Sea Link

Environmental Impact Assessment Scoping Report
Volume 1 Main Text
Part 3 Kent Onshore Scheme

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3.1.1 Introduction

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

3.1.1.2 **Part 1 Chapter 3 Main Alternatives Considered** describes National Grid's approach to options appraisal and summarises both the strategic options that have been considered for the Project and the routeing and siting process. This chapter provides a more detailed summary of the routeing and siting appraisal relevant to the evolution of the Kent Onshore Scheme, from the point at which a preferred strategic option was selected to definition of the Kent Onshore Scheme Scoping Boundary as illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.1.1.3 This chapter should be read in conjunction with:

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

3.1.1.4 This chapter is supported by the following figure:

- **Figure 3.1.1 Evolution of the Kent Onshore Scheme**.

3.1.2 Network Connection Point

3.1.2.1 The preferred strategic option identified Richborough substation as the network connection point in Kent as described in **Part 1, Chapter 3, Main Alternatives Considered**. This was used as the basis for defining the routeing and siting study area and the identification of landfall areas of search, converter station site option areas and terrestrial route corridors in Kent.

3.1.3 Study Area

3.1.3.1 The routeing and siting study area in Kent extended from Herne Bay on the north Kent coast to Kingsdown on the east Kent Coast and, inland, to the settlement of Wingham. The routeing and siting study area is illustrated on **Figure 1.3.1 Routeing and Siting Study Area**.

3.1.4 Landfall Areas of Search

Areas of Search

3.1.4.1 Six landfall areas of search were identified in Kent, which were split geographically across Pegwell Bay, Broadstairs, and the north Kent coast. These are illustrated on **Figure 1.3.3 Kent Landfall Areas of Search**. One area of search (K1) was identified within Pegwell Bay, which stretched from the settlement of Ramsgate to the settlement of Deal. One area (K1a) was identified at Broadstairs at North Foreland between the settlements of Margate and Broadstairs. Four areas of search (K2, K3, K4 and K5) were identified along the north Kent coast between the settlements of Herne Bay and Birchington.

Summary of Appraisal Outcomes

Terrestrial constraints

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

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

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

3.1.4.5 To the south of the River Stour there are extensive areas of terrestrial flood zone which is not avoidable. Access to this same area is also limited.

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

3.1.4.7 North Foreland Golf Course is located at this landfall area of search and would be unavoidable.

3.1.4.8 Joss Bay which is a recreational beach location is located within this landfall area of search but could be avoided.

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

3.1.4.10 Both areas are within extensive areas of Flood Zone and access to both landfall areas of search is limited and constrained by the presence of the railway line with no existing access across the railway.

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

3.1.4.12 Reculver Country Park is unavoidable within K4 and K5 is significantly constrained by the settlement of Herne Bay.

Summary of Relevant Marine Alignments

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

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

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

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

Overall Summary

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

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

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

3.1.5 Converter Station Site Option Areas

Option Areas

3.1.5.1 Two converter site option areas were identified within the routeing and siting study area. Area A is located adjacent to and encompassed by Richborough Energy Park and Area B is located to the north and south of the A299 and adjacent to Manston Business Park. These are illustrated on **Figure 1.3.6 Kent Converter Site Option Areas**.

Summary of Appraisal Outcomes

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

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

connection point at Richborough substation and development of a converter station site in this area would require approximately 5km of HVAC connection.

3.1.6 Route Corridors

Route Corridors

3.1.6.1 Seven route corridors were identified, three corridors (green, red, and blue) from landfall area of search K1, one corridor (green) from landfall area of search K1a and three corridors from the landfall areas of search on the north Kent coast (blue corridor from K2, red corridor from K3 and a green corridor from K4). No corridor was identified from landfall area of search K5 due to the terrestrial constraints. These corridors are illustrated on **Figure 1.3.10 Kent Terrestrial Route Corridors**.

Summary of Appraisal Outcomes

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

3.1.6.3 All three of these corridors interact with several coastal nature conservation designations at the landfall as described in section 3.4.4 with the blue corridor having the potential for the smallest direct interaction.

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

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

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

3.1.6.7 The three corridors connecting the landfall areas of search located on the north Kent coast (K2, K3 and K4) were all significantly constrained from a traffic and access perspective, due to a weight restricted bridge, sensitive receptors, and carriageway widths that are inadequate to allow two-way HGV movements. It is likely that extensive mitigation would be required, even during temporary construction work to facilitate safe access and to minimise other environmental effects (congestion, delays) that could

arise because of additional HGV construction traffic on poorly suited roads. Careful routeing of the cables could avoid access issues around the Minster Marshes.

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

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

3.1.7 Identification of the Preferred Option

3.1.7.1 The evolution of the Kent Onshore Scheme is illustrated on **Figure 3.1.1 Evolution of the Kent Onshore Scheme, Sheets 1 to 4**.

3.1.7.2 The landfall areas of search, converter site option areas, route corridors and nearshore marine alignments considered at the routeing and siting stage are shown on **Figure 3.1.1 Evolution of the Kent Onshore Scheme Sheet 1 of 4**.

3.1.7.3 The marine alignments to the north Kent coast are significantly constrained due to exposure risks to the cable and the potential for permanent habitat loss within Margate and Long Sands SAC. This is shown on **Figure 3.1.1 Evolution of the Kent Onshore Scheme Sheet 2 of 4**.

3.1.7.4 The terrestrial green corridor from landfall K1a was considered to be significantly constrained due to the linear belt of settlement which would require the cables to be installed within the public highway for a section and the planning allocations within this corridor. All three corridors from the landfalls along the north Kent coast (green, red and blue) were considered to be significantly constrained due to traffic and access and needing to cross the railway to obtain access to the landfall. This is shown on **Figure 3.1.1 Evolution of the Kent Onshore Scheme Sheet 3 of 4**.

3.1.7.5 All three corridors that connect with the Pegwell bay landfall area of search K1 interact with sites designated for their nature conservation value; whilst the blue corridor minimises that interaction, it is the longest corridor of the three and would require a crossing of the River Stour at a point where is it designated as a Ramsar, SAC, SPA and SSSI. Access to the red corridor is limited and this corridor would also require a crossing of the River Stour. Both the red and green corridors would require a crossing of a golf course. Whilst the green corridor interacts with a larger area of the designated sites for nature conservation this is likely to be temporary and short term and this corridor represents the most direct connection to either of the converter site option areas and has fewer river and road crossings. Converter site option Area A facilitates the siting of a converter station close to existing similar infrastructure and minimises the lengths of both HVDC cable from a landfall in Pegwell Bay and the HVAC connection back to the network at Richborough Substation compared to Area B. This is illustrated on **Figure 3.1.1 Evolution of the Kent Onshore Scheme Sheet 4 of 4**.

3.1.7.6 Landfall K1, Pegwell Bay green corridor to converter station area A was identified as the preferred solution for the Kent Onshore Scheme.

3.1.8 Stakeholder Feedback and Option Refinement

3.1.8.1 Following engagement with other developers who have subsequently submitted planning applications for other energy developments within Richborough Energy Park, a backcheck and review was undertaken, as the proposed developments significantly constrained the Project being able to connect into the existing network at Richborough substation. As a result, an alternative connection was identified that directly connected onto the existing Richborough to Canterbury 400kV overhead line. A backcheck and review was undertaken of the routeing and siting options in Kent based on this revised connection point and, following this review, the conclusions on the landfall option area, cable corridors and converter station site option area all remained unchanged.

3.1.9 Kent Onshore Scheme Description

3.1.9.1 The Kent Onshore Scheme is illustrated on **Figure 3.1.2 Kent Onshore Scheme** and comprises of:

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

3.1.9.2 The graduated swathes shown on **Figure 3.1.2 Kent Onshore Scheme** illustrate the area within the preferred corridors, where, based on the current understanding of baseline conditions the HVAC connection, converter station site and underground HVDC cables are likely to be routed/sited. These will be refined further through both technical and environmental surveys and stakeholder and public feedback.

3.1.9.3 For the purpose of this Scoping Report, **Figure 1.1.1 Project Scoping Boundary** and **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** encompasses all elements shown on **Figure 3.1.2 Kent Onshore Scheme**. The proposed scope has been based off these scoping boundaries rather than the graduated swathes and the Project as described in **Part 1, Chapter 4, Description of the Project**.

3.2 Landscape and Visual

3.2.1 Introduction

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

3.2.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.2.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.2.1.4 This chapter is supported by the following figures:

- **Figure 3.2.1 Topography**;
- **Figure 3.2.2 Landscape Context and Designations**;
- **Figure 3.2.3 Landscape and Seascape Character – National and County**;
- **Figure 3.2.4 Landscape Character – District**;
- **Figure 3.2.5 Bare Earth Zone of Theoretical Visibility**; and
- **Figure 3.2.6 Representative Viewpoint Locations and Screened Zone of Theoretical Visibility**.

3.2.1.5 This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

3.2.1.6 Landscape and visual effects are interrelated with other environmental effects but will be assessed separately. Landscape effects associated with the Kent Onshore Scheme relate to the changes to the fabric, character and quality of the landscape and how it is experienced. Visual effects relate closely to changes to the landscape, but also

concern changes in people's views as a result of the introduction of the Kent Onshore Scheme.

3.2.2 Regulatory and Planning Context

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

Legislation

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

- The European Landscape Convention[1].

Planning Policy

National planning policy

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

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

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

- 4.5: Criteria for “good design” for energy infrastructure;
- 5.3: Biodiversity and geological conservation;
- 5.7: Historic environment;

[1] Council of Europe (2020). Council of Europe Landscape Convention (ETS No. 176). [online] Available at: https://www.coe.int/en/web/conventions/full-list?module=treaty-detail&treatynum=176

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

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

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

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

- 5.9: Landscape and visual; and
- 5.10: Land use including open space, green infrastructure & Green Belt.
- The relevant sections of the National Policy Statement for Electricity Networks Infrastructure to landscape and visual matters include:
- 2.5: Consideration of good design;
- 2.7: Biodiversity and Geological Conservation; and
- 2.8: Landscape and Visual.

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

Local planning policy

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

- Kent Historic Landscape Characterisation[6];
- Kent Design Guide[7]; and
- Kent Environment Strategy[8].

3.2.2.7 The Kent Onshore Scheme Scoping Boundary (refer to **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**) lies within the jurisdiction of Thanet District Council and Dover District Council. Local planning policy for Thanet District Council consists of the Thanet Local Plan (adopted July 2020)[9]. Local Plan policies which are relevant to landscape and visual matters and will inform the LVIA in the ES include:

- SP24: Development in the Countryside;
- SP26: Landscape Character Areas;
- SP27: Green Infrastructure;
- SP28: Protection of the International and European Designated Sites;
- SP30: Biodiversity and Geodiversity Assets;
- Policy SP36: Conservation and Enhancement of Thanet's Historic Environment;

[6] Kent County Council (2001). Kent Historic Landscape Characterisation (volume 1). [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0014/56210/Kent-Historic-Landscape-Character-volume-1.pdf#:~:text=KENT%20HISTORIC%20LANDSCAPE%20CHARACTERISATION%20the%20landscape%20of%20this,the%20county%20until%20the%20spread%20of%20the%20railways.

[7] Kent County Council (2006). Kent Design Guide. [online] Available at: https://www.kent.gov.uk/about-the-council/strategies-and-policies/regeneration-policies/kent-design-guide

[8] Kent County Council (2018). Kent Environment Strategy. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0008/89351/Kent-environment-strategy-impact-report-2018.pdf#:~:text=The%20Kent%20Environment%20Strategy%20provides%20a%20strategic%20framework,activities%20that%20would%20most%20benefit%20from%20partnership%20working.

[9] Thanet District Council (2020). Thanet District Local Plan. [online] Available at: https://www.thanet.gov.uk/info-pages/local-plan-updates/

- Policy GI06: Landscaping and Green Infrastructure;
- Policy QD01: Sustainable Design;
- Policy QD02: General Design Principles; and
- Policy CC07: Richborough.

3.2.2.8 There are no additional planning guidance documents relevant to landscape and visual matters published by Thanet District Council.

3.2.2.9 Local planning policy for Dover District Council consists of the *Dover District Core Strategy* (adopted February 2010)[10]. Local Plan policies which are relevant to landscape and visual matters and will inform the LVIA in the ES include:

- Policy CP6: Infrastructure;
- Policy CP7: Green Infrastructure Network;
- Policy DM15: Protection of the Countryside;
- Policy DM16: Landscape Character; and
- Policy DM25: Open Space.

3.2.2.10 A number of saved policies from the *Dover District Local Plan* (adopted 2002)[11], are also relevant to landscape and visual matters:

- Policy CO8: Development which would adversely affect a hedgerow; and
- Policy AY7: Open Space and Landscaping.

3.2.2.11 Dover District Council are producing a new Local Plan and have consulted on the Regulation 18 stage *Draft Dover District Local Plan*. Once adopted, the new Local Plan will become the statutory development plan for the Dover District. The Regulation 19 (pre-submission) version is expected in Spring/Summer 2022, which will be relevant to the ES.

3.2.2.12 Additional planning guidance documents relevant to landscape and visual matters published by Dover District Council are set out as follows:

- Dover District Council Green Infrastructure Strategy[12]; and
- Thanet Coast SPA Mitigation Strategy[13].

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

[10] Dover District Council (2010). Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/Adopted-Development-Plans/Core-Strategy.aspx

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

[12] Dover District Council (2014). Dover District Council Green Infrastructure Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Dover-District-Council-Green-Infrastructure-Strategy.pdf

[13] Dover District Council (2012). Thanet Coast SPA Mitigation Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Thanet-Coast-SPA-Mitigation-Strategy.pdf

- Ash Parish Council Neighbourhood Development Plan 2018-2037[14].

3.2.3 Study Area

3.2.3.1 An initial study area of 3km from the Kent Scoping Boundary has been identified for the landscape and visual assessment and will be referred to as the study area within this chapter from now on. It is judged that significant landscape or visual effects will be unlikely beyond this study area. The LVIA study area is shown on **Figures 3.2.1 – 3.2.6**.

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

3.2.4 Baseline Conditions

3.2.4.1 The following section provides a summary of the baseline environmental conditions within the Kent Scoping Boundary, using the sources of information outlined below.

Data Sources

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

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

Baseline Environment

3.2.4.3 An initial study of the baseline environment has been undertaken through desk-based research and a targeted site visit to establish the existing conditions of the landscape and visual resources of the study area as defined in section 3, to inform the previous options appraisal process, and the ongoing design development of the Kent Onshore Scheme.

[14] Ash Parish Council (2021). Ash Parish Council Neighbourhood Development Plan 2018-2037. [online] Available at: https://ashparishcouncil.gov.uk/wp-content/uploads/2021/11/Ash-NDP-Plan-Final-Sept-2021.pdf

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

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

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

Relevant designations

3.2.4.7 There are no landscape specific designations within the study area other than Tree Preservation Orders (TPOs), which are not located within the Kent Scoping Boundary.

3.2.4.8 The emerging preference area for the converter station, landfall and HVDC and HVAC corridors fall within the following designations:

- Thanet Coast Special Area of Conservation (SAC);
- Thanet Coast & Sandwich Bay Special Protection Area (SPA);
- Thanet Coast & Sandwich Bay Ramsar Site;
- Sandwich Bay to Hacklinge Marshes Site of Special Scientific Interest (SSSI);
- Sandwich & Pegwell Bay National Nature Reserve (NNR);
- Pegwell Bay Country Park; and
- Coastal Margin Access Land (shown on Ordnance Survey mapping).

3.2.4.9 The study area also includes the following designations:

- Prince's Beachlands Local Nature Reserve (LNR);
- Countryside Rights of Way (CRoW) Section 15 Land;
- Listed buildings (refer to Chapter 3.4, Cultural Heritage); and
- Richborough Castle and Minster Abbey Scheduled Monuments.

3.2.4.10 Whilst effects on these designated areas will not be assessed in the LVIA as they will be considered in other discipline specific chapters, they will inform judgements of landscape value and in the case of Pegwell Bay Country Park, are also an important recreational resource, views from which will be considered as part of the visual assessment.

3.2.4.11 Local designations include Open Space immediately to the east of the emerging HVAC corridor area (designated within *Dover District Core Strategy*). Local Wildlife Sites fall within the emerging HVAC corridor area (designated within *Thanet District Local Plan*).

Landscape character

3.2.4.12 The National, County and District landscape character context of the study area is shown on **Figure 3.2.3 Landscape and Seascape Character – National and County** and **Figure 3.2.4 Landscape Character – District**. At the National level, the study area falls within part of the North Kent Plain National Character Area (NCA)[15], as identified by Natural England.

3.2.4.13 At a County level, landscape character is defined by *The Landscape Assessment of Kent*[16], published by Kent County Council. The study area comprises the following Kent Character Areas (KCAs):

- Thanet;
- The Wantsum and Lower Stour Marshes; and
- East Kent Horticultural Belt.
- At a District level, landscape character is partially defined by the *Thanet District Council Landscape Character Assessment* (TDLCA)[17]. The study area comprises the following Landscape Character Areas (LCAs) and Local Character Areas:
- LCA A: Chalk Plateau - Local Character Area A1: Manston Chalk Plateau;
- LCA B: Chalk Slopes - Local Character Area B1: Wantsum North Slopes;
- LCA C: Undulating Chalk Farmland - Local Character Area C1: St Nicholas at Wade Undulating Chalk Farmland and Local Character Area C2: Central Thanet Undulating Chalk Farmland;
- LCA E: Marshes - Local Character Area E1: Stour Marshes;
- LCA F: Undeveloped Coast – Local Character Area F1: Pegwell Bay; and
- LCA G: Developed Coast – Local Character Area G1: Ramsgate and Broadstairs Cliffs.

3.2.4.14 At a District level, landscape character is partially defined by the *Dover District Council* Landscape *Character Assessment* (DDLCA)[18]. The study area comprises the following Landscape Character Types (LCTs) and LCAs:

- LCT A: River Valleys and Marshes and LCA A2: Ash Levels;
- LCT B: Developed River Valley and LCA B1: Great Stour Sandwich Corridor;
- LCT C: Coastal Marshes and Dunes and LCA C1: Sandwich Bay;

[15] Natural England (2015). National Character Area Profile: 113. North Kent Plain (NE357). [online] Available at: http://publications.naturalengland.org.uk/publication/2900242

[16] Kent County Council (2004). The Landscape Assessment of Kent. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0014/12461/Landscape-Assessment-of-Kent-October-2004_Part1.pdf#:~:text=The%20Landscape%20Assessment%20of%20Kent%20is%20a%20landscape,sensitivity%20to%20promote%20a%20vision%20for%20each%20area.

[17] Thanet District Council (2017). Thanet District Council Landscape Character Assessment. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2020/05/Thanet-LCA-Final-Report-09.081.5-with-plans.pdf

[18] Dover District Council (2020). Dover District Council Landscape Character Assessment. [online] Available at: https://www.doverdistrictlocalplan.co.uk/uploads/pdfs/landscape-character-assessment-2020.pdf

- LCT D: Horticultural Belt and LCA D1: Preston; and
- LCT H: Defensive Hills and LCA H1: Richborough Bluff.

Seascape character

3.2.4.15 The National seascape character context of the study area is shown on **Figure 3.2.3 Landscape and Seascape Character – National and County**. At a National level, seascape character is defined by the Seascape Character Area Assessment East Inshore and East Offshore Marine Plan Areas[19], published by the Marine Management Organisation. The study area comprises the following South East Marine Character Areas (MCAs)[20]:

- 11: Goodwin Sands and North Dover Strait.

Visual receptors

3.2.4.16 Visual receptors that have potential to experience views of all or some of the Kent Onshore Scheme including the landfall, underground HVDC cable corridor, converter station and underground or overground HVAC connection include:

- Settlement (east to west) including south-western edge of Ramsgate, Cliffsend, Ebbsfleet, Richborough, Manston, Minster and Lower Goldstone;
- Isolated and small clusters of dwellings and farmsteads dispersed across the landscape;
- Recreational facilities including at Stoneless Golf Centre, St Augustine's Golf Centre, Prince's Golf Club and Pegwell Bay Country Park;
- Recreational routes and access land including Public Rights of Way (PRoW), the England Coast Path, several recreational routes such as the Thanet Coastal Path and Stour Valley Walk, Coastal Margin Access Land, National Cycle Network (NCN) routes including NCN 15 and NCN 1;
- Employers working at Richborough Energy Park;
- Occupiers of vehicles travelling on A-roads (A256, A299), B-roads and unclassified roads within the study area; and
- Passengers on the Kent Coast Line and Ashford-Ramsgate railway lines.

Representative viewpoint locations

3.2.4.17 The visual assessment will be based on a series of representative viewpoints. These viewpoints have been chosen to provide a representative cross section of receptor types and locations within the study area, focused on those with the potential for

[19] Marine Management Organisation (2012). Seascape character area assessment East Inshore and East Offshore marine plan areas. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/312481/east_seascape.pdf.

[20] Marine Management Organisation (2012). Seascape Character Assessment for the South East Inshore marine plan area, Section 3.3.1, Profile for MCA 11: Goodwin Sands and North Dover Strait. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/750229/South_East_-_Seascape_character_assessment_report.pdf.

significant effects. The representative viewpoint locations have been informed by desk-based work and field work undertaken in May 2022.

3.2.4.18 The chosen representative viewpoint locations for the converter station have also been informed by a Screened Zone of Theoretical Visibility (ZTV) plan, as shown on **Figure 3.2.5 Bare Earth Zone of Theoretical Visibility** and **Figure 3.2.6: Representative Viewpoint Locations and Screened Zone of Theoretical Visibility**. The ZTV has been run for the converter station only, although as the design evolves it will be updated as the location and extent of permanent above ground infrastructure is finalised.

3.2.4.19 The ZTV has been generated using a 'bare ground' 5m OS digital terrain model (DTM) and is based on a maximum height of 30m, located in the centre of the emerging preference area for the converter station. The screening from woodland and buildings is based on the following factors:

- existing buildings have been incorporated into the DTM from OS MasterMap with assigned individual heights and OS Open Map Local (where OS MasterMap data was not available) with an assumed height of 7.5m.
- woodland from the National Forest Inventory (NFI) has also been incorporated into the DTM with an assumed height of 10m.

3.2.4.20 The ZTV indicates areas from where it may be possible to view part of or the entire converter station site. However, the use of the ZTV needs to be qualified by the following considerations:

- the ZTV is limited by the detail of the digital terrain model data used and does not take account of local topographic variations;
- some areas of theoretical visibility may comprise woodland or other vegetation (not accounted for in the NFI) or agricultural land, where there is effectively no public access and the likelihood of views being experienced is consequently low; and
- the ZTV does not take account of the likely orientation of a viewer, such as the direction of travel and there is no allowance for reduction of visibility with distance, weather or light.

3.2.4.21 These limitations mean that the ZTV tends to overestimate the extent of the visibility, both in terms of the area from which the Kent Onshore Scheme is visible and the extent of the converter station site, which is visible. Consequently, the ZTV should be considered as a tool to identify areas of potential visibility for further targeted survey and assessment, and not a measure of the visual effect.

3.2.4.22 Table 3.2.1 details the locations proposed for the representative viewpoints for the Kent Onshore Scheme and their reason for inclusion in the LVIA.

Table 3.2.1: Representative viewpoint locations for the Kent Onshore Scheme

Viewpoint number	Location description	Reason for inclusion
1	Public footpath (0173/TE39/1), north of Richborough Energy Park (approximate grid reference: TR329639)	Representative of recreational receptors including PRoW and users of the local road network, including along Brook Lane and the A256 corridor. Representative of users of the local railway network along the Kent Coast Line and Ashford-Ramsgate railway lines. Located within TDLCA Local Character Area E1: Stour Marshes, in close proximity to the boundary of Local Character Area B1: Wantsum North Slopes.
2	Ebbsfleet Lane, west of Stoneless Golf Centre (approximate grid reference: TR333629)	Representative of users of the local road network, including Ebbsfleet Lane and the A256 route. Representative of residential receptors in scattered properties and recreational users at Stonelees Golf Centre. Located within TDLCA Local Character Area E1: Stour Marshes, in close proximity to Local Character Area B1: Wantsum North Slopes.
3	Pegwell Bay Country Park along England Coast Path, north-east of Richborough Energy Park (approximate grid reference: TR343631)	Representative of recreational users within Pegwell Bay Country Park, users of England Coast Path and users along NCN route 15. Located within TDLCA Local Character Area F1: Pegwell Bay, close to the boundary of Local Character Area E1: Stour Marshes.
4	Saxon Shore Way, west of Richborough Energy Park (approximate grid reference: TR332617)	Representative of recreational users along Saxon Shore Way recreational route and receptors at work within Richborough Energy Park. Located on the boundary of DDLCA LCA A2: Ash Levels and LCA B1: Great Stour Sandwich Corridor.
5	Public footpath (0173/TE32/1), south of Minster (approximate grid reference: TR304639)	Representative of recreational receptors including PRoW and users of the local railway network along the Kent Coast Line and Ashford-Ramsgate railway lines. Representative of residential receptors on the southern edge of the settlement of Minster. Located within TDLCA Local Character Area E1: Stour Marshes, in close proximity to the boundary of Local Character Area B1: Wantsum North Slopes.
6	Saxon Shore Way, adjacent to the River Stour (approximate grid	Representative of recreational users along Saxon Shore Way recreational route. Located on the boundary of TDLCA Local Character Area E1: Stour Marshes and DDLCA LCA A2: Ash Levels.

Viewpoint number	Location description	Reason for inclusion
	reference: TR294631)	
7	Public bridleway (O173/TE29/1), north of Minster (approximate grid reference: TR306655)	Representative of recreational users including PRoW and users of the local road network, including the A299 route. Representative of residential receptors on the northern edge of the settlement of Minster. Located on the boundary of TDLCA Local Character Area B1: Wantsum North Slopes and Local Character Area A1: Manston Chalk Plateau.
8	Thorne Hill, just south of the A299 road corridor (approximate grid reference: TR327654)	Representative of scattered residential receptors to the east of the settlement of Minster and roads users including from Way Hill, Thorne Hill and the A299 corridor. Located within TDLCA Local Character Area A1: Manston Chalk Plateau, in close proximity to Local Character Area B1: Wantsum North Slopes.
9	Traffic free-cycle route along Chalk Hill (NCN route 15), west of Ramsgate (approximate grid reference: TR361646)	Representative of recreational users along Chalk Hill and NCN route 15. Representative of the south-western residential edge of the settlement of Ramsgate. Located within TDLCA Local Character Area B1: Wantsum North Slopes.
10	England Coast Path, West Cliff, Ramsgate (approximate grid reference: TR370641)	Representative of recreational users along the England Coast Path, at West Cliff, Ramsgate. Located on the edge of TDLCA LCA G1: Ramsgate and Broadstairs Cliffs.
11	Stour Valley Walk, east of Richborough Energy Park (approximate grid reference: TR351615)	Representative of recreational users along the Stour Valley Walk recreational route, within Coastal Margin Access Land and users of Prince's Golf Club. Located within DDLCA LCA C1: Sandwich Bay.
12	Public footpath (0009/EE43/1), north of Richborough Castle (approximate grid reference: TR324603)	Representative of recreational users including users of PRoW and CRoW Act Section 15 Land visiting Richborough Castle and road users along Castle Road. Representative of residential receptors within the settlement of Richborough and users of the local railway network along the Kent Coast Line railway line. Located within DDLCA LCA H1: Richborough Bluff, in close proximity to the boundaries of LCA A2: Ash Levels and LCA B1: Great Stour Sandwich Corridor.

Viewpoint number	Location description	Reason for inclusion
13	Richborough Road, between Lower Goldstone and Richborough (approximate grid reference: TR307609)	Representative of users of the local road network along Richborough Road and users of NCN route 1. Representative of scattered residential receptors between the settlements of Lower Goldstone and Richborough. Located within DDLCA LCA D1: Preston, in close proximity to LCA A2: Ash Levels.

Visualisations

3.2.4.23 Visualisations will be produced, using the maximum development parameters, to illustrate the converter station from all the representative viewpoint locations where it is visible, to assist an understanding of the potential visual effects.

3.2.4.24 No visualisations are proposed for the landfall or underground HVAC or HVDC cable corridors because of the temporary nature of impacts predicted to arise during the construction phase of the Kent Onshore Scheme.

3.2.4.25 If the HVAC connection is overground rather than underground, visualisations from the representative viewpoints will include these works to assist an understanding of the potential visual effects at operation.

3.2.4.26 The methodology for the preparation and presentation of the visualisations will follow the requirements set out in the Landscape Institute, 2019, Technical Guidance Note 06-19: Visual Representation of Development Proposals.

Planned surveys

3.2.4.27 Field surveys of the converter station site, HVAC connection and HVDC corridors and the landfall will be undertaken by Chartered Landscape Architects.

3.2.4.28 An initial field survey has been undertaken in May 2022 to identify the potential landscape and visual receptors and to establish a proportionate study area which is appropriate to identify potentially significant effects.

3.2.4.29 Subsequent field surveys will be completed after Scoping Opinion has been received and consultation has been conducted with relevant Local Planning Authorities (LPAs). These detailed surveys from publicly accessible areas will be used to undertake the landscape and visual assessments, and to capture photography from representative viewpoint locations used in the visual assessment and as supporting figures for the LVIA.

3.2.4.30 Field surveys will include site visits and photography during the winter season i.e., when vegetation cover is generally at its lowest (thus visibility is at its greatest), to enable an appreciation of the extent to which vegetation has a screening function within the landscape, particularly in relation to sensitive receptors, and to understand the likely mitigation requirements.

3.2.4.31 Surveys will be undertaken in line with UK Government guidelines relating to the Covid-19 pandemic and relevant Health and Safety procedures. At the time of writing there are no foreseeable limitations to the LVIA surveys because of Covid-19 restrictions.

Future Baseline

3.2.4.32 With regard to landscape baseline environment reporting, GLVIA3, states that: “The aim should be to describe the landscape as it is at the time but also to consider, if possible, what it may be like in the future, without the proposal.”

3.2.4.33 The LVIA within the ES will consider changes which may affect the future landscape in the absence of the development.

3.2.5 Embedded and Control & Management Measures

Embedded Measures

3.2.5.1 Embedded measures are steps taken during the design phase to help minimise potential effects, based on key sensitivities, constraints and opportunities identified through baseline study. Landscape and visual considerations have been important in informing the converter and landfall site selection process and in identifying potential cable route corridor options, and will continue to inform the form, location and routeing of the various elements throughout the design process.

3.2.5.2 Mitigation measures are those that seek to further reduce potential effects that could not be entirely designed out and are identified and informed by the detailed assessment stage. These include landscape reinstatement and landform and woodland screening and seek to help reduce the extent or significance of negative effects in the long term. In relation to the Kent Onshore Scheme, secondary mitigation measures are likely to include, reinstatement of hedgerows and other vegetation along the cable route and temporary access tracks, and landscape integration of the converter station through planting and landform design.

3.2.5.3 Landscape mitigation measures will be developed to support the landscape strategies and guidelines identified in published landscape character assessments. Details of landscape mitigation measures, such as planting types and species will be developed in consultation with LPAs. Opportunities will also be sought to integrate ecological, drainage and other mitigation measures into an overall landscape and environmental mitigation strategy and masterplan for the Kent Onshore Scheme.

Control and Management Measures

3.2.5.4 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the landscape and visual impact assessment are:

- LV01: The contractor(s) will retain vegetation where practicable. Where vegetation is lost and trees cannot be replaced in situ due to the restrictions associated with land rights required for operational safety, native shrub planting approved by National Grid will be used as a replacement, in accordance with the outline vegetation reinstatement plans included within the Landscape Ecological Management Plan (LEMP).
- LV02: The contractor(s) will apply the relevant protective principles set out in British Standard (BS) 5837:2012: Trees in relation to design, demolition and construction. This will be applied to trees within the Order Limits which will be preserved through the construction phase, and to trees outside of the Order Limits where such measures do not hinder or prevent the use of the relevant working width for construction. All works to high grade trees, including trees under Tree Preservation Orders and veteran trees, will be undertaken or supervised by a suitably qualified arboriculturist.
- LV03: A five-year aftercare period will be established for all reinstatement and mitigation planting.

- GG07: A full record of condition will be carried out (photographic and descriptive) of the working areas that may be affected by the construction activities. This record will be available for comparison following reinstatement after the works have been completed to ensure that the standard of reinstatement at least meets that recorded in the pre-condition survey.
- GG08: Land used temporarily will be reinstated where practicable to its pre-construction condition and use. Hedgerows, fences and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, with landowner agreement.
- GG09: Where sensitive features are to be retained within or immediately adjacent to the Order Limits, an appropriate protective area will be established using appropriate fencing and signage and will be inspected, repaired and replaced as necessary. The protective areas will be shown on the Retention and Reinstatement Plans contained within the LEMP.

3.2.5.5 Additional measures relating to landscape and visual would include the following:

- limiting the working width of the cable construction corridor and consideration of HDD construction techniques to maintain sensitive landscape features such as mature trees;
- separation and storage of subsoil and topsoil to ensure no degradation in quality and reinstatement undertaken as soon as possible after completion of construction of each section/area of works;
- placement of topsoil to one side of the trench and subsoil to the other, with the additional height of the subsoil storage used on whichever side requires greater screening benefit; and
- reinstatement of hedgerows/field boundaries crossed by the route, with native (and species-rich where appropriate) species planted to reduce or mitigate effects on landscape character and the visual awareness of the cable route within and across the landscape in the short to medium term.

3.2.6 Potential for Significant Effects

3.2.6.1 The LVIA will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.2.6.2 The proposed scope of the landscape and visual assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.2.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.2.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- construction compounds;
- temporary accommodation;
- access tracks;
- construction plant and vehicle movement;
- topsoil stripping and earthworks; and
- introduction of localised lighting.

Sources of operational impacts

- permanent overground infrastructure, including converter station and HVAC overhead line (to be decided);
- permanent underground infrastructure, including HVDC underground cable (and HVAC if decision to be underground); and
- operational lighting at the converter station.

Sources of maintenance impacts

- vehicle movement to carry workers in and out of the converter station site along with new materials and equipment to replace the old;
- occasional movement of vehicles along the overhead HVAC connection for an annual inspection (from the ground or helicopter) and for vegetation management, telecommunications and fibre optic maintenance;
- activity along the overhead HVAC connection should refurbishment be required; and
- access tracks with temporary vehicle movement for cable repairs.

Sources of decommissioning impacts

- decommissioning compounds and temporary office accommodation and welfare facilities;
- construction plant and vehicle movement associated with the removal of permanent above ground infrastructure including the converter station;
- redundant cables could be left in-situ, however where this is not possible construction plant and vehicle movement associated with the removal of cables to be disposed of; and
- reinstatement of converter station site.

Potential impacts

3.2.6.5 The siting of the landfall and converter station sites and the routeing of the underground HVDC and underground or overground HVAC cable corridors has reduced the potential for significant landscape and visual effects, through seeking to avoid the more sensitive landscape features such as protected trees (e.g., Tree Preservation Orders) and proximity to settlement. Where the removal of landscape features along the HVDC and HVAC cable corridors are unavoidable such as hedgerows and arable land, these will be fully reinstated to the pre-existing condition as far as reasonably practical (secured through a CoCP and DCO Requirements) once installation of the cables is complete.

3.2.6.6 As a result, the LVIA of the landfall and underground cable corridors will be focused on the construction phase as operational effects are not considered to be significant. This is underpinned by professional judgement and past experience of similar HVDC link projects. Effects on the landscape and visual resource as a result of the introduction of the converter station and if the HVAC corridor is an overhead connection, will be assessed both at construction and operation (at year 1 of operation (winter) and year 15 of operation (summer) once any mitigation planting has established). Decommissioning and maintenance effects are considered to be similar to and no worse than those assessed during the construction phase of works.

3.2.6.7 The following table lists all sources of potential impacts that could lead to potential significant effects on landscape character and visual amenity during each stage of the Kent Onshore Scheme and identifies those that have less potential to result in a significant effect with an explanation. The impacts relate to the LVIA methodology (detailed at section 7) and are split into landscape character and visual amenity for each source.

