.5 Construction Programme and Timings

3.5.1 Subject to gaining development consent, construction works would be expected to start in 2026 and be functionally completed by the end of 2030 with reinstatement potentially continuing into 2031.

3.5.2 While the phasing of the programme is yet to be confirmed, Table 3-1 provides a high-level indication of the how the Proposed Project may be delivered.

Table 3-1. Indicative construction programme



3.6 Coordination with Third Party Projects

3.6.1 Feedback received during early discussions with LPA's as well as during non-statutory consultation and through the Scoping Opinion identified the need to explore coordination with other energy infrastructure projects that are proposed in the same locality.

3.6.2 National Grid and National Grid Ventures (NGV) have undertaken discussions to explore the opportunities for coordination of their proposed projects in Suffolk, one part of which is co-location of infrastructure. The Proposed Project therefore includes an option to facilitate co-location of infrastructure with NGV's proposed Nautilus and LionLink (formally known as EuroLink) interconnector projects to the extent currently possible.

Co-location can take different forms depending on the specific element of infrastructure being considered. In the case of HVAC/DC cables and landfall, co-location would involve installation of additional ducts to accommodate the NGV projects as part of the Proposed Project (the actual installation of the cables would be the subject of separate consent to be obtained by the NGV projects). In the case of the Saxmundham Converter Station, co-location would involve coordination with NGV projects so that up to three converter stations can be located in the same site; however the additional converter station(s) at Saxmundham would be subject to their own consent and would not form part of the Proposed Project. Detail on the approach taken for co-location of specific Proposed Project elements is provided in PEIR **Volume 1, Part 1, Chapter 4: Description of the Proposed Project.**

4. Approach and Methodology

4.1 Preliminary Environmental Information Report and EIA

4.1.1 The PEIR presents a preliminary assessment of the likely significant environmental effects of the Proposed Project.

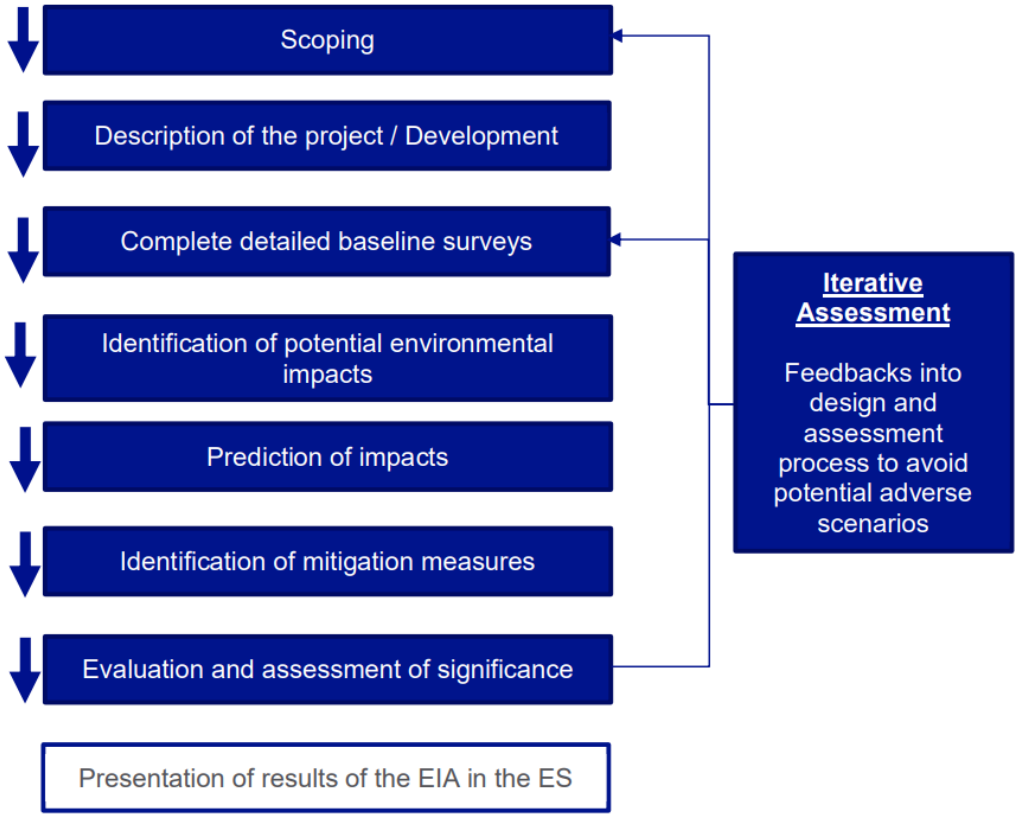
4.1.2 The PEIR has been prepared at a point in time during the Environmental Impact Assessment (EIA) process when the design of the Proposed Project is still being refined, the likely significant environmental effects are still being assessed and the potential for environmental measures is being fed back into the design.

4.1.3 The purpose of the PEIR is to enable members of the public, consultation bodies, and other stakeholders, to develop an informed view of the likely significant effects of the Proposed Project and comment on aspects of interest. Feedback received through the consultation process will be used by National Grid to inform the ongoing development of the Proposed Project design, and additional measures to address any identified significant environmental effects.

4.1.4 The full findings of the EIA process will be presented in an ES that will be submitted as part of the application for development consent.

4.1.5 The EIA process and the iterative nature of assessment and project design is illustrated in Image 4.1.

Image 4.1. The EIA process



4.2 EIA Scoping and Stakeholder Engagement

4.2.1 Central to the delivery of the EIA has been, and will continue to be, the focus on engagement with statutory and non-statutory consultees , community stakeholders, and other interested organisations and individuals.

EIA Scoping Stage

4.2.2 A Scoping Report was submitted to the Planning Inspectorate in October 2022. The Scoping Report identifies the potentially significant effects requiring assessment, determines the subject matter of the assessment and the methodologies for undertaking the assessment. The Planning Inspectorate subsequently provided a Scoping Opinion, which included comments from a range of stakeholders, on behalf of the SoS in December 2022. The Scoping Opinion and the statutory consultee responses have subsequently informed the assessment work and further design evolution undertaken to date.

Informal Consultation and Engagement

4.2.3 In addition to the formal scoping process National Grid has undertaken ongoing stakeholder engagement throughout the development of the Proposed Project. This has included:

- Regular liaison with the relevant Local Authorities and the Marine Management Organisation (MMO), including strategic and topic specific meetings;
- Meeting with statutory stakeholders such as the Environment Agency, Historic England and Natural England, and non-statutory stakeholders such as the RSPB and Port and Harbour Authorities, to update them on the Proposed Project, discuss technical issues and respond to questions.

4.3 PEIR Approach and Methodology

4.3.1 EIA is a process for identifying the likely significant environmental effects (positive and negative) of a proposed development to inform the decision-making process for development consent to be granted.

4.3.2 The EIA considers all relevant topics that may be impacted, such as landscape and historic environment. The topics to be included in the EIA were agreed with the Planning Inspectorate and other stakeholders through the Scoping process described above.

4.3.3 The PEIR presents the preliminary EIA findings which are based on the information available at the time this document was written. A description of the existing 'baseline environment' has been produced for the Proposed Project and where appropriate the area around the boundary, through a combination of desk-based studies, consultation and site-specific surveys.

4.3.4 All 'potential effects' arising from the construction, operation and decommissioning of the Proposed Project are identified as part of the EIA, for example loss of habitat or change in noise levels. The assessment considers the significance of each effect on each 'receptor' (the receiving environment such as water, air, land, or specific species). The assessment is undertaken by EIA specialists such as ecologists and archaeologists. The general approach to determining 'significance' of an effect is to consider the sensitivity of a receptor alongside the nature and severity of the change. A detailed explanation of how

different effects are deemed significant for each aspect is provided in each topic chapter of the PEIR.

4.3.5 All potential effects are considered as part of the EIA process. However, 'likely significant effects' are the key issues that are identified when considering the type of effect and the sensitivity of the environmental receptor.

4.3.6 After the identification of the potential effects, consideration has been given to how those potential effects could be avoided, reduced or offset. This is referred to as mitigation. Mitigation measures include those that are intrinsic to and built into the design of the Proposed Project (also known as 'embedded measures'); good practice control and management measures included within a Code of Construction Practice (CoCP), and other measures that are added to the design purely to mitigate an effect (e.g. landscape planting).

4.3.7 At this preliminary stage the surveys and assessment work have progressed to differing degrees for different technical assessment, and mitigation measures have not all been defined or designed.

4.3.8 Throughout the PEIR, a number of alternative design options (e.g. different construction and/or permanent access options) and assessment scenarios have been considered. For the Suffolk Onshore Scheme, this has included an assessment of the co-location of the Proposed Project with the NGV proposed Nautilus and Lionlink interconnector projects.

4.3.9 EIA also requires the consideration of potential cumulative and interrelated effects:

- Inter project cumulative effects consider the effect of the Proposed Project combined with effects from a number of different projects, on the same single environmental receptor/resource are considered; and
- Intra project cumulative effects are those that arise from multiple impacts and activities from the construction, operation and decommissioning (should the Proposed Project be consented) on the same receptor, or group of receptors.

4.3.10 At this stage a preliminary assessment has been undertaken to identify other planned developments within the area around the Proposed Project which have the potential to result in cumulative effects.

4.4 PEIR Structure

4.4.1 The PEIR is comprised of:

- Non-Technical Summary (this report);
- Volume 1: Main text;
- Volume 2: Appendices; and
- Volume 3: Figures.

5. Preliminary Environmental Assessment- Suffolk Onshore Scheme

5.1 Landscape and Visual

5.1.1 The potential interaction between the Suffolk Onshore Scheme and landscape and visual is assessed in **Volume 1, Part 2, Chapter 2: Landscape and Visual** of the PEIR. Field work has been undertaken during winter 2022 and summer and winter 2023 to inform the scoping process, assess the existing character of the landscape and visit representative viewpoints.

5.1.2 The study area for the landscape and visual assessment of the Suffolk Onshore Scheme comprises an area of 3 kilometres (km) from the draft Order Limits. The landscape varies considerably within the study area. It includes parts of the low-lying and gently undulating coastline comprising marshland and heathland, within the Suffolk Coast and Heaths AONB. Further inland medium to large-scale agricultural fields dominate across relatively higher, undulating land. The landscape of the study area is settled, with a variety of towns, including Leiston and Aldeburgh, smaller villages, including Friston and Knodishall, small clusters of dwellings and scattered properties.

5.1.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect landscape and visual receptors. These include the retention of vegetation where practicable and native shrub planting as a replacement where lost vegetation cannot be replaced. The Proposed Project will also apply a five-year aftercare period, this will be established for all reinstatement and mitigation vegetation planting.

5.1.4 The potential impacts of the Suffolk Onshore Scheme on landscape and visual receptors include temporary alteration to landscape character from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil stripping and earthworks, storage of materials and lighting.

5.1.5 The assessment concluded that effects have the potential to be significant for specific landscape and visual receptors including the Fromus Valley, Heveningham and Knodishall Estate Claylands coastal landscapes, and a number of representative viewpoints for the Proposed Project on its own and the Proposed Project with co-location.

5.2 Terrestrial Ecology

5.2.1 The potential interaction between the Suffolk Onshore Scheme and terrestrial ecology is assessed in **Volume 1, Part 2, Chapter 3: Ecology and Biodiversity** of the PEIR. A desk study has been undertaken, with ecology surveys underway in preparation for the ES.

5.2.2 The majority of the proposed Suffolk Onshore Scheme, west of Aldeburgh golf course, consists of arable crops. Crops recorded present included barley, corn, and salad crops. Fields of amenity grassland grown for turf were also present within and adjacent to the proposed Suffolk Onshore Scheme. There are multiple small woodland blocks across the

survey area, the majority of which are outside of the Suffolk Onshore Scheme draft Order Limits. Numerous scattered mature broadleaved and coniferous trees are present within the survey area including within the proposed Suffolk Onshore Scheme, including field maple, dog rose, oak, lime, turkey oak, sycamore, beech, cherry and Corsican pine. There are areas of neutral grassland across the survey area, and large areas of semi-improved acid grassland in the east of the proposed Suffolk Onshore Scheme.

5.2.3 The Sandlings SPA, Leiston-Aldeburgh Site of Special Scientific Interest (SSSI) and RSPB North Warren Reserve are located adjacent to the Suffolk landfall. Ornithological features at the proposed Suffolk Onshore Scheme include non-breeding wigeon and teal, as well as shelduck, black-tailed godwit, herring gull, gadwall, and shoveler. Breeding birds include lapwing and common snipe, alongside those typical of lowland farmland, with expected species such as skylark and yellowhammer. Atypical species included several pairs of woodlark located on rough pasture/abandoned paddocks bordered on arable fields and holding territory on field edges where sandy soils predominated.

5.2.4 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect terrestrial ecology. These include the assumption that vegetation with the potential to support breeding birds will not be removed during the breeding bird season (March to August inclusive), and where there will be a risk of animal entrapment, a means of escape will be installed into all excavations left open overnight. Additional mitigation includes the installation of visual and noise disturbance mitigation (e.g. close-board fencing) along the boundary between the construction or decommissioning compound and trenchless techniques location west of the North Warren RSPB Reserve, and both the Reserve and Sandlings SPA, should noise modelling indicate this is necessary.

5.2.5 Potential impacts of the proposed Suffolk Onshore Scheme on terrestrial ecology include direct loss (temporary or permanent) of habitats (and bird habitats), disturbance of designated sites, spillages and introduction of non-native species of habitats, and killing and injury of fauna. These will be mitigated through a range of measures including but not limited to using trenchless cable techniques, retaining root structures for hedgerow habitats and reforest areas to compensate for any potential habitat loss.