3.2.6.8 Table 3.2.2 identifies the potential impact that could result from the sources identified above.

Table 3.2.2: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, Maintenance and Decommissioning	Construction activity including construction compounds, temporary accommodation and access tracks, construction plant and vehicle	Temporary alteration to landscape character	Yes - Due to the short-term duration and temporary nature of activity, potential effects whilst have less potential to be significant will be considered within the LVIA.	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	movement, topsoil stripping and earthworks and introduction of localised lighting.	Temporary alteration to visual amenity	Yes - Due to the short-term duration and temporary nature of activity, potential effects whilst have less potential to be significant will be considered within the LVIA.	**Scoped in**
Operation	Operational converter station	Alteration to landscape character	Yes - Potential to result in a significant effect.	**Scoped in**
		Alteration to visual amenity	Yes - Potential to result in a significant effect.	**Scoped in**
Operation	Introduction of operational lighting at the converter station	Alteration to landscape character and visual amenity as a result of operational lighting	No - There is less potential that significant effects will result on landscape character or visual amenity as any additional lighting will be limited to maintaining site security and safety and would be within the context of existing lighting at Richborough Energy Park and adjacent development. Should the approach to lighting change, this aspect will be scoped into the landscape	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			and visual assessments.	
Operation	Operational HVAC overhead line (to be decided)	Alteration to landscape character	Yes - Whilst the introduction of an overhead line HVAC connection has less potential to result in significant effects on landscape character at operation given the existing context of overhead lines and vertical structures, it will be scoped into the landscape assessment to ensure that potential effects on wirescape are appropriately covered.	**Scoped in**
		Alteration to visual amenity	No - The introduction of an overhead line HVAC connection has less potential to result in significant effects on visual amenity at operation given the existing context of vertical structures, including a wind turbine, communication masts and	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			numerous overhead lines terminating at Richborough substation. However, in order to ensure that potential effects on the additional wirescape are adequately covered, it will be scoped into the visual assessment.	
Operation	Operational HVDC underground cable (and HVAC if decision to be underground)	Alteration to landscape character	No - Less potential to have significant effects on landscape character at operation. The landscape will be returned to previous land use and landscape components lost at construction will be reinstated as soon as reasonably practical after construction.	Scoped out
		Alteration to visual amenity	No - Less potential to have significant effects on visual amenity at operation. The landscape will be returned to previous land use and landscape	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			components lost at construction will be reinstated as soon as reasonably practical after construction.	

Impact Pathways with Receptors (Step 2)

3.2.6.9 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the study area.

3.2.6.10 Table 3.2.3 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme.**

Table 3.2.3: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in/out
Temporary alteration to landscape character from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil stripping and earthworks, storge of materials and lighting	TDLCA Local Character Areas A1, B1, E1, F1, G1 and DDLCA LCA A2, B1, C1, D1 and H1.	Yes - The Kent Scoping Boundary lies within and near to multiple published LCAs, of which there is the potential for temporary and short-term effects. Whilst less potential to result in significant effects at construction, they will be considered as part of the construction phase assessment.	**Scoped in for construction, maintenance and decommissioning**

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in/out
Temporary alteration to visual amenity from the introduction of construction activity including compounds, temporary accommodation and access tracks, construction plant and vehicle movements, topsoil stripping and earthworks, storge of materials and lighting	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Yes - The Kent Scoping Boundary is potentially visible from a range of visual receptors, of which there is the potential for significant effects at construction from close range receptors. However, due to the short duration and temporary nature of the works there is potential that the majority of visual effects at construction will not be significant.	**Scoped in for construction, maintenance and decommissioning**
Permanent alteration to landscape character as a result of the operational converter station and HVAC connection if above ground	TDLCA Local Character Areas B1, E1, F1, G1 and DDLCA LCA A2 and C1.	Yes - The Kent Scoping Boundary lies within multiple published LCAs, of which there is the potential for significant effects at operation.	**Scoped in for operation**
Permanent alteration to landscape character and perceptual qualities as a result of the operational converter station	TDLCA Local Character Areas A1 and DDLCA LCAs B1, D1 and H1.	No - The Kent Scoping Boundary does not lie within these LCAs. Whilst there is the potential for indirect effects on the perceptual qualities of these LCAs there is less potential that the effects would be significant.	Scoped out for operation

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in/out
Temporary and permanent alteration to landscape character and perceptual qualities as a result of the construction and operation of the converter station, HVDC and HVAC.	TDLCA Local Character Areas C1 and C2	No - There is no theoretical visibility between any aspect of the Kent Scoping Boundary during construction and operation and consequently there are not considered to be any effects on this LCA.	Scoped out for construction, maintenance, operation and decommissioning
Alteration to visual amenity from the operational converter station and HVAC connection if above ground.	Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Yes - The Kent Scoping Boundary will be potentially visible from a range of visual receptors, of which there is a potential significant effect at operation.	**Scoped in for operation**

3.2.7 Proposed Assessment Methodology

Proposed Data Sources

3.2.7.1 The following data sources are proposed to be used to inform the assessment:

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

Guidance

3.2.7.2 The landscape and visual assessment will be carried out in accordance with the following good practice and guidance documents:

- Guidelines for Landscape and Visual Impact Assessment: Third edition (GLVIA3)[21];
- Assessing landscape value outside national designations - Technical Guidance Note 02/21[22];
- Design Principles for National Infrastructure[23];
- Infrastructure - Technical Guidance Note 04/20[24];
- Tranquillity – An overview – Technical Information Note 01/17[25]; and
- Visual Representation of Development Proposals – Technical Guidance Note 06/19[26] .

3.2.7.3 *GLVIA3* places a strong emphasis on the importance of professional judgement in identifying and defining the significance of landscape and visual effects. The LVIA will be undertaken by Chartered Landscape Architects with experience in the assessment of similar types of HVDC link project. Professional judgement will be used in combination with structured methods and criteria to evaluate landscape and visual value and susceptibility, the resulting sensitivity, magnitude and significance of effect.

Proposed Assessment Methodology

3.2.7.4 The following section summarises the methodology for the LVIA which builds on the general assessment methodology presented in **Part 1, Chapter 5, EIA Approach and Method**. For clarity and in accordance with good practice, the assessment of potential effects on landscape character and visual amenity, although closely related, are undertaken separately.

Sensitivity

Landscape receptors

3.2.7.5 Landscape receptors are described as components of the landscape that have the potential to be affected by the Kent Onshore Scheme. These can include overall character and key characteristics, individual elements or features and specific aesthetic or perceptual aspects. It is the interaction between the different components of the Project and these landscape receptors which has potential to result in landscape effects (both adverse and beneficial).

[21] Landscape Institute and Institute of Environmental Management and Assessment (2013). Guidelines for Landscape and Visual Impact Assessment, Third Edition. Landscapes Institute.

[22] Landscape Institute (2021). Technical Guidance Note 02/21 - Assessing landscape value outside national designations. [online] Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2021/05/tgn-02-21-assessing-landscape-value-outside-national-designations.pdf

[23] National Infrastructure Commission Design Group (2020). Design Principles for National Infrastructure. [online] Available at: https://nic.org.uk/app/uploads/NIC-Design-Principles.pdf

[24] Landscape Institute (2020). Infrastructure - Technical Guidance Note 04/2020. [online] Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2018/01/LI-Infrastructure-TGN-FINAL-200924.pdf

[25] Landscape Institute (2017). Tranquillity – An overview, Technical Information Note 01/17. [online] Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2017/02/Tranquillity-An-Overview-1-DH.pdf

[26] Landscape Institute (2019). Visual Representation of Development Proposals, Technical Guidance Note 06/19. [online] Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf

3.2.7.6 The sensitivity of the landscape receptor is a combination of the value of the landscape (undertaken as part of the baseline study) and the susceptibility to change of the receptor to the specific type of development being assessed.

3.2.7.7 Landscape value is frequently addressed by reference to international, national, regional and local designations, determined by statutory bodies and planning agencies. Absence of such a designation does not necessarily imply a lack of quality or value. Factors such as accessibility and local scarcity can render areas of nationally unremarkable quality, highly valuable as a local resource.

3.2.7.8 The evaluation of landscape value will be undertaken considering the following factors and classified as high, medium or low with evidence provided as to the basis of the evaluation. These are taken from the *Assessing landscape value outside national designations - Technical Guidance Note 02/21*.

- "Natural heritage – Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest which contribute positively to the landscape.
- Cultural heritage – Landscape with clear evidence of archaeological, historical or cultural interest which contribute positively to the landscape.
- Landscape condition – Landscape which is in a good physical state both with regard to individual elements and overall landscape structure.
- Associations – Landscape which is connected with notable people, events and the arts.
- Distinctiveness – Landscape that has a strong sense of identity.
- Recreational – Landscape offering recreational opportunities where experience of landscape is important.
- Perceptual (scenic) – Landscape that appeals to the senses, primarily the visual sense.
- Perceptual (wildness and tranquillity) – Landscape with a strong perceptual value notably wildness, tranquillity and/or dark skies.
- Functional - Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape."

3.2.7.9 Landscape susceptibility relates to the ability of a particular landscape to accommodate the Kent Onshore Scheme. It is appraised through consideration of the baseline characteristics of the landscape, and in particular, the scale or complexity of a given landscape. The evaluation of landscape susceptibility will be defined as high, medium or low and will be supported by a clear explanation based upon the analysis of the landscape receptor and the extent to which it is able to accommodate the type of change proposed, specific to the Kent Onshore Scheme.

3.2.7.10 The overall sensitivity assessment of the landscape receptor is made by employing professional judgement to combine and analyse the identified value and susceptibility with overall levels given from high, medium to low. Table 3.2.4 below outlines indicators that inform landscape value, susceptibility and sensitivity. The basis of the assessment will be made clear in the evaluation of each landscape receptor.

Table 3.2.4: Sensitivity of landscape receptors

	Higher sensitivity	Lower sensitivity
Value	A designated landscape (National Park, Area of Outstanding National Beauty, National Scenic Area, World Heritage Site) or a landscape in very good condition, exceptional scenic quality and high recreational opportunities or a high degree of rarity.	Landscapes containing few if any notable elements/features, of poor condition or containing several detracting features and limited aesthetic qualities. Landscapes which are not formally designated.
Susceptibility	Attributes that make up the character of the landscape which offer very limited opportunities to accommodate change of the type proposed without fundamentally altering key characteristics.	Attributes that make up the character of the landscape which are tolerant of a large degree of the type of change proposed without fundamentally altering the key characteristics.

Visual receptors

3.2.7.11 Sensitivity of visual receptors is defined through appraisal of the viewing expectation, or value placed on the view as identified in the baseline study, and its susceptibility to change.

3.2.7.12 Value of the view is an appraisal of the value attached to views and is often informed by the appearance on Ordnance Survey or tourist maps and in guidebooks, literature or art or identified in policy. Value can also be indicated by the provision of parking or services and signage and interpretation. The nature and composition of the view and its scenic quality is also an indicator. The value of the view is classified as high, medium or low and will be supported by evidenced, professional judgements.

3.2.7.13 The susceptibility of visual receptors is a function of the occupation or activity of people experiencing the view and the extent to which their attention or interest is focused on the view and the visual amenity they experience at a particular location. For example, residents in their home, walkers whose interest may tend to be focused on the landscape or a particular view, or visitors at an attraction where views are an important part of the experience, may indicate a higher level of susceptibility. Whereas, receptors occupied in outdoor sport where views are not important or at their place of work could be considered less susceptible to change.

3.2.7.14 As with landscape susceptibility, judgements about the susceptibility of visual receptors are described as high, medium or low using consistent and reasoned judgements.

3.2.7.15 The overall sensitivity assessment of the visual receptor is determined by employing professional judgement to combine and analyse the identified value and susceptibility ratings. Overall visual sensitivity will be rates as high, medium or low. Table 3.2.5 below outlines indicators that inform value for the view, susceptibility and sensitivity of visual receptors. The basis of the assessment is made clear in the evaluation of each visual receptor.

Table 3.2.5: Sensitivity of visual receptors

	Higher sensitivity ⟷ Lower sensitivity	
Value	Views protected by designation, or nationally recognised, or recorded on maps/guidebooks or with cultural associations. Views that have high scenic qualities relating to the content and composition of the view.	Views which are not documented or protected with minimal or no cultural associations. Views that exhibit low scenic qualities relating to the content and composition of the view.
Susceptibility	Viewers whose attention or interest is focused on their surroundings.	People whose attention or interest is not focused on their surroundings and where the view is incidental to their enjoyment.

Magnitude of effect

Landscape

3.2.7.16 Landscape magnitude of effect refers to the extent to which the Kent Onshore Scheme will alter the existing characteristics of the landscape. It is an expression of the size or scale of change to the landscape, the geographical extent of the area influenced and its duration and reversibility. The variables involved are described below:

- the extent of existing landscape elements that will be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape;
- the extent to which aesthetic or perceptual aspects of the landscape are altered either by removal of existing components of the landscape or by addition of new ones;
- whether the change alters the key characteristics of the landscape, which are integral to its distinctive character;
- the geographic area over which the change will be felt (within the application boundary itself, the immediate setting, at the scale of the landscape character area, on a larger scale influencing several landscape character areas); and

- the duration of the change short term, medium term or long term (which is defined in **Part 1, Chapter 5, EIA Approach and Method**), and its reversibility (whether it is permanent, temporary or partially reversible).

3.2.7.17 An overall assessment of the magnitude of landscape effect resulting from the Kent Onshore Scheme on the landscape receptor is made combining the above judgements using evidence and professional judgement. The levels of magnitude of change are described as being very large, large, medium, small, negligible and are defined below in Table 3.2.6.

Table 3.2.6: Magnitude of effect – landscape receptors

Magnitude	Criteria
Very Large	Substantial alteration to the landscape receptor or may impact an extensive area or unique characteristics at a local level. May be longer term, permanent or reversible.
Large	Large alteration to the landscape receptor or may impact an extensive area or unique characteristics at a local level. May be longer term, permanent or reversible.
Medium	Partial alteration to the landscape receptor or may impact a wide area or characteristics at a local level. May be medium term, permanent or reversible.
Small	Slight alteration to the landscape receptor or may impact a restricted area and few key characteristics. May be short to medium term, permanent or reversible.
Negligible	Very slight alteration to the landscape receptor or may impact a limited area or no key characteristics. May be short term, permanent or reversible.
None	No change to the landscape receptor.

Visual

3.2.7.18 Visual magnitude of effect relates to the extent to which the Kent Onshore Scheme will alter the existing view and is an expression of the size or scale of change in the view, the geographical extent of the area influenced and its duration and reversibility. The variables involved are described below:

- the scale of the change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the Kent Onshore Scheme;
- the degree of contrast or integration of any new features or changes in the form, scale, composition and focal points of the view;
- the nature of the view of the Kent Onshore Scheme in relation to the amount of time over which it will be experienced and whether views will be full, partial or glimpsed;

- the angle of view in relation to the main activity of the receptor, distance of the viewpoint from the Kent Onshore Scheme and the extent of the area over which the changes will be visible; and
- the duration of the change short term, medium term or long term (which is defined in **Part 1, Chapter 5, EIA Approach and Method**) and its reversibility (whether it is permanent, temporary or partially reversible).

3.2.7.19 An overall assessment of the magnitude of visual effect resulting from the Kent Onshore Scheme on the visual receptor is made combining the above judgements using evidence and professional judgement. The levels of magnitude of change are described as being very large, large, medium, small, negligible and none are defined below.

Table 3.2.7:Magnitude of effect – visual receptors

Magnitude	Criteria
Very Large	A substantial change to the composition of the view or change that may be viewed in the foreground or directly. May be longer term, permanent or reversible.
Large	A pronounced change to the composition of the view or change that may be viewed in the foreground or directly. May be longer term, permanent or reversible.
Medium	A noticeable change to the composition of the view or change that may be viewed in the middle ground or indirectly. May be medium term, permanent or reversible.
Small	An unobtrusive change in the composition of the view or change that may be viewed in the background or obliquely. May be short to medium term, permanent or reversible.
Negligible	A barely perceptible change in the composition of the view or change that may be viewed in the background and/or very obliquely. May be short term, permanent or reversible.
None	No change to the view.

Significance of Effects

3.2.7.20 Determination of the significance of landscape and visual effects will be undertaken by employing professional judgement and experience to combine and analyse the magnitude of change against the identified sensitivity of the receptor. The assessments will take account of direct and indirect change on existing landscape elements, features, key characteristics and evaluates the extent to which these will be lost or modified, in the context of their importance in determining the existing baseline character. The visual assessment will take into account potential changes to the visual composition, including the extent to which new features will distract or screen existing elements in the view or disrupt the scale, structure or focus of the existing view.

3.2.7.21 The levels of landscape and visual effects will be described with reference to the criteria outlined below in Table 3.2.8. For the purposes of this assessment, effects of moderate or above are generally considered to be significant.

Table 3.2.8: Significance of effect

Significance of effect	Landscape	Visual
Major Beneficial	Alterations that result in a considerable improvement of the existing landscape resource. Valued characteristic features would be restored or reintroduced.	Alterations that typically result in a pronounced improvement in the existing view.
Moderate Beneficial	Alterations that result in a partial improvement of the existing landscape resource. Valued characteristic features would be largely restored or reintroduced.	Alterations that typically result in a noticeable improvement in the existing view.
Minor Beneficial	Alterations that result in a slight improvement of the existing landscape resource. Characteristic features would be partially restored.	Alterations that typically result in a limited improvement in the existing view.
Negligible Beneficial	Alterations that result in a very slight improvement to the existing landscape resource, not uncharacteristic within the receiving landscape.	Alterations that typically result in a barely perceptible improvement in the existing view.
Neutral	No alteration to any of the components that contribute to the existing landscape resource.	No change to the existing view.
Negligible Adverse	Alterations that result in a very slight deterioration to the existing landscape resource, not uncharacteristic within the receiving landscape.	Alterations that typically result in a barely perceptible deterioration in the existing view.
Minor Adverse	Alterations that result in a slight deterioration of the existing landscape resource. Characteristic features would be partially lost.	Alterations that typically result in a limited deterioration in the existing view.
Moderate Adverse	Alterations that result in a partial deterioration of the existing landscape resource. Valued characteristic features would be largely lost.	Alterations that typically result in a noticeable deterioration in the existing view.

Major Adverse	Alterations that result in a considerable deterioration of the existing landscape resource. Valued characteristic features would be wholly lost.	Alterations that typically result in a pronounced deterioration in the existing view.

3.2.8 Conclusion

3.2.8.1 The LVIA will be undertaken in accordance with GLVIA3 and current good practice guidance. The landscape assessment will consider potential effects on recognised National, County and Local landscape character areas and relevant designations. The visual assessment will be based on a series of representative viewpoint locations which will be informed by detailed baseline study and defined in consultation with statutory consultees.

3.2.8.2 The LVIA will also consider the potential for cumulative effects resulting from the addition of the Kent Onshore Scheme in relation to other similar developments. Mitigation measures will also be developed and informed by the detailed baseline and assessment stages and will seek to minimise potential adverse effects. This will focus on the reinstatement of the cable corridors and integrating and partially screening views of the converter station.

3.2.8.3 As there is the potential for long-term landscape and visual effects associated with the converter station the LVIA will be included within the main ES. However, given the temporary and reversible effects associated with the HVAC and HVDC cable corridors, it is proposed that operational phase effects associated with the HVAC and HVDC cable corridors will be scoped out of the LVIA. If the HVAC corridor requires an above ground solution, this will also be scoped into the operational phase assessment of the LVIA.

Proposed Scope of the Assessment

3.2.8.4 A summary of the proposed scope of the assessment is provided in Table 3.2.9.

Table 3.2.9: Proposed scope of the assessment

Receptors	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
TDLCA Local Character Areas A1, B1, E1, F1, G1 and DDLCA LCA A2, B1, C1, D1 and H1.	Temporary alteration to landscape character from construction activity and operations.	Construction Maintenance Decommissioning	**Scoped in**
TDLCA Local Character Areas	Alteration to landscape character from the	Operation	**Scoped in**

B1, E1, F1, G1 and DDLCA LCA A2 and B1.	operational converter station and HVAC if above ground connection.		
Settlement, isolated dwellings, recreational facilities, recreational routes and access land, employees, occupiers of vehicles and railway line passengers.	Alteration to visual amenity from the introduction of construction activity and operations.	Construction Maintenance Decommissioning	**Scoped in**
	Alteration to visual amenity from the operational converter station and HVAC if above ground connection.	Operation	**Scoped in**
TDLCA Local Character Area A1 and DDLCA LCAs D1 and H1.	Alteration to landscape character and perceptual qualities as a result of the operational converter station.	Operation	Scoped out
TDLCA Local Character Area C1 and C2.	Alteration to landscape character and perceptual qualities as a result of the construction and operation of the converter station, HVDC and HVAC.	Construction, Operation, Maintenance and Decommissioning	Scoped out

3.3 Ecology and Biodiversity

3.3.1 Introduction

3.3.1.1 This chapter presents how the Ecology and Biodiversity assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**) upon terrestrial ecology and biodiversity. T This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

3.3.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.3.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.3.1.4 This chapter is supported by the following figure:

- **Figure 3.3.1 Statutory Designated Ecological Features**.

3.3.2 Regulatory and Planning Context

3.3.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on protected nature conservation sites, significant habitats, protected and/or, notable species as well as invasive non-native species associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

Legislation

3.3.2.2 The below legislation will be considered when identifying potential constraints to the Kent Onshore Scheme, design options and mitigation. Compliance with the above legislation may require obtaining relevant protected species licences prior to the implementation of the Project.

- The Conservation of Habitats and Species Regulations 2017[27] (as amended);
- The Natural Environment and Rural Communities (NERC) Act 2006[28];
- The Countryside and Rights of Way (CRoW) Act 2000[29];
- Wildlife and Countryside Act 1981 (as amended)[30]
- Environment Act 2021[31];
- Animal Welfare Act 2006[32];
- Protection of Badgers Act 1992[33];
- The Wild Mammals (Protection) Act 1996[34];
- The Hedgerow Regulations 1997[35]; and
- Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended)[36].

Planning Policy

National planning policy

3.3.2.3 The assessment will take account of the relevant National Policy Statements (NPSs) for energy: the Overarching National Policy Statement for Energy (EN-1) and the National Policy Statement for Electricity Networks (EN-5)[37]. These NPSs are in the process of being updated and therefore relevant sections of the draft NPSs are also included below, where relevant.

3.3.2.4 Paragraph 4.3.1 of the Overarching National Policy Statement for Energy (EN-1) (2011)[38], states what the Secretary of State must, under the Conservation of Habitats and Species Regulations 2017, consider when granting a development consent order with regard to effects on internationally important wildlife sites and the need for Habitats Regulations Assessment. It also clarifies that information to inform the assessment

[27] Conservation of Habitats & Species Regulations 2017 [online]. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents/made [Accessed 13/07/2022].

[28] Natural Environment and Rural Communities Act 2006 [online]. Available at: https://www.legislation.gov.uk/ukpga/2006/16/contents [Accessed 13/07/2022].

[29] Countryside and Rights of Way Act 2000 [online]. Available at: https://www.legislation.gov.uk/ukpga/2000/37/contents [Accessed 13/07/2022].

[30] Wildlife and Countryside Act 1981 (as amended) 1981 [online]. Available at: https://www.legislation.gov.uk/ukpga/1981/69/contents [Accessed 13/07/2022].

[31] Environment Act 2021 [online]. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted [Accessed 13/07/2022].

[32] Animal Welfare Act 2006 [online] Available at: https://www.legislation.gov.uk/ukpga/2006/45/contents [Accessed 13/07/2022].

[33] Protection of Badgers Act 1992 [online]. Available at: https://www.legislation.gov.uk/ukpga/1992/51/contents [Accessed 13/07/2022].

[34] Wild Mammals (Protection) Act 1996 [online]. Available at: https://www.legislation.gov.uk/ukpga/1996/3/contents [Accessed 13/07/2022].

[35] The Hedgerow Regulations 1997 [online]. Available at: https://www.legislation.gov.uk/uksi/1997/1160/contents/made [Accessed 13/07/2022].

[36] The Invasive Alien Species (Enforcement and Permitting) Order 2019 [online]. Available at: https://www.legislation.gov.uk/uksi/2019/527/2021-05-04 [Accessed 13/07/2022].

[37] Department of Energy & Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed 13/07/2022].

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

must be provided by the applicant. Part 5 section 5.3 of EN-1 sets out guidance on generic impacts relating to biodiversity for the applicant's assessment and decision-making on the application. The Draft Overarching National Policy Statement for Energy (EN-1) (2021)[39] includes guidance for biodiversity net gains in paragraphs 4.5.1 to 4.5.3 and generic impacts on biodiversity in Part 5.4. This guidance has also been considered within this chapter. Section 2.7 of EN-5 provides general information on biodiversity considerations for electricity networks, including that the applicant will need to consider whether the proposed line will cause such problems at any point along its length and take this into consideration in the preparation of the Environmental Impact Assessment (EIA) and ES. Particular consideration should be given to feeding and hunting grounds, migration corridors and breeding grounds.

National planning policy framework

3.3.2.5 The National Planning Policy Framework[40] (NPPF) details the Government's planning policies for England and how these are expected to be applied. It states the commitment of the UK Government to minimising impacts on and providing net gains in biodiversity, contributing to the Government's commitment to halt the overall decline in biodiversity.

3.3.2.6 The NPPF specifies the obligations that Local Authorities and the UK Government have regarding statutory designated sites and protected species under UK and international legislation and how these are to be delivered in the planning system. Protected or notable habitats and species can be a material consideration in planning decisions and may therefore make some sites unsuitable for particular types of development, or if development is permitted, mitigation measures may be required to avoid or minimise impacts on certain habitats and species. Where impact is unavoidable, NPPF outlines that compensation may be required.

Biodiversity Net Gain BNG

3.3.2.7 It is Government policy that planning decisions should minimise impacts on and provide net gain for biodiversity (National Planning Policy Framework 2021)[41]. In addition, the Environment Act 2021 includes provisions to make BNG a mandatory requirement within the planning system in England requiring all relevant developments to achieve a minimum 10% net gain in biodiversity units relative to the Site baseline biodiversity value, it is anticipated the secondary legislation mandating the need for 10% net gain will be in place by November 2023.

3.3.2.8 National Grid has committed to 10% Net Gain in Environmental value including as a minimum 10% BNG across all its construction projects. This is described in **Part 1, Chapter 1, Introduction**.

[39] Department for Business, Energy & Industrial Strategy (2021). Draft Overarching National Policy Statement for Energy (EN-1). [online] Available at: Draft Overarching National Policy Statement for Energy (publishing.service.gov.uk) [Accessed 13/07/2022].

[40] Department for Levelling Up, Housing & Communities (2021). National Planning Policy Framework. London. [online] Available at: National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk) [Accessed 13/07/2022].

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

Biodiversity 2020: A strategy for England's wildlife and ecosystem services

3.3.2.9 Biodiversity 2020[43] was published by DEFRA in 2011. The strategy builds on the Natural Environment White Paper: "The Natural Choice: securing the value of nature" (2011)[44], with an overall mission to "*halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people".*

3.3.2.10 The strategy includes consideration of planning and development including commitments to (i) retain protection and improvement of the natural environment as core objectives for local planning and development management, (ii) support biodiversity offsetting pilots through a two-year test phase, until spring 2014, and the government's expectation that the planning system contributes to achieving no net loss of biodiversity.

Regional planning policy

3.3.2.11 The planning policies that relate to the study area are shown below. The policies listed below are taken from the following documents;

- Kent Environment Strategy (2016)[45];
  - 4 – Monitoring and Evaluation

    4.1. Establish and monitor key performance indicators.

    4.2 Evaluate progress and identify future risks, opportunities and actions aligned to Kent Environmental Strategy priorities to inform current and future action.
  - 5 – Conserve and enhance the quality and supply of the county of Kent's natural and historical resources and assets.

    5.1 - Establish a coherent, landscape-led approach to decision making through identification of the natural and historic features that underpin landscape character and a strategic approach to assessment of character and trends in landscape condition.

    5.2 - Improve and increase functional habitat networks on land and in the sea, identifying opportunities and protecting and enhancing our natural and historic environment and landscape character through planning and decision making.

    5.3 - Identify and take forward opportunities for sustainable water management to improve quality and quantity of our water environment and resources
  - 8 - Influence future sustainable growth for the county of Kent.

[43] Department for Environment, Food & Rural Affairs (2011). Biodiversity 2020: A strategy for England's wildlife and ecosystem services. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf

[44] Department for Environment, Food & Rural Affairs (2011). The Natural Choice: securing the value of nature. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/228842/8082.pdf [Accessed 13/07/2022].

[45] Kent County Council (2016). Kent Environment Strategy. A Strategy for Environment, Health and Economy. [online] Available at: https://www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/environmental-policies/kent-environment-strategy [Accessed 13/07/2022].

8.2 - Mitigate the impacts and address the ambitions identified through the Growth and Infrastructure Framework and local plans, such as sustainable and alternative transport options, green infrastructure, energy, water and flooding.

- 9 – Improve the county of Kent's environmental, social and economic resilience to environmental change.

  9.3 - Improve water management and build flood resilience, maximising opportunities to deliver multiple benefits for our environment and residents into the future

- Kent Nature Partnership Biodiversity Strategy 2020 to 2045 (2020)[46]. Objectives for terrestrial ecosystems, habitats and species for 2045.
  - 20.84% high value semi-natural habitat (74,750 ha) well managed for nature (from the 2015 baseline of 14.6% and 54,640 ha).
  - An ecological network of semi-natural habitat (high and low value) covering 30% of Kent (112,000 ha) (from the 2015 baseline of 27% and 100,872 ha).
  - 75% Sites of Special Scientific Interest restored to favourable condition, securing their wildlife value for the long term (from the 2019 baseline of 68%).
  - Over half of Local Wildlife Sites in good management, securing their local wildlife value for the long term (from the 2019 baseline of 43%).
  - More, bigger and less fragmented areas of wildlife-rich habitat outside the protected sites network for wildlife, with an increase in the overall extent of all priority habitats to ensure greater connectivity and resilience to climate change.
  - New development to better provide for a greener urban environment, through increased urban tree planting, the inclusion of integral wildlife niches, and green building and landscape design.
  - Protect and restore existing trees, hedgerow and woodland, whilst increasing the county's tree cover with the right trees in the right places, which supports the recovery of wildlife, delivers natural climate solutions and enriches people's lives.
  - Kent-specific threatened and iconic species of terrestrial animals and plants are recovering, including those that support ecosystem services.

3.3.2.12 Additionally, the objectives of Kent's Plan Bee: Kent County Council's Pollinator Action Plan (2021)[47] are provided as planning guidance.

- Objective 1 - For Kent County Council to manage the land it owns or controls or can influence in a way which can benefit pollinators' forage and habitat.
  - putting in place, where it can, revised grass-cutting and pollinator-friendly planting regimes. It is reviewing how it reinstates land and manages it generally on road verges, in maintained schools and parks and all other parts of its estate.

[46] Kent Nature Partnership (2020). Kent Nature Partnership Biodiversity Strategy 2020 to 2045. [online] Available at: https://democracy.kent.gov.uk/documents/s96710/20-00025%20-%20Kent%20Biodiversity%20Strategy%20March%202020.pdf [Accessed 13/07/2022].

[47] Kent County Council (2021). Kent's Plan Bee. Kent County Council's Pollinator Action Plan. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0018/103905/Kents-Plan-Bee.pdf [Accessed 13/07/2022].

- reviewing the use of pesticides in its estate and seeking to end the use of the controversial neonicotinoid sprays.
- finding ways to create corridors for wildlife throughout the landscape within and adjacent to its estate.
- identifying, promoting and arranging where possible, appropriate training for staff involved in land management (including parks, highways, estate management and grounds maintenance) to better their understanding of the needs of pollinators and how they can help them in the course of their work (where they are not already doing that).
- looking for opportunities to 'green' its buildings and assets with pollinator friendly planting and such things as bee hotels (space people can make for solitary bees to nest).

- Objective 2 - For Kent County Council to use the planning system to protect pollinators and improve the habitats on which they rely.
  - looking to support the connection of landscapes to each other.
  - looking to develop approaches within KCC's planning services that will help to protect pollinator habitats.
  - using the Kent Design Guide, Kent Planning Officers Group and other appropriate
  - means to work with Kent's district planning authorities to encourage developments that improve pollinator habitats.
  - working with community groups, district and borough councils and through the Kent Association of Local Councils to map pollinator features at a community level in order to help people to take action.
  - looking to understand and better articulate the economic value of pollinators to Kent.
  - looking at how it might develop a pollinator impact assessment tool to inform planning decisions.

Local planning policy

3.3.2.13 The study area runs through both Thanet Borough Council at the north end of the Kent Onshore Scheme, and Dover Borough Council, in the south of the Kent Onshore Scheme, and as such the policies of both bodies regarding biodiversity and the protection of natural resources apply to the entire Site.

3.3.2.14 The planning policies that relate to the Kent Onshore Scheme are shown below for both policies set in place by Thanet Borough Council and by Dover Borough Council. The policies are taken from the following documents;

- Thanet Local Plan, Adopted 2020[48] and other policy documents;
  - Policy SP25 - Safeguarding the Identity of Thanet's Settlements - Within the Green Wedges new development (including changes of use) will only be

[48] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

permitted if it can be demonstrated that the development is 1) not detrimental or contrary to the following aims to:

a) Safeguard areas of open countryside in order to maintain physical separation and avoid coalescence of the towns, retaining their individual character and distinctiveness (for example by the expansion of isolated groups of houses or other development).

b) Conserve, protect and enhance the essentially rural and unspoilt character, and distinctive landscape qualities of the countryside that separates the urban areas, for the enjoyment and amenity of those living in, and visiting, Thanet.

c) Increase access and usability without compromising the integrity of the Green Wedges.

Or is

2) essential to be located within the Green Wedges. Open sports and recreational uses will be permitted subject to there being no overriding conflict with other policies, the wider objectives of this plan and the stated aims of this policy. If granted, any associated built development must be kept to a minimum, essential, small in scale and be necessary to support the open use. It should also be well related to adjacent urban edge and sensitively located to retain openness of the area. Proposals for policy compliant development that include measures that will create or enhance wildlife habitats and biodiversity within the Green Wedges or will improve the quality of the Green Wedges by providing high quality public amenity space will be supported.

Policy SP27 – Green Infrastructure network and enhance it by integrating new multifunctional Green Infrastructure provision in the design of developments. Opportunities to improve Thanet's Green Infrastructure network by protecting and enhancing existing Green Infrastructure assets and the connections between and providing new Green Infrastructure assets should be identified early in the design process for major developments, together with consideration of how they will be managed and maintained in the long term.

Development proposals will, where appropriate, be required to make a positive contribution to the conservation, enhancement and management of biodiversity and geodiversity assets resulting in a net gain for biodiversity assets through the following measures:

1) the restoration / enhancement of existing habitats,

2) the creation of wildlife habitats where appropriate, by including opportunities for increasing biodiversity in the design of new development

3) the creation of linkages between sites to create local and regional ecological networks,

4) the enhancement of significant features of nature conservation value on development sites,

5) protect and enhance valued soils,

6) mitigating against the loss of farmland bird habitats.

Sites should be assessed for the potential presence of biodiversity assets and protected species. For sites where important biodiversity assets, including protected species and habitats including SPA functional land, or other notable species, may be affected, an ecological assessment will be required to assess the impact of the Kent Onshore Scheme on the relevant species or habitats. Planning permission will not be granted for development if it results in significant harm to biodiversity and geodiversity assets, which cannot be adequately mitigated or as a last resort compensated for, to the satisfaction of the appropriate authority.

- Policy SP30 – Biodiversity and Geodiversity Assets - The Council will support proposals that enhance, maintain and protect the identified Biodiversity Opportunities Areas, particularly where proposals increase the biodiversity value of the site.
- SP31 – Biodiversity Opportunity Areas - Development which would have a detrimental impact on locally designated wildlife sites will not be permitted unless suitable mitigation can be provided either on or off site within Thanet. Exceptionally, where a strategic need for a project is identified which outweighs the importance of the locally designated sites and cannot be located elsewhere, an equivalent area of habitat will be created elsewhere at a suitable location well related to other existing habitats.

Wherever possible and appropriate, new developments will provide a net environmental gain in accordance with Policy SP30, and include measures to enhance and improve wildlife connectivity to designated wildlife sites.

- Dover District Council Core Strategy (2010)[49];
- Draft Dover District Local Plan (Reg 18) Sustainability Appraisal (2020)[50];
  - Strategic Policy 16: Protecting the District's Hierarchy of Designated Environment Sites - Development that will have an adverse effect on the integrity of European designated protected sites, including the Dover to Kingsdown Cliffs SAC, the Lydden and Temple Ewell Downs SAC, the Thanet Coast and Sandwich Bay SPA, the Thanet Coast and Sandwich Bay Ramsar Site and the Sandwich Bay SAC, alone or in combination with other plans or projects, will not be permitted. Any proposal capable of affecting the designated interest features of these European Sites will be required to be subject to Habitats Regulations Assessment screening. Development within 500m of the Thanet Coast and Sandwich Bay SPA and Ramsar sites will only be permitted where a project level assessment has demonstrated in accordance with the Habitat Regulations, that any proposal will not adversely affect the integrity of these sites with specific regard to non-physical disturbance.

    Wintering bird surveys will be required for sites with high and moderate suitability to support Thanet Coast and Sandwich Bay SPA qualifying bird species in order to determine their individual and cumulative importance for these species and

[49] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf [Accessed 13/07/2022].

[50] Land Use Consultants Ltd. On behalf of Dover District Council (2020). Draft Dover District Local Plan (Reg 18) Sustainability Appraisal. [online] Available at: https://www.doverdistrictlocalplan.co.uk/uploads/pdfs/sustainability-appraisal-of-the-draft-local-plan-2020.pdf [Accessed 13/07/2022].

inform mitigation proposals. In the unlikely but possible event that cumulative numbers of SPA birds affected are likely to exceed thresholds of significance (greater than 1% of the associated European Site), appropriate mitigation in the form of habitat creation and management in perpetuity, either on-site or through provision of strategic sites for these species elsewhere within Dover District, will be required.

Development that will have an adverse effect on nationally designated sites, including the Heritage Coasts, Marine Conservation Zones, Sites of Special Scientific Interest and National Nature Reserves of the District, will not be permitted unless the benefits, in terms of other objectives including overriding public interest, clearly outweigh the impacts on the special features of the site and broader nature conservation interests and there is no alternative acceptable solution.

Development should avoid significant harm to locally identified biodiversity assets, including Local Wildlife Sites and Local Nature Reserves as well as priority and locally important habitats and protected species.

Where harm to designated sites cannot be avoided, appropriate mitigation will be required in line with a timetable to be agreed with the Local Authority. Normally any mitigation measures will be required to be delivered on-site, unless special circumstances dictate that off-site compensation is more appropriate. A financial contribution - in lieu of on-site mitigation - will only be considered in very exceptional circumstances and where it is demonstrated that the proposed mitigation is deliverable and effective.

Proposals that conserve or enhance biodiversity will be supported. All development should take opportunities to help connect and improve the wider ecological networks. The integrity of the existing network of green infrastructure, including the hierarchy of protected sites and Biodiversity Opportunity Areas should be protected and enhanced. Opportunities for the management, restoration and creation of habitats in line with the targets set out in the Kent Biodiversity Strategy for the Biodiversity Opportunity Areas (BOAs) in the district and the Dover District Green Infrastructure Strategy will be supported.

Development which would result in the loss of deterioration of irreplaceable habitats, including ancient woodland and ancient or veteran trees, will only be permitted in exceptional circumstances where the public benefit would clearly outweigh the loss or deterioration and where a suitable compensation strategy exists.

Proposals should safeguard features of nature conservation interest and should include measures to retain, conserve and enhance habitats, including internationally, nationally and locally designated sites, priority habitats, networks of ecological interest, ancient woodland, water features, hedgerows, beaches, wetland pastures and foreshores, as corridors and stepping-stones for wildlife.

- Strategic Policy 17: Green Infrastructure and Biodiversity - Development proposals must provide a minimum of 10% biodiversity net gain. Proposals for biodiversity net gain must:

  a) be provided as part of the development within the development site boundary. Only if it can be demonstrated that ecologically meaningful biodiversity net gain

cannot be achieved within the site boundary will the Council consider off-site alternatives or financial contributions towards a biodiversity off-setting project within the District;

b) be provided above the agreed pre-development ecological baseline of the site, for both area and linear habitats;

c) focus on local priorities and be informed by the Local Nature Recovery Strategy, Dover District Green Infrastructure Strategy and the Kent Biodiversity Strategy;

d) be secured for a minimum of 30 years,

e) be informed by a comprehensive understanding of habitats and species associated with the site, to include survey and assessment work carried out by suitably qualified professionals and relevant information from the Kent and Medway Biological Records Centre; and

f) follow the mitigation hierarchy and demonstrate by appropriate project design, evidence of adequate avoidance and mitigation measures. Where harm to wildlife habitats cannot be avoided or adequately mitigated, appropriate compensation measures will be sought. Biodiversity net gain must be in addition to any form of compensation.

Planning applications must be supported by a Biodiversity Net Gain Plan and supporting reports with information to demonstrate how 10% biodiversity net gain will be achieved, including:

g) Use of the most up-to-date DEFRA metric calculation, including breakdown of stages;

h) an assessment of the likely effects of the development and changes to the ecological baseline;

i) details of the ecological assessments to include both qualitative and quantitative evidence;

j) details of the design and location of the proposals; and

k) details of how the net gain proposals will be implemented, managed and maintained.

Biodiversity net gain proposals will be secured by condition and/or legal agreement. This will include a requirement to cover the Council's costs associated with the long-term monitoring of the biodiversity net gain proposals.

Applications for change of use in order to create biodiversity sites in appropriate locations, including biodiversity off-setting sites and sites within Local Nature Recovery Strategies will be supported.

- All proposals for new residential development of greater than 10 dwellings will be required to:

  a) Comply with the Strategic Access Management and Monitoring (SAMM) Plan for the Thanet Coast and Sandwich Bay SPA in order to mitigate against the in-combination effects of new development, through the pathway of recreational pressure, on the Thanet Coast and Sandwich Bay SPA; and

b) make a financial contribution to provide such monitoring measures as will be set out in the SAMM Plan.

In addition, all proposals for new residential development within a 9km Zone of Influence radius of the SPA will also be required to make a financial contribution towards mitigation measures.

Such contributions will be set by a tariff system to be set out in the Local Plan and reviewed every 10 years, or sooner if monitoring reveals issues which are not being addressed by the mitigation measures. Contributions will be based on a tariff system and collected by the S106 agreement mechanism.

Developments for other uses that would increase recreational activity causing disturbance to qualifying species, including but not limited to holiday accommodation, hotels and leisure uses, will be assessed on a case by case basis under the Habitat Regulations and may be required to make full or partial contributions towards the SAMM Plan if appropriate.

- Draft Dover District Local Plan (Reg 18) Habitats Regulations Assessment (2021)[51];
- Dover District Council Green Infrastructure Strategy (2014)[52]; and
- Thanet Coast SPA Mitigation Strategy (2012)[53].

3.3.3 Study Area

3.3.3.1 The study area for ecological surveys includes the land within the Kent Onshore Scheme Scoping Boundary and appropriate Zones of Influence (ZoI), are described in the following sections.

3.3.3.2 The boundaries and zones for the ecology and biodiversity study area reflect standard industry good practice and the distances used in this scoping exercise that statutory consultees would typically expect to be considered for identification of features external to the Kent Onshore Scheme that could be affected. This is informed by published guidance and professional judgement.

3.3.3.3 The desk study included a search for:

- international statutory nature conservation sites (e.g. Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites) within 10km of the Kent Scoping Boundary or SACs designated for bats within 30km of the Kent Scoping Boundary. Note that there are no SACs designated for bats within 30km of the Kent Onshore Scheme.
- national statutory nature conservation designations (e.g. Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNRs) and Local Nature Reserves

[51] Land Use Consultants Ltd. On behalf of Dover District Council (2020). Draft Dover District Local Plan (Reg 18) Habitats Regulations. [online] Available at: https://www.doverdistrictlocalplan.co.uk/uploads/pdfs/habitat-regulation-assessment-of-the-draft-local-plan-2020.pdf

[52] Dover District Council (2014). Green Infrastructure Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Dover-District-Council-Green-Infrastructure-Strategy.pdf [Accessed 13/07/2022].

[53] Dover District Council (2012). Thanet Coast SPA Mitigation Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Thanet-Coast-SPA-Mitigation-Strategy.pdf [Accessed 13/07/2022].

(LNRs)) within 5km, also referencing Natural England Impact Risk Zones for SSSIs on MAGIC; and

- non-statutory nature conservation designations (e.g. Local Wildlife Sites and Roadside Nature Reserves) within 2km.

3.3.3.4 Records of protected and notable species and notable habitats (e.g. Habitats of Principal Importance Section 41 (41) of the Natural Environment and Rural Communities (NERC) Act) have also been identified up to 1km (for most species) 6km for bats and 500m (for habitats and great crested newts) from the Kent Onshore Scheme Scoping Boundary. For the purposes of **Figure 3.3.1 Statutory Designated Ecological Features** only statutory designated sites up to 5km (for SSSIs) and 10km (for European sites) from the Kent Onshore Scheme Scoping Boundary have been shown but this will be updated and expanded for the Preliminary Environmental Information Report (PEIR).

3.3.4 Baseline Conditions

Data Sources

3.3.4.1 The known or predicted current and future ecological baseline conditions described in this section has been informed by the following data sources:

- Multi-Agency Geographic Information for the Countryside (MAGIC)[54] website;
- Aerial photography of the Site (2021 image capture);
- Kent and Medway Biological Records Centre[55]; and
- Local wildlife group and landowner data sets (e.g. Kent Wildlife Trust, Kent bat group, Kent Ornithological Society).

3.3.4.2 Previous survey reports from the local area and adjacent applications (e.g. Nemo Link, Richborough Connection Project[56], Manston Airport[57] and Thanet Extension Offshore Windfarm[58]

[54] Department for Environment, Food and Rural Affairs (2022). Multi-Agency Geographic Information for the Countryside (MAGIC). [online] Aailable at: https://magic.defra.gov.uk/

[55] Kent & Medway Biological Records Centre (2022). Kent's Local Environment Records Centre. [online] Available at: https://www.kmbrc.org.uk/

[56] Planning Inspectorate (2018). Richborough Connection Project. Reports for Application Submission. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/projects/south-east/richborough-connection-project/?ipcsection=docs&stage=app&filter1=Environmental+Statement [Accessed 13/07/2022].

[57] Planning Inspectorate (2022). Manston Airport. Reports for Application Submission. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/projects/south-east/manston-airport/?ipcsection=docs&stage=app&filter1=Environmental+Statement [Accessed 13/07/2022].

[58] Planning Inspectorate (2020). Thanet Extension Offshore Wind Farm. Reports for Application Submission. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/projects/south-east/thanet-extension-offshore-wind-farm/?ipcsection=docs&stage=app&filter1=Environmental+Statement [Accessed 13/07/2022].

Expected Survey Requirements

3.3.4.3 Completion of initial Phase 1 Habitat Survey (following the established JNCC methodology[59]) and Protected Species Scoping Surveys, will confirm the requirements for further surveys to support the ecology, biodiversity and nature conservation impact assessment, but these are likely to include the following:

- Botanical surveys including National Vegetation Classification Surveys following established Rodwell (2006)[60] methodology, including invasive non-native plant species, hedgerows and river habitats and corridors;
- Terrestrial invertebrate surveys;
- Aquatic invertebrate surveys if required (potential to be scoped out by use of HDD to avoid direct watercourse impacts);
- Reptile presence / absence surveys utilising a combination of morning and afternoon survey visits;
- Habitat Suitability Index (HSI) assessment[61] and Great Crested Newt eDNA surveys at waterbodies identified on and within 250m of the Kent Onshore Scheme (if District Level Licensing approach not or only partially pursued with Natural England);
- Great crested newt population size surveys (where applicable);
- Intertidal bird surveys (focused at proposed landfall at Pegwell Bay) following a modified Wetland Bird Surveys (WeBS) Core and Low Tide Count methodology[6263]
- Wintering bird surveys (WeBS methodology as above);
- Breeding bird surveys following a modified CBC methodology[64] (including targeted surveys for barn owl). Targeted species surveys will follow individual methods within Gilbert *et al.* 1998[65];
- Preliminary bat roost feature assessment of buildings and structures and tree climbing surveys for bats (where applicable)
- Bat activity surveys;

[59] Joint Nature Conservation Committee (2016). Handbook for Phase 1 habitat survey. A technique for environmental audit. [online] Available at: https://data.jncc.gov.uk/data/9578d07b-e018-4c66-9c1b-47110f14df2a/Handbook-Phase1-HabitatSurvey-Revised-2016.pdf [Accessed 13/07/2022].

[60] Rodwell, J.S. on behalf of the Joint Nature Conservation Committee (2006). National Vegetation Classification: Users' Handbook. [online] Available at: https://data.jncc.gov.uk/data/a407ebfc-2859-49cf-9710-1bde9c8e28c7/JNCC-NVC-UsersHandbook-2006.pdf [Accessed 13/07/2022].

[61] Amphibian & Reptile Groups of the United Kingdom (2010). ARG UK Advice Note 5: Great Crested New Habitat Suitability Index. [online] Available at: https://www.arguk.org/info-advice/advice-notes/9-great-crested-newt-habitat-suitability-index-arg-advice-note-5/file [Accessed 13/07/2022].

[62] British Trust for Ornithology (2017). Wetland Bird Survey: Survey Methods, Analysis & Interpretation. [online] Available at: https://www.bto.org/sites/default/files/webs_methods.pdf [Accessed 13/07/2022].

[63] British Trust for Ornithology (n.d.). Wetland Bird Survey - Low Tide Count Methods. [online] Available at: https://www.bto.org/our-science/projects/wetland-bird-survey/taking-part/low-tide-counts-methods [Accessed 13/07/2022].

[64] Marchant, J. (1983). Common Bird Census Instructions. British Trust for Ornithology. Tring. [online] Available at: https://www.bto.org/sites/default/files/u31/downloads/details/CBC-instructions-g100.pdf [Accessed 13/07/2022].

[65] Gilbert, G., Gibbons, D., and Evans, J. (1998). Bird Monitoring Methods: A Manual of Techniques for Key UK Species. RSPB; Pelagic Publishing. ISBN: 9781907807220

- Dusk emergence and dawn return surveys of buildings, structures and trees (if applicable). All bat surveys will follow BCT Good Practice Guidelines 3rd Edition[66] and Interim Guidance Note[67] (and any updated editions: 4th Edition expected late 2022);
- Badger surveys in all suitable habitats within the Kent Onshore Scheme and up to 30m outside of the Kent Scoping Boundary; as well as dedicated winter surveys and
- Riparian mammal surveys (otter (*Lutra lutra*), water vole (*Arvicola amphibius*)) and beaver (*Castor fiber*), where watercourses are crossed by the Kent Onshore Scheme or are adjacent to the Kent Onshore Scheme and 100-200m upstream and downstream.

3.3.4.4 A Habitats Regulations Assessment (HRA), commencing with a Stage 1: Screening and including a Stage 2: Appropriate Assessment (if required) will also be produced in line with Planning Inspectorate Advice Note 10[68].

Summary of Ecological Receptors

3.3.4.5 The known or predicted ecological baseline conditions are summarised in the following sections by each receptor in turn.

Statutory designated sites

3.3.4.6 Thirteen statutory sites designated for nature conservation have been identified within the stated desk study areas (10km for international and 5km for national sites).

3.3.4.7 These sites are summarised in Table 3.3.1 and the closest sites (those within 2km) are shown on **Figure 3.3.1 Statutory Designated Ecological Features**.

[66] Collins, J. (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London. [online] Available at: https://cdn.bats.org.uk/uploads/pdf/Resources/Bat_Survey_Guidelines_2016_NON_PRINTABLE.pdf?v=1542281971 [Accessed 13/07/2022].

[67] Bat Conservation Trust (2022). Interim Guidance Note: Use of night vision aids for bat emergence surveys and further comment on dawn surveys. [online] Available at: https://cdn.bats.org.uk/uploads/pdf/Interim-guidance-note-on-NVAs-May-2022-FINAL.pdf?v=1653399882 [Accessed 13/07/2022].

[68] National Infrastructure Planning (2018). The Planning Inspectorate: Advice Note 10: Habitats Regulations Assessment relevant to nationally significant infrastructure projects. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-ten/ [Accessed 13/07/2022].

Table 3.3.1: Statutorily designated sites within 10km (international) and 5km (national) of the Kent Onshore Scheme

Table 3.3.1: Statutorily designated sites within 10km (international) and 5km (national) of the Kent Onshore Scheme

Site name	Designation	Description	Distance (km) and direction from closest point of the Kent Onshore Scheme
Thanet Coast & Sandwich Bay (2,169 hectares)	Ramsar	Designated for a range of habitats including salt marsh, sand dunes and arable fields. A significant assemblage of bird species including ringed plover (*Chadradius hiaticula*), golden plover (*Pluvialis apricaria*) and greenshank (*Tringa nebularia*) is present on site, as is a reintroduced population of sand lizard (*Lacerta agilis*).	Kent Scoping Boundary overlaps with the Designated Site
Thanet Coast & Sandwich Bay (1881.6 hectares)	Special Protection Area	Site is designated for the succession of sand dunes as well as the chalk coastline and salt marsh on Site. The overwintering assemblage of birds including grey plover (*Pluvialis squatarola*), sandling (*Calidris alba*) and ringed plover (*Chadradius hiaticula*) is also significant	Kent Scoping Boundary overlaps with the Designated Site
Sandwich Bay (1136.7 hectares)	Special Area of Conservation	Site is designated by the succession of sand dunes from embryonic sand dunes to willow dune slacks.	Kent Scoping Boundary overlaps with the Designated Site
Thanet Coast (2815.99 hectares)	Special Area of Conservation	Site is designated for the offshore chalk reefs and submerged or partially submerged caverns that support *Pseuendoclonium submarinum* (a green alga) and a number of *Lyngbya* species (a blue-green alga), both of which are only found in Thanet.	Designated Site is located 2.1km northeast of the Kent Scoping Boundary

Stodmarsh SAC (566.03 hectares)	Special Area of Conservation	Designated for a of Desmoulin's whorl snail (*Vertigo moulinsiana*) lives beside ditches within pasture on the floodplain of the River Stour.	Designated Site is located 5.8km to the west, and upstream, of the Kent Scoping Boundary
Margate and Long Sands (64876.9ha)	Special Area of Conservation	Site is designated for sandbanks which are slightly covered by seawater all the time. Located north of the Thanet coast of Kent and extends in a north-easterly direction to the outer reaches of the Thames Estuary.	Designated Site is located 7.4km to the north of the Kent Scoping Boundary. A marine site and therefore not likely to be any effect from the Kent Onshore Scheme.
Outer Thames Estuary (392,400ha)	Special Protection Area	The Outer Thames Estuary SPA is classified for the protection of the largest aggregation of wintering red-throated diver (Gavia stellata) in the UK, an estimated population of 6,466 individuals, which is 38% of the wintering population of Great Britain. It also protects foraging areas for common tern (Sterna hirundo) and little tern (Sternula albifrons) during the breeding season.	Designated Site is located 6km to the north of the Kent Scoping Boundary. A marine site and therefore not likely to be any effect from the Kent Onshore Scheme.
Stodmarsh SPA (483.59 hectares)	Special Protection Area	Wetland of international importance comprising open waterbodies, reedbeds, grazing marsh and alder carr. It is designated for non-breeding great bittern , non-breeding hen harrier, breeding and passage gadwall and non-breeding northern shoveler as well as breeding and wintering bird assemblages.	Designated Site is located 6.3km to the west, and upstream, of the Kent Scoping Boundary
Stodmarsh Ramsar (483.59 hectares)	Ramsar	Stodmarsh has a range of wetland habitats including open water, reedbeds, grazing marsh and alder (*Alnus glutinosa*) carr. The site supports a number of uncommon wetland invertebrates and plants and provides breeding and wintering habitats for important assemblages of	Designated Site is located 6.3km to the west, and upstream, of the Kent Scoping Boundary

		wetland bird species, particularly waterfowl. The flora of the site includes the rare sharp leaved pondweed (*Potamogeton acutifolius*), which is considered critically endangered by the GB Red Book, as well as the vulnerable whorled water-milfoil (*Myriophyllum verticillatum*), rootless duckweed (*Wolffia arrhiza*) and *Carex divisa*.	
Sandwich Bay to Hacklinge Marshes (1790.1ha)	Site of Special Scientific Interest	Site is designated for the succession of sand dunes as well as the chalk coastline and salt marsh on Site. A range of invertebrate species that are geographically restricted to sand dunes and salt marsh. The overwintering assemblage of birds including grey plover (*Pluvialis squatarola*), sandling (*Calidris alba*) and ringed plover (*Chadradius hiaticula*) are also significant	Kent Scoping Boundary overlaps with the Designated Site
Thanet Coast (31.5ha)	Site of Special Scientific Interest	This site, extending almost uninterrupted from Swalecliffe to Ramsgate, comprises mainly unstable cliff and foreshore (including shingle, sand and mudflats), with smaller areas of saltmarsh, coastal lagoons, coastal gill woodland and cliff-top grassland. There are a number of biological, geological and geomorphological features of interest within the site	The Designated Site is located 3.4km northwest of the Kent Scoping Boundary
Sandwich & Pegwell Bay (629.3ha)	National Nature Reserve	Sandwich and Pegwell Bay National Nature Reserve with chalk cliffs, mud flats, saltmarsh and sand dune habitats that is internationally important for waders and wildfowl both on migration and over-winter.	Kent Scoping Boundary overlaps with the Designated Site
Princes Beachlands (6ha)	Local Nature Reserve	Site is designated for its mosaic of habitats that have international importance for migrating birds.	Kent Scoping Boundary Site is located 1.2km to the

	south of the Designated Site

Non-statutory designated sites

3.3.4.8 One non-statutory site designated for nature conservation has been identified within 2km of the Kent Onshore Scheme Scoping Boundary: Ash Level and South Richborough Pasture. This site is a Local Wildlife Site (LWS) (Table 3.3.2) designated for biodiversity value at a local level and is known to have supporting value to a wide variety of protected and ecologically important species and, or habitats. A desk-study is currently ongoing with Kent and Medway Biological Records Centre and further non-statutory wildlife sites may be identified through that process.

Table 3.3.2: Non-statutory designated sites currently identified within 2km of the Kent Onshore Scheme

Site name	Designation	Description	Distance (km) and direction from closest point of the Site
Ash Level and South Richborough Pasture (1039.26ha)	Local Wildlife Site	The site comprises an extensive area of low-lying agricultural land with interconnecting dyke systems, mostly situated to the south of the River Stour. The area is crossed by old drove roads edged with well-established hedgerows of hawthorn and blackthorn and containing the occasional oak. Old counter walls with their unimproved grassland also form an important feature.	Designated Site is located within the Kent Scoping Boundary

Notable habitats

3.3.4.9 An extended Phase 1 Habitat Survey will be undertaken in order to establish the ecological value of the land within the Kent Scoping Boundary, and its potential to support notable and/or legally protected species.

3.3.4.10 The survey will be carried out in line with the Phase 1 Habitat Survey method as set out by the Joint Nature Conservation Committee (JNCC) (2016)[69]. This survey would record the types and distribution of habitats throughout the graduate swathe.

[69] Joint Nature Conservation Committee (2016). Handbook for Phase 1 habitat survey. A technique for environmental audit. [online] Available at: https://data.jncc.gov.uk/data/9578d07b-e018-4c66-9c1b-47110f14df2a/Handbook-Phase1-HabitatSurvey-Revised-2016.pdf [Accessed 13/07/2022].

Information gained from the extended Phase 1 Habitat Survey would be important in assessing the ecological value of the land within the Kent Scoping Boundary and identifying the need for any further survey work.

3.3.4.11 A biodiversity net gain (BNG) assessment will be undertaken using Biodiversity Metric 3.1 – Technical Supplement[70] in accordance with the accompanying guidance and best practice principles. The calculation will be based on baseline habitat distinctiveness scores determined by the Phase 1 habitat surveys. Habitat condition will be assigned retrospectively using the information in the Phase 1 habitat survey based on the condition assessment criteria outlined in the Biodiversity Metric 3.1 – Technical Supplement and applying professional judgement.

3.3.4.12 While extended Phase 1 Habitat Surveys have only recently commenced , review of online data sources, notably MAGIC[71] and survey reports from adjacent projects (the Thanet Windfarm Extension, Richborough Connection Project, Manston Airport or Nemo Link indicates that the following Habitats of Principal Importance (HoPI) are located either within or adjacent to (i.e. up to 500m from) the Kent Scoping Boundary as follows:

- Sand dunes / coastal saltmarsh / mudflats – present along the Pegwell Bay foreshore
- Coastal grazing marshes – distributed within and to the south of the graduated swathe, including both along the Pegwell Bay shore and also inland
- Reedbeds – situated along Pegwell Bay but also along the River Stour and likely smaller parcels present within the Kent Scoping Boundary
- Woodland - thirteen blocks of woodland listed as Priority Habitat by Section 41 of the Natural Environment within 500m of the Kent Scoping Boundary. Additionally, there are nine blocks of priority woodland habitat within the footprint of the Kent Scoping Boundary.
- Hedgerows / arable field margins – likely present throughout the Kent Scoping Boundary; the extent and distribution of such habitats meeting HoPI is to be determined.
- Standing water – ephemeral ponds with at least one pond present in Pegwell Bay Country Park and a network of ditches present throughout the Kent Scoping Boundary; and
- Running water – the River Stour is present within the western end of the Kent Scoping Boundary

3.3.4.13 There are no parcels of ancient woodland habitat within 500m of the Kent Scoping Boundary.

3.3.4.14 Note that while some of these habitats are located directly within designated sites (being a reason for designation), a number are distributed outside. The distribution of HoPI is to be confirmed by detailed survey (Habitat Condition Assessment and (where

[70] Natural England (2022). The Biodiversity Metric 3.1- Technical Supplement. [online] Available at: http://nepubprod.appspot.com/publication/6049804846366720 [Accessed 13/07/2022].

[71] Department for Environment, Food and Rural Affairs (2022). Multi-Agency Geographic Information for the Countryside (MAGIC). [online] Available at: https://magic.defra.gov.uk/

required) National Vegetation Classification and Hedgerow Surveys) which will confirm extent and condition and also inform future Biodiversity Net Gain assessment.

Other habitats

3.3.4.15 Review of MAGIC and previous survey reports from other recent or ongoing schemes (the Thanet Windfarm Extension , Richborough Connection Project, Manston Airport or Nemo Link) indicates that the Kent Onshore Scheme is located within a patchwork of arable, woodland, pasture and residential land uses. Away from the designated sites and notable habitats described above, the Kent Scoping Boundary is likely to include a mix of these habitat types.

Invertebrates

3.3.4.16 The designated sites and notable habitats present within the Kent Scoping Boundary have potential to support a significant assemblage of notable invertebrates. In particular, the Sandwich Bay and Hacklinge Marshes SSSI within the Kent Scoping Boundary is noted for its invertebrate interest.

3.3.4.17 The majority of these species, including Carthusian snail (*Monacha cartusiana*), restharrow moth (*Aplasta ononaria*) and grey bush cricket (*Platycleis albopunctata*) are only associated with warm, dry conditions (i.e. potentially sand dunes). The SSSI also contains the only population in the UK of the sandhill pigmy moth (*Stigmella zelleriella*) within the damp hollows of the SSSI.

3.3.4.18 The habitats most likely to support notable invertebrates include grazing marsh and semi-improved grasslands, as well as hedgerows, particularly for those moth larvae that rely on a limited number of larval food plants. The sandhill pigmy moth feeds only on creeping willow (*Salix repens*) which only grows on coastal heath or on well-developed dune slacks.

3.3.4.19 As part of the extended Phase 1 Habitat Survey, the distribution of habitats with potential to support a significant assemblage of notable invertebrates will be recorded and assessed to determine the need for specific invertebrate survey.

Invasive non-native species

3.3.4.20 Suitable habitat is present across the Kent Scoping Boundary for a range of non-native invasive plant species. Several watercourses are likely to be traversed during construction. The focus of invasive plant surveys to update the baseline will be on terrestrial and riparian species.

3.3.4.21 Waterbodies and watercourses are likely to be suitable for invasive fauna such as marsh frog (*Pelophylax ridibundus*) and American mink (*Neovison vison*) which may impact the distribution of native species.

Great crested newt

3.3.4.22 A review of MAGIC European Protected Species (EPS) mitigation licences and survey returns[72] has not returned any records of great crested newt presence within 500m of the Kent Scoping Boundary. No evidence of great crested newt presence was found during surveys to inform either the Thanet Windfarm Extension , Richborough Connection Project, Manston Airport or Nemo Link (Nemo Link, 2013). Distribution maps (Kent Reptile and Amphibian Group, undated) also indicate an absence of great crested newt from the study area.

3.3.4.23 Suitable aquatic habitat (e.g ponds and ditches) and terrestrial habitat (scrub, rough grassland, arable field margins etc) are present throughout the Kent Scoping Boundary. It is possible (though unlikely) that great crested newt have either colonised habitats in the intervening years or are present but unrecorded in the surrounding area.

Reptiles

3.3.4.24 Habitats present within the Kent Scoping Boundary are suitable for the four widespread species of reptile; slow worm (*Anguis fragilis*), common lizard (*Zootoca vivipara*), grass snake (*Natrix helvetica*) and adder (*Viper berus*). A reintroduction attempt of sand lizard (*Lacerta agilis*) within the Sandwich Bay area was carried out in 2004 (Vantenfall Windpower, 2018) and the population may still be present within the surrounding area.

3.3.4.25 The highest value habitats for reptiles (e.g. coastal dunes and heathland) will be avoided through routeing of the Kent Onshore Scheme. The remaining key habitats likely to support reptiles and present within the Kent Scoping Boundary include arable field margins, scrub and coastal grassing marsh. Sand lizards are restricted to sand dunes and heathland habitat and hence, there is unlikely to be suitable habitat within the graduated swathe for sand lizards.

Birds

3.3.4.26 There are a number of sites within and adjacent to the Kent Scoping Boundary designated for an extensive assemblage of notable wintering, breeding and passage bird species, especially those associated with intertidal habitats.

3.3.4.27 Designated sites within or adjacent to the Kent Scoping Boundary (primarily Thanet Coast and Sandwich Bay SPA, Thanet Coast and Sandwich Bay Ramsar, Sandwich Bay and Hacklinge Marshes SSSI) are designated for the following species or species assemblages:

- European golden plover (non-breeding);
- little tern (*Sterna albifrons*) (breeding);

[72] Specifically the layers 'GCN Pond Survey 2017-19 data', 'GCN Class Survey Licence Returns' and 'Granted European Protected Species Applications for GCN'

Natural England (2022). Great Crested Newt eDNA Habitat Suitability Index Pond Surveys for District Level Licensing 2017, 2018, 2019. [online] Available at: https://www.data.gov.uk/dataset/8643f1b9-b419-4ee8-8e9c-18200e0edc31/great-crested-newt-edna-habitat-suitability-index-pond-surveys-for-district-level-licensing-2017-2018-2019

Natural England (2022). Great Crested Newt Class Survey Licence Return. [online] Available at: https://www.data.gov.uk/dataset/5e3d32c2-200a-4ed2-982c-be0c5ea3bc0f/great-crested-newt-class-survey-licence-returns-england

Natural England (2022). Granted European Protected Species Applications. [online] Available at: https://www.data.gov.uk/dataset/6b517c86-5bc6-425a-b696-5a18c7d6e818/granted-european-protected-species-applications

- ruddy turnstone (*Arenaria interpres*) (non-breeding);
- grey plover (non-breeding);
- ringed plover (non-breeding);
- sanderling (non-breeding); and
- assemblages of breeding birds - lowland open waters and their margins.

3.3.4.28 While some of these species are likely to be primarily associated with the intertidal and saltmarsh habitats, it should be noted that some (especially golden plover) may utilise inland habitats such as arable fields for winter foraging. Conversely some of the species populations may no longer meet the criteria for the designated sites (e.g. little tern may not have bred at Pegwell Bay since 1996 (Vantenfall Windpower, 2018)).

3.3.4.29 The habitats within the Kent Scoping Boundary contain a wide variety of habitats to support an assemblage of other notable bird species, in particular those associated with coastal grazing marsh, scrub, woodland and arable habitats.

3.3.4.30 Along with a review of available bird record and reports relating to the area within 1km of the Kent Scoping Boundary (e.g. Wetland Bird Survey data, previous project reports, Kent bird reports, biological records and Kent Wildlife Trust data), an updated programme of bird surveys will be conducted to provide an updated baseline.

3.3.4.31 The baseline for birds will be sub-divided into the following assemblages (or an equivalents) for ease of reference, noting the baseline will overlap with that for designated sites;

- Non-breeding birds (intertidal);
- Non-breeding birds (terrestrial); and
- Breeding birds.

3.3.4.32 The project programme is such that two full non-breeding and breeding bird seasons of survey can be undertaken to inform the DCO.

Bats

3.3.4.33 A review of MAGIC EPS mitigation licences and survey returns has not returned any records of roosting bats, although roosts are likely to be present in the study area within any suitable buildings and trees.

3.3.4.34 The habitats across the Kent Scoping Boundary are suitable for an assemblage of foraging and commuting bats. Reports for previous projects within 1km of the Kent Scoping Boundary (Vattenfall Wind Power Ltd (2018) have recorded an assemblage of at least seven species including ‘rarer’ (Wray S, Wells D, Long E, & Mitchell-Jones T (2010)) species; Nathusius’s pipistrelle (*Pipistrellus nathusii*), serotine (*Eptescius serotinus*) and Leisler’s bat (*Nyctalus leisleri*).

Hazel dormouse

3.3.4.35 A review of MAGIC EPS mitigation licences and survey returns has not returned any records of hazel dormouse (*Muscardinus avellanarius*) presence. No evidence of hazel dormouse presence was found during surveys to inform both the Thanet Windfarm

Extension, or Nemo Link (Vantenfall Windpower, 2018, Nemo Link, 2013). Distribution data from the Kent mammal atlas (Young, et al 2015) also appears to show dormouse as absent.

3.3.4.36 Suitable habitat for hazel dormouse in the form of woodlands and a network of connected hedgerows is present within Kent Scoping Boundary (primarily at the western extent near the converter option area) and will be assessed as part of the extended Phase 1 Habitat Surveys.

Riparian mammals (otter, water vole and beaver)

3.3.4.37 Water voles (*Arvicola amphibius*) prefer habitat running alongside water, primarily rivers, brooks, drainage and irrigation ditches. Within the study area a number of ditches (including those within golf courses, from initial extended Phase 1 Habitat Survey results) had a suitable bank profile to support water voles, as well as a diverse riparian plant community that act as a foraging resource for this species. Water vole presence in the area (network of drainage and irrigation ditches) has been confirmed as part of previous schemes investigation (Vantenfall Windpower, 2018) and indicated through distribution data from the Kent mammal atlas (Young, et al 2015).

3.3.4.38 Suitable habitat for otter is less extensive within the Kent Scoping Boundary but includes the River Stour and suitable terrestrial habitats nearby (e.g woodlands).

3.3.4.39 It is anticipated that it will be necessary to investigate the status of both species through a review of existing records for these species and surveys of suitable watercourse and associated habitats. Otter have been seen in the River Stour (River Stour Drainage Board, 2015) though were not confirmed through within the Kent Scoping Boundary as part previous schemes (Vantenfall Windpower, 2018, Nemo Link, 2013).

3.3.4.40 As part of early consultation with the Environment Agency, survey for beaver (C*astor fiber*) has also been requested on the basis that they are present in parts of East Kent and in 2021 the government declared their intention to make beavers a native species that would classify from protection under the Wildlife & Countryside Act (1981) as amended.

Badger

3.3.4.41 Extensive suitable habitat for badger is present throughout the Kent Scoping Boundary, comprising woodland, arable fields and margins and scrub amongst others. Habitat is both suitable for foraging and for the excavation of setts, with sufficient habitat present to support a number of social groups.

3.3.4.42 The extended Phase 1 Habitat Surveys will provide initial information of the likely distribution of badger within the graduated swathe to be followed by detailed badger surveys to inform routeing.

Future baseline

3.3.4.43 Relative to the current baseline, the value of ecological features present are not expected to change significantly by the end of the construction period in 2030. Management of the habitats is unlikely to change over this period, and consequently no significant degradation or improvement of habitat condition is expected. Due to development pressure year on year within the wider landscape, protected and notable

species and habitats are likely to remain priorities for conservation within future baseline scenarios.

3.3.5 Embedded and Control & Management Measures

Embedded Measures

3.3.5.1 The Kent Onshore Scheme has been routed and sited to avoid designated sites and the most sensitive habitats as far as possible. Further refinement of the Kent Onshore Scheme will be informed by the results of ecology and biodiversity surveys to avoid or minimise impacts on ecological receptors.

Control and Management Measures

3.3.5.2 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the ecology and biodiversity assessment are:

- GG04 - The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans.
- GG21 - Construction lighting will be of the lowest luminosity necessary to safely perform each task. It will be designed, positioned and directed to reduce the intrusion into adjacent properties, protected species and habitats.
- GG17 - Wash down of vehicles and equipment will take place in designated areas within construction compounds. Wash water will be prevented from passing untreated into watercourses and groundwater. Appropriate measures will include use of sediment traps.
- GG18 - Wheel washing will be provided at each main compound access point on to the highway. An adequate supply of water will be made available at these locations at all times. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits.
- B02 - The assumption will be that vegetation with the potential to support breeding birds will not be removed during the breeding bird season (March to August inclusive). If any works become necessary during the breeding bird season, works will be supervised by an Environmental Clerk of Works. Appropriate protection measures will be put in place should active nests be found. These will include exclusion zones around active nests until chicks fledge or nests become inactive as determined by monitoring by the Environmental Clerk of Works.
- B03 - Where there will be a risk of animal entrapment, a means of escape will be installed into all excavations left open overnight.
- B04 - To control the spread of invasive weeds in accordance with the Wildlife and Countryside Act 1981, any plant or machinery that has been used in areas infested with invasive species (both terrestrial and aquatic), such as Japanese knotweed and Himalayan balsam, will be thoroughly cleaned. Water used to clean vehicles will be controlled to prevent the spread of the plant (through seeds,

rhizomes, fragments, etc.). The area will be cordoned off to prevent any inadvertent spreading.

- B05 - All habitats suitable for common reptiles will be subject to two-stage habitat manipulation that will take place between mid-March and mid-October. Firstly, vegetation will be cut to approximately 150mm (with the arisings removed) under the supervision of an Environmental Clerk of Works and the site left for a minimum of two days to allow reptiles to naturally disperse from the area. Secondly, vegetation will be cleared down to ground level under the supervision of an Environmental Clerk of Works. Vegetation will be cleared using appropriate equipment based on the type of vegetation to be removed, the area affected, and the risk of mortality or injuring reptiles. Construction works could commence immediately after completion of the second stage. Reptile hibernacula will be retained and protected during construction where practicable. If unavoidable, the removal of vegetation and groundworks at hibernacula will be timed to avoid the hibernation season (late October to early March). Replacement hibernacula and refugia will be provided.
- B06 - Alternative roost structures (bat boxes) will be provided (with landowner consent) on retained trees within the Order Limits or areas outside of the Order Limits agreed with landowners. Three boxes will be provided for each tree with moderate bat roost potential to be felled. Five boxes will be provided for each tree with high bat roost potential to be felled.
- B07 - Where the works require the crossing or removal of hedgerows, the gap will be reduced to a width required for safe working. Where hedge removals are necessary, ‘dead hedging’ should be used, where practicable, in the interim periods to retain connectivity during construction. Dead hedging can comprise vegetation arisings or artificial provision, such as willow screening panels or Heras fencing covered in camouflage netting. New hedgerow planting will contain native, woody species of local provenance.