5.2.6 The assessment concluded that effects have the potential to be significant for specific terrestrial ecology receptors for the Proposed Project on its own and the Proposed Project with co-location including direct and temporary habitat loss and disturbance to designated sites during construction and decommissioning, until the details of the mitigation are developed and finalised. Survey work is ongoing and have commenced for most receptors. However, the first season of non-breeding bird survey and breeding bird survey has been completed and Phase 1 Habitat Survey has been undertaken.

5.3 Cultural Heritage

5.3.1 The potential interaction between the Suffolk Onshore Scheme and cultural heritage is assessed in **Volume 1, Part 2, Chapter 4: Cultural Heritage** of the PEIR. The main data sets that have been utilised for the Cultural Heritage Assessment to date are the Historic England National Heritage List for England for designated assets, and the Suffolk Historic Environment Record (HER) for non-designated assets. A 500 m buffer was applied to the Suffolk Onshore Scheme Boundary, which includes the proposed cable route and other associated works, as the study area to capture information relating to archaeology and cultural heritage.

5.3.2 Twenty-three designated assets have been recorded within the study area, including three Grade I listed buildings and twenty Grade II listed buildings. The majority of the Grade II listed buildings are located within the settlements which surrounds the proposed Suffolk Onshore Scheme, with concentrations in Leiston, Aldeburgh, Thorpeness, Aldringham, Friston, Sternfield and Saxmundham. Aldeburgh, Thorpeness, Leiston, and Saxmundham are also conservation areas. A review of non-designated assets revealed a large number of heritage assets demonstrating evidence of human activity in the area from the early prehistoric period through to the modern period.

5.3.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect cultural heritage receptors. These include the signposting of known archaeological interest/value, or areas where archaeological work is planned to avoid unintentional damage, and where a previously unknown heritage asset is discovered, or a known heritage asset proves to be more significant than foreseen at the time of application, the Project Team will inform the relevant local planning authority.

5.3.4 In most cases it is predicted that careful design should result in direct impacts on most heritage assets being avoided, or only limited areas of large archaeological sites being impacted, with standard mitigation such as archaeological excavation and recording mitigating impacts. The assessment identified that there is the potential for a significant physical impact on the Gorse Hill multi-period site for the Proposed Project on its own and the Proposed Project with co-location.

5.3.5 In most cases, the potential for a significant impact on the setting of designed assets resulting from the proposed Saxmundham Converter Station, as well as other permanent works such as permanent access and the Friston Sub-station, is limited due existing woodland and high hedgerows that provide extensive screening, as well as topography and the existing built environment. This is the same for the co-location option with the exception of Wood Farm Listed Buildings where co-locations could result in a significant effect.

5.4 Water Environment

5.4.1 The potential interaction between the Suffolk Onshore Scheme and the water environment is assessed in **Volume 1, Part 2, Chapter 5: Water Environment** of the PEIR. Baseline conditions of the Proposed Project were established during a desk study. In addition, data requests were made to the Environment Agency, Suffolk County Council and the East Suffolk to provide information to support the assessment. The study area for the PEIR included the Suffolk Onshore Scheme draft Order Limits, together with an additional 500m buffer from this boundary.

5.4.2 The Suffolk Onshore Scheme is situated in the hydrological catchments of the Hundred River and the neighbouring River Fromus, which is a tributary of the River Alde. The Hundred River and River Alde, of which the River Fromus is a tributary, support several abstractions for non-potable irrigation water supplies at the local scale. The Hundred River also receives two sewage discharges. The main sources of flood risk within the Study Area are from the Hundred River, the River Fromus and the River Alde. Flood risk from surface water runoff varies across the Study Area, with most areas at very low risk from this source.

5.4.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect the water environment. This includes the assumption that all works within

main rivers or ordinary watercourses will be in accordance with a method approved under environmental permits issued under the Environmental Permitting Regulations.

5.4.4 Potential impacts of the Suffolk Onshore Scheme on water receptors include pollution, temporary physical disturbance, increased run-off rates and volumes, and temporary loss of floodplain storage/impediment of floodplain flows.

5.4.5 However, the assessment concluded that effects would be not significant in relation to water receptors. These effects would be the same for the Proposed Project on its own or the Proposed Project with co-location.

5.5 Geology and Hydrogeology

5.5.1 The potential interaction between the Suffolk Onshore Scheme and geology and hydrogeology is assessed in **Volume 1, Part 2, Chapter 6: Geology and Hydrogeology** of the PEIR. A desk study was undertaken drawing on information from existing records including British Geological Survey (BGS) geological mapping, hydrogeological maps, Multi-Agency Geographic Information for the Countryside (MAGIC) interactive map, available historical mapping.

5.5.2 The geology within the Suffolk Onshore Scheme study area is variable. Superficial deposits[1] are predominantly chalky deposits, with sands, gravels, silts and clays, around the river network and boulder clay in other areas. The superficial deposits lie upon bedrock geology, which is predominantly comprised of sands, gravels, silts and clays of the Crag Formation. There are no Regionally Important Geological Sites (RIGS) (also referred to as Local Geological Sites [LoGS]), County Geo-Sites or geological Sites of Special Scientific Interest (SSSI) present within the study area. The superficial geology is classified as up to Secondary A aquifer[2], whilst the bedrock geology of the Crag Group is classified as a Principal Aquifer[3]. The study area is within a Mineral Consultation Area identified within Suffolk County Council (SCC) Minerals and Waste Local Plan.

5.5.3 Earliest available historical mapping indicates the majority of the land comprises undeveloped agricultural land with very low risk of potential sources of significant existing contamination. Three areas/sites within the study area where historical or current land uses may have resulted in existing contamination; two areas of historical pits and land associated with Great Eastern Railway East Suffolk Line and Aldeburgh Branch line.

5.5.4 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect geology and hydrogeology receptors. These include undertaking ground investigations to inform design and storing chemicals and fuels in accordance with best practice guidance. In addition, a Minerals Resource Assessment will be undertaken with the ES to define further measures.

5.5.5 The potential impacts of the Suffolk Onshore Scheme on the Geology and Hydrogeology include:

- Potential sterilisation of safeguarded minerals;

[1] Superficial deposits (which we used to call 'drift') are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 2.6 million years from the present. They rest on older deposits or rocks referred to as bedrock.
[2] *permeable layers that can support local water supplies*
[3] *provide significant quantities of drinking water, and water for business needs*

- Exposure to and/or mobilisation existing potential contamination through ground disturbance during construction and decommissioning activities;
- Mixing of aquifer bodies due to the connection of aquifer units at trenchless crossings; and
- Changes to groundwater levels, quality and recharge rates caused by temporary dewatering during construction and introduction of impermeable surfaces at the Saxmundham Converter Station and Friston Substation.

5.5.6 However, the assessment concluded that effects would be not significant in relation to geology and hydrogeology receptors. These effects would be the same for the Proposed Project on its own or the Proposed Project with co-location.

5.6 Agriculture and Soils

5.6.1 The potential interaction between the Suffolk Onshore Scheme and agriculture and soils is assessed in **Volume 1, Part 2, Chapter 7: Soils and Agriculture** of the PEIR. The preliminary assessment has considered the likely significant effects of the Suffolk Onshore Scheme on agricultural land (in terms land quality and loss of land for agricultural use); and soil resources (in terms of damage and loss) during construction, maintenance and decommissioning works. The preliminary assessment has considered the geographical area within the draft Order Limits, as this describes the full extent of Suffolk Onshore Scheme.

5.6.2 A desk study was undertaken drawing on information from existing mapping from the Ordnance Survey, Soilscape mapping, Agricultural Land Classification mapping, and maps of agri-environmental and woodland schemes.

5.6.3 Best and most versatile (BMV) agricultural land is classified as land being of Grades 1, 2 and 3a (excellent, very good and good quality), which national policy advises should be avoided where possible. Provisional ALC Mapping shows that the study area comprises Grades 2, 3, and 4 land. Grades 3a and 3b cannot be distinguished to inform site-specific assessments but provides an indication of the likely land classification.

5.6.4 There are areas of land within the study area under Countryside Stewardship (Higher Tier) Agreements, and areas south and east of Leiston under Entry Level plus Higher Level Environmental Stewardship agreements. Therefore, both the ecological and financial effects (via effects on Countryside and Environmental Stewardship grants) on landowners of the proposed Suffolk Onshore Scheme have to be considered in the preliminary environmental assessment.

5.6.5 Measures have been included within restoration of land required temporarily and its return to the preconstruction use is likely to result in the avoidance of long-term impacts on agricultural and soil receptors. In addition to measures set out in **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help control and management of impacts that could affect agriculture and soils receptors. These include undertaking works in accordance with soil management measures such as storing soils in suitable conditions and maintaining access for landowners throughout construction.

5.6.6 The potential impacts of the Suffolk Onshore Scheme on agriculture and soils include temporary and permanent loss of BMV land from agricultural production within the areas required for construction, maintenance and decommissioning works. Temporary losses would be not significant, however, permanent losses of BMV land have the potential to result in significant effects. There is also the potential for construction, maintenance and

decommissioning works to impact soil function and soil quality, however with appropriate management measures followed during these phases, effects are considered to be not significant. These effects would be the same for the Proposed Project on its own or the Proposed Project with co-location.

5.6.7 Next steps include developing the baseline further for the ES by undertaking detailed agricultural land classification surveys of relevant areas, which will confirm the magnitude of impact on these resources. Should access be refused by landowners and completion of survey work prior to submission of the application for development consent is not possible, the areas of permanent development will be assessed using the desk based methodology.

5.7 Traffic and Transport

5.7.1 The potential interaction between the Suffolk Onshore Scheme and traffic and transport is assessed in **Volume 1, Part 2, Chapter 8: Traffic and Transport** of the PEIR. The study area for the assessment has been defined based on the area where there is likely to be a transport impact resulting from the construction of the Proposed Project. This includes routes along which heavy goods vehicles (HGVs), light goods vehicles (LGVs) and construction worker vehicles will travel during the works programme. Overall, there will be a maximum of 473 vehicles associated with the proposed Suffolk Onshore Scheme per day during the peak of the construction phase (planned for 2029) with an average number of 302 vehicles accessing construction site per day. This includes a maximum of 276 site-based staff vehicles as well as 68 LGVs and 129 HGVs per day.

5.7.2 The most prominent surrounding highway network is the A12, the B1121 to the north and south of Saxmundham, the B1119 and the A1094 to the west of Aldeburgh.

5.7.3 As part of this preliminary environmental assessment, baseline traffic data has been obtained for the surrounding highway network within the study area based on available DfT traffic counts and data publicly available from the East Anglia One North (EA1N) DCO.

5.7.4 Measures have been included within **Volume 2, Part 1 Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect traffic and transport. This includes the creation of **Volume 2, Part 1, Appendix 1.4.B: Outline Construction Traffic Management Plan (Suffolk Onshore Scheme)** which will set out measures to reduce route and journey mileage to and from, as well as around site, and prevent nuisance to the residents, businesses and the wider community caused by parking, vehicle movements and access restrictions.

5.7.5 The assessment concluded that potentially significant effects have been identified for several receptors in terms of severance, pedestrian delay, non-motorised user amenity, driver delay and road safety. This will therefore be reviewed further as part of the ES when updated baseline traffic flows and full data are obtained to increase the confidence of the findings, as well as once a preferred access option has been selected for Saxmundham Converter Station. Additional mitigation will subsequently be identified where necessary to resolve any potentially significant effects.

5.8 Air Quality

5.8.1 The potential interaction between the Suffolk Onshore Scheme and air quality is assessed in **Volume 1, Part 2, Chapter 9: Air Quality** of the PEIR. A review of the existing baseline

has been undertaken to establish an understanding of the baseline air quality environment, to identify areas that are likely to be sensitive to changes in emissions as a result of the Proposed Project. This was established during a desk study and through the use of existing monitoring data collected by East Suffolk Council. The study area included a 350 m buffer from the draft Order Limits and up to 50 m for ecological receptors.

5.8.2 There are a number of human and ecological receptors surrounding the Proposed Project. This includes Saxmundham, a medium size residential area within close proximity to the Proposed Project Order Limits and co-location construction compounds close to the western boundary of the Order limits. Existing air quality data shows no exceedances of air quality mean objectives in 2022, nor for the past five years based on the East Suffolk Council monitoring records.

5.8.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect air quality. This includes the assumption that all vehicles to switch off engines when stationary and prohibiting the burning of waste.

5.8.4 The potential impacts of the Suffolk Onshore Scheme on air quality include construction dust arising from trackout (transportation of dust and dirt onto the public road network), earthworks and construction activities, and increases in Nitrogen Dioxide and particulate matter concentrations.

5.8.5 However, the assessment concluded that effects would be not significant in relation to air quality receptors. These effects would be the same for the Proposed Project on its own or the Proposed Project with co-location.

5.9 Noise and Vibration

5.9.1 The potential interaction between the Suffolk Onshore Scheme and noise and vibration is assessed in **Volume 1, Part 2, Chapter 10: Noise and Vibration** of the PEIR. A baseline assessment has been informed by a desk study which has drawn on publicly available noise mapping and noise survey data. A buffer of 300 m has been used for the construction noise study area, with a buffer of 100 m for construction vibration impacts. A 1 km buffer has been applied for operation noise impacts.

5.9.2 Noise sensitive receptors within the study area include built up residential areas such as Saxmundham to the west, Friston to the south, Goldfair Green to the south, Aldeburgh to the southeast, Sizewell to the northeast and Leiston to the northeast. The Suffolk Onshore Scheme noise and vibration study area includes a mix of predominantly residential and rural environments. The noise climate is therefore relatively quiet away from main transport routes. It is assumed that existing vibration levels are negligible in the study area.

5.9.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect noise and vibration. This includes the assumption that construction working will be undertaken within the agreed working hours and, construction traffic routes, access tracks, and construction haul routes will be surveyed for damage and irregularities (e.g. potholes) that may lead to vibration from construction traffic.