Habitat Re-instatement, restoration and compensation

3.3.5.3 Where temporary habitat removal is required, this will be re-instated as soon as practically possible through use of techniques such as re-instatement of temporarily stored turfs and topsoil. Where habitat re-instatement is not possible, restoration or compensatory habitat will be explored.

3.3.5.4 Long term habitat re-instatement, restoration and compensation will be detailed within a Landscape and Ecology Management Plan or equivalent, which will accompany the BNG assessment.

3.3.6 Potential for Significant Effects

3.3.6.1 The ecology and biodiversity assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.3.6.2 The proposed scope of the ecology and biodiversity assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.3.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.3.6.4 The potential for the Kent Onshore Scheme to result in the likely significant effects identified in Table 3.3.3 and 3.3.4 below take into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- construction of converter station and underground cables/overhead line;
- construction of any temporary works areas; and
- construction traffic movements;

Sources of operational impacts

- presence of overhead line.

Sources of maintenance impacts

- potential pollution from maintenance crews;
- temporary works areas; and
- traffic movements during maintenance works.

Sources of decommissioning impacts

- removal of converter station and underground/overhead cables;
- temporary works areas; and
- decommissioning traffic movements.

Potential impacts

3.3.6.5 Table 3.3.3 below presents the potential impacts and whether they are proposed to be scoped in or scoped out.

3.3.6.6 The extent of unplanned maintenance and repairs is unknown; however, these works are likely to be similar to construction works albeit at a smaller scale. Therefore, for the purposes of this assessment maintenance works have been assessed as a worst case scenario within the construction impacts.

3.3.6.7 Table 3.3.3 identifies the potential impacts that could result from the sources identified above.

Table 3.3.3: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas Potential pollution from maintenance crews Traffic movements during maintenance works	Permanent habitat loss (terrestrial)	Yes - The converter station and associated infrastructure will result in an unavoidable permanent loss of habitat. Maintenance of the converter station, underground cables and overhead line may result in permanent or temporary loss of habitat but at a much smaller scale than construction.	**Scoped in**
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas Potential pollution from maintenance crews Traffic movements during maintenance works	Permanent habitat loss (intertidal)	No - permanent infrastructure is to be installed above ground level within the intertidal zone. No day to day maintenance of underground cables would be required in the intertidal zone.	Scoped out
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas	Temporary habitat loss/disturbance (terrestrial)	Yes - Cable installation within the Kent Scoping Boundary will result in a degree of temporary habitat loss/disturbance to terrestrial habitat. Maintenance of the converter station, underground cables	**Scoped in**

	Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works		and overhead line may result in temporary loss of habitat or disturbance but at a much smaller scale than construction.	
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works	Temporary habitat fragmentation / degradation (terrestrial)	Yes - Implementation of a construction working corridor may result in temporary fragmentation of habitat connectivity. Maintenance of the converter station, underground cables and overhead line may result in temporary fragmentation of habitat connectivity but at a much smaller scale than construction.	**Scoped in**
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works	Temporary habitat loss/ disturbance (intertidal)	Yes - Cable installation within the Kent Scoping Boundary will result in a degree of temporary habitat loss / disturbance to intertidal habitat No maintenance of underground cables will be required in the intertidal zone.	**Scoped in**
Construction and Maintenance	Construction of converter station and underground	Incidental mortality of protected or notable species	Yes - In the absence of mitigation, there is potential for construction and maintenance works to	**Scoped in**

	cables/overhead line Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works		result in the accidental killing or injuring of protected or notable species, although maintenance would be at a much smaller scale than construction.	
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works	Disturbance to protected or notable species (noise/ vibration, visual, lighting	Yes - In the absence of mitigation, there is potential for construction and maintenance works to result in the accidental disturbance of protected or notable species, although maintenance would be at a much smaller scale than construction.	**Scoped in**
Construction and Maintenance	Construction of converter station and underground cables/overhead line Construction of any temporary works areas Construction traffic movements Potential pollution from maintenance crews Traffic movements during maintenance works	Pollution impacts (dust deposition, air quality, water)	Yes - In the absence of mitigation, there is potential for construction works and maintenance to result in pollution impact pathways upon habitats and species, although maintenance would be at a much smaller scale than construction.	**Scoped in**

Operation	Temporary works areas Traffic movements during maintenance works	Temporary habitat loss/ disturbance (terrestrial)	No - It is unlikely significant additional habitat loss would occur through operation, though periodic maintenance to either the converter or underground cables could require localised habitat removal (see construction and maintenance).	Scoped out
Operation	Temporary works areas Traffic movements during maintenance works	Temporary habitat loss/ disturbance (intertidal)	No - It is unlikely that the installed cable would result in disturbance to intertidal habitats during operation aside from that during periodic maintenance (see construction and maintenance).	Scoped out
Operation	Temporary works areas Traffic movements during maintenance works	Disturbance to protected or notable species (noise/ vibration, visual, lighting	Yes - The operational converter station could be a source of indirect disturbance impacts on adjacent habitats and species. It is unlikely that the installed cable would result in disturbance aside from that during periodic maintenance (see construction and maintenance).	**Scoped in**
Operation	Presence of overhead lines	Collision risk	Yes - The Kent Onshore Scheme may include a potential section of new overhead power line. As such, there is a potential risk of increased birdstrike, particularly for larger birds less able to navigate powerlines.	**Scoped in**

Operation	Presence pollution from maintenance crews	Pollution impacts (dust deposition, air quality, water)	Yes - The operational converter station is unlikely to be a source of pollution pathway impacts on adjacent habitats and species but will be confirmed by detailed assessment. It is unlikely that the installed cable would result in a pollution pathway risk aside from during periodic maintenance if unmitigated (see construction and maintenance).	**Scoped in**
Decommissioning	Decommissioning of converter station and underground cables/overhead line Any temporary works areas Decommissioning traffic movements	Temporary habitat loss/ disturbance (intertidal)	Yes - Cable installation within the graduated swathe will result in a degree of temporary habitat loss / disturbance to intertidal habitat	**Scoped in**
Decommissioning	Decommissioning of converter station and underground cables/overhead line Any temporary works areas Decommissioning traffic movements	Incidental mortality of protected or notable species	Yes - In the absence of mitigation, there is potential for construction works to result in the accidental killing or injuring of protected or notable species.	**Scoped in**
Decommissioning	Decommissioning of converter station and underground cables/overhead line	Disturbance to protected or notable species (noise/ vibration, visual, lighting	Yes - In the absence of mitigation, there is potential for construction works to result in the accidental disturbance of	**Scoped in**

	Any temporary works areas Decommissioning traffic movements		protected or notable species.	
Decommissioning	Decommissioning of converter station and underground cables/overhead line Any temporary works areas Decommissioning traffic movements	Pollution impacts (dust deposition, air quality, water)	Yes - In the absence of mitigation, there is potential for construction works to result in pollution impact pathways upon habitats and species	**Scoped in**

Impact Pathways with Receptors (Step 2)

3.3.6.8 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the Kent Onshore Scheme study areas.

3.3.6.9 The impact pathways have been split out for the two components of the Kent Onshore Scheme, the cable installation route, which will primarily result in temporary impacts during installation, and the operational phase with the converter station as a permanent structure.

3.3.6.10 Table 3.3.4 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme**.

Table 3.3.4: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Permanent habitat loss (terrestrial)	Designated Sites Thanet Coast & Sandwich Bay SPA, Thanet Coast & Sandwich Bay Ramsar, Sandwich Bay SAC,	Yes - The cable installation route has the potential for direct habitat loss within designated sites, all of which cover the same area. It is expected that any cable installation will result in only a temporary impact. However, until route and working methods are confirmed this	**Scoped in for Construction, Maintenance and Decommissioning** Margate and Long Sands SAC and Outer Thames Estuary SPA can be scoped out of this assessment as they are marine sites and the Kent

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Sandwich & Pegwell Bay NNR, Sandwich Bay to Hacklinge Marshes SSSI	impact pathway will be included as a possibility. No permanent habitat loss of a designated site will occur as a result of the converter station. It is however possible arable habitats utilised by birds associated with nearby designated sites (e.g. golden plover) could be lost. Bird surveys will investigate use of these habitats by such species and inform any requirement for mitigation.	Onshore Scheme does not present an impact pathway. These sites will be considered in the Offshore Scheme. Stodmarsh SAC and Thanet Coast SAC can also be screened out in the absence of an impact pathway. Stodmarsh is upstream of the Kent Onshore Scheme and is designated for sedentary species. Additionally, Thanet coast is designated for reefs and sea caves which will be outside of the Kent Onshore Scheme boundary and therefore no impact pathway.
	Notable Habitats	Hedgerows, arable field margins and other notable habitats could be impacted by cable installation. However, a combination of routeing, HDD where possible and habitat re-instatement and replacement will be employed as mitigation and reduce these impacts to temporary. These impacts will therefore be assessed as temporary rather than permanent. The converter station would be located within an arable field so will not result in permanent loss of notable habitats.	Scoped out for all phases
Temporary habitat loss disturbance (terrestrial)	Designated Sites Notable Habitats Thanet Coast & Sandwich Bay SPA,	Yes - It is expected that impacts upon designated sites, all of which cover the same area and notable habitats outside of these designations will be	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Thanet Coast & Sandwich Bay Ramsar, Sandwich Bay SAC, Sandwich & Pegwell Bay NNR, Sandwich Bay to Hacklinge Marshes SSSI	temporary once additional mitigation has been employed (e.g. HDD, re-instatement) to be confirmed by design.	
	Invertebrates Great Crest Newt Reptiles Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger	Yes - Habitats with potential to support protected and notable species to be potentially impacted by cable installation or converter station construction will be subject to mitigation measures including route assessment, possible HDD, reinstatement and compensation	**Scoped in for Construction, Maintenance and Decommissioning**
Temporary habitat loss (connectivity)	Invertebrates Great Crest Newt Reptiles Non-breeding Birds (Terrestrial) Breeding Birds Bats Badger	Yes - Habitat connectivity may be impacted in the short term by cable installation but will be minimised through use of HDD where possible to avoid key habitats. Where unavoidable fragmentation or habitat degradation is unavoidable this will be a temporary effect until habitat re-instatement is established The converter station will likely be situated within arable fields, therefore minimising fragmentation and degradation of key habitats.	**Scoped in for Construction, Maintenance and Decommissioning**
Temporary habitat loss/ disturbance (intertidal)	Designated Sites Notable Habitats Thanet Coast & Sandwich Bay SPA, Thanet Coast & Sandwich Bay	Yes - Designated sites (shown to the left), all of which cover the same area may be impacted by the works. There is a commitment to undertake the cable installation within the intertidal zone and saltmarshes	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Ramsar, Sandwich Bay SAC, Sandwich & Pegwell Bay NNR, Sandwich Bay to Hacklinge Marshes SSSI	through HDD an assessment will need to take place to ensure that the HDD route includes all designated sites and notable habitats and therefore this is scoped in at present.	
	Non-breeding birds (Intertidal) Breeding Birds	Yes - While intertidal cable installation will be temporary works occurring in the most sensitive breeding and wintering periods, will require mitigation, due to an assemblage of notable bird species highly likely to be present within and adjacent to the intertidal works zone.	**Scoped in for Construction, Maintenance and Decommissioning**
Incidental mortality of protected or notable species	Invertebrates	No - It is unlikely that notable population assemblages will be significantly affected by direct mortality once mitigation measures are in place, as such populations will be linked to habitat.	Scoped out for all phases
	Great crested newt	Yes - While potential exists for great crested newt mortalities during construction, the overall favourable population status is to be maintained through either implementation of District Level or European Protected Species Mitigation licence.	**Scoped in for Construction, Maintenance and Decommissioning**
	Reptiles Breeding Birds Non-breeding Birds Bats Badger	Yes - Potential exists for unmitigated works to impact suitable protected and notable species habitat which may be relatively widespread along the cable corridor (i.e. arable field margins) and result in direct mortalities. If HDD or route selection cannot avoid suitable habitat, mitigation options include works Ecological Method	**Scoped in for all during Construction, Maintenance and Decommissioning** **Additionally scoped in for breeding and non-breeding birds during Operation due to potential bird strike on new overhead line.**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
		Statement or Natural England mitigation licence to avoid direct mortalities. Potential also exists for the section of possible overhead powerline to affect breeding and non-breeding birds through collision risk.	
	Dormouse	Yes - Hedgerows within the Kent Onshore Scheme Scoping Boundary may be suitable for dormouse and may be impacted by works if HDD not feasible and require mitigation (i.e. under Natural England mitigation licence). Until further assessment can confirm likely absence of dormouse, effect will be scoped in.	**Scoped in for Construction, Maintenance and Decommissioning**
	Riparian Mammals (otter and water vole)	Yes - It is expected that direct impacts on watercourses (and therefore water vole and otter) can be avoided through HDD techniques. Until routing and feasibility of HDD can be confirmed, there is a potential requirement for mitigation and these receptors remain scoped in.	**Scoped in for Construction, Maintenance and Decommissioning**
Disturbance to protected or notable species (noise/ vibration, visual, lighting	Great crested newt Non-breeding Birds (Intertidal) Non-breeding Birds (Terrestrial) Breeding Birds Bats Dormouse Badge Otter	Yes - Trees, hedgerows and other habitats within the Kent Onshore Scheme Scoping Boundary may be suitable for protected or notable species. If route selection cannot avoid disturbance impacts then mitigation (i.e. works under Ecological Method Statement or Natural England mitigation licence) could be required	**Scoped in for Construction, Maintenance and Decommissioning**
Pollution impacts (dust deposition, air quality, water)	Designates Sites Notable Habitats Thanet Coast & Sandwich Bay	Yes - Potential for pollution or other indirect impacts during construction on adjacent habitats and species will be mitigated though	**Scoped in for Construction, Maintenance and Decommissioning**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	SPA, Thanet Coast & Sandwich Bay Ramsar, Sandwich Bay SAC, Sandwich & Pegwell Bay NNR, Sandwich Bay to Hacklinge Marshes SSSI	implementation of a Construction and Ecology Management Plan.	

3.3.7 Proposed Assessment Methodology

Proposed Data Sources

3.3.7.1 The following sources of information will be utilized to form the basis of the assessment of the likely significant effects on Ecology:

- Baseline data collected by site surveys for the Kent Onshore Scheme
- Baseline data collected and publicly published with regards to other schemes in the area
- Biodiversity record data searches undertaken to inform baseline data.

Assessment Methodology

3.3.7.2 The approach used for the ecological impact assessment (EcIA) will be undertaken in accordance with best practice guidance as published in the CIEEM Guidelines[73] and summarised below:

- ecological features that are both present and might be affected by the Kent Onshore Scheme are identified (both those likely to be present at the time works begin and those predicted to be present under a future baseline) through a combination of targeted desk-based study and field survey work to determine the relevant baseline conditions.
- the importance of the identified ecological features evaluated, placing their relative biodiversity and nature conservation value into geographic context. This is then used to define the relevant ecological features that need to be considered further within the assessment process.
- the changes or perturbations predicted to result as a consequence of the Kent Onshore Scheme (i.e. the potential impacts), and which could potentially affect relevant ecological features are identified and their nature described. Established

[73] Chartered Institute of Ecology and Environmental Management (2019). Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine. Version 1.1. [online] Available at: https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-Sept-2019.pdf [Accessed 13/07/2022].

good-practice, legislative requirements or other incorporated design measures to minimise or avoid impacts are also described and are taken into account.

- the likely effects (beneficial or adverse) on relevant ecological features are then assessed, and where possible quantified.
- measures to avoid or reduce any predicted significant effects, if possible, are then developed in conjunction with other elements of the design (including mitigation for other environmental disciplines). If necessary, measures to compensate for effects on features of nature conservation importance are also included.
- any residual effects of the Kent Onshore Scheme are reported; and
- scope for ecological enhancement is considered.

3.3.7.3 The valuation of sites used established value systems (e.g. SSSIs are all of national importance) and reflected the geographical context of the valuation. The categories shown in Table 3.3.5 were applied to give geographic context.

Table 3.3.5: Examples of criteria used to evaluate important ecological features in a defined geographical context

Geographical level at which ecological feature is important	Example of criteria
International (Very high)	An internationally important site, e.g. Special Protection Area (SPA), Special Area of Conservation (SAC) or Ramsar; a regularly occurring population of an internationally important species (listed on Annex IV of the Habitats Directive)
National (High)	A nationally designated site, e.g. SSSI, or a site considered worthy of such designation; a large regularly occurring population of a nationally important species
Regional (Medium)	An ecological feature identified in the local BAP. A smaller area of local BAP habitat which are essential to maintain the viability of a larger whole; non-statutory designated sites; a regularly occurring, locally significant number of a nationally important species. An ecological feature identified as of priority within Section 41 of the NERC Act 2006.
District (Low)	An ecological feature that is scarce within the district or borough or which appreciably enriches the district or borough habitat resource.
Local (Very low)	A good example of a common or widespread ecological feature in the local area.
Negligible	No or very limited ecological value.

3.3.7.4 The ecological surveys will confirm or identify the distribution and valuation of species and habitats.

3.3.7.5 The 'zone of influence' for the Kent Onshore Scheme is the area over which ecological features may be affected by changes as a result of the Kent Onshore Scheme and associated activities. The zone of influence will be different for each ecological receptor identified, dependent on each receptor's sensitivity to change and will be determined using the maximum extents for study areas of each identified receptor. Where necessary, these will be appropriately revised as the Project evolves.

3.3.7.6 The ES will include consideration of options to avoid, reduce, mitigate, or, if necessary, compensate for any identified potential significant adverse effects to the point where any residual effects are not considered to be significant. In addition, opportunities will be sought for the enhancement of biodiversity at both on and off-site locations as associated with the Kent Onshore Scheme.

3.3.7.7 In line with Section 1.2. in the CIEEM guidelines, the terminology used within the EcIA will draw a clear distinction between the terms 'impact' and 'effect'. For the purposes of this EcIA these terms are defined as follows:

- Impact – actions resulting in changes to an ecological feature. For example, construction activities of a development removing a hedgerow; and
- Effect – outcome resulting from impact acting upon the conservation status or structure and function of an ecological feature. For example, the effects on a population of bats as a result of the loss of a bat roost.

3.3.7.8 When describing potential impacts (and where relevant the resultant effects) consideration will be given to the following characteristics likely to influence this (Sections 5.11-5.18 in the CIEEM guidelines):

- Positive / Negative – i.e. is the change likely to be in accordance with nature conservation objectives and policy:
- Positive – a change that improves the quality of the environment, or halts or slows an existing decline in quality e.g. increasing the extent of a habitat of conservation value; or
- Negative – a change that reduces the quality of the environment, e.g. destruction of habitat.
- Extent – the spatial or geographical area or distance over which the impact/effect occurs;
- Magnitude – the 'size', 'amount' or 'intensity' and 'volume' of an impact - this is described on a quantitative basis where possible;
- Duration – the time over which an impact is expected to last prior to recovery or replacement of the resource or feature. Consideration has been given to how this duration relates to relevant ecological characteristics such as a species' lifecycle. However, it is not always appropriate to report the duration of impacts in these terms. The duration of an effect may be longer than the duration of an activity or impact;
- Timing and frequency – i.e. consideration of the point at which the impact occurs in relation to critical life-stages or seasons; and

- Reversibility – i.e. is the impact temporary or permanent. A temporary impact is one from which recovery is possible or for which effective mitigation is both possible and enforceable. A permanent effect is one from which recovery is either not possible or cannot be achieved within a reasonable timescale (in the context of the feature being assessed).

3.3.7.9 Cumulative effects will be assessed and are those occurring from several sources (also known as inter-relationships) and/or the combined effects of other developments in the area.

3.3.7.10 For each ecological feature only those characteristics relevant to understanding the ecological effect and determining the significance will be described. The determination of the significance of effects has been made based on the predicted effect on the structure and function, or conservation status, of relevant ecological features, as follows:

- Not significant - no effect on structure and function, or conservation status; and
- Significant - structure and function, or conservation status is affected.

3.3.7.11 Sections 5.24 to 5.28 in the CIEEM guidance states that effects should be determined as being significant when:

"an effect either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local. A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project".

3.3.7.12 In broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).

3.3.7.13 Using this information and judgment, it is determined whether the effects will be significant or not on the integrity (of site / ecosystems) or conservation status (of habitats / species) of each ecological feature and the impact significance is determined at the appropriate geographical scale.

3.3.7.14 There are a number of approaches for determining the significance of effects on ecological features. Whilst the CIEEM guidelines recommend the avoidance of the use of the matrix approach for categorisation (major, moderate and minor), in order to provide consistency of terminology, the CIEEM assessment will be translated into the classification of effects scale, as outlined in Table 3.3.6.

Proposed Significant Criteria

3.3.7.15 The potential effects that are proposed to be scoped into or out of the assessment are summarised in Table 3.3.6.

Table 3.3.6: Relating CIEEM assessment terms to those used in other EIA chapters

Effect classification terminology used in other EIA chapters	Equivalent CIEEM assessment
Major beneficial (positive)	1) Permanent addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Moderate beneficial (positive)	1) Temporary addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact positively affects the integrity or key characteristics of the resource.
Minor beneficial (positive)	1) Permanent addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Negligible beneficial (positive)	1) Temporary addition of, improvement to, or restoration of a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Negligible adverse (negative)	1) Temporary/reversible damage to a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Minor adverse (negative)	1) Permanent/irreversible damage to a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact does not affect the integrity or key characteristics of the resource.
Moderate adverse (negative)	1) Temporary/reversible damage to a biodiversity resource; and 2) the extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.
Major adverse (negative)	1) Permanent/irreversible damage to a biodiversity resource; and

	2) the extent, magnitude, frequency, and/or timing of an impact negatively affects the integrity or key characteristics of the resource.

3.3.8 Conclusion

3.3.8.1 The receptors and impact pathways identified in this report will be taken into account in the ecological impact assessment to accompany the ES, which will be undertaken in line with the methodology in section 7.

Proposed Scope of the Assessment

3.3.8.2 A summary of the proposed scope of the assessment is provided in Table 3.3.7.

Table 3.3.7: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
Designated Sites Thanet Coast & Sandwich Bay SPA, Thanet Coast & Sandwich Bay Ramsar, Sandwich Bay SAC, Sandwich & Pegwell Bay NNR, Sandwich Bay to Hacklinge Marshes SSSI, all of which cover the same area	Potential for permanent habitat loss, fragmentation / modification (including functionally linked habitat)	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance (including functionally-linked habitat)	Construction, Maintenance, Decommissioning	**Scoped in**
	Indirect Pollution impacts (dust deposition, air quality, water)	Construction, Maintenance, Decommissioning	**Scoped in**
Notable and Other Habitats	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Indirect pollution impacts (dust	Construction, Maintenance,	**Scoped in**

	deposition, air quality, water)	Decommissioning	
Invertebrates	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	All phases	Scoped out
Great Crested Newts	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction, Maintenance, Decommissioning	**Scoped in**
Reptiles	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction, Maintenance, Decommissioning	**Scoped in**
Non-breeding Birds (Intertidal)	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped In**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction, Maintenance, Decommissioning	Scoped out

	Incidental mortality of protected or notable species during operation due to presence of new powerlines	Operation	**Scoped in**
	Disturbance to protected or notable species (noise/ vibration, visual, lighting)	Construction, Maintenance, Decommissioning	**Scoped in**
Non-breeding Birds (Terrestrial)	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction/ Maintenance/ Decommissioning	Scoped out
	Disturbance to protected or notable species (noise/ vibration, visual, lighting)	Construction, Maintenance, Decommissioning	**Scoped in**
Breeding Birds	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction, Maintenance, Decommissioning	**Scoped in**
	Disturbance to protected or notable species (noise/ vibration, visual, lighting)	Construction, Maintenance, Decommissioning	**Scoped in**
Bats	Potential for permanent habitat	Construction, Maintenance, Decommissioning	**Scoped in**

	loss, fragmentation / modification		
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction, Maintenance, Decommissioning	**Scoped in**
	Disturbance to protected or notable species (noise/ vibration, visual, lighting)	Construction, Maintenance, Decommissioning	**Scoped in**
Dormouse	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance during construction	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species during construction	Construction, Maintenance, Decommissioning	**Scoped in**
	Disturbance to protected or notable species (noise/ vibration, visual, lighting)	Construction, Maintenance, Decommissioning	**Scoped in**
Badgers	Potential for permanent habitat loss, fragmentation / modification during construction	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance during construction	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species during construction	Construction, Maintenance, Decommissioning	**Scoped in**
	Disturbance to protected or notable species (noise/	Construction, Maintenance, Decommissioning	**Scoped in**

	vibration, visual, lighting)		
Riparian Mammals (Otter and Water Vole and Beaver)	Potential for permanent habitat loss, fragmentation / modification	Construction, Maintenance, Decommissioning	**Scoped in**
	Temporary habitat loss and disturbance	Construction, Maintenance, Decommissioning	**Scoped in**
	Incidental mortality of protected or notable species	Construction, Maintenance, Decommissioning	Scoped out
	Disturbance to protected or notable species (noise/ vibration, visual, lighting)	Construction, Maintenance, Decommissioning	**Scoped in**

3.4 Cultural Heritage

3.4.1 Introduction

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

3.4.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.4.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Project Description**;
- **Part 1, Chapter 5, EIA Approach and Methodology**;
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**; and
- **Part 3, Chapter 5, Geology and Hydrogeology**.

3.4.1.4 This chapter is supported by the following figures:

- **Figure 3.4.1 Designated Cultural Heritage Assets within the Scoping Boundary and wider 1 km Study Area**; and
- **Figure 3.4.2 Non-designated Cultural Heritage Assets within the Scoping Boundary**

3.4.1.5 This chapter is supported by the following Appendicies:

- **Appendix 3.4.A: Non-designated assets recorded on the Kent HER within the Scoping Boundary**.

3.4.1.6 Cultural Heritage comprises above and below-ground archaeological assets, buildings or structures of historic interest, historic landscape features, and any other elements that are of cultural heritage interest.

3.4.2 Regulatory and Planning Context

3.4.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. The key legislation, policy, and guidance relevant to the assessment of the potential effects on the historic environment

associated with the construction, operation, maintenance and decommissioning phases of the Project are presented below.

Legislation

- Planning (Listed Buildings and Conservation Areas) Act 1990[74] and
- Ancient Monuments and Archaeological Areas Act 1979 [75] (amended by the National Heritage Act 1983[76] and 2002[77].

Planning Policy

National planning policy

- NPS EN-1[78] with particular reference to Section 5.8 in relation to the significance, impact and recording of the historic environment. The historic environment is also covered in the section 5.9 of the Draft NPS EN-1 which is currently under review.;
- NPS EN-5[79] with particular reference to Paragraph 2.8.9 in relation to the archaeological consequences of electricity line installation. Potential impacts are also mentioned in sections 2.2.5 and 2.11.14 of the Draft NPS EN-5 which is currently under review.; and
- NPPF[80] with particular reference to Section 16: Conserving and Enhancing the Historic Environment.

National guidance

3.4.2.2 The following guidance is of relevance for cultural heritage:

- Planning Practice Guidance, Section 16: Conserving and enhancing the historic environment[81] ;
- Historic Environment Good Practice Advice in Planning Note 2. Managing Significance in Decision Taking in the Historic Environment. Historic England[82] ;

[74] Planning (Listed Buildings and Conservation Areas) Act 1990 [online]. Available at: https://www.legislation.gov.uk/ukpga/1990/9/contents

[75] Ancient Monument and Archaeological Areas Act 1979 [online]. Available at: https://www.legislation.gov.uk/ukpga/1979/46/contents.

[76] National Heritage Act 1983 [online]. Available at: https://www.legislation.gov.uk/ukpga/1983/47/contents

[77] National Heritage Act 2002 [online]. Available at: https://www.legislation.gov.uk/ukpga/2002/14/contents

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

[79] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf

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

[81] Ministry of Housing, Communities & Local Government (2019). Planning Practice Guidance: Historic Environment. [online] Available at: https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment#overview-historic-environment

[82] Historic England (2015). Historic Environment Good Practice Advice in Planning Note 2 – Managing Significance in Decision Taking. [online] Available at: https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2/

- Historic Environment Good Practice Advice in Planning Note 3. The Setting of Heritage Assets. Historic England (2nd edition, 2017)[83] ;
- Historic Environment Statement of Heritage Significance: Analysing Significance in Heritage Assets. Historic England Advice Note 12. Historic England (2019)[84] ;
- Commercial Renewable Energy Development and the Historic Environment. Historic England Advice Note 15 (2021)[85];
- Chartered Institute for Archaeologists (CIfA) Standard and Guidance for Historic Environment Desk-Based Assessment[86] ;
- CIfA Code of Conduct[87] ; and
- Institute of Environmental Management and Assessment (IEMA), the Institute of Historic Building Conservation (IHBC) and the Chartered Institute for Archaeologists (CIfA), Principles of Cultural Heritage Impact Assessment in the UK[88] .

Local planning policy

3.4.2.3 A search of Kent County Council website did not identify any County-wise policy or guidance associated with cultural heritage or the historic environment.

3.4.2.4 Thanet District Council Local Plan[89] was adopted in July 2020. The relevant key policies are:

- Policy SP36 - Conservation and Enhancement of Thanet's Historic Environment;
- Policy HE01 – Archaeology;
- Policy HE02 - Development in Conservation Areas;
- Policy HE03 - Heritage Assets;
- Policy HE04 - Historic Parks and Gardens; and
- Policy HE05 - Works to a Heritage Asset to Address Climate Change.

[83] Historic England (2017). Historic Environment Good Practice Advice in Planning Note 3 (second edition) - The Setting of Heritage Assets. [online] Available at: https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/heag180-gpa3-setting-heritage-assets/

[84] Historic England (2019). Historic England Advice Note 12. Statements of Heritage Significance: Analysing Significance in Heritage Assets. [online] Available at: https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/heag279-statements-heritage-significance/

[85] Historic England (2021). Historic Environment Good Practice Advice in Planning Note 15. Commercial Renewable Energy Development and the Historic Environment. [online] Available at: https://historicengland.org.uk/images-books/publications/commercial-renewable-energy-development-historic-environment-advice-note-15/heag302-commercial-renewable-energy-development-historic-environment/

[86] Chartered Institute for Archaeologists (2020). Standard and guidance for historic environment desk-based assessment. [online] Available at: https://www.archaeologists.net/sites/default/files/CIfAS%26GDBA_4.pdf#:~:text=STANDARD%20AND%20GUIDANCE%20for%20historic%20environment%20desk-based%20assessment,expand%20and%20explain%20general%20definitions%20in%20the%20Code.

[87] Chartered Institute of Archaeology (2019). Code of Conduct: Professional Ethics in Archaeology. [online] Available at: https://www.archaeologists.net/sites/default/files/Code%20of%20conduct.pdf

[88] Institute of Environmental Management & Assessment, in partnership with the Chartered Institute for Archaeologists and the Institute of Historic Building Conservation (2021). Principles of Cultural Heritage Impact Assessment in the UK.

[89] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

3.4.2.5 The Dover Adopted Core strategy[90] was adopted in 2010. It is due to be replaced by the Dover District Local Plan (details below) but remains in use until that is adopted. While the historic environment is considered, the only heritage policy is:

- Policy DM 19 Historic Parks and Gardens.

3.4.2.6 The Dover District Local Plan[91] is still to be adopted. However, the key policies are as follows:

- Strategic Policy 18: Protecting the District's Historic Environment;
- DM Policy 44: Designated and Non-designated Heritage Assets;
- DM Policy 45: Conservation Areas;
- DM Policy 46: Archaeology;
- DM Policy 47: Dover Western Heights; and
- DM Policy 48: Historic Parks and Gardens.

3.4.3 Study Area

3.4.3.1 The study area is the area within which cultural heritage assets may experience effects as a result of the Kent Onshore Scheme during construction, operation, maintenance, and decommissioning. Effects to heritage assets may arise as a result of physical impacts to their fabric or through changes to their setting.

3.4.3.2 For the purpose of this Scoping Report, the Kent Onshore Scheme Scoping Boundary has been used as the study area to capture information relating to archaeology and cultural heritage. The study area provides the necessary context for establishing the likely impacts arising from the Kent Onshore Scheme and the potential effects to cultural heritage assets. A second wider study area consisting of the Kent Scoping Boundary and a 1km buffer was used to identify designated assets within the surrounding landscape, in order to provide an initial assessment of potential impacts on designated assets.

3.4.4 Baseline Conditions

3.4.4.1 The following section provides a summary of the baseline environmental conditions within the Kent Scoping Boundary, using the sources of information outlined below.

Data Sources

3.4.4.2 The cultural heritage baseline described in this section has been informed by the following data sources:

[90] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf [Accessed 13/07/2022].

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

- The Cultural Heritage baseline described in this section has been informed by the following data sources: Historic England National Designated Assets dataset[92];
- Kent HER; and
- Other readily available online sources.

Baseline

3.4.4.3 There is only one designated asset within the Scoping Boundary, this being the Grade II listed St. Augustine's Cross near Cliffs End and St. Augustine's Golf Club (LB 1266551). Designated assets within the wider 1 km study area include one scheduled monument, 34 listed buildings, and one conservation areas.

3.4.4.4 The scheduled monument consists of the monastic grange and pre-Conquest nunnery at Minster Abbey (1016850).

3.4.4.5 There are two Grade I, and 32 Grade II listed buildings. The Grade I* buildings are Minster Abbey (1223807), and the Church of St Mary (1224116), both of which are located in the village to Minster. The Grade II listed buildings mostly comprise farms and houses, but structures such as cast-iron lamp standards are also listed. Many of the listed buildings are located in the settlement of Minster which is also a conservation area.

3.4.4.6 A total of 190 heritage assets were recorded within the Kent Scoping Boundary on the Kent HER (see **Appendix 3.4.A Non-designated assets recorded on the Kent HER within the Scoping Boundary).** The earliest dated site within the study area is the find spot of a Lower Palaeolithic (500,000 to 150,000 BC) stone tool. Changes in sea level, as well as the reclamation of the land, has altered the coastline in the study area meaning there is the potential for former coastal areas/palaeo-environmental remains to survive buried under the current land surface. The line of the Wantsum Channel falls within the Kent Scoping Boundary, and there is the potential for evidence dating from the prehistoric period onwards to survive along the course of this former navigable channel.

3.4.4.7 Other sites of early prehistoric date are also largely limited to find spots, although ditches and pits of Neolithic date (4000 to 2200 BC) have also been recorded. Features of Bronze Age date (2200 to 700 BC) include settlement activity, field systems and round barrows. Extensive evidence for activity has been identified during developer-lead excavations over the last 15 years including the East Kent Access Scheme, part of which included the construction of the A256 which crosses the Kent Scoping Boundary between Cliffs End and Richborough Port. A number of finds have also been made, including a hoard.

3.4.4.8 There is more evidence dating to the Iron Age (700 BC to AD 43), particularly in the later phase of the period leading into the transition into the Roman period (AD43 – AD410). Settlement evidence across the study area increased in these periods, with many enclosure ditches for settlements, containing individual buildings, and field systems recorded. A large number of finds of Iron Age coins are also present. Settlement continued into the Roman period, with settlement focussed around the

[92] Historic England (2022). National Heritage List. [Online] Available at: https://historicengland.org.uk/listing/the-list

Roman scheduled monuments. Other notable sites include Minster Roman villa and a Roman road.

3.4.4.9 Evidence from the early medieval period (AD410 to 1066) is much more limited. Apart from the scheduled nunnery, remains consist of funerary evidence, including a cemetery, a second possible cemetery and isolated burials. Settlement activity is limited to Anglo-Saxon activity within the scheduled Richborough Castle, sunken floored buildings excavated as part of the East Kent Access Route and a possible farmstead. Sites of medieval date (1066 to 1540) are largely related to agricultural activity, including evidence of farmsteads and ridge and furrow. Sea defences of medieval date are also recorded.

3.4.4.10 Post-medieval (1540 to 1900) sites are largely made up of built heritage assets, including farms, houses and churches, many of which are designated as listed buildings. Other evidence includes industrial sites, such as gravel pits, quarries, salt working, and chalk pits. Transport links were also enhanced in the post-medieval period, with the construction of the Stonar Cut canal, and railway lines, such as the Ashford and Margate railway line and the Deal Branch railway. Assets of modern date (1900 to present) are overwhelmingly related to the defence of the area during World War II, with home defences such as pillboxes, coastal batteries and anti-tank and anti-aircraft defences recorded in large numbers. Buildings, or the sites of buildings, from this period also include hospitals, stores and military depots. Evidence of aerial attack in the area includes bomb craters and an aircraft crash site. Sites not related to World War II include a light railway and other industrial sites.

Future Baseline

3.4.4.11 The cultural heritage chapter within the Environmental Statement (ES) will include an outline of the likely evolution of the baseline environment without the implementation of the development as far as natural changes from the baseline scenario can be assessed.

3.4.5 Embedded and Control & Management Measures

Embedded Measures

3.4.5.1 There is only a single asset within the Kent Scoping Boundary, this being the Grade II listed St. Augustine's Cross which is located near Cliffs End and St. Augustine's Golf Club (LB 1266551), which will be avoid by the Kent Onshore Scheme. As the design develops further and is better refined, additional mitigation measures could include further design intervention to avoid physical impacts on known heritage assets.

3.4.5.2 Impacts caused through change to the setting of heritage assets may be mitigated through detailed design and micro-siting of the converter station to avoid or minimise harm to heritage assets.

Control and Management Measures

3.4.5.3 If it is not possible to avoid heritage assets, mitigation will include (but not be limited to) detailed landscape/topographic survey, archaeological excavation of features being removed and archaeological monitoring/watching brief.

3.4.5.4 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the Cultural Heritage assessment are:

- GG03: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP) and a Construction Traffic Management Plan (CTMP) will be produced prior to construction.
- H01 Locations of known archaeological interest/value, or areas where archaeological work is planned, will be signposted/fenced off to avoid unintentional damage.
- H02 Where a previously unknown heritage asset is discovered, or a known heritage asset proves to be more significant than foreseen at the time of application, the project will inform the local planning authority and will agree a solution that protects the significance of the new discovery, so far as is practicable, within the project parameters.

3.4.6 Potential for Significant Effects

3.4.6.1 The cultural heritage assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.4.6.2 The proposed scope of the cultural heritage assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.4.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.4.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

3.4.6.5 Permanent construction impacts resulting from the construction phase are likely to include:

- construction activities such as the excavation of trenches for cable installation, and the establishment of construction compounds;
- the presence of construction compounds introducing potential light and noise; and
- impacts on the setting of heritage assets resulting from the converter station and sub-station, as well as the AC connector if an overhead option is progressed for this element of work.

Sources of operational impacts

- the presence of new above ground infrastructure including the new converter station; and
- the presence of potential light and noise.

Sources of maintenance impacts

- physical impacts resulting from intrusive maintenance works on the cable and converter station; and
- temporary impacts on setting resulting from plant/machinery linked to maintenance works.

Sources of decommissioning impacts

- the presence and movement of construction plant that may alter the setting of heritage assets, including change arising from aural intrusion; and
- the presence of construction compounds introducing potential light and noise.

Potential impacts

3.4.6.6 There is the potential for significant effects on a number of non-designated assets within the Scoping Boundary. A full list of non-designated assets can be seen in **Appendix 3.4.A,** although it should be noted that significant effects are not expected on 'find spots' as 'find spots' represent features that have been recovered and therefore are no longer surviving *in situ*. It is also possible that at least some of the features have been excavated as part of earlier schemes so also no longer survive *in situ*.

3.4.6.7 There will be no physical impacts on the single designated assets within the Scoping Boundary as it will be avoided by the construction works. There is, however, the potential for temporary impacts on the setting of designated assets resulting from the construction of the cable.

3.4.6.8 Table 3.4.1 below identifies the potential for impacts that could result from the sources identified above.

Table 3.4.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in / out
Construction	Construction works linked to Kent Onshore Scheme	Physical impacts on non-designated heritage assets.	Yes - The Kent Onshore Scheme has the potential to result in a physical impact on non-designated assets.	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in / out
Construction	Construction works linked to Kent Onshore Scheme	Temporary impacts on the setting of designated assets.	Yes - The Kent Onshore Scheme has the potential to result in temporary impacts on the setting of designated assets.	**Scoped in**
Construction	Construction compounds introducing light and noise pollution	Temporary impacts on the setting of designated assets.	Yes - The Kent Onshore Scheme has the potential to result in temporary impacts on the setting of designated assets.	**Scoped in**
Operation	Converter Station and OHL that might be required	Impacts on the setting of designated and non-designated assets.	Yes - The Kent Onshore Scheme has the potential to result in temporary impacts on the setting of designated assets	**Scoped in**
Maintenance	Physical impacts resulting from maintenance works	Physical impacts on non-designated assets	No – Limited potential as all remains will have been removed during construction	Scoped out
Maintenance	Temporary impacts on setting resulting from plant/machinery	Temporary impacts on the setting of heritage assets	No - Limited potential as the machinery/plant being used will be minor in size.	Scoped out
Decommissioning	Physical impacts resulting from decommissioning works	Physical impacts on non-designated assets	No - Limited as all remains will have been removed during construction	Scoped out
Decommissioning	Temporary impacts on setting resulting from plant/machinery	Temporary impacts on the setting of heritage assets	No - Limited potential for significant impacts as the machinery/plant being used will be minor in size.	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in / out
Decommissioning	Construction compounds introducing light and noise pollution	Temporary impacts on the setting of heritage assets.	No - Limited potential for significant impacts, and impacts will be temporary.	Scoped out

Impact Pathways with Receptors (Step 2)

3.4.6.9 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the Kent Onshore Scheme study area.

3.4.6.10 Table 3.4.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme.**

Table 3.4.2: Impact Pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Temporary impacts on the setting of designated assets	Designated Heritage Assets	Yes - Moderate due to the number of designated assets in the area	**Scoped in**
Physical impacts on non-designated heritage assets	Non-Designated Heritage Assets	Yes - High due to the number and size of non-designated assets in the area, as well as the nature of the non-designated assets.	**Scoped in**
Impacts on the setting of heritage assets resulting from the converter station and above ground infrastructure	Designated and Non-Designated Heritage Assets	Yes - Moderate due to the number of designated and non-designated assets in the surrounding area	**Scoped in**

3.4.7 Proposed Assessment Methodology

3.4.7.1 An overview of the proposed assessment methodology is provided in **Part 1 Chapter 5, EIA Approach and Method.**

3.4.7.2 A cultural heritage Desk-Based Assessment (DBA) will be prepared in accordance with industry standards and best practice guidelines, namely the Chartered Institute for Archaeologists' Standard and Guidance for Historic Environment Desk-Based Assessment (2020), Historic England's Good Practice Advice in Planning Notes 2, 3 and 12 (2016; 2015; 2019 respectively), and any responses received as part of the Scoping Opinion and consultation on the Project. The DBA will form an appendix to the Project Environmental Statement and will inform the Kent Onshore Scheme Cultural Heritage chapter. It will confirm whether any additional survey work is required to better determine the nature, extent and significance of buried archaeological remains within the construction footprint of the Kent Onshore Scheme.

3.4.7.3 While a 1km study area has been used for the scoping stage, a refined study area of 0.5 km from the proposed Order Limits will be used to provide detailed baseline information for the assessment. A wider study area of 2 km from the proposed Order Limits will be used to identify assets which may have their setting affected. The study area for the assessment of setting will be limited to 2 km in the area of Above Ground Infrastructure, such as the Converter Station and the section of overhead line (if taken forwards), due to the below ground nature of the development. The scope of the setting assessment will be informed by the Zone of Theoretical Visibility (ZTV), although some

assets beyond this distance and outside the ZTV may also be considered where elements of their setting extend closer to, or include, the Kent Onshore Scheme.

Proposed Data Sources

3.4.7.4 Desk-based research will be undertaken as part of the EIA. Additional information will be gathered from the following sources:

- Kent Historic Environment Records (HER);
- The National Heritage List for England (NHLE), held by Historic England, for designated assets;
- local authority conservation area appraisal and management documents and their mapping;
- historic landscape characterisation (HLC) mapping undertaken by local planning authorities;
- aerial photographs held by Historic England, local authorities and other appropriate repositories and other readily available remote sensing results such as LiDAR data;
- geological mapping and borehole information as held by the British Geological Survey; and
- documentary, cartographic and other resources as deposited within local studies libraries, county libraries and archives, including historic Ordnance Survey maps, tithe, estate and other maps, and other relevant primary sources held at Kent Archives, together with local studies library information.

3.4.7.5 An archaeological walkover survey to assess known sites and to determine the potential for previously unrecorded heritage assets will also be undertaken. This will focus on the final alignment as well as any associated compounds, laydown areas, and Above Ground Infrastructure.

3.4.7.6 Information collected from these sources will be used to describe the known archaeology and built heritage of the 0.5km study area, and to assess the setting of heritage assets up to 2 km from the proposed Order Limits of the Kent Onshore Scheme.

Assigning Value

3.4.7.7 The value of a heritage asset (its heritage significance) is guided by its designated status but is derived also from its heritage interest which may be archaeological, architectural, artistic or historic (NPPF Annex 2, Glossary[93]). Each identified heritage asset can be assigned a value in accordance with the criteria set out in Table 3.4.3. Using professional judgement and the results of consultation, heritage assets are also assessed on an individual basis and regional variations and individual qualities are taken into account where applicable.

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

Table 3.4.3: Criteria for assessing the value of heritage assets

Value (significance)	Asset categories
High	World Heritage Sites Scheduled Monuments Grade I and II* listed buildings Registered battlefields Grade I and II* registered parks and gardens Conservation areas of demonstrable high value Non-designated heritage assets (archaeological sites, historic buildings, monuments, parks, gardens or landscapes) that can be shown to have demonstrable national or international importance Well preserved historic landscape character areas, exhibiting considerable coherence, time-depth or other critical factor(s)
Medium	Grade II listed buildings Conservation areas Grade II registered parks and gardens Conservation areas Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable regional importance Averagely preserved historic landscape character areas, exhibiting reasonable coherence, time-depth or other critical factor(s) Historic townscapes with historic integrity in that the assets that constitute their make-up are clearly legible
Low	Locally listed buildings Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens or landscapes) that can be shown to have demonstrable local importance Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade Historic landscape character areas whose value is limited by poor preservation and/ or poor survival of contextual associations
Not significant	Assets identified on national or regional databases, but which have no archaeological, architectural, artistic or historic value Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade Landscape with no or little significant historical merit

Determining the Magnitude

3.4.7.8 Having identified the value of the heritage asset, the next stage in the assessment is to identify the level and degree of impact to an asset arising from the development. Impacts may arise during construction or operation and can be temporary or permanent. Impacts can occur to the physical fabric of the asset or affect its setting.

3.4.7.9 The level and degree of impact (magnitude of impact rating) is assigned with reference to a four-point scale as set out in Table 3.4.4. In respect of cultural heritage an assessment of the level and degree of impact is made in consideration of any mitigation measures (embedded, control and management and mitigation measures. If no impact on value is identified, no impact rating is given and no resulting effect reported.

Table 3.4.4: Factors influencing the assessment of magnitude of impacts.

Magnitude of impact rating	Description of impact
Large	Changes such that the heritage value of the asset is totally altered or destroyed. Comprehensive change to elements of setting that would result in harm to the asset and our ability to understand and appreciate its heritage significance.
Medium	Change such that the heritage value of the asset is significantly altered or modified. Changes such that the setting of the asset is noticeably different, affecting significance and resulting in changes in our ability to understand and appreciate the heritage value of the asset.
Small	Changes such that the heritage value of the asset is slightly affected. Changes to the setting that have a slight impact on significance resulting in changes in our ability to understand and appreciate the heritage value of the asset.
Negligible	Changes to the asset that hardly affect heritage value. Changes to the setting of an asset that have little effect on significance and no real change in our ability to understand and appreciate the heritage value of the asset

Assessing the Significance of Effect

3.4.7.10 An assessment to classify the effect, having taken into consideration mitigation, will be determined using the matrix at Table 3.4.5, which takes account of the value of the asset (Table 3.4.3) and the magnitude of impact (Table 3.4.4). Effects can be neutral, adverse or beneficial.

Table 3.4.5: Assessment of effect

Heritage value (significance)		Very High	High	Medium	Low	Negligible
Impact magnitude:	**Large**	Major	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Moderate	Minor	Negligible
	Small	Moderate	Moderate	Minor	Negligible	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible

3.4.7.11 The ES will report on the significance of effect in accordance with the proposed methodology described above. Major and moderate effects are considered to be significant. Within the NPPF, impacts affecting the value of heritage assets are considered in terms of harm and there is a requirement to determine whether the level of harm amounts to 'substantial harm' or 'less than substantial harm'. This is also supported by the Overarching National Policy Statement for Energy (EN-1) which also notes that there should always be a presumption in favour of conservation as once lost assets cannot be replaced[94]. There is no direct correlation between the significance of effect as reported in the final ES and the level of harm caused to heritage significance. A major (significant) effect on a heritage asset would, however, more often be the basis by which to determine that the level of harm to the significance of the asset would be substantial. A moderate (significant) effect is unlikely to meet the test of substantial harm and would therefore more often be the basis by which to determine that the level of harm to the significance of the asset would be less than substantial. A minor or negligible (not significant) effect would still amount to a less than substantial harm, which triggers the statutory presumptions against development within s.66 of the Listed Buildings Act 1990; however, a neutral effect is classified as no harm. In all cases determining the level of harm to the significance of the asset arising from development impact is one of professional judgement.

3.4.8 Conclusion

3.4.8.1 From the review of data undertaken as part of the scoping exercise, a number of designated and non-designated assets have been recorded within, and immediately adjacent, to the Kent Onshore Scheme and associated study area.

3.4.8.2 Previous developments in the area, including the East Kent Access Road scheme have also revealed previously unrecorded assets, while changes in land use, land reclamation, and silting of watercourses also means there is the potential for paleoenvironmental remains to survive in sections of the route.

3.4.8.3 While designated assets will be avoided as part of the development of the Kent Onshore Scheme, there is the potential for physical impacts on non-designated assets

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

during the construction phase. Furthermore, there is the potential for impacts on the setting of designated and non-designated assets from the converter station.

3.4.8.4 As a result, an archaeology and cultural heritage chapter will be completed as part of the EIA. This will focus on assessing impacts to designated and non-designated assets, either through physical impacts from the Kent Onshore Scheme, or through change to their settings, during the construction and operational phases.

Proposed scope of the assessment

3.4.8.5 A summary of the proposed scope of the assessment is provided in Table 3.4.6.

Table 3.4.6: Proposed scope of the assessment

Receptor	Potential significant effect	Project phase(s)	Proposed to be scoped in/out
Designated assets	Potential for significant effect from impacts on setting resulting from the converter station and any above ground infrastructure	Operational	**Scoped in**
Non-designated assets	Potential for significant impacts resulting from construction works	Construction	**Scoped in**
	Potential for significant effect from impacts on setting resulting from the converter station and any above ground infrastructure	Operational	**Scoped in**

3.5 Water environment

3.5.1 Introduction

3.5.1.1 This chapter presents how the water environment assessment will consider the potentially significant effects on surface water receptors that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

3.5.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary, is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.5.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**;
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**; and
- **Part 3, Chapter 5, Geology and Hydrogeology**.

3.5.1.4 This chapter is supported by the following figure:

- **Figure 3.5.1 Water Environment Study Area and Existing Features**.

3.5.1.5 The assessment of potentially significant effects on groundwater receptors is presented in **Part 3, Chapter 5, Geology and Hydrogeology**.

3.5.1.6 The water environment Assessment will be supported by a Flood Risk Assessment (FRA) and Water Framework Directive (WFD) Screening Assessment. The scopes of these are not discussed in detail herein, but will be agreed with the relevant stakeholders.

3.5.2 Regulatory and Planning Context

3.5.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. The key legislation, policy, and guidance relevant to the assessment of the potential effects on the water environment associated with the construction, operation, maintenance and decommissioning phases of the Project are presented below.

Legislation

3.5.2.2 The Water Environment (Water Framework Directive [WFD]) (England and Wales) Regulations 2003 (Her Majesty's Stationery Office (HMSO), 2003) implemented the Water Framework Directive in England and Wales and were amended by the Floods and Water (Amendment etc.) (EU Exit) Regulations 2019[95]. The 2019 Regulations, specifically Regulation 20, stipulate that the substance of the WFD regime that applied pre-EU Exit will continue to apply with only relatively minor amendments.

3.5.2.3 Part 5 of the Environment Act 2021 (HMSO, 2021)[96], brings together measures to strengthen and update the existing regulatory and long-term planning framework for water, helping to reduce environmental risks, including to water quality and land drainage. It also strengthens the regulation of water and sewerage undertakers by the newly established Office for Environmental Protection.

3.5.2.4 The Land Drainage Act 1991 (HMSO, 1991)[97] together with the Water Resources Act 1991[98] provide for the Environment Agency to prevent the obstruction of any main river through the construction of flow control structures, culverts or any other structure in a main river. Where culverting or other works have a potential to affect the flow regime on ordinary watercourses, consent is required from the Lead Local Flood Authority (LLFA) under the Flood and Water Management Act 2010 (HMSO, 2010)[99], which provides a more comprehensive flood risk management framework for people, homes and businesses.

Planning Policy

National planning policy

3.5.2.5 National Policy Statement for Energy (EN-1)[100] states that energy projects have the potential to have adverse effects on the water environment, noting that where significant effects are likely an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and physical characteristics of the water environment should be undertaken. The potential for the Project to result in significant effects on all these aspects of the water environment has been considered herein.

3.5.2.6 Flood risk is also a consideration and paragraph 5.7.4 of EN-1 states 'applications for energy projects of 1 hectare or greater in Flood Zone 1 in England and all proposals for energy projects located in Flood Zones 2 and 3… should be accompanied by a flood risk assessment (FRA). This should identify and assess the risk of all forms of flooding to and from the project and demonstrate how these flood risks will be managed, taking climate change into account'. The Project will be subject to an FRA

[95] The Floods and Water (Amendments etc.) (EU Exit) Regulations 2019 [online]. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176283/contents

[96] The Environment Act 2021 [online]. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted

[97] The Land Drainage Act 1991 [online]. Available at: https://www.legislation.gov.uk/ukpga/1991/59/contents

[98] The Water Resources Act 1991 [online]. Available at: https://www.legislation.gov.uk/ukpga/1991/57/contents

[99] The Flood and Water Management Act 2010 [online]. Available at: https://www.legislation.gov.uk/ukpga/2010/29/contents

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

that meets these criteria. EN-1 also sets out generic policy with respect to water quality and resources in section 5.16 and section 4.10 sets out policy on the pollution control framework.

3.5.2.7 National Policy Statement for Electricity Networks Infrastructure (EN-5)[101] contains paragraph 2.4.2 relating to the water environment, which has been considered within this chapter. This states that 'The resilience of the project to climate change should be assessed in the Environmental Statement (ES) accompanying an application. For example, future increased risk of flooding would be covered in any flood risk assessment'.

Local planning policy

3.5.2.8 Relevant policies from the Dover District Council Core Strategy, adopted February 2010[102]and the Dover District Local Plan (adopted 2002), will also be considered. These are listed below:

- WE8 – River and tidal flooding; and
- WE9 – Coastal defences

3.5.2.9 Several standards and non-statutory guidelines, which provide details of assessment methodologies and mitigation techniques, will also be referenced to inform the assessment, including:

- Planning Inspectorate Advice Note 18: Water Framework Directive[103],
- Construction Industry Research and Information Association (CIRIA) publications (various dates)[104]; and
- Guidance for Pollution Prevention series[105].

3.5.3 Study Area

3.5.3.1 The study area for the EIA is proposed to include all land within the Kent Onshore Scheme Scoping Boundary, together with an additional 500m buffer from this boundary. The study area for the EIA is illustrated in **Figure 3.5.1 Water Environment Study Area and Existing Features**.

3.5.3.2 The FRA that will be prepared to inform the EIA, may cover a larger study area where necessary, for example assessing the potential for changes to baseline flood risk at the local catchment scale or within a floodplain cell which may covers areas up to a several km^2. The Water Framework Directive Screening Assessment will include a

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

[102] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf [Accessed 13/07/2022].

[103] The Planning Inspectorate (2017). Advice Note 18: Water Framework Directive. [online] Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-18/

[104] Construction Industry Research and Information Association (2022). CIRIA Publications. [online] Available at: https://www.ciria.org/CIRIA/Bookshop/Free_Publications/Books/Free_CIRIA_Publications.aspx?hkey=ca8794b8-b1b3-4742-880d-6c7a27719afb

[105] NetRegs (2022). Guidance for Pollution Prevention (GPPs) – Full List. [online] Available at: https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/guidance-for-pollution-prevention-gpps-full-list/

study area that is set at the water body scale and include all those WFD waterbodies with the potential to be affected.

3.5.3.3 The study areas for assessing effects on geology and the groundwater environment are described in **Part 3, Chapter 6, Geology and Hydrogeology**.

3.5.4 Baseline Conditions

Data Sources

3.5.4.1 The water environment baseline described in this section has been informed by the following data sources:

- Environment Agency online flood maps;
- The South East River Basin Management Plan;
- The EA Catchment Data Explorer; and
- River Stour (Kent) IDB online mapping.

Baseline

3.5.4.2 The Kent Onshore Scheme is situated in the hydrological catchment of the River Stour. The River Stour is a designated main river that rises as the Great Stour in Lenham and flows towards and through Canterbury, where it becomes tidal, finally discharging to the sea at Pegwell Bay. The river has extensive areas of floodplain, designated as Environment Agency Flood Zone 3, with some areas mapped as benefitting from flood defences. The river is a designated WFD waterbody, with a current (2019) ecological status of Moderate and which is failing with regard to chemical status[106].

3.5.4.3 In addition to the River Stour, within the study area there are networks of watercourses that drain the Stour Marshes and which are managed by the River Stour (Kent) Internal Drainage Board (IDB). Key watercourses include the Minster Stream to the north and the Richborough Stream to the south of the Stour. The Stour Marshes constitute a WFD Operational management catchment, within which there are several monitored waterbodies, which are at Moderate ecological status.

3.5.4.4 Sites designated for their nature conservation interest, where surface waters play a key role in sustaining the designated interest features, are also important receptors. Details of these sites are provided in **Part 3, Chapter 3, Ecology and Biodiversity** of effects on such sites will be undertaken in collaboration with ecology and groundwater specialists.

3.5.4.5 Additional baseline data to characterise the water environment within the study area will be collected as part of a desk study, with reference to published data sources, supplemented by data sets collected in consultation with the Environment Agency, Kent County Council in their role as the LLFA and River Stour (Kent) IDB. Desk study data sources include the Environment Agency flood maps for rivers and the sea, surface water and reservoirs, the Environment Agency Catchment Data Explorer that

[106] Environment Agency (2022). Catchment Data Explorer – Suffolk Body Water. [online] Available at: https://environment.data.gov.uk/catchment-planning/WaterBody/GB650503520002

records WFD data and the South East River Basin Management Plan[107], the Environment Agency Water Quality Data Archive which provides records of water quality data for monitored main rivers, and Ordnance Survey maps and aerial imagery.

3.5.4.6 Field notes and photographs of water features, collected during ecological walkovers and surveys will also be referenced, in addition to the high-resolution aerial imagery.

3.5.4.7 Baseline data collection will be undertaken on a risk basis, focusing on collecting data for receptors where source-pathway linkages are identified. For example, locations accommodating any above ground infrastructure (AGI) and temporary crossings of watercourses for construction access. For watercourse receptors (where applicable) WFD status data will be collected to characterise existing qualities and status objectives, as well as any measures identified to achieve these measures, as recorded in the South East River Basin Management Plan. Existing surface water interests (abstractions and discharges) will be identified with reference to Environment Agency consent/permit registers. Areas of fluvial/coastal floodplain will be described using Environment Agency flood mapping and modelling data and existing flood defence assets will be identified with reference to Environment Agency asset records and the Coastal Management Strategy for Pegwell Bay[108]. Other sources of flood risk, such as from surface water, groundwater and artificial sources, will be characterised in consultation with the LLFA and River Stour (Kent) IDB and with reference to relevant Strategic Flood Risk Assessments and other published sources.

Future Baseline

3.5.4.8 With regard to flood risk and drainage, future baseline conditions will be forecasted, drawing on current best practice guidelines. These will take into account the likely impacts of climate change on river flows, rainfall intensities, and tidal flood levels/storm surge. These future conditions would be accounted for in the design of the Kent converter station and any above ground infrastructure required for the HVAC connection where required to ensure future resilience to flooding. The likely effects of implementation of future cycles of WFD management plans on the ecological and chemical quality of waterbodies would be considered when assigning value to water environment resources and receptors.

3.5.5 Embedded and Control & Management Measures

Embedded Measures

3.5.5.1 The assessment of effects will take account of mitigation, including measures embedded into the Project's design and good practice measures. Key measures are described below.

[107] Department for Environment, Food & Rural Affairs and Environment Agency (2018). Water for Life and Livelihoods – South East River Basin District, River Basin Management Plan. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/718337/South_East_RBD_Part_1_river_basin_management_plan.pdf

[108] Environment Agency and Dover District Council (2014). Planning for the Future – Coastal Flood Risk Management Strategy Pegwell Bay to Kingsdown. [online] Available at: http://www.environmentdata.org/archive/ealit:502/OBJ/19001282.pdf

3.5.5.2 The Kent converter station would be situated to avoid areas of Flood Zone 2 and 3. This would ensure that Project infrastructure is safe from flooding and would also avoid permanent losses of floodplain storage or disruption to floodplain flow paths, so avoiding permanent impacts on offsite flood risk.

3.5.5.3 Sustainable Drainage System (SuDS) techniques would be utilised at the converter station to manage rainfall runoff in terms of both quantities and quality, as well as along the cable swathe during construction. Suitable techniques will be selected, influenced by ground conditions and with reference to the drainage hierarchy set out in the National Planning Practice Guidance[109]. The drainage hierarchy promotes the use of SuDS and encourages infiltration to ground as a preference, or where this is not practicable, discharges to surface water bodies.

3.5.5.4 SuDS Guidance[110], to achieve both attenuation and treatment of surface water runoff, avoiding increases in surface water flood risk and pollution of the receiving water environment.

3.5.5.5 Where the cable route crosses watercourses, appropriate construction techniques would be selected according to factors such as watercourse channel dimensions, flow conditions and environmental sensitivities. Main rivers may be crossed by trenchless techniques to avoid physical changes and impacts on flow and sediment transport regimes and hydromorphology. This technique would also reduce disturbance within the riparian corridor and the risks of the construction phase detrimental to water quality.

3.5.5.6 Where watercourses are crossed temporarily to provide for construction access, similarly suitable crossing designs would be selected with the aim of reducing impacts.

Control and Management Measures

3.5.5.7 Where effects cannot be avoided through design, commitments would be made, and secured through the Development Consent Order (DCO), to control and manage effects.

3.5.5.8 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice.** Measures relevant to the control and management of impacts that could affect flood risk and land drainage are:

- GG16: Commitments include controlling runoff for work site areas using a variety of methods including header drains, buffer zones around watercourses, on-site ditches, silt traps and bunding. There would be no intentional discharge of site runoff to ditches, watercourses, drains or sewers without appropriate treatment and agreement of the appropriate authority. Fuels, oils, chemicals and any other potentially hazardous materials would be stored responsibly in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001, and all refuelling, oiling and greasing of construction plant and equipment would take place above drip trays and also away from watercourses and drains as far as is reasonably practicable.

[109] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2021). Planning Practice Guidance. [online] Available at: https://www.gov.uk/government/collections/planning-practice-guidance

[110] Construction Industry Research and Information Association (2015). The SuDS Manual (C753). [online] Available at: https://www.susdrain.org/resources/SuDS_Manual.html

- GG15: Appropriate spill kits would be easily accessible for these activities.
- GG18: Wheel washing will be provided at each main compound access point.
- GG17: Wash down of vehicles and equipment will take place in designated areas within construction compounds, with appropriate treatment provided e.g., sediment traps (GG17) in order to prevent pollution of the water environment.
- GG23: An Emergency Action Plan will be developed for the construction phase which will outline procedures to be implemented in case of unplanned events, including but not limited to site flooding and pollution incidents.
- W03: At all watercourse crossings, widths of top soil stripping would be reduced whilst still providing safe working widths and riparian vegetation and natural channel bed materials would be re-instated on completion of the works.
- W06: To manage potential flood risk impacts associated with works in the floodplain, temporary stores of spoil along the cable route corridor would be configured to avoid forming continuous barriers to floodplain flow conveyance.
- W01: Risks of sedimentation would be reduced using silt fencing or similar measures. Secondary consents under the Environmental Permitting Regulations and the Land Drainage Byelaws for qualifying works would also be secured.

3.5.6 Potential for Significant Effects

3.5.6.1 The water environment assessment will consider the construction, operation, maintenance, and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4 Description of the Project**.

3.5.6.2 The proposed scope of the water environment assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.5.6.3 This section identifies the sources and impacts that could occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.5.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5

Sources of construction impacts

3.5.6.5 Good practice measures within the CoCP would reduce the risk of pollution of the water environment during construction by removing pathways between sources and receptors for many construction activities.

3.5.6.6 However, potential for construction work to cause localised and temporary pollution effects would remain.

3.5.6.7 At open cut watercourse crossings there would be temporary physical disturbance and temporary changes to watercourse flow regimes may also occur, for example, where over pumping is required during construction of the cable and access route watercourse crossings. Impacts would range in duration, but crossings may be in place in some locations for several months. Whilst crossing watercourses via trenchless techniques reduces physical disturbance and flow regime effects, the technique is not entirely without pollution risk, which is associated with the potential for break out of drilling muds. Trenchless techniques also have a water demand.

3.5.6.8 During construction there would be potential for impacts on land drainage regimes and associated surface water flood risk, due to changes in land surface permeabilities or local topography, e.g. where vegetation cover is stripped and earthworks are undertaken.

3.5.6.9 At work sites located in the floodplain there would be potential for localised impacts associated with storage of spoil reducing available floodplain storage or interrupting key floodplain flow paths.

3.5.6.10 These higher risk activities and associated receptors are proposed to be scoped into the Environmental Statement (ES), which will be informed by the findings of a supporting FRA. Effects on artesian water, springs and groundwater resources are addressed in **Part 2, Chapter 6: Geology and Hydrogeology**.

3.5.6.11 The sources of construction impacts are:

- Soil stripping earthworks and excavations;
- Watercourse crossings for access and cable crossings (trenched);
- Watercourse cable crossings (trenchless); and
- Spoil storage in the floodplain.

Sources of operational impacts

3.5.6.12 During operation of the Project, there would be no sources of pollution with the potential to impact on surface waterbodies. This is because land within the cable construction working width would be reinstated following completion of the construction works.

3.5.6.13 There would be no operational discharges to surface watercourses and rainfall runoff from Kent Converter Station or any potential AGI associated with the HVAC connection would be sustainably attenuated and treated prior to discharge to the receiving water environment. Physico-chemical elements supporting WFD waterbody status would therefore be safeguarded. No likely significant effects are therefore anticipated, and it is proposed that water quality effects during operation are scoped out of the assessment.

3.5.6.14 Given the nature of the Project, there would be no permanent impacts on watercourse flow regimes or floodplains. There would be no new consumptive water uses, and the water quality of water receptors would not be degraded. Therefore, the potential for likely significant effects on existing water interests (surface water abstractions and discharges) and hydromorphology is negligible.

3.5.6.15 Regarding flood risk and land drainage, situating the Kent converter station outside of the floodplain and incorporating appropriate post construction surface water

management and land drainage systems would result in negligible effects. All operational effects on water environment receptors are therefore proposed to be scoped out.

3.5.6.16 The sources of operational impacts are:

- operational runoff and discharges from above ground infrastructure (AGI); and
- loss of floodplain storage.

Sources of maintenance impacts

3.5.6.17 Maintenance activities would fall under the Applicant's operational management procedures and given the nature of the Project; maintenance activities are considered to pose a low risk of causing likely significant effects on water environment receptors. It is proposed that all maintenance effects are scoped out.

3.5.6.18 Sources of maintenance impacts are:

- Soil stripping, earthworks and excavations;
- Watercourse crossings for access; and
- Spoil storage in the floodplain.

Sources of decommissioning impacts

3.5.6.19 Decommissioning of the Project would consider all the relevant environmental legislation and technology available at the time and any necessary licences and permits would be acquired. The sources of decommissioning impacts are predicted to be the same as those described for the construction of the Project water environment.

3.5.6.20 Sources of decommissioning impacts are:

- Soil stripping, earthworks and excavations;
- Watercourse crossings for access; and
- Spoil storage in the floodplain.

Potential impacts

3.5.6.21 Table 3.5.1 identifies the potential impacts that could result from the sources identified above.

Table 3.5.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction & decommissioning	Soil stripping, earthworks and excavations	Pollution by silt, hydrocarbons and other	Yes	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		construction materials,		
Construction	Watercourse crossings for access and cable route – open cut	Physical disturbance, changes to flow regime	Yes	**Scoped in**
Construction	Watercourse crossings for cable route – trenchless	Pollution risks (bentonite breakout) and water consumption	Yes	**Scoped in**
Construction & decommissioning	Soil stripping, earthworks and excavations	Increased runoff rates and volumes, disruption to land drainage regimes	Yes	**Scoped in**
Construction & decommissioning	Spoil storage in floodplain	Increased flood risk	Yes	**Scoped in**
Operation	Operational discharges and runoff from AGI	Pollution of watercourses	No – no impact pathways given SuDS treatment provision	Scoped out
Operation	Operational discharges and runoff from AGI and loss of floodplain storage	Increased flood risk	No – no impact pathways given SuDS attenuation provision	Scoped out
Operation	Operational infrastructure – AGI and watercourse crossings	Physical disturbance, impact to flow regimes	No– no impact pathway as cables would be buried	Scoped out
Maintenance	Maintenance activities	Pollution of watercourses and physical disturbance	No– no impact pathway given nature of maintenance activities	Scoped out

Impact Pathways on Receptors (Step 2)

3.5.6.22 This section identifies whether there are any impact pathways from the impacts identified above that could give risk to potential significant effect on the receptors within the water environment study areas.

3.5.6.23 Table 3.5.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme.**

Table 3.5.2: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in / out
Pollution due to construction and decommissioning activities	River Stour and watercourses in the Stour Marshes including Minster Stream and Richborough Stream	Yes	**Scoped in**
Temporary physical disturbance and change to flow regimes at watercourse crossings for access and cable route	River Stour and watercourses in the Stour Marshes including Minster Stream and Richborough Stream	Yes	**Scoped in**
Impact on land drainage regime during construction and operation due to soil stripping, earthworks and excavation	Ordinary watercourses, land drains and existing land uses	Yes	**Scoped in**
Temporary loss of floodplain storage / impediment of floodplain flows due to spoil storage during construction and decommissioning	Fluvial floodplains, existing land uses and infrastructure	Yes	**Scoped in**

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in / out
Increased surface water runoff from converter station drainage during operation	Existing land uses and infrastructure	No – no impact pathway given SuDS attenuation provision	Scoped out
Increased flood risk due to permanent loss of floodplain storage / impediment of floodplain flows	Fluvial floodplains, existing land uses and infrastructure	No– no impact pathway, no above ground operational infrastructure in the floodplain	Scoped out
Permanent impact on land drainage regime during operation	Ordinary watercourses, land drains, existing land uses	No– no impact pathways, land drainage routes would be reinstated or re-provided	Scoped out

3.5.7 Proposed Assessment Methodology

3.5.7.1 An overview of the proposed assessment methodology is provided in **Part 1 Chapter 5 EIA Approach and Method**.

Proposed Data Sources

3.5.7.2 The assessment will be informed by several published data sets and reports, which will be referenced to describe the baseline qualities of surface water receptors. Key data sources include:

- Catchment data explorer database of Cycle 2 and 3 Water Framework Directive information (Environment Agency, 2020)
- River Basin Management Plan (Environment Agency, 2018)
- Long term flood risk map for England, the Flood Map for Planning and the Historic Flood Map (Environment Agency, 2022)
- Data from Environment Agency flood models
- Drainage and flood data from Local Authority Surface Water Management Plans and Strategic Flood Risk Assessments
- Water quality data from the Environment Agency archive (Environment Agency, 2018); and
- Data defining surface water catchment areas and hydrological properties (e.g. rainfall, slopes, and soil permeability) from the Flood Estimation Handbook webservice (CEH, 2008)

Proposed Assessment Methodology

3.5.7.3 The assessment will be based on guidance set out in Part 10 of Volume 11 of the Design Manual for Roads and Bridges (DMRB), LA113[111]. Whilst primarily intended for use in assessing the impacts of highways projects on the water environment, the methodology is widely accepted as suitable for assessing the effects of other types of linear infrastructure. This promotes assessment that is proportionate to the scale and nature of the proposals and that considers the sensitivity of the local water environment to change.

3.5.7.4 The method provides guidance on assigning value (sensitivity) to receptors (for example, watercourses, floodplains) as well as criteria for assigning impact magnitude. The criteria consider the scale/extent of the predicted change and the nature and duration of the impact. Tables 3.5.3 and 3.5.4 below present the receptor value and impact magnitude criteria.