5.9.4 The potential impacts of the Suffolk Onshore Scheme on noise and vibration include potential noise and vibration impacts from construction activities, increased road traffic noise and vibration due to the additional contribution from construction traffic on the public

highway, and impact of operational noise from the proposed Saxmundham Converter Station.

5.9.5 However, the assessment concluded that effects would be Not Significant in relation to noise and vibration receptors. These effects would be the same for the Proposed Project on its own or the Proposed Project with co-location.

5.10 Socio-Economic, Recreation and Tourism

5.10.1 The potential interaction between the Suffolk Onshore Scheme and socio-economics is assessed in **Volume 1, Part 2, Chapter 11: Socio-economic Recreation and Tourism** of the PEIR. Baseline data illustrating the existing conditions within and surrounding the Suffolk Onshore Scheme Boundary has been collected through a desk-based research exercise using publicly available sources, documents, and web-based applications.

5.10.2 The impacts of the Suffolk Onshore Scheme with respect to socio-economics recreation and tourism are considered at varying spatial levels according to the likely spatial extent of the effect under consideration. The baseline for this topic includes the population and deprivation, employment, recreational routes and public rights of way (PRoW), residential properties, local businesses, visitor attractions, community facilities, open space, development land and accommodation facilities.

5.10.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect socio economics, recreation, and tourism. This includes informing members of the community and local businesses about the works through active community liaison.

5.10.4 The potential impacts of the Suffolk Onshore Scheme on socio economics, recreation, and tourism include the generation of direct and indirect temporary employment opportunities, temporary closure/diversion resulting in changes in access to the wider PRoW network, and the temporary closure or diversion resulting in changes in journey times, and travel patterns.

5.10.5 However, the assessment concluded that effects would be not significant in relation to on socio economics, recreation, and tourism receptors. These effects would be the same for the Proposed Project on its own or the Proposed Project with co-location.

5.11 Health and Wellbeing

5.11.1 The potential interaction between the Suffolk Onshore Scheme and human health is assessed in **Volume 1, Part 2, Chapter 12: Health and Wellbeing** of the PEIR. In order to understand the existing health and wellbeing baseline, data illustrating the existing health and wellbeing conditions has been collected through a desk-based research exercise using publicly available sources, documents, and web-based applications.

5.11.2 The study areas for the assessment of potential 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 Suffolk Onshore Scheme. The baseline for this topic includes population, ethnicity, deprivations, health profiles, local health priorities, settlements, healthcare and education facilities, employment, PRoW, existing traffic and transport, air quality, noise and landscape.

5.11.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that

could affect health and wellbeing. This includes measures to manage dust, waste, water, noise, vibration and soil during construction, and informing members of the community and local businesses about the works through active community liaison.

5.11.4 The potential impacts of the Suffolk Onshore Scheme on health and wellbeing include the creation of additional jobs, potential temporary extra demand on healthcare services, increased traffic flows and severance effects, extra demand on social infrastructure and potential influences on air quality during construction.

5.11.5 However, the assessment concluded that effects would be not significant in relation to on health and wellbeing. These effects would be the same for the Proposed Project on its own or the Proposed Project with co-location.

5.12 Intra- Project Cumulative Effects

5.12.1 Overall, **Volume 1, Part 2, Chapter 13 Intra-project Cumulative Effects** of the PEIR presented the preliminary intra-project cumulative effects assessment for the Suffolk Scheme. This considered the potential significant cumulative effects that may arise from the Proposed Project (where a single receptor is affected by multiple aspects of a project, worsening the effect). Where a receptor has been identified as only experiencing one effect or where only one topic has identified effects on that receptor, there is no potential for intra-cumulative effects.

5.12.2 The potential intra- cumulative effects on residential receptors during the construction and operational phase of the Proposed Project was considered as significant. This is predominantly due to the temporary and permanent alteration to the aesthetic and visual features near of the surrounding properties due to the proposed Suffolk Onshore Scheme. The same visual effect also helped judge the users of roads as well as PRoW as another significant intra- project cumulative effect.

5.12.3 Among the ecological receptors, the intra- cumulative effects were also considered significant due to the direct loss and disturbance of specific ecological receptors that were assessed.

5.13 Inter-Project Cumulative Effects

5.13.1 **Volume 1, Part 2, Chapter 14 Inter-project Cumulative Effects** of the PEIR presented the preliminary inter-project cumulative effects assessment for the Suffolk Onshore Scheme. This considered the potential significant cumulative effects that may arise from the proposed Suffolk Onshore Scheme with ‘other developments’.

5.13.2 The short-listed developments included in this chapter were:

- Sizewell C- main development site;
- Sizewell C- other developments;
  - Sizewell Link Road-Bridge across rail tracks;
  - A12 bypass;
  - Yoxford roundabout and other highway improvements;
  - Park and Rides (Northern and Southern);
  - Freight Management Facility at Seven Hills;

  - Rail upgrades to Saxmundham and Leiston Branch Line and Rail extension route;
- Sizewell B relocated facilities;
- East Anglia ONE North and East Anglia TWO Offshore Windfarms;
- Nautilus Offshore Interconnector;
- Lionlink Offshore Interconnector;
- High Lodge Leisure;
- Croft Farm and buildings;
- Park Farm Solar Farm;
- Rock Barracks Heath Road Solar Farm;
- Solar Farm, Parham, Suffolk;
- Town Farm Solar Farm;
- UKZ139 BC Wissett Solar Farm;
- Brundish Manor Solar Farm;
- Proposed reservoir, Grange Farm;
- Residential Development, Darsham Station;
- Residential Development, Brightwell Lakes;
- High Lodge Leisure;
- Saxmundham to Peasenhall Water Mains Installation; and
- Saxmundham South Green Neighbourhood.

5.13.3 The preliminary cumulative effects assessment concluded that effects are considered to be likely for landscape and visual, and traffic and transport receptors with other developments.

5.13.4 Topics including terrestrial ecology, agriculture and soils, air quality, socio-economics and health and wellbeing have not been able to undertake a full assessment at this stage until further data is available.

5.14 Summary

5.14.1 Table 5-1 provides a summary of the preliminary assessment of likely significant effects associated with the Suffolk Onshore Scheme for both scenarios, the assessment of the Proposed Project only and the assessment of co-location with NGV projects.

Table 5-1. Summary of the preliminary environmental assessment for the Suffolk Onshore Scheme

Topic	Preliminary Likely Significant Effects (Y/N)?	Comment
Landscape and Visual	Y	**Proposed Project Only:** Preliminary significant effects were identified for the Fromus Valley, Heveningham and Knodishall Estate Claylands coastal landscapes, and a number of representative viewpoints. No significant effects were identified on the Suffolk Coast and Heaths AONB.
	Y	**Co-location:** Preliminary significant effects were identified for the Fromus Valley, Heveningham and Knodishall Estate Claylands coastal landscapes, and a number of representative viewpoints.
Terrestrial Ecology	Y	**Proposed Project Only:** Preliminary significant effects were identified for direct loss of habitats (broadleaved and mixed woodland, acid grassland and hedgerows) and bird habitats, and the disturbance of protected sites until the details of the mitigation are developed and finalised.
	Y	**Co-location:** As for the Proposed Project without co-location.
Cultural Heritage	Y	**Proposed Project Only:** The preliminary assessment suggests there is the potential for a significant physical impact on the Gorse Hill multi-period site.
	Y	**Co-location:** As for the Proposed Project without co-location with the exception of Wood Farm Listed Buildings
Water Environment	N	**Proposed Project Only:** No preliminary likely significant effects have been identified for the Proposed Project.
	N	**Co-location:** As for the Proposed Project without co-location.
Geology and Hydrogeology	N	**Proposed Project Only:** No preliminary likely significant effects have been identified for the Proposed Project.
	N	**Co-location:** As for the Proposed Project without co-location.
Agriculture and Soils	Y	**Proposed Project Only:** The preliminary assessment has shown that there is the potential for significant effects in relation to the permanent loss of BMV land.
	Y	**Co-location:** As for the Proposed Project without co-location.
	Y	**Proposed Project Only:** Preliminary significant effects were identified for severance, pedestrian delay, non-

Topic	Preliminary Likely Significant Effects (Y/N)?	Comment
Traffic and Transport		motorised user amenity, driver delay and road safety co-location during construction and decommissioning.
	Y	**Co-location:** As for the Proposed Project without co-location.
Air Quality	N	**Proposed Project Only:** No preliminary likely significant effects have been identified for the Proposed Project.
	N	**Co-location:** To be determined following detailed modelling. Not significant based on available data to date.
Noise and Vibration	N	**Proposed Project Only:** No preliminary likely significant effects have been identified for the Proposed Project.
	N	**Co-location:** As for the Proposed Project without co-location.
Socio-Economics	N	**Proposed Project Only:** No preliminary likely significant effects have been identified for the Proposed Project.
	N	**Co-location:** As for the Proposed Project without co-location.
Health and Wellbeing	N	**Proposed Project Only:** No preliminary likely significant effects have been identified for the Proposed Project.
	N	**Co-location:** As for the Proposed Project without co-location.
Intra-project Cumulative Effects	Y	Preliminary likely significant intra-project cumulative effects on residential receptors during the construction and operational phase of the Proposed Project have been identified predominantly due to the temporary and permanent alteration to the aesthetic and visual features near of the surrounding properties.
Inter-project Cumulative Effects	Y	Preliminary likely significant inter-project cumulative effects have been identified between the Proposed Project and a number of other developments based on available data.

6. Preliminary Environmental Assessment- Kent Onshore Scheme

6.1 Landscape and Visual

6.1.1 The potential interaction between the Kent Onshore Scheme and landscape and visual is assessed in **Volume 1, Part 3, Chapter 2: Landscape and Visual** of the PEIR. Field work has been undertaken during winter 2022 and summer and winter 2023 to inform the scoping process, assess the existing character of the landscape and visit representative viewpoints.

6.1.2 The study area for the landscape and visual assessment of the Kent Onshore Scheme comprises an area of 3 kilometres (km) from the draft Order Limits, including the converter station, substation, HVAC overhead line (OHL) cable and from the proposed landfall. The landscape varies within the study area. It includes low-lying landform within the Ash Levels and Minster Marshes in the southern and central part. This landscape comprises a series of drainage ditches separating small to medium sized field enclosures, within the former Wantsum Channel. The landscape rises towards the settlement of Minster, comprising some comparatively larger scale field enclosures. The landscape also includes the low-lying coastal areas extending around Pegwell Bay which are characterised by larger intertidal areas of marsh and mudflat along the coastline.

6.1.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect landscape and visual receptors. These include the retention of vegetation where practicable and native shrub planting as a replacement where lost vegetation cannot be replaced. The Proposed Project will also apply a five-year aftercare period will be established for all reinstatement and mitigation planting.

6.1.4 The potential impacts of the Kent Onshore Scheme on landscape and visual receptors include temporary alteration to landscape character from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil stripping and earthworks, storage of materials and lighting.

6.1.5 The assessment concluded that effects have the potential to be significant for landscape character areas Wantsum North Slopes, Stour Marshes and Ash Levels, and well as one viewpoint east of Minster for the Proposed Project.

6.2 Terrestrial Ecology

6.2.1 The potential interaction between the Suffolk Onshore Scheme and terrestrial ecology is assessed in **Volume 1, Part 3, Chapter 3: Ecology and Biodiversity** of the PEIR. A desk study has been undertaken, with ecology surveys underway in preparation for the ES.

6.2.2 The vast majority of the proposed Kent Onshore Scheme consisted of arable land in active use. The eastern fields were in use for corn production at the time of survey, the northern fields for salad crops, and the remainder was mixture of different young crops.

The woodland within the proposed Kent Onshore Scheme was dominated by English oak with lower amounts of ash and hawthorn with the latter more prevalent in the understory. English ivy, bramble and common nettle dominated the majority of the forest floor, with a few more notable species such as Lords and Ladies and stinking iris also recorded within this habitat. Wet ditches were present throughout the proposed Kent Onshore Scheme delineating the field edges through several land parcels. Beyond St Augustine's golf course, saltmarsh was present within the most eastern part of the Kent Onshore Scheme.

6.2.3 Ornithological features at the Kent Onshore Scheme include Cetti's warbler, fieldfare, kingfisher, marsh harrier and redwing. A wide range of other notable species have been recorded during the breeding season, many of them likely breeding within the survey area (although not necessarily within the proposed Kent Onshore Scheme). The intertidal zone was of considerable significance. Dunlin, cormorant, oystercatcher and sanderling were recorded in large numbers.

6.2.4 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect terrestrial ecology. These include the assumption that vegetation with the potential to support breeding birds will not be removed during the breeding bird season (March to August inclusive), and where there will be a risk of animal entrapment, a means of escape will be installed into all excavations left open overnight. Additional mitigation measures include the Annual monitoring for the presence of nesting Cetti's warbler and kingfisher within the watercourses within Kent Onshore Scheme boundary during construction (as territory distribution may change) and take steps (such as removing habitat outside the nesting season and introducing buffer zones or noise barriers during the nesting season) to ensure that no disturbance of nesting pairs occurs.

6.2.5 Potential impacts of the Kent Onshore Scheme on terrestrial ecology include direct loss (temporary or permanent) of habitats, spillages and introduction of non-native species of habitats, and killing and injury of fauna.

6.2.6 The assessment concluded that effects have the potential to be significant for specific terrestrial ecology receptors through the direct loss of specific habitats and bird habitats during construction until the details of the mitigation are developed and finalised. Survey work is ongoing or has yet to commence for most receptors. However, the first season of non-breeding bird survey and breeding bird survey has been completed and extended Phase 1 habitat survey has been undertaken. Impacts on fauna are still being investigated.

6.3 Cultural Heritage

6.3.1 The potential interaction between the Kent Onshore Scheme and cultural heritage is assessed in **Volume 1, Part 3, Chapter 4: Cultural Heritage** of the PEIR. The main datasets that have been utilised for the Cultural Heritage Assessment to date are the Historic England National Heritage List for England for designated assets, and the Kent HER for non-designated assets. A 500 m buffer was applied to the Kent Onshore Scheme Boundary, which includes the proposed cable route and other associated works, as the study area to capture information relating to archaeology and cultural heritage.