Table 3.5.3: Criteria for assigned receptor value (sensitivity)

Value of resource or receptor	Criteria	Typical examples
Very high	Nationally significant attribute of high importance	Site protected/designated under European Commission (EC) or UK legislation (Special Area of Conservation, Special Protection Area, Site of Special Scientific Interest, Ramsar site) Watercourse having a Water Framework Directive (WFD) classification shown in a River Basin Management Plan (RBMP) and a Q95 > 1.0m^3/s. Watercourse in natural equilibrium exhibiting a range of morphological features (e.g. pools, riffles) that is free from any modification or human influence Essential infrastructure or highly vulnerable development
High	Locally significant attribute of high importance	Watercourse having a WFD classification shown in a RBMP and a Q95 <1.0m^3/s Very limited signs of modification or other human influences on morphology More vulnerable development
Medium	Of moderate quality and rarity	Watercourses not having a WFD classification shown in a RBMP and Q95 > 0.001m^3/s Watercourse showing signs of modifications and having a limited range of morphological features Less vulnerable development

[111] Highways England (2020). Design Manual for Roads and Bridges. LA 113 Road Drainage and the Water Environment. [online] Available at: https://www.standardsforhighways.co.uk/prod/attachments/d6388f5f-2694-4986-ac46-b17b62c21727?inline=true

Value of resource or receptor	Criteria	Typical examples
Low	Lower quality, common place	Watercourses not having a WFD classification in a RBMP and a Q95 flow <0.001m^3/s A highly modified watercourse, changed by human pressures. No morphological diversity Water compatible development

Table 3.5.4:Criteria for assigning impact magnitude

Magnitude of impact*	Criteria	Typical examples
Large adverse	Results in loss of attribute and/or quality and integrity of the attribute	Loss or extensive change to a fishery Loss or extensive change to a designated nature conservation site Reduction in waterbody WFD classification Pollution of a public water supply or loss of a major commercial/industrial/agricultural supply Extensive change to channel planform, replacement of large extent of natural bed/bans with artificial material Increase in peak flood level (1% annual exceedance probability) of > 100mm
Medium adverse	Results in effect on integrity of attribute, or loss of part of attribute	Partial loss in productivity if a fishery Pollution of a non-potential source of abstraction Contribution to reduction in waterbody WFD classification Degradation (quality or reliability) of a potable, commercial or agricultural water supply Replacement of natural bed material or banks with artificial material over more than 3% of the water body's total length Increase in peak flood level (1% annual exceedance probability) of > 50mm
Small adverse	Results in some measurable change in attribute quality or vulnerability	Minor effects on water supplies Slight change from baseline conditions of channel bed/banks Increase in peak flood level > 10mm
Negligible	Results in effect on attribute of insufficient	Negligible change in peak flood level (< 10mm) No measurable impact on WFD waterbodies or river channel planform

Magnitude of impact*	Criteria	Typical examples
	magnitude to affect the use or integrity	
Small beneficial	Results in some positive effect on an attribute or a reduced risk of negative effect occurring	Creation of flood storage and reduction in peak flood level (1% AEP) > 10mm
Medium beneficial	Results in moderate improvement of attribute quality	Contribution to improvement waterbody WFD classification Improvements to morphological diversity at the local scale Creation of flood storage and reduction in peak flood level (1% AEP) > 50mm
Large beneficial	Results in major improvement of attribute quality	Removal of existing polluting discharge or removing likelihood of polluting discharges to a watercourse Major improvement to morphological diversity at reach scale e.g. through culvert removal Improvement in waterbody WFD classification Creation of flood storage and reduction in peak flood level (1% AEP) > 100mm
No change	No change, either beneficial or detrimental, to attribute quality	

*terminology has been adapted from that used in LA113, DMRB (National Highways, 2020)

3.5.7.5 The significance of an effect is then derived using the matrix set out in **Part 1, Chapter 5, EIA Approach and Methodology.**

3.5.7.6 Given the size of the Project and the presence of areas of Flood Zone 3 within the study area, an FRA of the Project will be produced in accordance with the Energy National Policy Statement and local flood risk management guidelines published by the LLFA[112]. The FRA will consider flood risk from all relevant sources during both construction and operation, incorporating allowance for climate change in accordance with published guidance where applicable[113]. It will also include details of the measures proposed to adhere to local drainage and flood risk planning policies. A WFD Screening Assessment will also be produced for the Project guided by Planning Advice Note 18: The Water Framework Directive[9]. The effects of the Project on the South East Basin Management Plan[13] and the waterbodies therein will be described, and the assessment will set out how the Project design has been developed to align with the requirements of the Directive. A qualitative approach is proposed, and the assessment

[112] Lead Local Flood Authorities of the South East of England (2020). Water. People. Places. - A guide for master planning sustainable drainage into developments. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0008/23579/Masterplanning-for-SuDS-Part-1.pdf

[113] Environment Agency (2022). Flood risk assessments: climate change allowances. [online] Available at: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

will identify how the Project design will avoid waterbody deterioration, as well as any other mitigation necessary.

3.5.8 Conclusion

3.5.8.1 Water environment receptors within the Scoping Boundary include the River Stour and watercourses draining the Stour Marshes, including the Minster Stream, there are also extensive floodplains. Higher risk project activities include watercourse crossings for access and construction of AGIs. A suite of embedded and good practice measures, coupled with commitments secured through the DCO would prevent or reduce source pathway linkages and control and manage effects on water quality, hydromorphology and flood risk and drainage.

Proposed Scope of the Assessment

3.5.8.2 A summary of the proposed scope of the assessment is provided in Table 3.5.5.

Table 3.5.5:Proposed scope of the assessment

Receptor	Potential significant effect	Project phase(s)	Proposed to be scoped in/out
Watercourses and water bodies	Construction opening new pollution pathways and /or causing physical disturbance and degradation.	Construction and decommissioning	**Scoped in**
Floodplains, landowners & Infrastructure	Loss of floodplain storage and changes in floodplain flow conveyance routes.	Construction, Construction Operation and Decommissioning	Scoped out
Watercourses, landowners & infrastructure	Increases in rates and volumes of rainfall runoff and effects on existing land drainage systems (quality & quantity).	Construction and decommissioning	**Scoped in**
Watercourses, landowners & infrastructure	Increases in other forms of flood risk (e.g. groundwater, artificial sources)	Construction Operation and Decommissioning	**Scoped in**

3.6 Geology and Hydrogeology

3.6.1 Introduction

3.6.1.1 This chapter presents how the geology and hydrogeology assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance, and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

3.6.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary, hereafter referred to as the Kent Scoping Boundary, is illustrated on **Figure 1.1.3 Kent Onshore Scoping Boundary**.

3.6.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**;
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**; and
- **Part 3, Chapter 5, Water Environment**.

3.6.1.4 This chapter is supported by the following figures:

- **Figure 3.6.1: Superficial Geology**;
- **Figure 3.6.2 Bedrock Geology**;
- **Figure 3.6.3 Hydrogeology**; and
- **Figure 3.6.4 Potential Sources of Contamination**.

3.6.1.5 The Project has the potential for geology and hydrogeology effects through excavation/disturbance of potentially contaminated soil, creation of pathways for contamination during piling or foundation excavation, and changes to groundwater levels and flow.

3.6.1.6 For geology, the assessment will include potential effects relating to designated sites, mineral resources, and ground conditions (stability and contamination).

3.6.1.7 For hydrogeology the assessment will include potential effects relating to changes in groundwater levels or flow, or potential effects relating to contamination and changes in quality. It also includes potential effects on surface water from changes in groundwater quality, levels or flow (i.e. where there is hydraulic continuity).

3.6.1.8 Effects on surface water, groundwater flooding and groundwater in terms of the Water Framework Directive are considered in **Part 3 Chapter 5 Water Environment**.

3.6.1.9 Ecological aspects including potential significant effects on Groundwater Dependant Terrestrial Ecosystems are considered in **Part 3, Chapter 3, Ecology and Biodiversity**. However, this chapter will identify where the underlying geology and/or groundwater within these ecosystems may be affected by contamination, and potential impacts on groundwater levels and flow that support these ecosystems.

3.6.1.10 Effects on agricultural and soil quality are considered within **Part 3, Chapter 7, Agriculture and Soils**.

3.6.2 Regulatory and Planning Context

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

Legislation

Environmental Protection Act (1990)[114]

3.6.2.2 Part 2A of the Environmental Protection Act 1990[114] and associated Statutory Guidance is the primary legislation on contaminated land. It provided a framework for the assessment and, where necessary, the remediation of contaminated land. Part 2A focuses on the identification and remediation of land which in its current use poses an unacceptable risk to people or the environment.

3.6.2.3 The Statutory Guidance that accompanies the Environmental Protection Act 1990, include the Contaminated Land Statutory Guidance, 2012[115] which provide a definition of what constitutes “contaminated land” and sets out the responsibilities of the Local Authority and the Environment Agency in the identification and management of contaminated land. The regulations also include a definition of 'risk', where a risk is said to be a combination of "(a) the likelihood that harm, or pollution of water, will occur as a result of contaminants in, on or under the land; and (b) the scale and seriousness of such harm or pollution if it did occur".

Environmental Damage (Prevention and Remediation) Regulations (2015)[116]

3.6.2.4 The Environmental Damage (Prevention and Remediation) Regulations 2015[116] aim to prevent new land contamination that will damage water or health. The Regulations also include enforcement procedures, including criminal sanctions, for breaches of the Regulations.

[114] Environmental Protection Act 1990 [online]. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents

[115] Department for Environment, Food and Rural Affairs (2012). Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/223705/pb13735cont-land-guidance.pdf

[116] The Environmental Damage (Prevention and Remediation) (England) Regulations 2015 [online]. Available at: https://www.legislation.gov.uk/uksi/2015/810/contents/made [Accessed 16 June 2022]

Environmental Permitting (England and Wales) Regulations (2016)[117]

3.6.2.5 The Environmental Permitting (England and Wales) Regulations (2016)[117] include transposition of the EU Landfill Directive[118] into UK law. These Regulations cover sites that are covered by environmental permits, such as landfills, and how these are regulated. The project may cross sites where there are permits currently held.

3.6.2.6 These Regulations also cover the licensing of surface waters and groundwater abstractions. They also protect water resources through Source Protection Zones (SPZs). The project may require abstractions or discharges during construction. Whilst the project is not indicated to pass through areas designated as SPZs, such areas are located in proximity.

Landfill Directive[118]

3.6.2.7 The Landfill Directive[118] was adopted by the European Community in 1999. Every Member State of the European Union (EU) was required to implement it from 16 July 2001. The Directive's overall objective is to prevent or reduce as far as possible the negative effects of landfilling on the environment, as well as any resulting risk to human health. It seeks to achieve this through specifying uniform technical standards at Community level. It also sets out requirements for the location, management, engineering, closure and monitoring for landfills. The Directive includes requirements relating to the characteristics of the waste to be landfilled. The Landfill Directive is currently implemented through the Environmental Permitting (England and Wales) Regulations 2016[117].

Water Resources Act (1991)[119]

3.6.2.8 The Water Resources Act (1991)[119] aims to maintain and improve the quality of controlled waters. Part II of the Act covers the licencing of surface water and groundwater abstractions.

The Water Environment (Water Framework Directive) Regulations (2017)[120]

3.6.2.9 The Water Framework Directive (WFD) (2017)[120] establish a framework for the protection of surface waters and groundwater and to prevent the deterioration of WFD water bodies.

3.6.2.10 A WFD assessment will be undertaken and this is described further in **Part 3 Chapter 5: Water Environment.**

[117] The Environmental Permitting (England and Wales) Regulations 2016 [online]. Available at: https://www.legislation.gov.uk/uksi/2016/1154/contents/made [Accessed 16 June 2022].

[118] The Landfill Directive Council Directive 1999/31/EC 1991 [online]. Available at: https://www.legislation.gov.uk/eudr/1999/31 [Accessed 16 June 2022].

[119] The Water Resources Act 1991 [online]. Available at: https://www.legislation.gov.uk/ukpga/1991/57/contents

[120] The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 [online]. Available at: https://www.legislation.gov.uk/uksi/2017/407/contents/made [Accessed 16 June 2022].

The Groundwater Regulations (2009)[121]

3.6.2.11 The Regulations cover potential groundwater contamination that could eventuate from spillages or disturbance of contaminated ground. The project has the potential to cross contaminated land or to create pollution risks during construction.

Environment Agency Groundwater Protection Position Statements (2018)[122]

3.6.2.12 The Environment Agency regulates activities that may impact groundwater resources, to prevent and limit pollution. This document is concerned with infrastructure schemes of national or regional significance, that pass through SPZs or are below the water table in Principal or Secondary aquifers.

3.6.2.13 Section A of the policy (general principles) includes the following

- A1: Wherever legislation allows, the Environment Agency will use a tiered, risk-based approach to regulate activities that may impact groundwater resources and to prevent and limit pollution;
- A2: Development must be appropriate to the sensitivity of the site. Where the potential consequences of a development or activity are serious or irreversible the Environment Agency will adopt the precautionary principle to manage and protect groundwater. The Environment Agency will also apply this principle in the absence of adequate information with which to conduct an assessment; and
- A3: The Environment Agency encourages everyone whose activities may impact upon groundwater to consider the groundwater protection hierarchy in their strategic plans when proposing new development or activities. The aim is to avoid potentially polluting activities being located in the most sensitive locations for groundwater.

3.6.2.14 Section C Infrastructure states the following:

- If national need for the provision and location of major developments overrides Environment Agency objections, the Environment Agency will raise its concerns and make every use of environmental impact assessment in addition to other measures to achieve environmental protection. Where developments receive approval against Environment Agency advice, it will apply section A - general protection position statements.

Planning Policy

National Planning Policy

National Policy Statements (NPS)

3.6.2.15 NPS EN-1[123], in paragraph 5.10.9 it states that “Applicants should safeguard any mineral resources on the proposed site as far as possible, taking into account the long-

[121] The Groundwater (England and Wales) Regulations 2009 [online]. Available at: https://www.legislation.gov.uk/ukdsi/2009/9780111480816/contents

[122] Environment Agency (2018). The Environment Agency’s approach to groundwater protection. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692989/Envirnment-Agency-approach-to-groundwater-protection.pdf

[123] Department of Energy & Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). [online] Available at: Overarching National Policy Statement for Energy (publishing.service.gov.uk) [Accessed 13/07/2022].

term potential of the land use after any future decommissioning has taken place". Paragraph 5.10.22 also states "Where a proposed development has an impact upon a Mineral Safeguarding Area, the IPC should ensure that appropriate mitigation measures have been put in place to safeguard mineral resources".

3.6.2.16 NPS EN-1[123], in paragraph 5.3.7 it states that "development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives, where significant harm cannot be avoided, then appropriate compensation measures should be sought".

3.6.2.17 NPS EN-1[123], in paragraph 5.15.3, it states that the Environmental Statement should in particular describe "*any impacts of the proposed project on… source protection zones (SPZs) around potable groundwater abstractions*"

3.6.2.18 NPS EN-1[123] is supported by National Policy Statement for Electricity Networks (EN-5)[124]. EN-5 contains paragraph 2.8.9 relating to Geology and Hydrogeology, which indicates that the IPC should consider for each specific project '*the environmental and archaeological consequences (undergrounding a 400kV line may mean disturbing a swathe of ground up to 40 metres across, which can disturb sensitive habitats, have an impact on soils and geology, and damage heritage assets, in many cases more than an overhead line would)*'.

The national planning policy framework

3.6.2.19 The National Planning Policy Framework[125] (paragraphs 174, 183, 179, 210) relates to conserving and enhancing the natural and local environment and helping the sustainable use of minerals. The National Planning Policy is supported by the associated Planning Practice Guidance for the NPPF, including Land Affected by Contamination[126], June 2014 (updated July 2019); Land Stability[127], March 2014 (updated July 2019); Natural Environment[128], January 2016 (updated July 2019).

Local planning policy

3.6.2.20 The local planning policy relevant to the scope of potential impacts relating to geology and hydrogeology is as follows:

- Kent Minerals and Waste Local Plan and Safeguarding Supplementary Planning Document[129]
  - CSM 5 - Land-won Mineral Safeguarding; and
  - DM 7 - Safeguarding Mineral Resources.

[124] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed 16 June 2022].

[125] Department for Levelling Up, Housing & Communities (2021). National Planning Policy Framework. London. [online] Available at: National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk) [Accessed 16 June 2022].

[126] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2019). Planning Practice Guidance - Land Affected by Contamination. [online] Available at: https://www.gov.uk/guidance/land-affected-by-contamination

[127] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2019). Planning Practice Guidance – Land Stability. [online] Available at: https://www.gov.uk/guidance/land-stability [Accessed 16 June 2022].

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

[129] Kent County Council (2020). Kent Minerals and Waste Local Plan 2013-30, 2020. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0004/112585/Kent-Minerals-and-Waste-Local-Plan-2013-2030.pdf [Accessed 16 June 2022].

- Dover District Council Core Strategy[130];
  - DM 17 – Groundwater Source Protection.
- Emerging Dover District Local Plan; and
  - DM 42 - Water Supply and Quality.
- Thanet Local Plan[131].
  - SE03 – Land Affected by Contamination; and
  - SE04 – Groundwater Protection.

Guidance and Advice Notes

3.6.2.21 The following core guidance documents provide the technical framework for applying a risk management process when dealing with land affected by contamination in a way that is consistent with government policies and legislation within the UK:

- Land Contamination: Risk Management (LCRM) [132];
- CIRIA 552: Contaminated Land Risk Assessment, A guide to good practice [133];
- BS 10175:2011+A2:2017 Investigation of potentially contaminated sites. Code of Practice[134]; and
- The Environment Agency's Guiding Principles for Managing and Reducing Land Contamination (GPLC2)[135].

3.6.3 Study Area

3.6.3.1 For the purpose of establishing the baseline conditions and defining the scope of the EIA, the study area has been defined as the Kent Scoping Boundary plus a 250m buffer for geology and up to a 500m buffer for hydrogeology. Given the scale and nature of the Project, this is considered a robust yet proportionate approach, and although not directly relevant for this development type, accords with the study area recommended in Guidance for the Safe Development of Housing on Land Affected by Contamination[136] .

[130] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf [Accessed 16 June 2022].

[131] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 16 June 2022].

[132] Environment Agency (2021). Land Contamination Risk Management. [online] Available at: https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm

[133] Rudland D., Lancefield R. and Mayell P. (2001). Contaminated land risk assessment, a guide to good practice (C552). CIRIA. p. 1-159.

[134] British Standards Institution (2011). BS 10175:2011+A2;2017, Investigation of potentially contaminated sites – code of practice. BSI. P. 1-134.

[135] Environment Agency (2016). Managing and Reducing Land Contamination: Guiding Principles (GPLC). [online] Available at: https://www.gov.uk/government/publications/managing-and-reducing-land-contamination [Accessed 16 June 2022].

[136] The National House Building Council, The Environment Agency and The Chartered Institute of Environmental Health (2008). Guidance for the Safe Development of Housing on Land Affected by Contamination. [online] Available at: https://www.nhbc.co.uk/binaries/content/assets/nhbc/products-and-services/tech-advice-and-guidance/guidance-for-the-safe-development-of-housing-on-land-affected-by-contamination.pdf [Accessed 16 June 2022].

3.6.3.2 The study area will be refined throughout the development of the Project, it is proposed that the study area for the EIA will be the proposed Order Limits plus the same buffer zones as described above.

3.6.4 Baseline Conditions

3.6.4.1 The following section provides a summary of the baseline environmental conditions within the Kent Scoping Boundary, using the sources of information outlined below.

Data Sources

3.6.4.2 The geology and hydrogeology baseline described in this section has been informed by the following data sources:

- Britain from Above, historical aerial imagery archive[137] ;
- British Geological Survey (BGS) Sheets 274 Ramsgate[138], 1:50,000 scale solid and drift edition.;
- BGS GeoIndex Viewer[139];
- BGS Hydrogeological Map of the Chalk and Lower Greensand of Kent[140];
- Coal Authority Interactive Map[141];
- Environment Agency (EA), Catchment Data Explorer[142] ;
- Environment Agency Report, New Groundwater Vulnerability Mapping Methodology in England and Wales[143];
- Geo Conservation Kent map of Regionally Important Geological Sites in Kent[144],;
- Multi-Agency Geographic Information for the Countryside (MAGIC) interactive map[145];
- National Library of Scotland, georeferenced historical maps for the period 1885 - 1970[146], and

[137] Britain from Above (2022). [online] Available at: https://britainfromabove.org.uk/en [Accessed 16 June 2022]

[138] British Geological Survey (1996). Sheet 191, Saxmundham, 1:50,000 scale solid and drift, geological map, BGS, Keysworth.

[139] British Geological Survey (2022). Geoindex Onshore. [online] Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html [Accessed 16 June 2022].

[140] British Geological Survey (1970). Hydrogeological Maps of the United Kingdom - Hydrogeological map of the Chalk and Lower Greensand of Kent -Sheet 3b. Chalk regional hydrological characteristics and explanatory notes. BGS, Keysworth.

[141] The Coal Authority (2022). Interactive Map. [online] Available at: https://mapapps2.bgs.ac.uk/coalauthority/home.html

[142] Environment Agency (2022). Catchment Data Explorer – Stour (Essex) Water Body. [online] Available at: https://environment.data.gov.uk/catchment-planning/WaterBody/GB520503613602 [Accessed 16 June 2022].

[143] Environment Agency (2017). Groundwater vulnerability mapping methodology. [online] Available at: https://www.gov.uk/government/publications/updated-groundwater-vulnerability-maps-improvements-to-methodology-and-data [Accessed 16 June 2022].

[144] Geo Conservation Kent (2022). Geological Map of Kent. [online] Available at: https://www.geoconservationkent.org.uk/index.php?option=com_content&view=article&id=12:-geological-map-of-kent&catid=4:geology&Itemid=17 [Accessed 16 June 2022].

[145] Department for Environment, Food and Rural Affairs (2022). Multi-Agency Geographic Information for the Countryside (MAGIC). [online] Available at: https://magic.defra.gov.uk/ [Accessed 16 June 2022].

[146] National Library of Scotland (2022). Map Images. [online]. Available at: https://maps.nls.uk/geo/explore/side-by-side/#zoom=5.0&lat=56.00000&lon=-4.00000&layers=1&right=ESRIWorld [Access 16 June 2022].

- Zetica Ltd., Unexploded Ordnance Risk Maps[147].

Baseline

Geology

Superficial deposits

3.6.4.3 The superficial geology present beneath the Kent Scoping Boundary is shown on **Figure 3.6.1 Superficial Geology**.

3.6.4.4 The majority of the study area to the west of the A256 is shown to be underlain by Tidal Flat Deposits, described by the BGS[148] as typically comprising "*unconsolidated sediment, mainly mud and/or sand…. soft silty clay, with layers of sand, gravel and peat*". Further areas of Tidal Flat Deposits are present to the east of the A256 beneath St. Augustine's Golf Course.

3.6.4.5 To the east of the mapped areas of Tidal Flat Deposits, along the eastern boundary, the BGS record deposits of Beach and Tidal Flat Deposits (Undifferentiated) described[148] as a composite of Beach Deposits ("*Shingle, sand, silt and clay*") and the Tidal Flat Deposits described above.

3.6.4.6 Limited areas along the northern boundary are shown to be underlain by deposits of Head, described as a poorly sorted and poorly stratified deposit described by the BGS[148] as typically comprising "*sand and gravel, locally with lenses of silt, clay or peat and organic material*".

3.6.4.7 There are also some areas within the study area, predominantly immediately adjacent either side of the A256, where there are no superficial deposits recorded on the BGS mapping.

Bedrock geology

3.6.4.8 The bedrock geology present beneath the Kent Scoping Boundary is shown on **Figure 3.6.2 Bedrock Geology.**

3.6.4.9 The whole of the Kent Scoping Boundary is shown to be underlain by bedrock of the Thanet Formation, described by the BGS[148] as typically a "*silty fine-grained sand, with sandy silt, silt or sandy, silty clay especially in the lower part, forming a coarsening-upwards sequence*". BGS Sheet 274[138] indicates that the Thanet Formation is approximately 30m thick.

3.6.4.10 Beneath the Thanet Formation, the BGS mapping[138] and archive borehole logs record[139] chalk bedrock of the White Chalk Subgroup. The BGS map[138] indicates that the chalk is in excess of 200m thick. In the study area, to the north of the Kent Scoping Boundary the Thanet Formation is absent and the superficial deposits are directly underlain by the White Chalk Subgroup.

[147] Zetica UXO (2022). Unexploded Ordnance Risk Maps. [online] Available at: https://zeticauxo.com/downloads-and-resources/risk-maps/ [Accessed 16 June].

[148] British Geological Survey (2022). Lexicon of Named Rock Units. [online] Available at: https://webapps.bgs.ac.uk/lexicon/ [Accessed 16 June 2022].

Coal mining

3.6.4.11 The majority of the study area is shown to be within the Kent Coalfield and the geological mapping[138] indicates that the coal measures are likely to be at significant (>300m) depth beneath the chalk bedrock. In addition, the coal seams recorded by the BGS as present at depth within the study area are indicated to be of limited thickness (Kent Seam No 11 0.4m thick and Kent Seam No 14 0.7m thick).

3.6.4.12 A review of the Coal Authority's interactive map viewer[141] indicates that the southern part of the study area is in a Coal Mining Reporting Area. The interactive map shows that there are no recorded mine entries, fissures or breaklines, areas of historical recorded shallow mining, coal outcrops, coal mine abandonment plans, Surface Coal Resource Area or Development High Risk Areas within the study area.

Geo-conservation

3.6.4.13 A review of the Geo Conservation Kent interactive map[144] and DEFRA's MAGIC map[145] indicates that there are no Regionally Important Geological Sites (RIGS) or geological Sites of Special Scientific Interest (SSSI) present within the study area. However, the Sandwich Bay to Hacklinge Marshes SSSI is also designated as a Geological Conservation Review Site, which forms the eastern part of the study area and the wooded area between the former Richborough Power Station and Weatherlees Hill Water Treatment Works. These are discussed further within the Environmentally Sensitive Sites section.

Minerals

3.6.4.14 A review of the Kent County Council (KCC) Minerals and Waste Local Plan[129] (MWLP) indicates that there are no Mineral Safeguarding Areas (MSAs, as defined by Policy CSM 5 of the MWLP) within the Kent Scoping Boundary.

3.6.4.15 In addition, the MWLP and the KCC Mineral Sites Plan indicate that there are no proposed mineral extraction sites, safeguarded docks / wharves / jetties / rail depots within the Kent Scoping Boundary.

Radon

3.6.4.16 Based on the UK Radon maps[149] the study area is located within an area where less than 1% of homes are above the Action Level for Radon and therefore Radon protection measures in new homes would not be required. This is not considered to be entirely relevant to the Project, however it is a good indicator of whether Radon gas needs to be considered in the ES.

Hydrogeology

Aquifer designation – superficial

3.6.4.17 DEFRA's MAGIC map[145] indicates that the Undifferentiated Beach and Tidal Flat Deposits to the east of the study area are classified in parts as a Secondary A Aquifer and in parts as a Secondary Undifferentiated Aquifer. The Tidal Flat Deposits to the west of the study area and the Head Deposits to the north are classified as Unproductive Strata.

[149] UK Radon (2022). Radon Maps. [online] Available at: https://www.ukradon.org/radonmaps/ [Accessed on 16 June 2022].

3.6.4.18 Secondary A Aquifers are described by the Environment Agency (EA) as "*permeable layers that can support local water supplies, and may form an important source of base flow to rivers*". The Secondary Undifferentiated Aquifer classification is applied by the EA "*where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. These have only a minor value*[150]".

3.6.4.19 Unproductive Strata is described by the EA as "largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them"[150].

3.6.4.20 Groundwater flow within the shallow aquifer is likely to be generally to the east, towards the River Stour and the sea. Groundwater levels and movement may exhibit some tidal influence in the eastern part of the study area.

Aquifer designation – bedrock

3.6.4.21 The bedrock of the Thanet Formation, present beneath the whole of the study area, is classified by the EA as a Secondary A Aquifer[145]. The White Chalk Subgroup, which is present beneath the Thanet Formation and directly underlying the superficial deposits to the north, is classified as a Principal Aquifer[145].

3.6.4.22 Principal Aquifers are described by the EA as strata that "provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes and wetlands[150].

3.6.4.23 The contours of Estimated minimum level of the chalk water table or pressure surface as shown on BGS' hydrogeological map[140], indicate that the piezometric surface within the Kent Scoping Boundary is likely to be zero metres above Ordnance Datum (mAOD).

3.6.4.24 The groundwater in the different strata (superficial and bedrock) may therefore be in hydraulic continuity.

Groundwater vulnerability

3.6.4.25 DEFRA's MAGIC map[145] indicates that the groundwater beneath the eastern part of the study area, i.e., approximately beneath areas where Undifferentiated Beach and Tidal Flat Deposits are present overlying the Thanet Formation, is of Medium to High vulnerability.

3.6.4.26 Within areas where the Thanet Formation is exposed at the surface, and not covered by a layer of superficial deposits, the groundwater vulnerability is considered to be High. Within the remaining parts of the study area, where the Tidal Flat Deposits overly the Thanet Sand Formation the groundwater vulnerability is considered to be Medium to Low Vulnerability.

3.6.4.27 The EA define High vulnerability as "Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits", and areas of Low vulnerability as "Areas that provide the greatest protection to groundwater from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial

[150] Environment Agency (2017). Protect Groundwater and Prevent Groundwater Pollution. [online] Available at: https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution [Accessed 16 June 2022].

deposits characterised by a low permeability". Medium vulnerability is described as intermediate between Low and High vulnerability[143].

3.6.4.28 To the north of the Kent Scoping Boundary within the study area where the chalk bedrock is present directly beneath the superficial deposits the groundwater vulnerability is shown to be Medium to High.

Groundwater source protection zones

3.6.4.29 Source Protection Zones in relation to the Kent Onshore Scheme are shown on **Figure 3.6.3 Hydrogeology**.

3.6.4.30 DEFRA's MAGIC map[145] indicates that there are no groundwater Source Protection Zones (SPZs) within the Scoping Boundary.

3.6.4.31 Within the study area there are two SPZ 2s located approximately 300m northwest and 300m northeast of the Kent Scoping Boundary. The associated SPZ 1s are located approximately 900m northwest and 700m northeast of the Kent Scoping Boundary. It is anticipated that these abstractions are from within the White Chalk Subgroup.

3.6.4.32 A SPZ1 is defined as the inner zone which is a 50-day travel time of a pollutant to the source. A SPZ2 Outer Zone is defined as a 400-day travel time of a pollutant to a source. A SPZ3 is defined as the total catchment, which is the area around a source within which all the groundwater ends at the abstraction point[151].

3.6.4.33 The map also shows that the site is not located within a groundwater Drinking Water Safeguard Zone (DWSZ) or a groundwater Nitrate Issues Priority Zone (NIPZ). The nearest groundwater DWSZ and NIPZ are located approximately 450 m to the north of the Kent Scoping Boundary[145].

Groundwater body

3.6.4.34 The EA's Catchment Data Explorer[142] indicates that groundwater beneath the Kent Scoping Boundary and within the Study Area is part of the East Kent Tertiaries groundwater body (ref: GB40702G501600). This groundwater body received an overall Water Framework Directive (WFD) classification of "Poor" in 2019. This classification can be further broken down into classifications of "Good" for chemical quality and "Poor" for quantitative status.

Hydrology

3.6.4.35 The potential effects relating to hydrology are assessed within **Part 3, Chapter 5, Water Environment**, however where there is potential for groundwater to interact with and impact surface waters, those sensitive receptors are identified within this chapter in order to determine the potential effects from any contamination.

3.6.4.36 The Study Area is situated within the catchment of the River Stour, which is a designated main river, and flows generally to the south through the Scoping Boundary before turning to the north adjacent to the eastern Kent Scoping Boundary and out falling in Pegwell Bay. The Environment Agency Catchment Data Explorer[142] indicates that the catchment has been given a moderate Ecological Status and failing Chemical Status in 2019. The River Stour and Pegwell Bay are classified as a Drinking Water

[151] Environment Agency (2019). Groundwater Source Protection Zones (SPZs). [online] Available at: https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs [Accessed 15 July 2022].

Protected Area for Surface Water. In addition to the River Stour, there are a network of watercourses that drain into the Stour Marshes within the study area.

Environmentally sensitive sites

3.6.4.37 A review of DEFRA's MAGIC map[145] indicates the following environmentally sensitive sites present within the Kent Scoping Boundary and within the study area:

- Sandwich Bay to Hacklinge Marshes SSSI, located both within the Kent Scoping Boundary (wooded area between former Richborough Power Station and Weatherlees Hill WTW) and within the study area immediately east and south of the eastern Scoping Boundary;
- Sandwich Bay Special Area of Conservation (SAC) and Thanet Coast & Sandwich Bay Special Protection Area (SPA) both located immediately east of the Kent Scoping Boundary and within the study area to the east. Thanet Coast & Sandwich Bay is also a wetland of international importance as designated by the Ramsar Convention; and
- Sandwich and Pegwell Bay National Nature Reserve (NNR) located beneath the Pegwell Bay and Cliffsend landfill within the Scoping Boundary to the northeast.

3.6.4.38 There are no recorded Local Nature Reserves (LNR) or areas of Ancient Woodland within the Scoping Boundary.

Potentially contaminative land uses

3.6.4.39 Much of the Kent Scoping Boundary and study area appears to have remained as undeveloped agricultural land since the earliest available publicly available historical mapping dated 1885[146]. In these areas it is considered that there is a very low risk of significant sources of potential contamination.

3.6.4.40 There are however areas within the Kent Scoping Boundary and the study area that have a history of potentially contaminative land use or where the current land use is potentially contaminative. Where identified, readily available information relating to these Potential Sources of Contamination (PSC) has been gathered and is presented in Table 3.6.1 below with a corresponding Risk Rating for their potential for generation of significant contamination. The location of these, are presented on **Figure 3.6.4 Potential Sources of Contamination**.

Table 3.6.1: Potential sources of contamination

PSC number	Name	Location	Description	Risk ranking
PSC within Scoping Boundary				
1	Cliffsend landfill (ref: EAHLD19457, WRC ref: 2200/7253)	Located in the north-eastern corner of the Scoping Boundary, to the south-east of St. Augustine's Golf Course, between Sandwich Road and the coastal path	This landfill is indicated to have been operated by Thanet District Council and received household and inert waste between 1960 and 1972. Historical mapping and historical aerial imagery indicate that the waste appears to have been deposited directly onto an area of marshy coastal land.	High
2	Railways	The Scoping Boundary is crossed by a north-west south-east trending railway line and a further east-west trending railway line forms the Scoping Boundaries northern boundary.	These railway branch lines are recorded on the 1888 – 1913 historical map as the Deal Branch and the Ashford, Canterbury and Ramsgate Branch of the Southeast Railway. On the basis of the Ordnance Survey mapping and LIDAR data reviewed, these lines appear to have been constructed approximately 'at grade' with small embankments constructed for bridged crossings over waterways.	Low
3	Minster Wastewater Treatment Works	Located within the east of the Scoping Boundary to the south of Marsh Farm Road to the north of Western Monkton Stream (drain) and the River Stour.	Historical mapping indicates the site was undeveloped land. The earliest available aerial imagery, dated 1940, shows the water treatment works present in the northwest corner of the site. The imagery shows the expansion of the site over a number of years. A review of the North East Kent Drainage Strategy[152] shows that the site treats waste water which is then released into the River Stour. It is assumed that the site is regulated under an Environmental Permit which	Low

[152] Southern Water (2016). Drainage Strategy – North East Kent. [online] Available at: https://www.southernwater.co.uk/media/3271/drainagestrategyreport-nekent.pdf [Accessed 16 June 2022].

			would include controls on testing before discharge.	
4	Car breakers / maintenance	Between Ebbsfleet Lane and east of A256, located partially within the scoping boundary.	From the earliest available mapping dated 1885-1900, a property is indicated at the location. From historical aerial photography it can be seen the house is used for the storage of vehicles from approximately 2003 until the present day.	Moderate
PSCs within wider study area				
5	Weatherlees Hill Wastewater Treatment Works (WTW)	Located in the centre of the Scoping Boundary at approximate NGR 633035 E, 162770 N.	Historical aerial imagery indicates that the WTW was constructed in the early 1990s on an area of previously undeveloped land. A review of the North East Kent Drainage strategy[152] states the site was constructed in 1996 with the site extended in 2006. The WTW does not appear (based on historical mapping snapshot) to have utilised sludge beds / lagoons or sludge drying slabs.	Low to Moderate
6	Ebbsfleet Ovenden landfill (ref: EAHLD34024, WRC ref: 2200/7278).	Located in the north-east of the Scoping Boundary, at the western end of St. Augustine's Golf Course, the polygon provided by the EA for this landfill is a small circle centred at approximate NGR 633500 E, 162995 N.	This landfill is indicated to have been operated by Ovenden Earthmoving Company Ltd. and received inert waste between 1976 and 1991. The licence is indicated to have been surrendered in 1992. Note: Such polygons are typically provided when the EA is unsure of the extent of a landfill and should not be taken as an accurate description of the licenced area.	Moderate
7	Richborough Power Station landfill (ref: EAHLD19472, WRC ref: 2200/7251)	Located in the centre of the Scoping Boundary at approximate NGR 632572 E, 162506N.	This landfill is indicated to have been operated by the Central Electricity Generating Board and received inert waste between 1962 and 1987. The licence is indicated to have been surrendered in 1990.	Moderate

Future Baseline

3.6.4.41 There are no foreseeable significant changes anticipated in relation to geology, hydrogeology or land contamination either prior to, or during, the construction and operational phases. It is assumed that any man-made changes (i.e. new developments) would be appropriately permitted and operated to prevent the creation of potentially adverse ground conditions or impacts to controlled waters.

3.6.5 Embedded and Control & Measurement Measures

Embedded Measures

3.6.5.1 The Project has, wherever possible, avoided sensitive features, such as groundwater SPZ 1, through the options appraisal.

Control and Management Measures

3.6.5.2 For the purpose of assessing the effects of the Project, it has been assumed that routine health and safety and environmental controls will be in place during construction, in accordance with standard good practice across the construction industry.

3.6.5.3 The outline Code of Construction Practice (CoCP) contained within **Appendix 1.4.A Outline Code of Construction Practice** contains a list of relevant good practice measures which will be adopted, including the following key commitments relating to Geology and Hydrogeology:

- GH01: Intrusive ground investigations and assessment will be undertaken prior to construction which will inform appropriate geotechnical design in relation to the site/structure specific ground conditions including ground instability/adverse ground conditions.
- GH02: Construction methods such as appropriate piling techniques (if required) to minimise the risk of mixing of aquifer bodies through the creation of new. This includes the provision of a Foundation Works Risk Assessment (FWRA), which would be undertaken once the proposed foundation solutions are known, in accordance with EA guidance ‘Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination’ (EA, 2001).
- GH03: Use of appropriate occupational health and safety measures e.g. Personal Protective Equipment (PPE), and statutory health and safety compliance (e.g. compliance with the Confined Spaces Regulations, 1997 in relation to ground gas from working in confined spaces/trenches) to minimise the risks associated with anticipated/unexpected contamination. Based on risk assessment informed by site specific information.
- GH04: appropriate training of construction and maintenance workers in the handling and use of potentially hazardous substances and the associated risks.
- GH05: All use and storage of chemicals to be undertaken in accordance with EA Pollution Prevention Guideline (PGG) notes, and controlled and monitored under

the Construction and Environmental Management Plan (CEMP) and general construction site good environmental and waste management procedures

- GH06: The control of earthworks or materials movement (including any re-use of materials) under appropriate Environmental Permits, exemptions or CL:AIRE 'The definition of Waste: The development industry Code of Practice (2011).
- GH07: Any temporary dewatering activities during construction will be undertaken in accordance with EA guidance, and if required, an Abstraction Licence and Environmental Permit (for the discharge) and will be limited to the depth and time required to facilitate construction activities.
- GH08: A protocol for dealing within any unexpected contamination.

3.6.6 Potential for Significant Effects

3.6.6.1 The geology and hydrogeology assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4 Description of the Project**.

3.6.6.2 The proposed scope of the ecology and biodiversity assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.6.6.3 This section identifies the sources and impacts that could occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.6.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- existing contamination;
- excavation of trenchless crossings;
- dewatering activities;
- general construction activities such as foundations;
- discharge of groundwater from dewatering;
- damage to sensitive receptors from the built environment;
- introduction of new contamination;
- ground gas; and
- coal measure.

Sources of operational impacts

- introduction of new contamination;
- introduction of impermeable surfaces; and
- ground gas.

Source of maintenance impacts

- introduction of new contamination; and
- ground gas.

Sources of decommissioning impacts

3.6.6.5 It is considered that the sources of impacts during decommissioning would be of a similar nature to those considered during the construction phase. It would also be undertaken in accordance with relevant environmental legislation available at the time and in accordance with any required licences and permits. Decommissioning activities would be subject to an environmental management plan that would identify and mitigate the potential impacts of decommissioning activities which that could harm sensitive receptors.

Potential impacts

3.6.6.6 Table 3.6.2 identifies the potential impacts that could result from the sources identified above.

Table 3.6.2: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction and decommissioning	Existing contamination	Yes - Human health exposure to potential contamination through ground disturbance during construction and decommissioning	Has the potential to result in likely significant effects	**Scoped in**
Construction and decommissioning	Existing contamination	Yes - Mobilisation of existing contamination during general construction/decommissioning, impacting on land and/or groundwater quality	Has the potential to result in likely significant effects	**Scoped in**
Construction	Excavation of trenchless Crossings	No - Connection of two aquifer units at trenchless crossings	Not likely to result in a significant effect due to	Scoped out

			the incorporation of the mitigation by design.	
Construction	Dewatering activities	Yes - Changes to groundwater levels, quality and groundwater flow direction caused by dewatering	Potential to result in a significant effect	**Scoped in**
Construction, maintenance and decommissioning	Construction activities	No - Introduction of new potential contaminants to the environment from leaks, spills, fuels and oils	Not likely to result in a significant effect due to the incorporation of the mitigation by design.	Scoped out
Construction	Discharge of groundwater from dewatering	No - Physical and chemical effects on groundwater	Not likely to result in a significant effect due to the incorporation of the mitigation by design.	Scoped out
Construction, operation, maintenance and decommissioning	Ground gas	Yes - Ingress and accumulation of ground gas in buildings/confined spaces/trenches– resulting in explosion/asphyxiation/exposure	Potential to result in a likely significant effect.	**Scoped in**
Construction	General construction	No - Construction activities and the built development (operational phase) can be affected by natural geological hazards (dissolution features/soft ground/landslides/aggressive ground conditions etc).	Not likely to result in a significant effect due to the incorporation of the mitigation by design.	Scoped out
Construction	Built Environment	Yes - Damage to/destruction of designated sites of geological importance	Potential to result in a likely significant effect.	**Scoped in**

Construction and Operation	Built Environment	No - Sterilisation of safeguarded minerals	The Scoping Boundary is not within a mineral consultation area or a mineral safeguarded area therefore unlikely to result in significant effects.	Scoped out
Operation and maintenance	Existing contamination	No - Human health exposure to existing contamination	Not likely to result in a significant effect due to the nature of the project and the incorporation of the mitigation by design.	Scoped out
Operation and maintenance	Introduction of new contamination	No - Introduction of new potential contaminants to the environment from leaks, spills, fuels and oils during the operational phase	Not likely to result in a significant effect given the nature of the project and in consideration of best practice measures and maintenance.	Scoped out
Operation	Introduction of impermeable surfaces	No - Changes to groundwater levels and/or recharge rates	Not likely to result in significant effects due to the small surface area of the project. Any new areas of hardstanding would be designed to meet current drainage	Scoped out

			standards (see **Part 3 Chapter 5: Water Environment**).	
Construction, decommissioning, and Operation	Coal Measures	No - Ground instability effects relating to historical coal mining	Not likely to result in a significant effect as the scoping boundary is not within a development high risk area and the coal measures are anticipated to be relatively thin and at significant depth.	Scoped out

Impact Pathways on Receptors (Step 2)

3.6.6.7 Table 3.6.3 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme**.

Table 3.6.3: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in / out
Human health exposure to potential contamination through ground disturbance during construction and decommissioning	Site workers, neighbours	Yes - Potential for existing contamination within the study area to result in significant effects	**Scoped in for construction and decommissioning** Scoped out for operation and maintenance
Mobilisation of existing contamination during general construction, impacting on land and/or groundwater quality	Environmentally sensitive sites, groundwater, Groundwater Dependant	Yes - Potential for existing contamination within the study	**Scoped in for construction and decommissioning**

	Terrestrial Ecosystems (GWDTE), surface water	area to result in significant effects	Scoped out for operation and maintenance
Changes to groundwater levels, quality and groundwater flow direction caused by dewatering and discharge	Environmentally sensitive sites, groundwater, GWDTE, surface water	Yes - Potential for dewatering to be required within the study area which could result in significant effects	**Scoped in for construction** Scoped out for operation, maintenance and decommissioning
Ingress and accumulation of ground gas in buildings/confined spaces/trenches (construction and operation) – resulting in explosion/asphyxiation/exposure	Construction/ maintenance workers, future users, built environment	Yes - Potential for gas generating strata within study area which could result in significant effects	**Scoped in for construction, operation, maintenance and decommissioning**
Damage to/destruction of designated sites of geological importance	Designated sites of geological importance	Yes - Designated sites located within the study area which could be damaged and could result in significant effects	**Scoped in for construction** Scoped out for operation, maintenance and decommissioning

3.6.7 Proposed Assessment Methodology

3.6.7.1 The proposed generic project wide approach to the assessment methodologies are presented in **Part 1 Chapter 5 EIA Approach and Method**. However, whilst this has informed the approach used in this chapter, it is necessary to set out how this methodology will be applied and adapted as appropriate, to address the specific needs of the assessment in relation to Geology and Hydrogeology.

Proposed Data Sources

3.6.7.2 The geology and hydrogeology assessment will be carried out in accordance with the following good practice guidance:

- Historical borehole records held by the BGS;
- Groundwater abstraction details as available from the EA and LPAs;
- Any relevant information regarding historical ground contamination that the LPAs hold; and
- Any relevant information held by the LPAs regarding geological sites.

Proposed Assessment Methodology

3.6.7.3 The methodology which has been followed for the work undertaken to date, and which will be developed during the EIA process, builds on the guidance set out earlier in this chapter for environmental effects assessed as likely to be significant. Therefore, to inform the ES, additional data gathering will be undertaken, building on the initial appraisal of baseline conditions provided in this scoping report and incorporating any additional information received from the Environment Agency and Local Authority (in response to requests for information), together with stakeholder responses from the Scoping Opinion.

3.6.7.4 The baseline information will be used to identify potential source-pathway-receptor linkages and inform a risk-based assessment of the effects of the project in relation to Geology and Hydrogeology. The risk based assessment will be undertaken following a tiered approach as supported by guidance provided in land contamination risk management (LCRM)[132], with progression through the different Tiers (Tier 1 Preliminary Risk Assessment, Tier 2 Generic Quantitative Risk Assessment and Tier 3 Detailed Quantitative Risk Assessment) dependent on the outcome of each previous Tier (therefore proportionate).

3.6.7.5 In the context of the length and size of the Study Area, and to provide a comprehensive yet proportionate assessment, an additional Tier (Tier 0) is proposed for the ES relating to Geology and Hydrogeology.

3.6.7.6 A Tier 0 assessment will be undertaken as a first stage screening of the Scoping Boundary and wider study area to identify potential pollutant linkages and assign a risk rating based on potential for significant contamination to be present. Those sources which are assessed to have a moderate, high or very high potential risk of contamination will be taken forward for further assessment to ensure the assessment is targeted in areas where significant effects are most likely. Where a very low or low risk rating is assessed, these areas will not be taken forward for further assessment in the ES on the basis they have a low likelihood of significant effects. The potential risk of contamination will be identified based on the historical and current land use:

Table 3.6.4: Criteria for classifying potential for generating contamination

Classification score	Potential for generating contamination
Very Low	Land Use Examples: Residential, retail or office use, agriculture. Contamination Potential: Limited
Low	Land Use Examples: Recent small scale industrial and light industry Contamination Potential: Locally slightly elevated concentrations
Moderate	Land Use Examples: Railway yards, collieries, scrap yards, inert landfills Contamination Potential: Possible widespread slightly elevated concentrations and locally elevated
High	Land Use Examples: Heavy industry, non-hazardous landfills

	Contamination Potential: Possible widespread elevated concentrations
Very High	Land Use Examples: Hazardous waste landfills, gas works, chemical works Contamination Potential: Likely widespread elevated concentrations

3.6.7.7 Risks associated with unexpected contamination will be managed through the protocols and good practice measures identified within the CoCP.

3.6.7.8 In order to evaluate whether the presence of a source of contamination could potentially lead to harmful consequences, a source-pathway-receptor methodology is adopted, with the underlying principle that the identification of pollutant linkages consists of the following three elements

- a source/hazard (a substance or situation that has the potential to cause harm or pollution);
- a pathway (a means by which the hazard moves along / generates exposure); and
- a receptor/target (an entity that is vulnerable to the potential adverse effects of the hazard).

3.6.7.9 Whilst the contamination may be a hazard it would not constitute a risk unless a pathway and receptor are also present and a pollutant linkage can be determined. Therefore, in assessing the potential for contamination to cause a significant effect: the extent and nature of the potential source or sources of contamination must be assessed; any pathways present must be identified; and sensitive receptors or resources identified and appraised to determine their value and sensitivity to contamination related impacts.

3.6.7.10 The methodology adopted in this chapter is qualitative with a progression from factual information (stated with reasonable certainty) regarding the baseline conditions, to appraisal informed by professional judgement and expression of opinions on the relative significance.

3.6.7.11 The risk assessment approach proposed in this methodology will be transposed into EIA classification as follows;

- For each potential effect the receptor sensitivity and impact magnitude will be assigned using the Tables 3.6.5 and 3.6.6 below, which will then be combined to give a significance of effect using the matrix provided in Table 3.6.7.

3.6.7.12 There is no equivalent published assessment methodology that relates to impacts relating to geology (e.g. geo-conservation). For consistency, a similar approach will be adopted to assess these effects (i.e. combination of receptor identification and associated sensitivity and magnitude of potential impacts) as stated above.

3.6.7.13 A source-pathway-receptor linkage approach, as detailed above, will also be applied to assessing the potential effects on groundwater which relate to the geological/hydrogeological settings between the Order Limits and identified groundwater abstractions and receptors, in accordance with the policy guidance outlined at the start of this chapter. Further, localised Hydrogeological Risk Assessment may also be required where dewatering is likely and the receptors

present. Assessment of the impacts on groundwater receptors, will be undertaken based on the approach and methodology described in Environment Agency, Hydrogeological Impact Appraisal for dewatering guidance (2007).

3.6.7.14 The proposed assessment approach in the chapter is based on desk study information. 'Reasonable worst case' assumptions regarding the likely ground conditions will be made when assessing effects in the ES, determined from the desk study information.

Sensitivity of Receptors

3.6.7.15 The criteria used to determine the value and sensitivity of receptors specific to geology and hydrogeology are set out in Table 3.6.5. These criteria are based on the generic criteria presented in **Part 1 Chapter 5 EIA Approach and Method**.

Table 3.6.5: Value/sensitivity criteria

Value/sensitivity	General criteria
Very High	Very high importance and rarity. International scale and limited potential for substitution **Geology:** Very rare and of international importance with no potential for replacement (e.g. UNESCO World Heritage Sites, UNESCO Global Geoparks, Site of Special Scientific Interest (SSSI) and Geological Conservation Review (GCR) where citations indicate features of international importance). Geology meeting international designation citation criteria which is not designated as such. **Minerals:** Existing Mineral sites **Contamination:** 1) human health: very high sensitivity land use such as residential or allotments; 2) surface water: Watercourse having a Water Framework Directive (WFD) classification shown in a River Basin Management Plan (RBMP) and Q95 ≥ 1.0 m3/s. Site protected/designated under EC or UK legislation (Special Areas of Conservation (SAC), Special Protection Areas (SPA), Sites of Special Scientific Interest (SSSI), Ramsar site) 3) groundwater: Principal aquifer providing a regionally important resource and regionally important public water supplies, Source Protection Zone (SPZ) 1 **Hydrogeology:** Principal aquifer providing a regionally important source and regionally important public water supplies. Groundwater quality associated with SPZ 1 associated with licensed abstractions. Water feeding GWDTEs with a high groundwater dependence with a high environmental importance and international or national value, such as

	Ramsar sites, Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSIs).
High	High importance and rarity. National scale and limited potential for substitution **Geology:** Rare and of national importance with little potential for replacement (e.g. geological SSSI, Area of Special Scientific Interest (ASSI), National Nature Reserves (NNR)). Geology meeting national designation citation criteria which is not designated as such. **Minerals:** Mineral preferred areas **Contamination:** 1) human health: high sensitivity land use such as public open space; 2) surface water: Watercourse having a WFD classification shown in a RBMP and Q95 <1.0m^3/s. 3) groundwater: Principal aquifer providing locally important resource or supporting a river ecosystem, SPZ2. **Hydrogeology:** Principal aquifer providing a locally important source and locally important public water supplies, SPZ 2. Water feeding GWDTEs with a moderate groundwater dependence with high environmental importance and international or national value, such as Ramsar sites, SACs, SPAs and SSSIs; or water feeding highly groundwater dependent GWDTE with a national non-statutory UK Biodiversity Action Plan (BAP) priority
Medium	Medium or high importance and rarity, regional scale, limited potential for substitution **Geology:** Regional importance with limited potential for replacement (e.g. RIGS). Geology meeting regional designation citation criteria which is not designated as such. **Minerals:** Mineral Safeguarded Areas and Mineral Consultation Area **Contamination:** 1) human health: medium sensitivity land use such as commercial or industrial; 2) surface water: Watercourses not having a WFD classification shown in a RBMP and Q95 >0.001m3/s. 3) groundwater: Secondary A Aquifers. extensive non-licensed private water abstractions (i.e. feeding ten or more properties or supplying large farming / animal estates). SPZ2 (Outer Protection Zone) associated with licenced abstractions. **Hydrogeology:**

	Secondary A aquifer. Groundwater flow and yield and quality associated with extensive non-licensed private water abstractions (i.e. feeding ten or more properties or supplying large farming / animal estates). Groundwater quality associated with SPZ2 (Outer Protection Zone) associated with licensed abstractions. Residential and commercial properties. Water feeding GWDTEs of low groundwater dependence with a high environmental importance and international or national value, such as Ramsar sites, SACs, SPAs and SSSIs; or water feeding moderately groundwater dependent GWDTE with a national non-statutory UK Biodiversity Action Plan (BAP) priority
Low	Low or medium importance and rarity, local scale **Geology:** Local importance / interest with potential for replacement (e.g. non designated geological exposures, former quarry's / mining sites). **Minerals:** Mineral present but outside of any MPS/MSA/MCA **Contamination:** 1) human health: low sensitivity land use such as highways and rail; 2) surface water: Watercourses not having a WFD classification shown in a RBMP and Q95 ≤0.001m3/s. 3) groundwater: Secondary B or Secondary Undifferentiated aquifer. Small scale private water abstractions (i.e. feeding fewer than ten properties). SPZ3. **Hydrogeology:** Secondary B or Secondary Undifferentiated aquifer. Groundwater flow and yield and quality associated with small scale private water abstractions (i.e. feeding fewer than ten properties). Groundwater quality associated with SPZ3 (Source Catchment Protection Zone) associated with licensed abstractions and with licensed abstractions for which no SPZ is defined. Water feeding GWDTEs of low groundwater dependence with a national non-statutory UK BAP priority; or water feeding highly or moderately groundwater dependent GWDTE sites with no conservation designation.
Negligible	Very low importance and rarity, local scale **Geology:** No geological exposures, little / no local interest. **Mineral:** No mineral identified **Contamination:** 1) human health: undeveloped surplus land / no sensitive land use proposed; 2) surface water: not present 3) groundwater: Unproductive strata

	Hydrogeology: Very poor groundwater quality and/or very low permeability make exploitation of groundwater unfeasible. No active groundwater supply. Water feeding GWDTEs of low groundwater dependence with no designation or groundwater that supports a wetland not classified as a GWDTE, although may receive some minor contribution from groundwater

Impact Magnitude

Table 3.6.6: Magnitude criteria

Magnitude	General criteria
Large	**Geology Adverse**: Permanent loss of geological feature / designation and/or quality and integrity, severe damage to key characteristics, features or elements.
	Contamination Adverse: Significant contamination identified, and contamination level significantly exceed human health and environmental assessment criteria with the potential for significant harm to be caused. Contamination heavily restricts future use of land **Contamination Benefit**: Substantial betterment of ground or groundwater quality/contamination conditions through remediation and/or mitigation.
	Hydrogeology Adverse: Major or irreversible change to groundwater aquifer(s) flow, water level, quality or available yield which endangers the resources currently available. Groundwater resource use / abstraction is irreparably impacted upon, with a major or total loss of an existing supply or supplies. Changes to water table level or quality would result in a major or total change in, or loss of, a groundwater dependent area, where the value of a site would be severely affected. Changes to groundwater aquifer(s) flow, water level and quality would result in major changes to groundwater baseflow contributions to surface water and/ or alterations in surface water quality. **Hydrogeology Beneficial**: Major increase in groundwater resource availability. Results in the achievement of Good Status for a WFD groundwater body or GWDTE which is currently failing its WFD objectives. Removal of existing or potential polluting discharge to groundwater
Medium	**Geology Adverse**: partial loss of geological feature / designation, potentially adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.
	Contamination Adverse: Contamination levels marginally exceed human health and environment assessment criteria. Control / remediation

	measures are required to reduce risks to human health / make land suitable for intended use. **Contamination Benefit**: Moderate Betterment of ground or groundwater quality/contamination conditions through remediation and/or mitigation.
	Hydrogeology Adverse: Moderate long term or temporary significant changes to groundwater aquifer(s) flow, water level, quality or available yield which results in moderate long term or temporarily significant decrease in resource availability. Groundwater resource use / abstraction is impacted slightly, but existing supplies remain sustainable. Changes to water table level or groundwater quality would result in partial change in or loss of a groundwater dependent area, where the value of the site would be affected, but not to a major degree. Changes to groundwater aquifer(s) flow, water level and quality would result in moderate changes to groundwater baseflow contributions to surface water and/ or alterations in surface water quality, resulting in a moderate shift from baseline conditions **Hydrogeology Beneficial**: Moderate increase in groundwater resource availability. Contributes, in combination with other effects, to the achievement of Good Status for a WFD groundwater body or GWDTE which is currently failing its WFD objectives. Significant reduction of existing or potential polluting discharge to groundwater.
Small	**Geology Adverse**: minor measurable change in geological feature / designation attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Contamination Adverse: Contamination levels below human health and environment assessment criteria and remediation is not required. Significant contamination is unlikely with a low risk to human health. Best practice measures can be required to minimise risks to human health; **Contamination Benefit**: Slight betterment of ground or groundwater quality/contamination conditions through remediation and/or mitigation.
	Hydrogeology Adverse: Minor changes to groundwater aquifer(s) flow, water level, quality or available yield leading to a noticeable change, confined largely to the Project area. Changes to water table level, groundwater quality and yield result in little discernible change to existing resource use. Changes to water table level or groundwater quality would result in minor change to groundwater dependent areas, but where the value of the site would not be affected. Changes to groundwater aquifer(s) flow, water level and quality would result in minor changes to groundwater baseflow contributions to surface water and / or alterations in surface water quality, resulting in a minor shift from baseline conditions. **Hydrogeology Beneficial**: Minor increase in groundwater resource availability. Leads to improvement of a WFD groundwater body which is currently failing its WFD objectives but insufficient effect to achieve Good Status. Minor reduction of existing or potential polluting discharge to groundwater.

Negligible	**Geology Adverse**: Very minor loss or detrimental alteration to one or more characteristics, features or elements of geological feature / designation. Overall integrity of resource not affected.
	Contamination: Contamination levels substantially below human health and environment assessment criteria and remediation is not required. No requirement for control measures to reduce risks to human health / make land suitable for intended use.
	Hydrogeology Adverse: Very slight change from groundwater baseline conditions, approximating to 'no change' conditions. Dewatering effects create no or no noticeable effects.

Table 3.6.7: Significance matrix

		Value/Sensitivity of receptor				
		Very High	**High**	**Medium**	**Low**	**Negligible**
Magnitude	**Large**	Major	Major/Moderate	Major/Moderate /Minor	Moderate/Minor	Minor/Negligible
	Medium	Major/Moderate	Major/Moderate	Moderate/Minor	Minor/Negligible	Negligible
	Small	Major/Moderate	Moderate/Minor	Moderate/Minor	Minor/Negligible	Negligible
	Negligible	Minor/Negligible	Minor/Negligible	Minor/Negligible	Negligible	Negligible

3.6.8 Conclusion

3.6.8.1 The Geology and Hydrogeology receptors that have been identified within the Scoping Boundary include human health, groundwater, surface waters, designated sites of geological importance and land quality. The preliminary baseline assessment indicates that there is the potential for significant effects on these receptors, however with the implementation of both the embedded mitigation and good practice measures described, the significance of the potential effects can be reduced for certain impacts so that significant effects are unlikely. Where significant effects have been assessed as unlikely, those impacts are scoped out of further assessment. Where there is potential for significant effects, these impacts have been scoped into the ES and will be assessed further, in accordance with the methodology described. The impacts proposed to be scoped in and out of the assessment are summarised in Table 3.6.8.

Proposed Scope of the Assessment

3.6.8.2 A summary of the proposed scope of the assessment is provided in Table 3.6.8.

Table 3.6.8: Proposed Scope of the assessment

Receptor	Potential significant effect	Project phase(s)	Proposed to be scoped in/out
Geology			
Designated sites of geological importance	Damage to/destruction of designated sites of geological importance	Construction	**Scoped in**
		Operation, maintenance and decommissioning	Scoped out
Mineral Reserves	Sterilisation of safeguarded minerals	Construction, Operation, maintenance and decommissioning	Scoped out
Built development	Damage to/destruction of the built development (operational phase) due to natural geological hazards (dissolution features/soft ground/landslides/aggressive ground conditions etc)	Construction, Operation, maintenance and decommissioning	Scoped out
Built development	Ground instability effects relating to historical coal mining	Construction, Operation, maintenance and decommissioning	Scoped out
Contamination			
Site workers, neighbours	Human health exposure to existing potential contamination through ground disturbance during construction and decommissioning	Construction and decommissioning	**Scoped in**
Environmentally sensitive sites, groundwater, GWDTE, surface water, land quality	Mobilisation of existing contamination during general construction, impacting on land and/or groundwater quality	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
Environmentally sensitive sites, groundwater, GWDTE, surface	Introduction of new potential contaminants to the environment from leaks, spills, fuels and oils	Construction, operation, maintenance, and decommissioning	Scoped out

water, land quality.			
Construction/ maintenance workers, future users, built environment	Ingress and accumulation of ground gas in buildings/confined spaces/trenches (construction and operation) – resulting in explosion/asphyxiation/exposure	Construction, operation maintenance, and decommissioning	**Scoped in**
Site workers, maintenance workers, neighbours	Human health exposure to existing contamination during operation and maintenance	Operation and maintenance	Scoped out
Hydrogeology			
Environmentally sensitive sites, groundwater, GWDTE, surface water	Mixing of aquifer bodies due to the connection of aquifer units at trenchless crossings	Construction, operation, maintenance and decommissioning	Scoped out
Environmentally sensitive sites, groundwater, GWDTE, surface water	Changes to groundwater levels, quality and groundwater flow direction caused by dewatering	Construction Operation, maintenance and decommissioning	**Scoped in** Scoped out
Environmentally sensitive sites, groundwater, GWDTE, surface water	Physical and chemical changes to groundwater from the discharge of groundwater from dewatering	Construction, operation, maintenance and decommissioning	Scoped out
Environmentally sensitive sites, groundwater, GWDTE, surface water	Changes to groundwater levels and/or recharge rates from the introduction of impermeable surfaces	Construction, operation, maintenance and decommissioning	Scoped out

3.7 Agriculture and Soils

3.7.1 Introduction

3.7.1.1 This chapter presents of the Agriculture and Soils assessment which will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**) on agricultural and soil receptors. This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

3.7.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary, hereafter referred to as the Kent Scoping Boundary, is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.7.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.7.1.4 This chapter is supported by the following figures:

- **Figure 3.7.1 Soilscape Mapping**;
- **Figure 3.7.2 Provisional Agricultural Land Classification Mapping**;
- **Figure 3.7.3 Detailed Agricultural Land Classification Mapping**; and
- **Figure 3.7.4 Environmental Stewardship Agreements and Woodland Grant Schemes**.

3.7.1.5 The receptors included within this chapter comprise:

- the presence and potential impact on best and most versatile (BMV) land (as defined by the Agricultural Land Classification (ALC) system) and soil function, including land affected temporarily during construction and the land required permanently; and
- the nature and potential impacts on landholdings in agricultural use, including land affected temporarily during construction and the land required permanently. This will cover issues of potential fragmentation, biosecurity risks and impacts on any land under agri-environmental, woodland or forestry schemes.

3.7.1.6 The assessment of potentially significant effects on agricultural and soil receptors will be supported by information presented in other chapters: **Part 3, Chapter 3, Ecology**

and Biodiversity; **Part 3, Chapter 5 Water Environment**; and **Part 3, Chapter 6 Geology and Hydrogeology**.

3.7.2 Regulatory and Planning Context

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

Legislation

3.7.2.2 There is no primary legislation relevant to this topic.

Planning Policy

National planning policy

3.7.2.3 National Policy Statement (NPS) for Energy (EN-1)[153] contains paragraphs relating to agriculture and soils which have been considered within this chapter.

3.7.2.4 Paragraph 5.10.8 states that 'Applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification) and preferably use land in areas of poorer quality (grades 3b, 4 and 5) except where this would be inconsistent with other sustainability considerations. Applicants should also identify any effects and seek to minimise impacts on soil quality taking into account any mitigation measures proposed'.

3.7.2.5 Paragraph 5.10.15 states that the Secretary of State (formerly the Infrastructure Planning Commission) should 'ensure that applicants do not site their scheme on the best and most versatile agricultural land without justification. It should give little weight to the loss of poorer quality agricultural land (in grades 3b, 4 and 5), except in areas (such as uplands) where particular agricultural practices may themselves contribute to the quality and character of the environment or the local economy'.

3.7.2.6 EN-1 is supported by the National Policy Statement for Electricity Networks Infrastructure (EN-5)[154] which contains paragraphs relating to agriculture and soils which have been considered within this chapter. Paragraph 1.7.5 states that, in relation to a presumption that electricity lines should be put underground, '*effects on soil, water, ecology and archaeology are likely to be negative, at least in the short term, requiring significant mitigation, but there is uncertainty around long term effects depending on the specific location and sensitivity of the receiving environment*'. This is reiterated in paragraph 2.8.9 (third bullet point).

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

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

Local planning policy

3.7.2.7 Relevant policies from the Thanet Local Plan, Adopted July 2020[155] will be considered. These are listed below:

- SP24 – Development in the Countryside; and
- E16 – Best and Most Versatile Agricultural Land

3.7.2.8 Relevant policies from the Dover District Council Core Strategy, adopted February 2010[156] and the Dover District Local Plan, adopted 2002[157], will also be considered. These are listed below:

- DM15 – Protection of the Countryside.

Guidance

3.7.2.9 Several standards and non-statutory guidelines, which provide details of assessment methodologies and mitigation techniques, will also be referenced to inform the assessment, including:

- Construction Code of Practice for the sustainable re-use of soils on construction sites[158];
- Technical Information Note (TIN) 049[159]. Agricultural Land Classification: protecting the best and most versatile agricultural land;
- Good Practice Guide for Handling Soils[160]; and
- A new perspective on land and soil in Environmental Impact Assessment[161].

3.7.3 Study Area

3.7.3.1 The study area for agriculture and soils comprises the land which would be directly affected by the Kent Onshore Scheme (through disturbance or temporary covering of the soils). This will be based on the proposed Order Limits in the ES but for the purposes of this Scoping Report the study area includes the land within the Kent

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

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

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

[158] Department for Environment, Food and Rural Affairs (2009). Construction Code of Practice for the sustainable re-use of soils on construction sites. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716510/pb13298-code-of-practice-090910.pdf#:~:text=1.%20This%20Code%20of%20Practice%20for%20the%20sustainable,It%20is%20particularly%20intended%20for%20use%20in%20England.

[159] Natural England (2012). Technical Information Note TIN049. Agricultural Land Classification: protecting the best and most versatile agricultural land. [online] Available at: https://www.iow.gov.uk/azservices/documents/2782-FE14-Natural-England-TIN049-Agricultural-Land-Classification.pdf

[160] Ministry of Agriculture, Fisheries and Food (2000). Good Practice Guide for Handling Soils. [online] Available at: https://webarchive.nationalarchives.gov.uk/ukgwa/20090317221756/http://www.defra.gov.uk/farm/environment/land-use/soilguid/index.htm

[161] Institute of Environmental Management & Assessment (2022). A new perspective on land and soil in Environmental Impact Assessment.

Scoping Boundary. This is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.7.4 Baseline Conditions

Data Sources

3.7.4.1 The agriculture and soils baseline assessment has been informed by a desk study which has drawn on the following key information sources:

- Ordnance Survey mapping and aerial photography to establish land use and settlement patterns;
- Soilscape mapping showing the distribution of main soil types was assessed on the Land Information System website[162];
- ALC mapping, including provisional and (where available) detailed ALC mapping from the MAGIC website[163]; and
- Extent of agri-environmental and woodland schemes from the MAGIC website.

Baseline

Soils

3.7.4.2 The solid geology underlying the study area is described as comprising the Thanet Formation. This comprises sand, silt and clay sedimentary rocks formed approximately 56 to 59 million years ago in the Palaeogene Period. This solid geology is in the main overlain by tidal flat deposits within the study area. This material comprises clay and silt and was deposited around 2 million years ago in the Quaternary Period. Along the alignment of Richborough Way these superficial deposits are absent.

3.7.4.3 The soil types present within the study area are predominantly described as loamy and clayey soils of coastal flats with naturally high groundwater (**Figure 3.7.1 Soilscape Mapping**). These soils are formed in the tidal flat deposits. Where these drift deposits are absent (along the alignment of Richborough Way) the soils are described as freely draining slightly acid loamy soils formed directly on the solid geology.

Agricultural land classification

3.7.4.4 Provisional ALC mapping (**Figure 3.7.2 Provisional Agricultural Land Classification Mapping**) shows that the study area comprises Grade 2 land. This mapping, at a scale of 1:250,000, does not distinguish between Grades 3a and 3b (and cannot be used to inform site-specific assessments) but provides an indication of the likely land classification.

[162] Cranfield University (2021). LandIS : The Land Information System. [online] Available at: https://www.cranfield.ac.uk/themes/environment-and-agrifood/landis

[163] Department for Environment, Food and Rural Affairs (2022). Multi-Agency Geographic Information for the Countryside (MAGIC). [online] Available at: https://magic.defra.gov.uk/

3.7.4.5 There is some detailed ALC mapping available for the study area, based on surveys undertaken in 1993. The land east of Ebbsfleet Lane and to the west of Ebbsfleet Farmhouse/Great Oaks Small School has been mapped as a mix of Grade 2 and Grade 3a (as shown in **Figure 3.7.3 Detailed Agricultural Land Classification Mapping**).

3.7.4.6 Climate is unlikely to pose an overall limitation on ALC grade in relation to the criteria set out in the ALC Guidelines[164] (MAFF, 1988). Climate does, however, have an important influence on the interactive limitations of soil wetness and soil droughtiness, which is the balance between rainfall and water losses from the soil. The site has both relatively low rainfall and a long growing season, acting to decrease the severity of any potential soil wetness limitation, but increasing the severity of any potential soil droughtiness limitation.

Land use

3.7.4.7 A desk-based study using aerial photographs, along with information from other survey visits, has shown that the land use appears to be principally arable, with small areas of pasture on either side of the River Stour, and St Augustine's golf course east of Richborough Way.

3.7.4.8 There are areas of land within the study area under Countryside Stewardship (Higher Tier) Agreements and areas south of the River Stour under Entry Level plus Higher Level Environmental Stewardship agreements. Small areas of land east of Richborough Way (associated with the golf course) are also under Woodland Grant schemes (see **Figure 3.7.4 Environmental Stewardship Agreements and Woodland Grant Schemes**).

Future Baseline

3.7.4.9 It is considered that the baseline in relation to soils and ALC grades will not change from that described within the timeframe for the construction of this project. Whilst there may be potential changes in relation to climate change, including greater rainfall intensity and droughts, that could affect soil conditions, land grade and farming practices, it is likely that these would only be visible over longer time frames.

3.7.4.10 There could potentially be changes to land management practices and business approaches across the landowners/land managers.

3.7.5 Embedded and Control & Management Measures

Embedded Measures

3.7.5.1 The assessment of effects will take account of mitigation, including measures embedded into the Project's design and good practice measures. Key measures are described below.

[164] Ministry of Agriculture, Fisheries and Food (1988). Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.

3.7.5.2 The temporary nature of many construction activities and the subsequent restoration of the land and its return to the preconstruction use is likely to result in the avoidance of long-term impacts on agricultural and soil receptors.

Control and Management Measures

3.7.5.3 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the assessment relating to agriculture and soils are:

- GG03: A CEMP, a LEMP and an CTMP will be produced prior to construction. The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans.
- GG19: Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression where appropriate.
- AS01: Soil management measures will be included within the CEMP. Measures would include but not be limited to the following:
  - details of the soil resources present;
  - how the topsoil and subsoil will be stripped and stockpiled;
  - suitable conditions for when soil handling will be undertaken, for example avoiding handling of waterlogged soil;
  - indicative soil storage locations;
  - how soil stockpiles will be designed taking into consideration site conditions and the nature/composition of the soil;
  - specific measures for managing sensitive soils;
  - suitable protective surfacing where soil stripping can be avoided, based on sensitivity of the environment and proposed works;
  - approach to reinstating soil that has been compacted, where required; and
  - details of measures required for soil restoration.
- AS02: Where land is being returned to agricultural use, the appropriate soil conditions (for example through the replacement of stripped layers and the removal of any compaction) will be recreated. This will be achieved to a depth of 1.2m (or the maximum natural soil depth if this is shallower) except over the buried cables where the reinstated soil depth will be approximately 0.9m.
- AS03: Access to and from residential, commercial, community and agricultural land uses will be maintained throughout the construction period or as agreed through landowner discussions. This may require signed diversions or temporary restrictions to access. The means of access to affected properties, facilities and land parcels will be communicated to affected parties at the start of the project, with any changes communicated in advance of the change being implemented. Where field-to-field access points require alteration as a result of construction,

alternative field access will be provided in consultation with the landowner/occupier.