6.3.2 A total of ten designated assets were recorded within the 500m study area. Nine of which are listed buildings, with the remaining asset being a scheduled monument. The Scheduled Monument is Richborough, which consists of a Saxon shore fort, Roman port and other associated remains dating from the Iron Age through to the medieval period located in an elevated position to the south of the Kent Onshore Scheme. The listed

buildings are all Grade II listed, with most dating to the post-medieval period. The majority are farmhouses and associated agricultural buildings. A total of 427 non-designated heritage assets were recorded within the study area on the Kent HER.

6.3.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect cultural heritage receptors. These include the signposting of known archaeological interest/value, or areas where archaeological work is planned to avoid unintentional damage, and where a previously unknown heritage asset is discovered, or a known heritage asset proves to be more significant than foreseen at the time of application, the Project Team will inform the relevant local planning authority.

6.3.4 The preliminary assessment of likely significant effects resulting from the Kent Onshore Scheme assessed the potential for direct physical impacts and impacts on the setting of both designated and non-designated assets resulting from the construction and operational phases of the Kent Onshore Scheme.

6.3.5 In most cases it is predicted that careful design should result in most heritage assets being avoided, or only limited areas of large archaeological sites being impacted, with standard mitigation such as archaeological excavation and recording mitigating impacts. There is the potential for a significant impact on the possible Roman port at Ebbsfleet Farm. While there is also the potential for there to be views of the converter station from Roman Richborough Castle and associated settlement, these views are not expected to result in a significant impact to the monument through changes to its setting.

6.4 Water Environment

6.4.1 The potential interaction between the Kent Onshore Scheme and the water environment is assessed in **Volume 1, Part 3, Chapter 5: Water Environment** of the PEIR. Baseline conditions of the Proposed Project were established during a desk study. In addition, data requests have been made to the Environment Agency, Kent County Council and the River Stour internal drainage board to provide information to support the assessment. The Study Area includes all land within the Kent Onshore Scheme draft Order Limits, together with an additional 500m buffer from this boundary.

6.4.2 The Kent Onshore Scheme is situated in the hydrological catchment of the River Stour. The River Stour is a designated main river that rises as the Great Stour in Lenham and flows towards and through Canterbury, where it becomes tidal, finally discharging to the sea at Pegwell Bay. The river has extensive areas of floodplain. In addition to the River Stour, within the Study Area there are networks of watercourses that drain the marshes. Key watercourses include the Minster Stream to the north and the Richborough Stream to the south of the Stour.

6.4.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect the water environment. This includes the assumption that all works within main rivers or ordinary watercourses will be in accordance with a method approved under environmental permits issued under the Environmental Permitting Regulations.

6.4.4 Potential impacts of the Kent Onshore Scheme on water receptors include pollution, temporary physical disturbance, increased run-off rates and volumes, temporary loss of floodplain storage/impediment of floodplain flows and temporary deterioration of water quality.

6.4.5 However, the assessment concluded that effects would be not significant in relation to water receptors.

6.5 Geology and Hydrology

6.5.1 The potential interaction between the Kent Onshore Scheme and geology and hydrogeology is assessed in **Volume 1, Part 3, Chapter 6: Geology and Hydrogeology** of the PEIR. A desk study was undertaken drawing on information from existing records including BGS geological mapping, hydrogeological maps, MAGIC interactive map, available historical mapping.

6.5.2 The geology within the Kent Onshore Scheme is variable. Superficial deposits are predominately mud and/or sand and soft silty clay, with layers of sand, gravel and peat. Along the eastern boundary of the draft Order Limits around Pegwell Bay, shingle, sand, silt and clay are present. The majority of the study area within the Kent Onshore Scheme is shown to be underlain by bedrock comprising silty fine-grained sand, with sandy silt, silt or sandy, silty clay. There are no RIGS, however the Sandwich Bay to Hacklinge Marshes SSSI is designated as a Geological Conservation Review Site and forms the eastern part of the draft Order Limits, at Pegwell Bay. There are no groundwater Source Protection Zones (SPZs) within the draft Order Limits for the Kent Onshore Scheme.

6.5.3 The majority of the draft Order Limits for the Kent Onshore Scheme and the study area is indicated to have remained as undeveloped/agricultural land since the earliest available historical mapping.

6.5.4 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect geology and hydrogeology receptors. These include undertaking ground investigations to inform design and storing chemicals and fuels in accordance with best practice guidance. In addition, a Minerals Resource Assessment will be undertaken and submitted with the ES to define further measures.

6.5.5 The potential impacts of the Suffolk Onshore Scheme on the Geology and Hydrogeology include:

- Damage to/destruction of sites of geological importance through physical destruction during construction where the built development directly interacts with the designated site;
- Exposure to existing potential contamination through ground disturbance during construction and decommissioning activities;
- The mobilisation of existing contamination, during general construction/ decommissioning, impacting on land and/or groundwater quality; and
- Mixing of aquifer bodies due to the connection of aquifer units at trenchless crossings.

6.5.6 However, the assessment concluded that effects would be not significant in relation to geology and hydrogeology receptors.

6.6 Agriculture and Soils

6.6.1 The potential interaction between the Kent Onshore Scheme and agriculture and soils is assessed in **Volume 1, Part 3, Chapter 7: Soils and Agriculture** of the PEIR. The

preliminary assessment has considered the likely significant effects of the Kent Onshore Scheme on agricultural land (in terms land quality and loss of land for agricultural use); and soil resources (in terms of damage and loss) during construction, maintenance and decommissioning works. The preliminary assessment has considered the geographical area within the draft Order Limits, as this describes the full extent of Kent Onshore Scheme.

6.6.2 A desk study was undertaken drawing on information from existing mapping from the Ordnance Survey, Soilscape mapping, Agricultural Land Classification mapping, and maps of agri-environmental and woodland schemes.

6.6.3 Provisional ALC Mapping shows that the study area comprises Grade 2 land. Grades 3a and 3b cannot be distinguished to inform site-specific assessments but provides an indication of the likely land classification. Land use appears to be principally arable, with small areas of pasture on either side of the River Stour, and St Augustine's golf course east of Richborough Way. The soil types present within the study area are predominantly described as loamy[4] and clayey soils of coastal flats with naturally high groundwater.

6.6.4 There are areas of land within the study area under Countryside Stewardship (Higher Tier) Agreements and areas south of the River Stour under Entry Level plus Higher Level Environmental Stewardship agreements. Small areas of land east of Richborough Way (associated with the golf course) are also under Woodland Grant schemes. Consequently this land has both ecological value as well as financial value for landowner via financial incentives of the grant scheme. This therefore is factored into the impact assessment of the proposed Kent Onshore Scheme.

6.6.5 Measures have been included within restoration of land required temporarily and its return to the preconstruction use is likely to result in the avoidance of long-term impacts on agricultural and soil receptors., in addition to measures set out in **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help control and the management of impacts that could affect agriculture and soils receptors. These include undertaking works in accordance with soil management measures such as storing soils in suitable conditions and maintaining access for landowners throughout construction.

6.6.6 The potential impacts of the Kent Onshore Scheme on agriculture and soils include temporary and permanent loss of BMV land from agricultural production within the areas required for construction, maintenance and decommissioning works. Temporary losses would be Not Significant, however, permanent losses of BMV land have the potential to result in Significant effects. There is also the potential for construction, maintenance and decommissioning works to impact soil function and soil quality, however with appropriate management measures followed during these phases, effects are considered to be Not Significant.

6.6.7 Next steps include developing the baseline further for the ES by undertaking detailed agricultural land classification surveys of relevant areas, which will confirm the magnitude of impact on these resources. Should access be refused by landowners and completion of survey work prior to submission of the application for development consent is not possible, the areas of permanent development will be assessed using the desk based methodology.

[4] Denoting or relating to a fertile soil of clay and sand containing humus.

6.7 Traffic and Transport

6.7.1 The potential interaction between the Kent Onshore Scheme and traffic and transport is assessed in **Volume 1, Part 3, Chapter 8: Traffic and Transport** of the PEIR. The study area for the assessment has been defined based on the area where there is likely to be a transport impact resulting from the construction of the Proposed Project. This includes routes along which an estimated 122 HGVs, 98 LGVs and 292 construction worker vehicles will travel during the daily peak of the works programme.

6.7.2 The study area includes a number of roads including the A256 Richborough Way, A299 Hengist Way, Sandwich Road, Jutes Lane, Ebbsfleet Lane, Ebbsfleet Lane North and Brook Lane. As part of this PEIR, baseline traffic data has been obtained for the surrounding highway network within the study area based on available Department for Transport traffic counts.

6.7.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect traffic and transport. This includes the creation of **Volume 2, Part 1, Appendix 1.4.C: Outline Construction Traffic Management Plan (Kent Onshore Scheme)** which will set out measures to reduce route and journey mileage to and from, as well as around site, and prevent nuisance to the residents, businesses and the wider community caused by parking, vehicle movements and access restrictions.

6.7.4 The assessment concluded that no significant effects have been identified as a result of the Proposed Project on transport and access during any phase with the proposed mitigation in place.

6.8 Air Quality

6.8.1 The potential interaction between the Kent Onshore Scheme and air quality is assessed in **Volume 1, Part 3, Chapter 9: Air Quality** of the PEIR. A review of the existing baseline has been undertaken to establish an understanding of the baseline air quality environment, to identify areas that are likely to be sensitive to changes in emissions as a result of the Proposed Project. This was established during a desk study and through the use of existing monitoring data collected by Dover District Council and Thanet District Council. The study area included a 350 m buffer from the draft Order Limits and up to 50 m for ecological receptors.

6.8.2 There are a number of human and ecological receptors surrounding the Proposed Project. The closest receptors to the Minster converter station and substation are Great Oaks Small School. The closest ecological receptor is Sandwich Bay to Hacklinge Marshes SSSI. Existing air quality data shows no exceedances of air quality mean objectives in the most recent reports, however, 11 exceedances have been recorded since 2017.

6.8.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect air quality. This includes the assumption that all vehicles to switch off engines when stationary and prohibiting the burning of waste.

6.8.4 The potential impacts of the Kent Onshore Scheme on air quality include construction dust arising from trackout (transportation of dust and dirt onto the public road network), earthworks and construction activities, and increases in Nitrogen Dioxide and particulate matter concentrations.

6.8.5 However, the assessment concluded that effects would be not significant in relation to air quality receptors.

6.9 Noise and Vibration

6.9.1 The potential interaction between the Kent Onshore Scheme and noise and vibration is assessed in **Volume 1, Part 3, Chapter 10: Noise and Vibration** of the PEIR. A baseline assessment has been informed by a desk study which has drawn on publicly available noise mapping and noise survey data. A buffer of 300 m has been used for the construction noise study area, with a buffer of 100 m for construction vibration impacts. A 1 km buffer has been applied for operation noise impacts.

6.9.2 Noise sensitive receptors within the study area include built-up residential areas at Ebbsfleet to the northeast and Minster to the northwest. The study area includes a mix of residential, rural, industrial, and commercial environments. The noise climate is therefore expected to vary throughout the study area. The main sources of noise include road traffic from the A256 which runs between Ramsgate to the north and Dover to the south. Vibration impacts are assessed against fixed thresholds. It is assumed that existing vibration levels are negligible in the study area.

6.9.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect noise and vibration. This includes the assumption that construction working will be undertaken within the agreed working hours and, construction traffic routes, access tracks, and construction haul routes will be surveyed for damage and irregularities (e.g. potholes) that may lead to vibration from construction traffic.

6.9.4 The potential impacts of the Kent Onshore Scheme on noise and vibration include potential noise and vibration impacts from construction activities, increased road traffic noise and vibration due to the additional contribution from construction traffic on the public highway, and impact of operational noise from the proposed substation and converter station. Overall, when mitigation measures were applied including noise enclosures and plant selection the noise and vibration impact at all stages of the Proposed Project were reduced to being not significant.

6.10 Socio-Economic, Recreation and Tourism

6.10.1 The potential interaction between the Kent Onshore Scheme and socio-economics is assessed in **Volume 1, Part 3, Chapter 11: Socio-economic Recreation and Tourism** of the PEIR. Baseline data illustrating the existing conditions within and surrounding the Kent Onshore Scheme Boundary has been collected through a desk-based research exercise using publicly available sources, documents, and web-based applications.

6.10.2 The impacts of the Kent Onshore Scheme with respect to socio-economics recreation and tourism are considered at varying spatial levels according to the likely spatial extent of the effect under consideration. The baseline for this topic includes the population and deprivation, employment, recreational routes and PRoW, residential properties, local businesses, visitor attractions, community facilities, open space, development land and accommodation facilities.

6.10.3 Measures have been included within **Appendix 1.4.A Outline Code of Construction Practice** which would help the control and management of impacts that could affect socio

economics, recreation, and tourism. This includes informing members of the community and local businesses about the works through active community liaison.

6.10.4 The potential impacts of the Kent Onshore Scheme on socio economics, recreation, and tourism include the generation of direct and indirect temporary employment opportunities, temporary closure/diversion resulting in changes in access to the wider PRoW network, and the temporary closure or diversion resulting in changes in journey times, and travel patterns.

6.10.5 However, the assessment concluded that effects would be not significant in relation to on socio economics, recreation, and tourism receptors.

6.11 Health and Wellbeing

6.11.1 The potential interaction between the Kent Onshore Scheme and human health is assessed in **Volume 1, Part 3, Chapter 12: Health and Wellbeing of** the PEIR. In order to understand the existing health and wellbeing baseline, data illustrating the existing health and wellbeing conditions has been collected through a desk-based research exercise using publicly available sources, documents, and web-based applications.

6.11.2 The study areas for the assessment of potential 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 Kent Onshore Scheme. The baseline for this topic includes population, ethnicity, deprivations, health profiles, local health priorities, settlements, healthcare and education facilities, employment, PRoW, existing traffic and transport, air quality, noise and landscape.

6.11.3 Measures have been included within **Volume 2, Part 1, Appendix 1.4.A: Outline Code of Construction Practice** which would help the control and management of impacts that could affect health and wellbeing. This includes measures to manage dust, waste, water, noise, vibration and soil during construction, and informing members of the community and local businesses about the works through active community liaison.

6.11.4 The potential impacts of the Kent Onshore Scheme on health and wellbeing include the creation of additional jobs, potential temporary extra demand on healthcare services, increased traffic flows and severance effects, extra demand on social infrastructure and potential influences on air quality during construction.

6.11.5 However, the assessment concluded that effects would be not significant in relation to on health and wellbeing.

6.12 Intra-Project Cumulative Effects

6.12.1 **Volume 1, Part 3, Chapter 13 Intra-project Cumulative Effects** of the PEIR presented the preliminary intra-project cumulative effects assessment for the Kent Onshore Scheme . This considered the potential significant cumulative effects that may arise from the Proposed Project where a single receptor is affected by multiple aspects of a project, worsening the effect. Where a receptor has been identified as only experiencing one effect or where only one topic has identified effects on that receptor, there is no potential for intra-project cumulative effects.

6.12.2 Overall, residential receptors and PRoW had a potentially significant intra- project cumulative effect due to the temporary and permanent alteration to the aesthetic and

visual features in proximity to these receptors. Furthermore, the intra- cumulative effect on ecological receptors were classed as potentially significant.

6.12.3 Among the ecological receptors, the intra-project cumulative effects were considered significant due to the direct loss and disturbance of many ecological receptors that were assessed.

6.13 Inter-Project Cumulative Effects

6.13.1 **Volume 1, Part 3, Chapter 14 Inter-project Cumulative Effects** of the PEIR presented the preliminary inter-project cumulative effects assessment for the Kent Onshore Scheme. This considered the potential significant cumulative effects that may arise from the proposed Kent Onshore Scheme with 'other developments'.

6.13.2 The short-listed developments included in this chapter were:

- Manston Airport;
- Residential Development, Canterbury Road, Ramsgate, Kent;
- Stonelees Golf Course Expansion;
- Residential Development, Hoo Farm;
- Richborough Energy Park;
- Goshall Valley Solar Farm; and
- Solar Farm southwest of Solton Manor Farm.

6.13.3 The preliminary cumulative effects assessment concluded that effects are considered to be unlikely for the Kent Onshore Scheme.

6.13.4 Topics including terrestrial ecology, agriculture and soils, air quality, socio-economics and health and wellbeing have not been able to undertake a full assessment at this stage until further data is available.

6.14 Summary

6.14.1 Table 6-1 provides a summary of the preliminary assessment of likely significant effects associated with the Kent Onshore Scheme.

Table 6-1. Summary of the preliminary environmental assessment for the Kent Onshore Scheme

Topic	Preliminary Likely Significant Effects (Y/N)?	Comment
Landscape and Visual	Y	Preliminary significant effects were identified on the landscape character areas Wantsum North Slopes, Stour Marshes and Ash Levels, and well as one viewpoint east of Minster.
Terrestrial Ecology	Y	Preliminary significant effects were identified for the direct loss of specific habitats and bird

Topic	Preliminary Likely Significant Effects (Y/N)?	Comment
		habitats during construction until the details of the mitigation are developed and finalised.
Cultural Heritage	Y	The preliminary assessment suggests there is the potential for a significant physical impact on the possible Roman port at Ebbsfleet Farm.
Water Environment	N	The preliminary likely significance of effect is not significant for the Proposed Project.
Geology and Hydrogeology	N	The preliminary likely significance of effect is not significant for the Proposed Project.
Agriculture and Soils	Y	The preliminary assessment has shown that there is the potential for significant effects in relation to the permanent loss of BMV land for the Proposed Project.
Traffic and Transport	N	The preliminary likely significance of effect is not significant for the Proposed Project.
Air Quality	N	The preliminary likely significance of effect is not significant for the Proposed Project.
Noise and Vibration	N	The preliminary likely significance of effect is not significant for the Proposed Project.
Socio-Economics	N	The preliminary likely significance of effect is not significant for the Proposed Project.
Health and Wellbeing	N	The preliminary likely significance of effect is not significant for the Proposed Project.
Intra-Cumulative	Y	The preliminary intra-cumulative effects assessment concluded that there were potential significant residual effects for residential and ecological receptors, and public rights of way.
Inter-Cumulative	N	The preliminary inter-cumulative effects assessment concluded that there were no preliminary significant effects based on available data.

7. Offshore Preliminary Environmental Assessment

7.1 Physical Environment

7.1.1 The potential interaction of the proposed Offshore Scheme with the physical marine environment is assessed in **Volume 1, Part 4, Chapter 2: Physical Environment** of the PEIR. Information and data from a wide range of sources has been collated and used to inform the environmental baseline assessment. A bespoke survey covering the entire of the proposed Offshore Scheme Boundary has been undertaken which provides detailed information on the seabed geology, surficial sediments, bathymetry, water quality, sediment transport, bedforms (i.e., sandwaves) and other seabed features. The presence of boulders, wrecks, and seabed protection, associated with existing cables, have also been mapped.

7.1.2 Control and management measures, embedded and additional mitigation measures have been built into the proposed Offshore Scheme to avoid and/or reduce impacts to the physical environment. For example, cable protection features (e.g., rock placement, mattresses and grout bags) will be installed only where considered necessary for the safe operation of the Proposed Project.

7.1.3 The potential impacts of the proposed Offshore Scheme on the physical environment include increases in suspended sediment concentrations (SSC), changes to seabed bathymetry and morphology, changes to physical environment features of interest and changes in water quality. With the implementation of mitigation and control and management measures, the preliminary likely significance of effect on the receptors for the Proposed Project on its own and the Proposed Project with co-location at the Suffolk landfall are all considered to be not significant.

7.2 Benthic Ecology

7.2.1 **Volume 1, Part 4, Chapter 3: Benthic Ecology** of the PEIR assesses the potential interaction of the proposed Offshore Scheme with benthic ecology (organisms that live on the sea floor). The appraisal establishes a baseline of subtidal benthic ecology.

7.2.2 The subtidal benthic habitats identified along the proposed Offshore Scheme were generally dominated by areas of mud and sand in the northernmost sections of the route. Further south, the sediment becomes more mixed with the presence of soft rock in nearshore areas.

7.2.3 Several subtidal habitats are listed as habitats of conservation importance. The Annex I habitat, ‘sandbanks which are slightly covered by sea water all the time’ is observed within the Offshore Scheme but is not specifically protected under any designated site. Moreover, habitats listed under Section 41 of the Natural Environment Research Council (NERC) Act 2006 identified - ‘communities on circalittoral rock’ and ‘subtidal sands and gravels’, at several locations throughout the proposed Offshore Scheme.

7.2.4 The proposed Offshore Scheme is located partially within the Goodwin Sands Marine Conservation Zone (MCZ) which is designated for several habitats including ‘subtidal

sands', although grab samples found that fauna was sparse within the MCZ. Additional relevant designated sites are located outside of the proposed Offshore Scheme but within the study area are Thanet Coast MZC (located > 1 km southwest of the proposed Offshore Scheme).

7.2.5 Control and management, and embedded mitigation measures have been built into the proposed Offshore Scheme to avoid and / or minimise impacts to benthic ecology. For example, where possible, cable protection materials will be selected to match the environment and the Proposed Project will ensure the sensitive routeing and siting of infrastructure and temporary works.

7.2.6 The potential impacts of the proposed Offshore Scheme on benthic ecology include temporary physical disturbance to subtidal benthic habitats and species, temporary increase in suspended sediment concentration (SSC), sediment deposition, reductions in marine water quality, the accidental introduction of invasive non-native species, electromagnetic field (EMF) and thermal emissions. The preliminary assessment of effects indicates that after embedded, control and management mitigation measures, there are no likely significant effects for the Proposed Project on its own and the Proposed Project with co-location at the Suffolk landfall on benthic ecology present within the proposed Offshore Scheme Boundary.

7.3 Fish and Shellfish Ecology

7.3.1 The potential interaction between the proposed Offshore Scheme and fish and shellfish is assessed in **Volume 1, Part 4, Chapter 4: Fish and Shellfish** of the PEIR

7.3.2 The assessment establishes a baseline of species-specific information, spawning and nursery grounds, relevant designated sites and species, and species important for commercial fisheries. Fish and shellfish receptors taken forward for appraisal have been determined based upon potential activity/receptor interactions (source – pathway – receptor).

7.3.3 Control and management, and embedded mitigation measures have been built into the proposed Offshore Scheme to avoid and/or minimise impacts to fish and shellfish. For example, the target burial of the cable will be 1.5m as required by MMO guidelines. Where necessary target burial depth may be greater than 1.5m and up to 2.5m, subject to local geology and obstructions to minimise the effects of electromagnetic fields (EMF) on fish receptors.

7.3.4 The potential impacts of the proposed Offshore Scheme on fish and shellfish include permanent loss of fish and shellfish habitat due to placement of hard substrates on the seabed, and temporary physical disturbance to fish and shellfish habitat. With the implementation of embedded mitigation and control and management measures, the preliminary likely significance of effect on the receptors are all considered to be not significant for the Proposed Project on its own and the Proposed Project with co-location at the Suffolk landfall.

7.4 Marine Mammals

7.4.1 The potential interaction between the proposed Offshore Scheme and marine mammals is assessed in **Volume 1, Part 4, Chapter 5: Marine Mammals** of the PEIR.

7.4.2 The assessment establishes a baseline of two groups of marine mammals occurring in UK waters, namely cetaceans (whales, dolphins and porpoises) and pinnipeds (seals). A

total of 28 cetacean species have been observed and two species of seal are present in UK waters; however, most are occasional visitors and within the northern European continental shelf. This baseline also considers the two seal species present in the UK, the harbour seal and grey seal.

7.4.3 Control and management measures, and embedded and additional mitigation measures have been built into the proposed Offshore Scheme to avoid and/ or minimise impacts to marine mammals. For example, adherence to Joint Nature Conservation Committee (JNCC) guidelines, where appropriate, regarding the minimisation of impacts from underwater sound generated from known project activities, of geophysical surveys and Unexploded Ordnance (UXO).

7.4.4 The potential impacts of the proposed Offshore Scheme on marine mammals include underwater sound, potential for indirect effects through impacts to prey species and vessel collisions. With the implementation of mitigation and control and management measures, the preliminary likely significance of effect on the receptors are all considered to be Not significant for the Proposed Project on its own and the Proposed Project with co-location at the Suffolk landfall.

7.5 Ornithology

7.5.1 **Volume 1, Part 4, Chapter 6: Ornithology** of the PEIR assesses the potential interaction of the proposed Offshore Scheme with ornithological receptors.

7.5.2 The proposed Offshore Scheme directly passes through six sites that are designated nationally or internationally for the protection of seabirds and waterbirds. These are the Outer Thames Estuary SPA, Thanet Coast and Sandwich Bay SPA, Thanet Coast and Sandwich Bay Ramsar, Sandwich and Pegwell Bay National Nature Reserve (NNR), Sandwich Bay to Hacklinge Marshes SSSI, and Leiston-Aldeburgh SSSI. A further six sites intersect with the Study Area, these being Minsmere-Walberswick SPA, Minsmere-Walberswick Ramsar, Minsmere-Walberswick Heaths and Marshes SSSI, Alde-Ore Estuary SPA, Alde-Ore Estuary Ramsar and Alde-Ore Estuary SSSI.

7.5.3 The breeding season for seabirds varies between species but broadly extends between April and August, with the core breeding period between May and July, during which time their distribution offshore is constrained by the need to return to their breeding sites. Non -breeding birds within the Study Area include Red-Throated Diver.

7.5.4 Control and management measures and embedded and additional mitigation have been built into the proposed Offshore Scheme to avoid and/or reduce impacts to ornithological receptors. For example, vessels will avoid rafting birds (where birds sit, often in groups, on the water) and areas with high densities of birds and existing shipping lanes will be utilised for vessel transiting routes to avoid additional disturbance. Furthermore, to avoid cumulative effects with other projects, the construction works (excluding trenchless installation techniques at landfall) will be timed to ensure the overwintering period of the red-throated diver is avoided, in the months of January – March within the Outer Thames Estuary SAC.

7.5.5 The potential impacts of the proposed Offshore Scheme on ornithological receptors include direct disturbance and displacement of birds associated with sound, visual impacts and presence of vessels, and direct loss and disturbance of seabed habitat (including, associated prey) used by foraging seabirds and waterbirds. With the implementation of mitigation and control and management measures, the preliminary likely significance of effect on the receptors are all considered to be not significant for the

Proposed Project on its own and the Proposed Project with co-location at the Suffolk landfall.

7.6 Marine Archaeology

7.6.1 The potential interaction of the proposed Offshore Scheme with the known and potential marine archaeology and cultural heritage resource below mean high water springs (MHWS) is assessed in **Volume 1, Part 4, Chapter 7: Marine Archaeology** of the PEIR.

7.6.2 The assessment establishes a baseline of seabed prehistory, seabed features (maritime and aviation), marine recorded losses (records for ships or aircraft that are known to have wrecked or crashed offshore) and heritage assets.

7.6.3 Whilst there are no designated sites or known sites of prehistoric date within the study area, there is potential for prehistoric archaeological material to be discovered during seabed works associated with the Proposed Project.

7.6.4 There are currently no maritime or aviation sites within the study area that are subject to statutory protection. Within the Study Area, a total of 722 geophysical anomalies were identified as being of possible archaeological potential.

7.6.5 Control and management, and embedded mitigation measures have been built into the proposed Offshore Scheme to avoid and/or minimise impacts to marine archaeology and cultural heritage resources. For example, a Written Scheme of Investigation (WSI) including a Protocol for Archaeological Discoveries will be agreed with the Archaeological Curator via the Regulator and implemented prior to works commencing. Locations of known marine archaeological interest/value within the marine environment will be avoided by all marine vessels by the implementation of appropriately sized Archaeological Exclusion Zones (AEZs).

7.6.6 The potential impacts of the proposed Offshore Scheme on marine archaeology include direct and indirect damage to known and unknown assets. With the implementation of embedded mitigation and control and management measures, the preliminary likely significance of effect on the receptors are all considered to be not significant for the Proposed Project on its own and the Proposed Project with co-location at the Suffolk landfall.

7.7 Shipping and Navigation

7.7.1 **Volume 1, Part 4, Chapter 8: Shipping and Navigation** of the PEIR assesses the potential interaction of the proposed Offshore Scheme with shipping and navigation in the format of a Navigational Risk Assessment.

7.7.2 The assessment establishes a baseline of key navigational features, emergency response, maritime incidences, and marine traffic.

7.7.3 Control and management, and embedded mitigation measures have been built into the proposed Offshore Scheme to avoid and/or minimise impacts to shipping and navigational receptors. For example, a risk based burial approach will be used where cables will be buried to a minimum DOL to the top of the cable of 0.5 m (in areas of bedrock), with a target DOL for the Proposed Project of approximately of a minimum of 1.5m.

7.7.4 The potential impacts of the proposed Offshore Scheme include vessel-to-vessel collision, deviation from established vessel routes and areas, interaction with vessel

anchors and anchoring activity, interaction with fishing gear, potential risks from reduction in under keel clearance and interference with marine navigational equipment.

7.7.5 The preliminary assessment of likely significant effects presented to shipping and navigation by the proposed Offshore Scheme, has been determined via Formal Safety Assessment (FSA), as part of a Navigational Risk Assessment. The assessment determined that all risks to shipping and navigation associated with the offshore scheme are either broadly acceptable or tolerable if as low as reasonably practical (ALARP). As such, the risks and therefore any significant effects are considered to be tolerable and ALARP, provided that the recommendations for further risk reduction are implemented or otherwise closed out satisfactorily.

7.7.6 As part of the PEIR approach and methodology, this PEIR chapter establishes the sensitivity, magnitude, and likely significance of the effects. The outcomes from the FSA serve as a basis, combined with qualitative judgment, to determine these effects, ultimately resulting in the identification of no significant effects for the Proposed Project on its own and the Proposed Project with co-location at the Suffolk landfall.

7.8 Commercial Fisheries

7.8.1 **Volume 1, Part 4, Chapter 9: Commercial Fisheries** assesses the potential interaction of the proposed Offshore Scheme with commercial fisheries.

7.8.2 The assessment established a baseline of principal fishing activities. This included mobile gear fisheries consisting of dredges targeting cockle, demersal trawls targeting mackerel, and beam trawls targeting sole and plaice, and static gear fisheries consisting of pots targeting whelk, and fixed and drift nets targeting sole and bass.

7.8.3 Control and management, and embedded mitigation measures have been built into the proposed Offshore Scheme to avoid and/or minimise impacts to commercial fisheries. For example, a Fisheries Liaison Officer and fisheries working group(s) will be maintained throughout installation to ensure project information is effectively disseminated to ensure a dialogue is maintained with the commercial fishing industry and access to home ports remains during the main fishing season.

7.8.4 The potential impacts of the proposed Offshore Scheme on commercial fisheries include obstruction of navigation routes to commercial fishing grounds, direct loss and alteration of fishing grounds, and displacement of commercial fishing activities. With the implementation of mitigation and control and management measures, the preliminary likely significance of effect on the receptors are all considered to be not significant for the Proposed Project on its own and the Proposed Project with co-location at the Suffolk landfall.

7.9 Other Sea Users

7.9.1 **Volume 1, Part 4, Chapter 10: Other Sea Users** of the PEIR assesses the potential interaction of the proposed Offshore Scheme with other sea users.

7.9.2 The assessment establishes a baseline of marine recreational activities (including recreational boating and fishing, scuba diving, kayaking, paddleboarding and canoeing, surfing, windsurfing and kite surfing and open water swimming), oil and gas operations, offshore wind farms, cables, and pipelines, dredging and disposal sites, military practice and exercise areas, aquaculture and other developments.

7.9.3 Control and management, and embedded mitigation measures have been built into the proposed Offshore Scheme to avoid and/or minimise impacts to other sea users. This includes the use of crossing agreements which describe the rights and responsibilities of the parties and also the design of the crossing. Furthermore, timely and efficient communication will be given to sea users in the area via Notices to Mariners (NtM), Kingfisher Bulletins, Navigational Telex (NAVTEX), and Navigational Areas (NAVAREA) warnings.

7.9.4 The potential impacts of the proposed Offshore Scheme are disruption to marine recreational users, disruption to vessel routeing and access to other sea user working areas, and the risk of damage to or interference with a third-party cable assets.

7.9.5 Following the inclusion of embedded mitigation and control and management measures, the preliminary assessment has not identified any likely significant effects on other sea user receptors within the Study Area from the Proposed Project on its own and the Proposed Project with co-location at the Suffolk landfall.

7.10 Intra-project Cumulative Effects

7.10.1 **Volume 1, Part 4, Chapter 11 Intra-project Cumulative Effects** of the PEIR presented the preliminary intra-project cumulative effects assessment for the proposed Offshore Scheme. This considered the potential significant cumulative effects that may arise from the Proposed Project (where a single receptor is affected by multiple aspects of a project, worsening the effect).

7.10.2 Where a receptor has been identified as only experiencing one effect or where only one topic has identified effects on that receptor, there is no potential for intra-cumulative effects. No shared receptors were present across the proposed Offshore Scheme topic chapters. Therefore, intra project effects will not be significant for the proposed Offshore Scheme.

7.11 Inter-project Cumulative Effects

7.11.1 **Volume 1, Part 4, Chapter 12 Inter-project Cumulative Effects** of the PEIR presented the preliminary inter-project cumulative effects assessment for the proposed Offshore Scheme. This considered the potential significant cumulative effects that may arise from the proposed Offshore Scheme with ‘other developments’.

7.11.2 The short-listed developments included in this chapter were:

- Sizewell C Nuclear Power Station;
- NeuConnect Interconnector;
- Gridlink Interconnector;
- North Falls Offshore Windfarm;
- East Anglia ONE North Offshore Windfarm;
- East Anglia TWO Offshore Windfarm;
- East Anglia THREE Offshore Windfarm;
- Nautilus Interconnector;
- Five Estuaries Offshore Windfarm;

- LionLink Interconnector; and
- Hanson Aggregate Marine Ltd Area 528/2.

7.11.3 Each shortlisted development was screened for potential cumulative effects for each technical chapter of the proposed Offshore Scheme. These sections were subsequently summarised against each development, detailed their potential for interaction, potential impact pathways, potential for cumulative effect and where appropriate, proposed mitigation. The cumulative effects appraisal concluded that all residual effects are considered to be not significant following the inclusion of control and management measures, embedded and additional mitigation.

7.12 Summary

7.12.1 Table 7-1 provides a summary of the preliminary assessment of likely significant effects associated with the Offshore Scheme.

Table 7-1. Summary of the preliminary environmental assessment for the Offshore Scheme

Topic	Preliminary Likely Significant Effects (Y/N)?	Comment
Physical Environment	N	Control and management measures have been included within **Appendix 1.4.A Outline Code of Construction Practice** with mitigation measures included within **Appendix 1.4.F Schedule of Environmental Commitments and Mitigation**. Following the inclusion of the above measures, the preliminary likely significance of effect is Not Significant for all offshore receptors.
Benthic Ecology	N	
Fish and Shellfish	N	
Marine Mammals	N	
Ornithology	N	
Marine Archaeology	N	
Shipping and Navigation	N	
Commercial Fisheries	N	
Other Sea Users	N	
Intra-project Cumulative Effects	N	
Inter-project Cumulative Effects	N	

8. Project- Wide Preliminary Environmental Assessment

8.1 Climate Change

8.1.1 The current and future baseline for the Proposed Project's greenhouse gas (GHG) assessment is a 'business as usual' scenario where the Proposed Project is not constructed and operated. The baseline comprises of existing carbon stock and sources of GHG emissions within the draft Order Limits of the existing site activities.

8.1.2 The baseline for the lifecycle GHG impact assessment will be established in the ES by quantifying the GHG emissions through a desk-based study, and analysis of data from other relevant technical disciplines, for example, transport.

8.1.3 Based on initial assessment, the current land use within the draft Order Limits consists of predominantly arable land, and managed hedgerows and trees. Trees are present individually in some areas, as well as in rows and within small woodland areas. The abundance of vegetation within the draft Order Limits suggests a relatively high carbon sink potential. Also, current land use within the draft Order Limits has minor levels of associated GHG emissions as the land use is largely agricultural. Baseline agricultural GHG emissions are dependent on soil and vegetation types present, and fuel use for the operation of vehicles and machinery.

8.1.4 This PEIR concludes that the effects on the global climate by the Proposed Project are likely to be minor adverse and not significant because the Proposed Project's GHG impacts are fully consistent with applicable existing and emerging policy requirements set by the government to support them in reaching their net zero target and move away from the use of fossil fuels. This will be confirmed in the full assessment completed as part of the Environmental Statement.

8.1.5 The PEIR also concluded that the effect of climate change impacts on the Proposed Project are not anticipated to be significant. Where any climate change impacts are identified these will be manged through the appropriate mitigation.

8.2 Combined Effect of the Proposed Project

8.2.1 The preliminary combined effects assessment details the effects of the entirety of the Proposed Project after potential mitigation measures have been applied. This includes the Kent and Suffolk Onshore Schemes in conjunction with the proposed Offshore Scheme.

8.2.2 Overall, most environmental, and social features studied within the preliminary environmental assessment had no potential for significant combined effects resulting from both the proposed Onshore Schemes and the Offshore Scheme. However, designated sites, ornithology and notable terrestrial and aquatic habitats were all deemed as being subject to potential combined effects of the Proposed Project.

8.2.3 Further preliminary assessment concluded that designated sites were not subject to significant combined effects in relation to the loss of land. However, there was the potential for significant combined effects between the Suffolk Onshore Scheme and the

Offshore scheme due to disturbance to Sandlings SPA and Leiston-Aldeburgh SSSI during construction. Mitigation measures will be considered and developed further within the ES. No significant combined effects due to disturbance to designated sites between the Kent Onshore Scheme and the Offshore scheme were identified.

8.2.4 Assuming trenchless techniques will be used to traverse sensitive intertidal habitats, notable habitats had no significant combined effect from the Proposed Project.

8.2.5 Ornithological receptors were the only receptor group that was identified as having a potential significant combined effects t at Kent and Suffolk Onshore Schemes with the Offshore Scheme due to the loss of functionally- linked habitat. Consequently, appropriate mitigation measures across all proposed Onshore and Offshore Schemes have been studied in detail across the preliminary effects assessment.

8.3 Habitat Regulations Screening

8.3.1 The Habitats Regulations Screening Assessment discusses impacts on internationally important wildlife sites to the extent possible at the current stage of the Proposed Project. A provisional conclusion of Likely Significant Effects (LSE) has been made for a number of impact pathways, pending further analysis in the ES.

8.3.2 Impact pathways are routes by which the implementation of a project can lead to an effect upon a European designated site. An example of this would be visual and noise disturbance arising from the construction work or operational phase associated with a project. If there are sensitive ecological receptors within a nearby European site (e.g. non-breeding overwintering birds), this could alter their foraging and roosting behaviour and potentially affect the site's integrity.

8.3.3 Given the location of the Proposed Project, the relevant European sites, and the likely impact pathways present, the following European sites have been considered:

Designated Sites in Suffolk

- Sandlings SPA.
- Outer Thames Estuary SPA.
- Alde-Ore Estuary SPA/Ramsar.
- Minsmere-Walberswick SPA/Ramsar.

Designated Sites in Kent

- Thanet Coast & Sandwich Bay SPA/Ramsar.
- Sandwich Bay SAC.
- Stodmarsh SPA/Ramsar.
- Stodmarsh SAC.

Designated Sites Offshore

- Outer Thames Estuary SPA.
- Alde-Ore Estuary SPA/Ramsar.
- Minsmere-Walberswick SPA/Ramsar.

- Thanet Coast & Sandwich Bay SPA/Ramsar.
- Sandwich Bay SAC.
- Berwickshire and North Northumberland Coast SAC.
- Humber Estuary SAC.
- Margate and Long Sands SAC.
- Southern North Sea SAC.
- Thanet Coast SAC.
- Wash and North Norfolk Coast SAC.

Suffolk Onshore Scheme

8.3.4 The following impact pathways have been screened in for Appropriate Assessment:

- Air quality impacts on Sandlings SPA, since a construction compound and trenchless installation pit will immediately abut the SPA.
- Until wintering bird surveys are complete it is not possible to dismiss LSE due to loss of functionally-linked habitat on white-fronted goose associated with Minsmere-Walberswick SPA. This impact pathway is therefore screened in for Appropriate Assessment.
- Construction/decommissioning period noise and visual disturbance of nesting woodlark and nightjar at Sandlings SPA is screened into Appropriate Assessment given a construction compound and trenchless installation pit will be located adjacent to the SPA.

Kent Onshore Scheme

8.3.5 The following impact pathways have been screened in for Appropriate Assessment:

- It is considered at this stage that LSE on Thanet Coast & Sandwich Bay SPA/Ramsar site due to loss of functionally-linked land for golden plover cannot be dismissed. This conclusion will be reviewed for the DCO once a second season of wintering bird data is obtained, and an Appropriate Assessment undertaken if necessary.
- At this stage of the Proposed Project, the potential for operational period collision risk cannot be dismissed, associated with the new section of overhead powerline and species travelling to Stodmarsh SPA/Ramsar. It is therefore screened in for further consideration.

Offshore Scheme

8.3.6 In summary, the following impact pathways have been screened in for Appropriate Assessment:

- Temporary physical disturbance impacts on Outer Thames Estuary SPA, Alde-Ore Estuary SPA, Minsmere-Walberswick SPA, Southern North Sea SAC, Wash and North Norfolk Coast SAC, Humber Estuary SAC, and Berwickshire and North Northumberland Coast SAC.

- Permanent loss impacts on Outer Thames Estuary SPA, Thanet Coast & Sandwich Bay SPA/Ramsar, Alde-Ore Estuary SPA, Minsmere-Walberswick SPA, Southern North Sea SAC, Wash and North Norfolk Coast SAC, Humber Estuary SAC, and Berwickshire and North Northumberland Coast SAC
- Temporary increase in SSC impacts on Outer Thames Estuary SPA, Alde-Ore Estuary SPA, Minsmere-Walberswick SPA, Southern North Sea, and Thanet Coast SAC
- Underwater noise impacts on Southern North Sea SAC, Wash and North Norfolk Coast SAC, Humber Estuary SAC, and Berwickshire and North Northumberland Coast SAC
- Vessel collision risk impacts on Southern North Sea SAC, Wash and North Norfolk Coast SAC, Humber Estuary SAC, and Berwickshire and North Northumberland Coast SAC
- Airborne sounds and visual disturbance impact on Outer Thames Estuary SPA, Alde-Ore Estuary SPA, Minsmere-Walberswick SPA, Wash and North Norfolk Coast SAC, Humber Estuary SAC, and Berwickshire and North Northumberland Coast SAC
- Effects of EMF emissions impacts on Southern North Sea SAC.

8.4 Marine Conservation Zone Assessment

8.4.1 The MCZ Assessment outlines the potential impacts of the Proposed Project on the protected features and physical processes within these designated sites.

8.4.2 The following potential impacts were identified: temporary physical disturbance, permanent loss of subtidal benthic habitats, increases in SSC, underwater noise, EMF emissions, thermal emissions, vessel collision risk with mobile marine species, and airborne sounds and disturbance. The following sites were screened into the assessment:

- Goodwin Sands MCZ;
- Thanet Coast MCZ;
- Kentish Knock MCZ;
- Orford Inshore MCZ;
- Dover to Deal MCZ;
- Foreland MCZ; and
- Medway Estuary MCZ.

8.4.3 The preliminary assessment concluded that impacts from the Proposed Project were not considered to have significant effects on the designated features or conservation objectives of these MCZs.

8.5 Water Framework Directive Screening Assessment

8.5.1 The Water Framework Directive (WFD) Screening Assessment identifies WFD waterbodies that have the potential to be impacted by specific project activities, targeting those waterbodies and activities that require further assessment.

8.5.2 The WFD screening assessment concluded that due to the nature of the Proposed Project including the proposed Suffolk and Kent Onshore Schemes and the Offshore Scheme, both during construction and operation, there is limited potential for project activities to cause future deterioration of WFD waterbodies. In addition, implementation of future measures to improve their status would not be prevented. Temporary effects during construction would be avoided or extensively minimised by implementing the good practice measures.

9. Next Steps

9.1 What happens next?

9.1.1 Following the end of the PEIR Consultation period with non-statutory and statutory consultees, National Grid will consider all comments that have been received.

9.1.2 These consultation responses will inform further design refinements and proposals for environmental measures to reduce impacts from the Proposed Project.

9.1.3 Based on consultation responses, design refinements and additional information that becomes available from site visits and surveys, the environmental assessment will be reviewed and updated for the final ES. It is expected that the ES to accompany the DCO application will be submitted in Autumn 2024.

9.2 How Can I Get Further Information About Sea Link?

9.2.1 **Please get in touch if you have any questions about our proposals for Sea Link.**

- Call our community helpline: 0808 134 9569 (lines are open Monday to Friday, 9am-5:30pm)
- Email us: contact@sealink.nationalgrid.com
- Write to us: Freepost SEA LINK

9.2.2 **Who to contact if you are a landowner or person with interest in land?**

- If you are a landowner and want to talk to our lands team, please email: sealink@dalcourmaclaren.com
- Alternatively, you can find out more information about land interests by visiting nationalgrid.com/sealink

9.2.3 **Who to contact for a media enquiry?**

- If you are a journalist and would like to speak with a member of the National Grid Electricity Transmission media team, please call 01926 656 536.

9.2.4 **Who to contact if you would like information or documents in an alternative format?**

- We are committed to making project information accessible to all users. If you or someone you know needs any information or documents in an alternative format such as large print, Braille or audio tape, get in touch using the above contact details.

9.3 How Can I Have My Say About Sea Link

How to give feedback

9.3.1 Our statutory public consultation runs from **Tuesday 24 October to Monday 18 December 2023**. We want to hear the views of local people. All feedback we receive as part of this

consultation will be carefully considered as we finalise our proposals and prepare our application for development consent.

9.3.2 Public information exhibitions are listed in Table 9-1 below. This is an opportunity to speak to the project team and view and take away some materials. Online webinars can be signed up to on our project website, over the phone or by emailing us.

Table 9-1. Public information exhibitions

Suffolk

Date	Time	Location
Wednesday 8 November	12pm–5.30pm	Old Generator Station, King's Field, Aldeburgh, IP15 5HY
Thursday 9 November	11am–4.30pm	Old Generator Station, King's Field, Aldeburgh, IP15 5HY
Friday 24 November	1pm–6pm	Market Hall, High Street, Saxmundham, IP17 1AF
Saturday 25 November	11am–4pm	Market Hall, High Street, Saxmundham, IP17 1AF

Kent

Date	Time	Location
Wednesday 15 November	2.30pm–7.30pm	Cliffsend Village Hall, 55 Foads Lane, Cliffsend, Ramsgate, CT12 5JH
Thursday 16 November	12pm–5.30pm	Minster Village Hall, 1 High Street, Minster, CT12 4BU
Friday 17 November	10am–3pm	Guildhall, Cattle Market, Sandwich CT13 9AH
Wednesday 29 November	2pm–8pm	Cliffsend Village Hall, 55 Foads Lane, Cliffsend, Ramsgate, CT12 5JH
Saturday 2 December	11am–3pm	Royal Harbour Academy, Marlowe Way, Newington, Ramsgate, CT12 6FA

Webinars

Date	Time	Topic*
Wednesday 25 October	6pm–7pm	Our proposals in Suffolk
Thursday 26 October	6pm–7pm	Our proposals in Kent
Tuesday 31 October	6pm–7pm	Our proposals in Suffolk
Wednesday 1 November	6pm–7pm	Our proposals in Kent

9.3.3 Ask the experts sessions are listed in Table 9-2 below. Individual appointments with our project team can be booked online, over the phone or by email.

Table 9-2. Ask the expert sessions

	Date	Time	Location
Suffolk	Thursday 23 November	3pm–7.30pm	Friston Village Hall, Church Road, Saxmundham, Suffolk, IP17 1PU
Kent	Friday 1 December	2pm–6pm	Radford House,18-20 Effingham St, Ramsgate CT11 9AT

Online Feedback Form

- You can give your feedback by completing our online feedback form, available at nationalgrid.com/sealink.

Paper Feedback Form

9.3.4 You can download and print a paper copy of our feedback form from our website and post it back to us at Freepost SEA LINK. You can also pick up a paper feedback form from any of the public information events or deposit points listed in chapter 16. Alternatively, you can request a consultation pack (newsletter, feedback form and freepost envelope) in the post by emailing contact@sealink.nationalgrid.com or by calling us on 0808 134 9569.

Email Us

9.3.5 If you prefer to send us your comments via email, you can send them to us at contact@sealink.nationalgrid.com.

Send Us a Letter

9.3.6 You can write to us at Freepost SEA LINK.

Call Us

9.3.7 If for any reason you are unable to provide written feedback, then we may be able to accept your comments by telephone. You can call us on 0808 134 9569 to discuss.

9.3.8 The deadline for feedback is **23.59 on Monday 18 December 2023**. Postal responses will be accepted until Tuesday 23.59 on 2 January 2024.

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

Registered in England and Wales
No. 4031152
nationalgrid.com

17. Statutory Consultation Non-Prescribed Consultee Letter

Freepost SEA LINK

T: *0808 134 9569*
email: contact@sealink.nationalgrid.com
www.nationalgrid.com/sealink

[INSERT ADDRESS]

[INSERT DATE]

Dear [Sir/Madam],

The Sea Link Project – start of statutory consultation

I am writing to let you know that National Grid Electricity Transmission plc (NGET) will launch a statutory consultation on the proposed Sea Link project ('the Project'), starting on 24 October 2023 and running until 23:59 on 18 December 2023.

About the project

The Project involves the reinforcement of the electricity transmission network between Suffolk and Kent, predominantly via an offshore High Voltage Direct Current (HVDC) link, but with onshore elements to connect into the transmission network. The proposed Project is split into three key elements, as follows.

The Suffolk Onshore Scheme

- A connection from the existing transmission network via Friston Substation, including the substation itself. Friston Substation already has development consent as part of other third-party projects. If Friston Substation has already been constructed under another consent, only a connection into the substation would be constructed by the Sea Link project.
- A high voltage alternating current (HVAC) underground cable of approximately 1.7 km in length between the proposed Friston Substation and a proposed converter station (below).
- A 2 GW HVDC converter station up to 26 m high plus external equipment (such as lightning protection and railings for walkways) near Saxmundham.
- An HVDC underground cable connection of approximately 10 km in length between the proposed converter station near Saxmundham, and a transition joint bay (TJB) approximately 900 m inshore from a landfall point (below) where the cable transitions from onshore to offshore technology.
- A landfall on the Suffolk coast (between Aldeburgh and Thorpeness).

Our proposals in Suffolk have been developed for Sea Link as a standalone project, but also include opportunities to co-locate infrastructure for up to two further projects at the converter station, cable corridors and the landfall location.

The Offshore Scheme

- Approximately 130 km of subsea HVDC cable, running between the Suffolk landfall location (between Aldeburgh and Thorpeness), and the Kent landfall location at Pegwell Bay.

The Kent Onshore Scheme

- A landfall point on the Kent coast at Pegwell Bay.
- A TJB approximately 800 m inshore to transition from offshore HVDC cable to onshore HVDC cable, before continuing underground for approximately 2 km to a proposed new converter station (below).
- A 2 GW HVDC converter station, up to 26 m high plus external equipment (such as lightning protection and railings for walkways), near Minster. A new substation would be located immediately adjacent.
- Removal of approximately 1 km of existing HVAC overhead line, and installation of approximately 2.25 km of new HVAC overhead line from the converter station and substation near Minster and the existing Richborough to Canterbury overhead line.

The project also includes modifications to sections of existing overhead lines in Suffolk and Kent, diversions of third-party assets, and land drainage from the construction and operational footprint. It also includes opportunities for environmental mitigation, compensation and enhancement (such as hedgerow creation and native tree planting). The construction phase would involve various temporary construction activities including working areas for construction equipment and machinery, site offices, storage, accesses, bellmouths, and haul roads, as well as watercourse crossings and the diversion of public rights of way.

The Secretary of State for Business, Energy and Industrial Strategy directed on 31 March 2022 that the Project is to be treated as development for which development consent is required. NGET will therefore apply for a Development Consent Order (DCO) from the Secretary of State, now known as the Secretary of State for Energy Security and Net Zero (the "Secretary of State") for the proposed Project. The development consent being sought will include a number of other provisions, including those which authorise the compulsory acquisition of land, and the compulsory acquisition of rights in, on or over land, if necessary, to construct, operate and maintain the proposed Project.

This letter is, therefore, notice that NGET is holding a consultation on the proposed Project under the Act. The consultation will run from Tuesday 24 October 2023 until 23:59 on Monday 18 December 2023 and we invite responses on or before the closing date.

Responding to the consultation

During the consultation period, a series of public consultation events will be held where you can hear further details about the proposed Project and to speak with the project team. They include public information exhibitions, 'ask the experts' sessions and online webinars. We are also making available a range of consultation materials which provide further details of this consultation and our proposals. These materials can be accessed via the online Document Library page of our project website, with paper copies of certain documents available from deposit points across the project area. For more information, please visit the project website, nationalgrid.com/sealink.

We encourage you to respond to this consultation between 24 October 2023 and 18 December 2023.

Responses can be submitted online at www.nationalgrid.com/sealink. Alternatively, you can return a printed copy of the response form or a free text response via email to contact@sealink.nationalgrid.com or post to Freepost SEA LINK.

Requests for paper copies of the technical documents will be reviewed on a case by-case basis. To cover printing costs a reasonable copying charge may apply, to be paid for by the recipient and up to a maximum value of £300 for the whole suite of consultation documents. These can be requested by contacting the Project Team by email at contact@sealink.nationalgrid.com, or by calling 0808 134 9569.

Please get in touch with us using the details below if you would like a printed or alternative format copy of the materials.

Telephone: 0808 134 9569

Email: contact@sealink.nationalgrid.com



We will review the proposals for the Project in light of the feedback we receive as part of this consultation and will consider if changes are needed to further reduce the effects on communities and the local area before we make our application for development consent.

We may be required to make copies of representations available to the Secretary of State. We will however request that personal details are not placed on the public record. Personal details will be held securely in accordance with the applicable data laws and will be used solely in connection with the consultation process and the development of this Project and, except as noted above, will not be disclosed to any third parties.

If you have any questions about the Project, please don't hesitate to get in touch with us.

Yours faithfully,

[redacted]

Senior Project Manager

18. Statutory Consultation Press Release Consultation Launch

Press Release

FOR RELEASE – 24.10.23

Opportunity for local residents to have a say on proposals to boost capacity across the electricity transmission network in Suffolk and Kent

- **New electricity reinforcement needed by 2030 to carry renewable and low carbon power to homes and businesses**
- **Project will help UK achieve net zero by 2050**
- **National Grid is consulting communities for 8 weeks as part of statutory consultation, starting Tuesday 24 October**

National Grid is encouraging communities in Suffolk and Kent to comment on proposals for a new electricity infrastructure project as part of an eight-week statutory consultation process which runs between 24 October and 18 December 2023.

Sea Link is needed to carry renewable and low carbon power from offshore wind, interconnectors and nuclear power to where it's needed. The proposals include a new, primarily offshore, 145 km cable connection from Pegwell Bay in Kent to a point on the Suffolk Coast between Aldeburgh and Thorpeness. Plans include the onshore infrastructure needed at either end, such as converter stations and substations, to connect the power onto the existing network so it can be transported to homes and businesses around the country.

National Grid held an initial consultation last year to introduce the project to local communities and gather feedback on the proposals. This statutory consultation will give local communities the opportunity to see how the plans have developed and to provide further feedback on the proposals before National Grid submits a planning application to the Planning Inspectorate.

[redacted], **Project Director for Sea Link, commented:** "This reinforcement between Suffolk and Kent is essential in the UK's journey to net zero by 2050 and is part of a wider programme to upgrade the entire network. We look forward to hearing views from members of the public and we welcome feedback on our proposals."

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Over the eight-week period, members of the public will be able to attend in-person events, dial into webinars, collect information from local deposit points or book an ‘ask the experts’ appointment.

The following tables show when and where the public information exhibitions are being held:

Suffolk

Date	Time	Location
Wednesday 8 November	12pm to 5:30pm	Old Generator Station, Aldeburgh, IP15 5HY
Thursday 9 November	11am to 4:30pm	Old Generator Station, Aldeburgh, IP15 5HY
Friday 24 November	2pm to 8:30pm	Market Hall, Saxmundham, IP17 1AF
Saturday 25 November	2pm to 8:30pm	Market Hall, Saxmundham, IP17 1AF

Kent

Date	Time	Location
Wednesday 15 November	2pm to 8:30pm	Cliffsend Village Hall, Ramsgate, CT12 5JH
Thursday 16 November	12pm to 5:30pm	Minster Village Hall, Minster, CT12 4BU
Wednesday 29 November	2pm to 8:30pm	Cliffsend Village Hall, Ramsgate, CT12 5JH
Saturday 2 December	12pm to 6:30pm	Royal Harbour Academy, Newington, CT12 6FA

The following table shows when and where in-person ‘ask the experts’ sessions are being held. Additional telephone and video call appointments will also be available throughout the consultation period upon request. Attendees to the ‘ask the experts’ sessions must have a pre-booked appointment in order to attend these sessions. Please get in touch with the team to book a slot.

Suffolk

Date	Time	Location
Thursday 23 November	2:30pm to 7:30pm	Friston Village Hall, Friston, IP17 1PU

Kent

Date	Time	Location
Friday 1 December	5pm to 8:30pm	Royal Harbour Academy, Newington, CT12 6FA

The following table shows when the online webinars are taking place. For more information and to sign up, please visit nationalgrid.com/sealink.

Date	Time	Topic
Wednesday 25 October	6pm to 7pm	Onshore proposals in Suffolk and marine proposals

Date	Time	Topic
Thursday 26 October	6pm to 7pm	Onshore proposals in Kent and marine proposals
Tuesday 31 October	2pm to 3pm	Onshore proposals in Suffolk and marine proposals
Wednesday 1 November	2pm to 3pm	Onshore proposals in Kent and marine proposals

The following table shows the deposit locations and opening times[1]:

Suffolk

Location	Opening hours
Saxmundham Library (Block B, Street Farm Rd, Saxmundham IP17 1AL)	Tuesday, Wednesday and Friday 9:30am–5:30pm Saturday 10am–1pm Sunday 10am–3pm
Leiston Library (Main St, Leiston IP16 4ER)	Tuesday 9:30am–7:30pm Thursday 9:30pm–5:30pm Friday and Saturday 9:30am–1pm and 2pm–5pm Sunday 10am–3pm
Aldeburgh Library (Victoria Rd, Aldeburgh IP15 5EG)	Monday, Tuesday, Thursday and Friday 9am–1pm Wednesday 9am–6pm Saturday 10am–3pm Sunday 10am–1pm
Snape Village Hall (5 Garrett Cl, Snape, Saxmundham IP17 1RN)	Monday to Saturday 7am–7pm
Friston Village Hall (Church Rd, Friston, Saxmundham IP17 1PU)	Opening hours vary. Please contact the venue directly for opening hours via email (fristonvillagehall@gmail.com) or by phone (01728 687914)

Kent

Location	Opening hours
Ash Library (11 Queen's Rd, Ash, Canterbury CT3 2BG)	Monday 11:30am–1pm and 2pm–3pm Tuesday 9:30am–1pm Wednesday 9:30am–2pm Friday 11:30am–5pm Saturday 9am–2pm
Minster Library (4a Monkton Rd, Minster, Ramsgate CT12 4EA)	Monday 1pm–5pm Tuesday and Sunday 9:30am–1:30pm Thursday 12pm–5pm Friday 10am–4pm

[1] Opening times are subject to change, residents can contact venues directly or the Project Team for an update.

Location	Opening hours
Sandwich Library (13 Market St, Sandwich CT13 9DA)	Tuesday, Thursday and Friday 9:30am–5pm Saturday 9:30am–3pm
Ramsgate Library (Guildford Lawn, Ramsgate CT11 9AY)	Tuesday, Wednesday and Friday 9:30am–5:30pm Thursday 9:30am–4:30pm Saturday 9:30am–3:30pm
Newington Library (Royal Harbour Academy, Stirling Way, Ramsgate CT12 6FA)	Monday and Thursday 9am–1pm and 2pm–5:30pm Tuesday and Saturday 9am–1pm
Margate Library (Cecil Street, Margate, CT9 1RE)	Monday, Thursday and Friday 10am–5:30pm Tuesday and Wednesday 10am–5pm Saturday 10am–3:30pm
Thanet District Council (Cecil Street, Margate CT9 1AY)	Monday, Tuesday, Wednesday, Thursday and Friday 8:45am–5pm

All information about the consultation and how to give feedback can be found on the project website at nationalgrid.com/sealink.

Residents who prefer to respond to the consultation via post can request a printed copy of the feedback form and a free post envelope by calling the information line on 0808 134 9569 or by emailing contact@sealink.nationalgrid.com.

ENDS

Notes to editors
Contact for media information only:

[redacted]
National Grid
[redacted]

About National Grid in the UK

National Grid sits at the heart of Britain’s energy system. The individual companies in our group run the networks and infrastructure that connect millions of people to the electricity they use every day.

Our regulated businesses own and develop the high voltage **electricity transmission** (ET) network in England and Wales, and the **electricity distribution** (ED) network in the Midlands, South West England and South Wales. The **electricity system operator** (ESO) is the legally separate (and in the process of becoming fully independent) arm of our group which manages supply and demand on Britain's electricity transmission networks. Operating separately from

these core regulated units, **National Grid Ventures** (NGV) focusses on competitive markets, investing in energy projects, technologies and partnerships such as electricity interconnectors.

Much of the UK's electricity network was built in the 1960s when the country was reliant on fossil fuels. Today, the UK needs to connect huge volumes of renewable power to the network, to help deliver the government's energy security strategy and net zero targets and to support the nation's transition to a cleaner, more affordable, and more independent energy system. This forms part of The Great Grid Upgrade the largest overhaul of the network in a generation.

National Grid Electricity Transmission, owns, builds and maintains the electricity transmission network in England and Wales. It is National Grid Electricity Transmission that is developing the plans for the Sea Link Reinforcement.

About Sea Link

Sea Link requires a Development Consent Order (DCO) in order to build, operate and maintain the proposed reinforcement. This is a special type of application for certain types of project, where an independent panel of inspectors is appointed to review the plans. Once submitted, it can take up to 18 months before a decision is made. The inspectors will issue a recommendation to the Secretary of State for the Department for Energy Security and Net Zero, who will make the final decision. National Grid anticipates submitting a DCO application for Sea Link in late 2024.

19. Statutory Consultation Advertising Posters



The Great Grid Upgrade

Sea Link

Have your say

October 2023

National Grid Electricity Transmission would like to hear your views on our detailed plans for Sea Link, a proposed reinforcement to the electricity transmission network between Suffolk and Kent.

Sea Link is a new, predominantly offshore, 2 gigawatt high voltage direct current link. At each end of the offshore cable, onshore infrastructure (such as a converter station and substation) will also be required to connect the new link to the high voltage electricity transmission network.

Our statutory consultation is running for eight-weeks, between **Tuesday 24 October 2023** and **Monday 18 December 2023**. During the consultation, there are several ways you can find out more about our proposals and speak to our project team, including:

Public information exhibitions
attend an event

Webinars
sign up to one of our webinars

'Ask the experts' sessions
book an appointment

Consultation materials
available at deposit points and on our website

Public information exhibitions in Suffolk

Date	Time	Location
Wednesday 8 November	12:30pm-5:30pm	Old Generator Station, Aldeburgh, IP15 5HY
Thursday 9 November	11am-4:30pm	Old Generator Station, Aldeburgh, IP15 5HY
Friday 24 November	1pm-6pm	Market Hall, High Street, Saxmundham, IP17 1AF
Saturday 25 November	11am-4pm	Market Hall, High Street, Saxmundham, IP17 1AF

Webinars: our proposals in Suffolk and marine proposals

Sign up to our webinars online, via email, or by calling us.

Date	Time	Location
Wednesday 25 October	6pm-7pm	Online
Tuesday 31 October	2pm-3pm	Online

Ask the experts in Suffolk

Book a one-to-one appointment with the project team by calling or emailing us. Additional telephone or video call appointments are also available upon request. You must have an appointment to attend the in-person 'ask the experts' session.

Date	Time	Location
Thursday 23 November	3pm-7:30pm	Friston Village Hall, Church Road, Friston, IP17 1PU

Consultation materials

You can view our consultation materials online, request paper copies by phone or email*, or view and collect some of our consultation materials at the following locations:

Location
Saxmundham Library, Block B, Street Farm Road, Saxmundham, IP17 1AL
Leiston Library, Main Street, Leiston, IP16 4ER
Aldeburgh Library, Victoria Road, Aldeburgh, IP15 5EG
Snape Village Hall, 5 Garrett Close, Snape, Saxmundham, IP17 1RN
Friston Village Hall, Church Road, Friston, Saxmundham, IP17 1PU

For opening hours, please contact the venue directly or contact the team using the details below.

To find out more, visit our website at **nationalgrid.com/sealink** (or scan the QR code), email **contact@sealink.nationalgrid.com**, or call us on **0808 134 9569**.

*Requests for printed materials may be subject to a printing charge.

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The Great Grid Upgrade

Sea Link

Have your say

October 2023

National Grid Electricity Transmission would like to hear your views on our detailed plans for Sea Link, a proposed reinforcement to the electricity transmission network between Suffolk and Kent.

Sea Link is a new, predominantly offshore, 2 gigawatt high voltage direct current link. At each end of the offshore cable, onshore infrastructure (such as a converter station and substation) will also be required to connect the new link to the high voltage electricity transmission network.

Our statutory consultation is running for eight-weeks, between **Tuesday 24 October 2023** and **Monday 18 December 2023**. During the consultation, there are several ways you can find out more about our proposals and speak to our project team, including:

Public information exhibitions
attend an event

Webinars
sign up to one of our webinars

'Ask the experts' sessions
book an appointment

Consultation materials
available at deposit points and on our website

Public information exhibitions in Kent

Date	Time	Location
Wednesday 15 November	2:30pm-7:30pm	Cliffsend Village Hall, 55 Foads Lane, Cliffsend, CT12 5JH
Thursday 16 November	12pm-5:30pm	Minster Village Hall, 1 High Street, Minster, CT12 4BU
Friday 17 November	10am-3pm	Guildhall, Cattle Market, Sandwich, CT13 9AH
Wednesday 29 November	2pm-7pm	Cliffsend Village Hall, 55 Foads Lane, Cliffsend, CT12 5JH
Saturday 2 December	11am-3pm	Royal Harbour Academy, Marlowe Way, Newington, CT12 6FA

Online webinars: our proposals in Kent and marine proposals

Sign up to our webinars online, via email, or by calling us.

Date	Time	Location
Thursday 26 October	6pm-7pm	Online
Wednesday 1 November	2pm-3pm	Online

Ask the experts in Kent

Book a one-to-one appointment with the project team by calling or emailing us. Additional telephone or video call appointments are also available upon request. You must have an appointment to attend the in-person 'ask the experts' session.

Date	Time	Location
Friday 1 December	2pm-6pm	Radford House, 18-20 Effingham Street, Ramsgate, CT11 9AT

Consultation materials

You can view our consultation materials online, request paper copies by phone or email*, or view and collect some of our consultation materials at the following locations:

Location
Ash Library, 11 Queen's Road, Ash, Canterbury, CT3 2BG
Minster Library, 4a Monkton Road, Minster, Ramsgate, CT12 4EA
Sandwich Library, 13 Market Street, Sandwich, CT13 9DA
Ramsgate Library, Guildford Lawn, Ramsgate, CT11 9AY
Newington Library, Royal Harbour Academy, Stirling Way, Ramsgate, CT12 6FA
Margate Library, Cecil Street, Margate, CT9 1RE
Thanet District Council, Cecil Street, Margate, CT9 1AY

For opening hours, please contact the venue directly or contact the team using the details below.

To find out more, visit our website at **nationalgrid.com/sealink** (or scan the QR code), email **contact@sealink.nationalgrid.com**, or call us on **0808 134 9569**.

*Requests for printed materials may be subject to a printing charge.

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

Registered in England and Wales
No. 4031152
nationalgrid.com