- AS04: Existing water supplies for livestock will be identified pre-construction. Where supplies will be lost or access compromised by construction works, temporary alternative supplies will be provided. Water supplies will be reinstated following construction.
- AS05: Consultation with affected landowners will be carried out to investigate the current extent of land drainage. A scheme of pre-construction land drainage will be designed with the intent of maintaining the efficiency of the existing land drainage system and to assist in maintaining the integrity of the working area during construction. The project may include a system of 'cut-off' drains which feed into a new header drain and the project will also take into account surface water runoff measures.
- AS06: Should animal bones be discovered during construction, which may indicate a potential burial site, works will cease, and advice will be sought from the Animal Health Regional Office on how to proceed, relevant to the origin and age of the materials found.
- AS07: All movement of plant and vehicles between fields will cease in the event of a notification by Defra of a disease outbreak in the vicinity of the site that requires the cessation of activities. Advice will be sought from Defra in order to develop suitable working methods required to reduce the biosecurity risk associated with the continuation of works.
- AS08: Clay bungs or other vertical barriers will be constructed within trench excavations where deemed necessary by a suitably experienced person, to prevent the creation of preferential drainage pathways.

3.7.6 Potential for Significant Effects

3.7.6.1 The agriculture and soils assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.7.6.2 The proposed scope of the agriculture and soils assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.7.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.7.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- temporary removal of land from agricultural production;
- disruption and disturbance to agricultural operations (from noise, fragmentation by fencing and disruption to water supplies or land drainage); and
- temporary disturbance to soils (potentially resulting in long-term changes to one or more soil functions).

Sources of operational impacts

- permanent removal of land from agricultural production;
- permanent loss of soils; and
- electric and magnetic fields (EMFs).

Sources of maintenance impacts

- temporary removal of land from agricultural production;
- temporary disruption and disturbance to agricultural operations (from noise, fragmentation by fencing and disruption to water supplies or land drainage); and
- temporary disturbance to soils (potentially resulting in long-term changes to one or more soil functions)

Sources of decommissioning impacts

- temporary removal of land from agricultural production;
- temporary disruption and disturbance to agricultural operations (from noise, fragmentation by fencing and disruption to water supplies or land drainage); and
- temporary disturbance to soils (potentially resulting in long-term changes to one or more soil functions).

Potential impacts

Soils and ALC

Soils and ALC during construction

3.7.6.5 During construction there would be a potential loss of BMV land (ALC Grades 1, 2 and 3a) from agricultural productivity. There would also be disturbance to soils, either from access for overhead line installation/removal or due to the excavation and soil stripping working areas for the underground cable trenches, pylon footings, converter station footprint and areas required temporarily (such as construction compounds). There would also be the potential for impacts on the ecosystem services the soils provide. The good practice measures set out within the Outline CoCP and the good practice soil management measures set out within the CEMP for soil handling, storage and reinstatement, would reduce the effects on soils.

3.7.6.6 By the end of construction, all land required temporarily would be reinstated minimising the risk of long-term effects on soils or ALC. However, until soil surveys have been undertaken to understand the sensitivity of the soils to handling, storage and reinstatement the construction effects on soils and ALC will be scoped into the ES.

Soils and ALC during operation

3.7.6.7 During operation, there would be a permanent loss of areas of agricultural land and associated soils for the permanent infrastructure. It is unlikely that this would give rise to a significant effect; however, the land grades and soil types affected would be confirmed through the assessment process and as such permanent impacts on soils and ALC will initially be scoped into the assessment. This would be informed by a survey following published guidelines[165]. However, if the site survey confirms that the permanent land affected is not BMV land or that the cumulative loss is below the magnitude threshold for a likely significant effect, then permanent loss of agricultural land during operation would be scoped out of the ES.

3.7.6.8 Any maintenance or repair works required which would result in disturbance to soils during operation of the project would be undertaken in accordance with good practice soil handling methods. No likely significant effects on soils or ALC during operational maintenance or repair activities are therefore concluded and this aspect is scoped out of the ES.

Land use

Land use during construction

3.7.6.9 During construction there would be potential impacts on agricultural operations due to disturbance (in particular where livestock are present), fragmentation, access restrictions or disruption to water supplies or land drainage. The measures set out within the Outline CoCP, including AS03, to maintain access throughout construction, would reduce the effects to agricultural land use. Effects on land drainage are covered in **Part 3 Chapter 5: Water Environment**.

3.7.6.10 By the end of the construction phase, all land required temporarily would be reinstated. As the footprint of the permanent infrastructure is limited and as impacts on agricultural operations will be dealt with through compensation agreements (which lies outside of the EIA process) it is considered that, on completion of the reinstatement of land required temporarily, there would be no significant effects on agricultural landholdings. Therefore, construction effects on land use are scoped out of the ES.

Land use during operation

3.7.6.11 During operation, there would be limited effects on agricultural operations. Limited areas of agricultural land would be lost permanently and there is the potential for restrictions to activities immediately over or adjacent to buried cables or under overhead lines; however, these will be dealt with through compensation agreements (which lies outside of the EIA process). Any maintenance or repair works required which would result in disturbance to agricultural operations would be undertaken in

[165] Ministry of Agriculture, Fisheries and Food (1988). Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.

accordance with good practice soil handling methods. Therefore, there are no likely significant effects on agricultural landholdings during operation and this aspect is scoped out of the ES.

3.7.6.12 The majority of any financial consequences on individual landowners and farmers will be temporary, as most of the land will be reinstated by the end of the construction phase and any claims regarding compensation will be addressed outside of the EIA process. As such, potential economic effects on individual landowners and farmers are scoped out of the ES.

3.7.6.13 During operation, there can be landowner concerns that (EMFs) can affect land use. However, paragraph 2.10.8 of EN-5 states that, in relation to EMFs, '*there is little evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs has any agriculturally significant consequences*'. National Grid will be undertaking a walkover of the Indicative Alignment to identify land use and activities that may require additional clearance of the conductors. Land uses include intensive activities involving horses, such as riding schools, stud farms and areas habitually used for loading or unloading horse boxes. With these measures in place, there would be no likely significant effects during operation on land use from EMF or microshocks, and this is therefore scoped out of the ES.

3.7.6.14 National Grid will provide the relevant information on EMFs in a separate document submitted as part of the application for development consent. This document will demonstrate compliance in accordance with the ICNIRP guidelines and paragraph 2.10.9 of EN-5.

Soils, ALC and land use during decommissioning

3.7.6.15 Decommissioning of the Project would consider all the relevant environmental legislation and technology available at the time. Decommissioning activities would be subject to an environmental management plan that would identify and mitigate the potential impacts of decommissioning activities that could harm sensitive receptors.

3.7.6.16 It is considered likely that the impacts associated with decommissioning would be similar to those identified during the construction phase, with land taken permanently returned to agricultural use where practicable.

3.7.6.17 Table 3.7.1 identifies the potential impacts that could result from the sources identified above.

Table 3.7.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction	Temporary removal of land from agricultural production	Reduction in agricultural productivity	No - potential for a significant effect due to the restoration of land required temporarily and	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			compensation agreements with individual landowners.	
		Temporary loss of BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Construction	Temporary disruption and disturbance to agricultural operations (from noise, fragmentation and disruption to water supplies and land drainage	Reduction in agricultural productivity	No - potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Construction	Temporary disturbance to soils	Changes to one or more soil functions	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Operation	Permanent removal of land from agricultural production	Reduction in agricultural productivity	No - potential for a significant effect due to the restoration of land required temporarily and	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			compensation agreements with individual landowners.	
		Permanent loss of BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Operation	Permanent loss of soils	Changes to one or more soil functions	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Operation	EMFs	EMFs impacting crops and livestock	No - Little evidence to indicate EMFs have a significant effect.	Scoped out
Maintenance	Temporary removal of land from agricultural production	Reduction in agricultural productivity	No - potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		Temporary loss of BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Maintenance	Temporary disruption and disturbance to agricultural operations (from noise, fragmentation and disruption to water supplies and land drainage	Reduction in agricultural productivity	No - potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Maintenance	Temporary disturbance to soils	Changes to one or more soil functions	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Decommissioning	Temporary removal of land from agricultural production	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		Temporary loss of BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**
Decommissioning	Temporary disruption and disturbance to agricultural operations (from noise, fragmentation and disruption to water supplies and land drainage	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Decommissioning	Temporary disturbance to soils	Changes to one or more soil functions	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in (to be reviewed once soil surveys are complete).**

Impact Pathways with Receptors (Step 2)

3.7.6.18 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the agricultural and soils study area or area.

3.7.6.19 Table 3.7.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown

on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme.**

Table 3.7.2: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effect	Proposed to be Scoped in/out
Temporary removal of land from agricultural production during construction	BMV land	Yes - Land required temporarily to be returned to preconstruction condition through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once extent of BMV land and soil characteristics understood from surveys.	**Scoped in**
	Agricultural landholdings	No - No potential for a significant effect relating to land area or disturbance/ disruption due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Permanent removal of land from agricultural production during operation	BMV land	Yes - Soil handling and re-use to be undertaken through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once extent of BMV land and soil characteristics understood from surveys.	**Scoped in**
	Agricultural landholdings	No - No potential for a significant effect relating to land area or disturbance/ disruption due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Temporary disturbance to soils during construction	Soil quality and associated ecosystem services	Yes - Land required temporarily to be returned to preconstruction condition through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once soil characteristics and resilience understood from surveys.	**Scoped in**

Permanent loss of soils during operation	Soil quality and associated ecosystem services	Yes - Soil handling and re-use to be undertaken through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once soil characteristics and resilience understood from surveys.	**Scoped in**
EMFs during operation	Agricultural operations	No - Little evidence to indicate EMFs have a significant effect.	Scoped out
Temporary removal of land from agricultural production due to maintenance activities	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
	BMV land	Yes - Unlikely to be significant effects due to inclusion of best practice construction methods set out within the Outline CoCP. Soil surveys will be undertaken to confirm this.	**Scoped in**
Temporary disruption and disturbance due to maintenance activities	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Temporary disturbance to soils during decommissioning activities	Soil quality and associated ecosystem services	Yes - Land required temporarily to be returned to preconstruction condition through adherence to CoCP measures. Unlikely to be significant effect; to be confirmed once soil characteristics and resilience understood from surveys.	**Scoped in**
Temporary removal of land from agricultural production due to decommissioning activities	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out
Temporary disruption and disturbance due to decommissioning activities	Reduction in agricultural productivity	No - No potential for a significant effect due to the restoration of land required temporarily and compensation agreements with individual landowners.	Scoped out

3.7.7 Proposed Assessment Methodology

3.7.7.1 An overview of the proposed assessment methodology is provided in **Part 1 Chapter 5 EIA Approach and Method**.

Proposed Data Sources

3.7.7.2 The following data sources are proposed to be used to inform the assessment:

- Soil surveys (as required);
- Ordnance Survey mapping and aerial photography to establish land use and settlement patterns;
- Soilscape mapping showing the distribution of main soil types was assessed on the Land Information System website; ALC mapping, including provisional and (where available) detailed ALC mapping from the MAGIC website; and
- Extent of agri-environmental and woodland schemes from the MAGIC website.

Proposed Assessment Methodology

3.7.7.3 The assessment will be based on guidance set out by the Institute of Environmental Management and Assessment on how land and soil should be assessed in Environmental Impact Assessment[166]. This recently published guidance and the sensitivity and magnitude tables have been based on guidance set out in LA109[167] Geology and Soils of the Design Manual for Roads and Bridges (DMRB) which has traditionally been used to assess the impacts of both highway projects and other linear infrastructure projects on agriculture and soil receptors.

3.7.7.4 The IEMA guidance seeks to move practice away from a narrow focus on quantifying and financially compensating impacts on agricultural land and advocates a new and wider approach to assessing the soil functions, ecosystem services and natural capital provided by land and soils.

3.7.7.5 The sensitivity of receptors will be assessed based on the criteria set out in Table 3.7.3 below.

Table 3.7.3: Sensitivity of receptor criteria

Receptor sensitivity (in-situ soils)	Soil resource and soil functions
Very High	***Biomass production***: ALC Grades 1 & 2

[166] Institute of Environmental Management and Assessment (2022). A new perspective on land and soil in Environmental Impact Assessment.

[167] Highways England (2020). Design Manual for Roads and Bridges. LA 109 Geology and Soils. [online] Available at: https://www.standardsforhighways.co.uk/prod/attachments/adca4c7d-4037-4907-b633-76eaed30b9c0?inline=true

	Ecological habitat, soil biodiversity and platform for landscape: Soils supporting protected features within a European site (e.g., SAC, SPA, Ramsar); Peat soils; Soils supporting a National Park, or Ancient Woodland ***Soil carbon***: Peat soils Soils with potential for ecological/landscape restoration ***Soil hydrology***: Very important catchment pathway for water flows and flood risk management ***Archaeology, Cultural heritage, Community benefits and Geodiversity***: SAMs and adjacent areas; World Heritage and European designated sites; Soils with known archaeological interest; Soils supporting community/recreational/educational access to land covered by National Park designation ***Source of materials***: Important surface mineral reserves that would be sterilised (i.e., without future access)
High	***Biomass production***: ALC Grade 3a ***Ecological habitat, soil biodiversity and platform for landscape***: Soils supporting protected features within a UK designated site (e.g., UNESCO Geoparks, SSSI or AONB, Special Landscape Area and Geological Conservation Review sites); Native Forest and woodland soils; Unaltered soils supporting semi-natural vegetation ***Soil carbon***: Organo-mineral soils (e.g. peaty soils) ***Soil hydrology***: Important catchment pathway for water flows and flood risk management ***Archaeology, Cultural heritage, Community benefits and Geodiversity***: Soils with probable but as yet unproven (prior to being revealed by construction) archaeological interest; Historic parks and gardens; RIGS; Soils supporting community/recreational/educational access to RIGS and AONBs; ***Source of materials***: Surface mineral reserves that would be sterilised (i.e., without future access)
Medium	***Biomass production***: ALC Grade 3b ***Ecological habitat, soil biodiversity and platform for landscape***: Soils supporting protected or valued features within non-statutory designated sites (e.g. Local Nature Reserves (LNR), Local Geological Sites (LGSs), Sites of Nature Conservation Importance (SNCIs), Special Landscape Areas; Non-Native Forest and woodland soils ***Soil carbon***: Mineral soils ***Soil hydrology***: Important minor catchment pathway for water flows and flood risk management ***Archaeology, Cultural heritage, Community benefits and Geodiversity***: Soils with possible but as yet unproven (prior to being revealed by construction) archaeological interest; Soils supporting community/recreational/educational access to land ***Source of materials***: Surface mineral reserves that would remain accessible for extraction

Low	***Biomass production***: ALC Grade 4 and 5 ***Ecological habitat, soil biodiversity and platform for landscape***: Soils supporting valued features within non-designated notable or priority habitats/landscapes. Agricultural soils ***Soil carbon***: Mineral soils ***Soil hydrology***: Pathway for local water flows and flood risk management ***Archaeology, Cultural heritage, Community benefits and Geodiversity***: Soils supporting no notable cultural heritage, geodiversity nor community benefits; Soils supporting limited community/recreational/educational access to land ***Source of materials***: Surface mineral reserves that would remain accessible for extraction
Negligible	As for low sensitivity, but with only indirect, tenuous, and unproven links between sources of impact and soil functions

3.7.7.6 The magnitude of impacts will be assessed based on the criteria set out in Table 3.7.4 below.

Table 3.7.4: Magnitude criteria

Magnitude of impact (change))	Description of impacts restricting proposed land use
Large	Permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading), over an area of more than 20ha or loss of soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team (including effects from 'temporary developments'*) or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of more than 20ha, or gain in soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team (including effects from 'temporary developments'*)
Medium	Permanent, irreversible loss of one or more soil functions or soil volumes, over an area of between 5 and 20ha or loss of soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team (including effects from 'Temporary Developments'*) or Potential for improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of between 5 and 20ha, or gain in soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team

Small	Permanent, irreversible loss over less than 5ha or a temporary, reversible loss of one or more soil functions or soil volumes), or temporary, reversible loss of soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of less than 5ha or a temporary improvement in one or more soil functions due to remediation or restoration or off-site improvement, or temporary gain in soil-related features set out in Table 3.7.3 above, as advised by other topic specialists in EIA team
Negligible	No discernible loss or reduction or improvement of soil functions or soil volumes that restrict current or proposed land use

*Temporary developments can result in a permanent impact if resulting disturbance or land use change causes permanent damage to soils

3.7.7.7 The significance of an effect is then derived using the matrix set out in **Part 1, Chapter 5 EIA Approach and Method.**

3.7.8 Conclusion

3.7.8.1 The Kent Onshore Scheme has the potential to affect agriculture and soil receptors as a result of the temporary and permanent removal of land from agricultural production including BMV land), disturbance to soils and disruption to agricultural operations. A suite of measures is set out in the Outline CoCP which seek to minimise the potential impacts on these receptors. Soil and ALC surveys will be undertaken in key areas where there would be permanent loss of land and sections of undergrounded cable to further inform the assessment.

Proposed Scope of the Assessment

3.7.8.2 A summary of the proposed scope of the assessment is provided in Table 3.7.5.

Table 3.7.5: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
Temporary loss of BMV land	No likely significant effect; extent to be confirmed through ALC surveys	Construction, Maintenance, Decommissioning	**Scoped in**
Permanent loss of BMV land	Potential for permanent loss of BMV land; extent to be confirmed through ALC surveys	Operation	**Scoped in**

Soil quality and associated ecosystem services	No likely significant effect; to be confirmed through ALC surveys	Construction, Maintenance, Decommissioning	**Scoped in**
Temporary loss of BMV land; Soil quality and associated ecosystem services	No likely significant effect	Operation	**Scoped in**
Agricultural landholdings and effects of EMFs	No likely significant effect	Operation	Scoped out
Removal of land from agricultural use	No likely significant effect	Construction, Operation, Maintenance, Decommissioning	Scoped out
Disruption to agricultural operations	No likely significant effect	Construction, Maintenance, Decommissioning	Scoped out
Economic effects on landowners	No likely significant effect	Construction, Operation, Maintenance, Decommissioning	Scoped out

3.8 Traffic and Transport

3.8.1 Introduction

3.8.1.1 This chapter presents how the traffic and transport assessment which will consider the potentially significant effects on transport and access that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

3.8.1.2 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.8.1.3 This chapter is supported by the following figure:

- **Figure 3.8.1 Proposed Study Area in Kent (Traffic and Transport).**

3.8.1.4 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary, hereafter referred to as the Kent Scoping Boundary, is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.8.2 Regulatory and Planning Context

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

Legislation

3.8.2.2 There is no transport specific legislation relevant to the proposed assessment.

Planning Policy

National planning policy

National Policy Statement for Energy (NPS EN-1, 2011)

3.8.2.3 The NPS for Energy (EN-1) was published in 2011 and provides the basis for decisions regarding nationally significant energy infrastructure. Section 5.14 outlines the planning policy for traffic and transport, including guidance on undertaking relevant parts of the EIA. The most relevant paragraphs for this purpose are 5.13.3 to 5.13.5 which are set out as follows:

- Paragraph 5.13.3, which states that if a project is likely to have significant transport implications a Transport Assessment should be included with the ES;
- Paragraph 5.13.4, which states that where appropriate, a Travel Plan to include demand management measures to mitigate transport impacts should be prepared; and
- Paragraph 5.13.5, which states that where additional transport infrastructure is proposed, this should be discussed with the relevant network providers (in terms of the possibility of co-funding by Government for any third-party benefits).

3.8.2.4 In addition, Section 3.1 relates to Infrastructure Planning Commission (IPC) decision making which includes the following:

- Paragraph 3.1.1, the UK needs all the types of energy infrastructure covered by this NPS in order to achieve energy security at the same time as dramatically reducing greenhouse gas emissions;
- Paragraph 3.1.2, it is for industry to propose new energy infrastructure projects within the strategic framework set by Government. The Government does not consider it appropriate for planning policy to set targets for or limits on different technologies;
- Paragraph 3.1.3, the IPC should therefore assess all applications for development consent for the types of infrastructure covered by the energy NPSs on the basis that the Government has demonstrated that there is a need for those types of infrastructure and that the scale and urgency of that need is as described for each of them in this Part; and
- Paragraph 3.1.4, the IPC should give substantial weight to the contribution which projects would make towards satisfying this need when considering applications for development consent under the Planning Act 2008.

3.8.2.5 The NPS EN-1 is currently under review and an updated draft was published for consultation in September 2021, where the above paragraphs are proposed to be relocated to Section 5.14, supported by the following proposed updates:

- Paragraph 5.14.4, which also states that the assessment should consider any possible disruption to services and infrastructure (such as road, rail and airports); and
- Paragraph 5.14.8, which states that the Secretary of State (SoS) should only consider preventing or refusing development on highways grounds if there would be an unacceptable impact on highway safety, or residual cumulative impacts on the road network would be severe.

National Policy Statement for Electricity Networks Infrastructure (NPS EN-5, 2011)

3.8.2.6 The NPS for Electricity Networks Infrastructure (EN-5) was published in 2011 and sets out the policies relating to electricity networks infrastructure for consideration in conjunction with NPS EN-1.

3.8.2.7 The NPS EN-5 is currently under review and an updated draft was published for consultation in September 2021. While the adopted document does not refer to transport or highways requirements, the most relevant paragraphs are set out as follows:

- Paragraph 2.2.2, which discusses the factors that inform site selection for the proposed infrastructure; and
- Paragraph 2.2.3 and 2.2.4, which considers the land requirements to gain access for the purposes of installation and maintenance of networks.

National planning policy framework (July 2021)

3.8.2.8 The Government's National Planning Policy Framework (NPPF) was originally published in March 2012 and later revised in July 2021, outlining the Government's planning policies and how they are expected to be applied. The TA will set out the key guidance points of relevance to this application.

3.8.2.9 The most relevant paragraphs in the context of transport are set out below:

- Paragraph 104 outlines that 'transport issues should be considered from the earliest of stages of plan-making and development proposals'; this is to ensure that:
  - The potential impacts of development on transport networks can be addressed;
  - Opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;
  - Opportunities to promote walking, cycling and public transport use are identified and pursued;
  - The environmental impacts of traffic and transport infrastructure can be identified, assessed and considered – including appropriate opportunities for mitigation and for net gains in environmental quality; and
  - Patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places.
- Paragraph 110 outlines the key considerations when assessing sites to be allocated for development in plans or specific development applications. These are:
  - Appropriate opportunities to promote sustainable transport modes can be (or have been) taken up, given the type of development and its location;
  - Safe and suitable access to the Order limits can be achieved for all users;
  - The design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance; and

- Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

- Paragraph 111 states that development should only be prevented or refused on highways grounds where there would be an unacceptable impact on highway safety, or the residual cumulative impacts of development on the road network would be severe.
- Within this context, paragraph 112 states that applications for development should:
  - Give priority first to pedestrian and cycle movements and then, as far as possible, facilitate access to high quality public transport;
  - Address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
  - Create places that are safe, secure and attractive, which minimise the scope for conflicts between pedestrians, cyclists and vehicles;
  - Allow for the efficient delivery of goods, and access by service and emergency vehicles; and
  - Be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.
- As outlined in Paragraph 113, all developments that generate significant amounts of movement should be required to provide a Travel Plan, and the application should be supported by a Transport Statement or TA so that the likely impacts of the proposal can be assessed.

National planning practice guidance (2014)

3.8.2.10 The Government's Planning Practice Guidance; Travel Plans, TAs and Transport Statements in Decision Taking (2014) provides advice on when TAs and Transport Statements are required, and what they should contain. The most relevant paragraphs are summarised below:

- Paragraph 002 states that Travel Plans, TAs and Transport Statements are all ways of assessing and mitigating the negative transport impacts of development in order to promote sustainable development. They are required for all developments which generate significant amounts of movements;
- Paragraphs 004 and 005 state that TAs should primarily focus on evaluating the potential transport impacts of a development proposal and may propose mitigation measures to promote sustainable development in order to avoid unacceptable or "severe" impacts where necessary;
- Paragraph 006 states that TAs support national planning policy and can positively contribute to encouraging sustainable travel, reducing traffic generation and detrimental impacts, reducing carbon emissions and climate impacts, creating accessible, connected and inclusive communities, improving health outcomes and quality of life, improving road safety and reducing the need for new development to increase existing road capacity of provide new roads;

- Paragraph 007 states that TAs should be established at an early stage and be tailored to local circumstances, as well as proportionate to the size and scope of the proposed development. In addition, they should be brought forward through collaborative ongoing working between the local planning authority/transport authority, transport operators, rail network operators, as well as National Highways where there may be implications for the strategic road network and other relevant bodies; and
- Paragraphs 013 to 015 provide further details of when TAs are required, how the need and scope of a TA should be established and what information should be included.

Guidelines for the environmental assessment of road traffic (1993)

3.8.2.11 Institute of Environmental Management and Assessment (IEMA) Guidelines for the Environmental Assessment of Road Traffic (1993) provides guidance on examining the environmental impacts of developments in terms of traffic and transportation.

Local planning policy

3.8.2.12 Local planning policy relating to transport and pertinent to the Kent Onshore Scheme is set out below.

Local Transport Plan 4: Delivering Growth without Gridlock (2016-2031)

3.8.2.13 The Local Transport Plan 4 has been updated by Kent County Council (KCC) with an aim to provide a clear vision for the future of transport across the county up to 2031. The document outlines polices and provides a delivery plan to manage and enhance the local transport network; the key aims and strategy include:

- Delivery of resilient transport infrastructure which reduces congestion and improves journey time reliability to enable economic growth;
- Promote affordable, accessible and connected transport to enable access for all;
- Provide a safer road, footway and cycleway network to reduce the likelihood of casualties and encourage other transport providers to improve safety on their networks;
- Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment; and
- Provide and promote active travel choices for all members of the community to encourage good health and wellbeing and implement measures to improve local air quality.

3.8.2.14 The Local Plan recognises the NPPF stance on promoting transport systems in favour of sustainable transport modes, however, it also recognises that different policies and solutions will be necessary in different areas.

Freight Action Plan Kent (2017)

3.8.2.15 KCC developed this document with the aim of effectively addressing concerns related to the movement of freight both through and within Kent. The document highlights a

number of actions that KCC are looking to achieve in relation to freight movement across the county, these include;

- tackling the problem of overnight lorry parking in Kent;
- finding a long-term solution to Operational Stack;
- effectively managing the routeing of HGV traffic to ensure that such movements remain on the strategic road network for as much of the journey as possible;
- taking steps to address problems caused by freight traffic to communities; and
- ensuring that KCC continues to make effective use of planning and development control powers to reduce the impact of freight traffic.

Draft Thanet Local Plan (2031)

3.8.2.16 The Thanet Council is working with KCC to prepare a Transport Strategy for the district which supports the development proposed through the draft Local Plan. The document seeks to address key transport issues, including those related to the development identified in this Plan:

- Policy SP41 - Safe and Sustainable Travel - The Council will work with developers, transport service providers, and the local community to manage travel demand, by promoting and facilitating walking, cycling and use of public transport as safe and convenient means of transport. Development applications will be expected to take account of the need to promote safe and sustainable travel. New developments must provide safe and attractive cycling and walking opportunities to reduce the need to travel by car; and
- Policy TP10 - Traffic Management - Development required to implement traffic management measures designed to realise the best use of the highway network in terms of safety, traffic capacity and environmental conditions will be approved.

Thanet District Transport Strategy (2015-2031)

3.8.2.17 The Strategy replaces the former Thanet Transport Plan (2005). Its purpose is to provide a framework of transport policy to the year 2031 to support planned growth within the Thanet District. The main objectives of this Transport Strategy are to;

- Provide a policy framework for the district which is consistent with existing National and Regional policy;
- Support delivery managed growth identified within Thanet District Council's emerging local plan;
- Identify a package of robust transport improvements and interventions to enable the highway network to effectively accommodate the likely increase in travel demand across the plan period; and
- Propose a funding and delivery mechanism for identified interventions and actions.

Dover District Local Plan (2018)

3.8.2.18 The Local Plan sets out a vision and a framework for the future development of the area, addressing needs and opportunities for housing, the economy, community

facilities and infrastructure, as well as the basis for conserving and enhancing the natural and historic environment, mitigating and adapting to climate change, and achieving well designed places. Chapter 9 of the document sets out the Council's strategy for transport and infrastructure provision in the District and the relevant policies.

Dover Transport Strategy (2017)

3.8.2.19 The Dover Transport Strategy has been prepared in support of, National, Regional and Local transport policies, with the aims to;

- Manage the demand of travel rather than simply accommodate it;
- Provide new and improved infrastructure to facilitate growth;
- Improve local accessibility and travel choice to join to the town; and
- Support economic development and quality of life objectives.

3.8.3 Study Area

3.8.3.1 At this stage the proposed study area in Kent is defined by **Figure 1.1.3 Kent Scoping Boundary** and also includes additional parts of the highway network and the pedestrian/ cycle network including Public Rights of Way (PRoW) which may potentially be affected by the Kent Onshore Scheme. The proposed study area for traffic and transport is shown in **Figure 3.8.1 Proposed Study Area in Kent (Traffic and Transport)**.

3.8.3.2 The extent of the proposed study area for assessment in terms of highway impact will be subject to discussion, and agreement of this study area will be sought, with Kent County Council (KCC) as the local highway authority. Therefore, the proposed study area will be updated as required when the ES is prepared.

3.8.3.3 The proposed study area includes the following parts of the highway network for consideration:

- Sandwich Road;
- A256 Richborough Way;
- A299 Hengist Way;
- Cottington Road and Cottington Lane;
- Ebbsfleet Lane and Ebbsfleet Lane North;
- Brook Lane;
- Jutes Lane; and
- Marsh Farm Road.

3.8.3.4 The following junctions will also be considered:

- A256/Sandwich Road/Jutes Lane roundabout (“Ebbsfleet Roundabout”);
- A256/A299/Cottington Link Road roundabout (“Sevenscore Roundabout”); and

- A299/ A256/ Sandwich Road roundabout (“Lord of the Manor Roundabout”).

3.8.3.5 The proposed study area also includes the following walking and cycling routes (including PRoW) which will be considered:

- TE26 (public footpath);
- TE32 (public footpath);
- TE35 (restricted byway);
- TE36 (restricted byway);
- TE37 (public footpath);
- TE39 (public footpath);
- TE40 (public footpath);
- TR11 (public footpath);
- TR32 (public footpath);
- EE42 (public footpath);
- National Cycle Network (NCN) Route 15 – Sandwich to Whitstable;
- Promoted Route: England Coast Path – Camber to Ramsgate;
- Promoted Route: Contra Trail – Ramsgate to Pegwell Bay;
- Promoted Route: Saxon Shore Way; and
- Promoted Route: Viking Coastal Trail – Sandwich to Reculver.

3.8.4 Baseline Conditions

Data Sources

3.8.4.1 The traffic and transport baseline environment conditions described in this section have been informed by a review of the following data sources:

- Publicly available mapping and aerial imagery from Google Maps;
- Publicly available information on websites for public transport operators and online resources for promoted recreational routes; and
- Data held within the AECOM WebGIS platform, with transport infrastructure information, including routes and labelling for PRoW routes.

Baseline

Highway network

3.8.4.2 The proposed study area includes a number of roads including the A256 Richborough Way, A299 Hengist Way, Sandwich Road, Jutes Lane, Ebbsfleet Lane/Ebbsfleet Lane North, Marsh Farm Road, Cottington Road/Cottington Lane and Brook Lane.

3.8.4.3 The A256 runs in a north-south alignment between Dover in the south where it joins the A2 and Cliffsend in the north where it joins the A299 at Sevenscore Roundabout. As it passes through the proposed study area, the A256 is a dual carriageway with two lanes in each direction and is subject to the national speed limit, reducing to 50mph south of the Ebbsfleet roundabout (where it joins Sandwich Road and Jutes Lane). Access to Richborough sub-station is taken from a roundabout on the A256, approximately 400m south of Ebbsfleet roundabout.

3.8.4.4 The A299 runs in an east-west alignment between Faversham in the west where it joins the M2 and Ramsgate in the west. In vicinity of the proposed study area, the A299 is a dual carriageway with two lanes in each direction and is subject to the national speed limit.

3.8.4.5 Sandwich Road is a single carriageway road that connects the A256 at Ebbsfleet Roundabout in the south and the A299 at the Lord of the Manor Roundabout in the north and passes through Cliffsend. The speed limit varies along its length but is generally 40mph with a section of national speed limit adjacent to the Pegwell Bay Country Park and a section of 30mph through Cliffsend. There is also a restriction on vehicles over 7.5t (except for access) along the length of Sandwich Road.

3.8.4.6 Approximately 200m north of the Ebbsfleet Roundabout is Ebbsfleet Lane with access taken from Sandwich Road via a signalised junction. It is a no-through road which provides access to residential properties and the Stonelees Golf Centre. It is a single carriageway road and has a 7.5t vehicle weight restriction (except for access).

3.8.4.7 Jutes Lane can be accessed via the Ebbsfleet Roundabout and runs parallel to the A256 for approximately 800m before reaching Ebbsfleet Farmhouse. It is a single carriageway road with a 40mph speed limit and provides access to the Weatherlees Hill Wastewater Treatment Works.

3.8.4.8 Cottington Link Road connects the Sevenscore Roundabout to Cottington Road. Cottington Road runs in an east-west road direction connecting Minster in the east and Cliffsend in the west. It is approximately 5m wide and is subject to the national speed limit.

3.8.4.9 Ebbsfleet Lane North and Brook Lane also pass through the proposed study area; whilst they are no-through roads, they do provide local access to some residential properties and farmland. Ebbsfleet Lane North forms the southern arm of the crossroad junction with Thorne Hill, Cottington Road and Grinsell Hill. It is a single carriageway road with a 7.5t vehicle weight restriction (except for access). Approximately 500m south of the junction, there is an at-grade railway crossing, immediately south of which is Brook Lane. Marsh Farm Road also features an at-grade railway crossing a short distance to the west of Minster railway station.

Public transport network

3.8.4.10 Bus services can be accessed from bus stops at the Ebbsfleet Roundabout. These serve bus route 45/45A which runs between Ramsgate and Sandwich once per hour Monday – Saturday. The first bus service is around 07:00 and last service is around 18:00.

3.8.4.11 The closest railway station to the proposed study area is Minster, located approximately 2km northwest, however there is limited walking/cycling infrastructure

to make this journey possible without taking a substantial detour. It is typically served by one train per hour to Ramsgate and one train per hour to London Victoria (via Maidstone East). During the peak hours, there are additional services to London Charing Cross (via Tonbridge).

3.8.4.12 Sandwich train station is located approximately 4.5km south of the proposed study area and can be accessed via walking or cycling along the England Coast Path or by bus route 45/45A. The station is typically served by one train per hour to London St Pancras International and one train per hour to Ramsgate, with additional services to London Charing Cross (via Tonbridge).

3.8.4.13 Construction of a new rail station, Thanet Parkway, is underway and due to open in December 2022. It is located approximately 2km northeast of the proposed study area on the western periphery of Cliffsend. It is located between Minster and Ramsgate stations and will be served by both mainline and high-speed trains. The station will include a car park, pick-up/drop-off area, cycle storage and bus stops with forecourt.

Active travel network

3.8.4.14 National Cycle Network (NCN) Route 15 runs along the coastline between Sandwich and Whitstable. In the proximity of the proposed study area, it is a traffic-free route running alongside the A256 to the south of Ebbsfleet Roundabout and parallel to Sandwich Road to the north of the Ebbsfleet Roundabout.

3.8.4.15 There are a number of Public Rights of Way (PRoW) which could be impacted by the Kent Onshore Scheme including the following:

- TE26 – public footpath (approx. 3300m in length) that runs along the northern bank of the River Stour;
- TE32 – public footpath (approx. 1900m in length) that runs between Minster and TE26;
- TE35 – restricted byway (approx. 400m in length) that runs between Marsh Farm and TE26 (situated to the west of TE36);
- TE36 – restricted byway (approx. 400m in length) that runs between Marsh Farm and TE26 (situated to the east of TE35);
- TE37 – public footpath (approx. 2900m in length) that follows the Minster to Ramsgate rail line;
- TE39 – public footpath (approx. 1000m in length) that runs along Brooks Lane and across a field to Ebbsfleet Lane;
- TE40 – public footpath (approx. 900m in length) that runs between Minster and TE37;
- TR11 – public footpath (approx. 200m in length) that runs between Foads Lane and Cliffs End Road;
- TR32 – public footpath (approx. 1500m in length) that runs between Cottington Road and Canterbury Road west; and

- EE42 – public footpath (approx. 7300m in length) that runs along the southern bank of the River Stour. This also forms part of the long-distance walking route, known as the Saxon Shore Way.

3.8.4.16 Other recreational/promoted routes include:

- England Coast Path – a long-distance footpath between Camber, East Sussex and Ramsgate, Kent. It follows the coastline in the proximity of the proposed study area.
- Contra Trail – a short-distance route between Ramsgate and Pegwell Bay. In the proximity of the proposed study area, it follows a circular route around Pegwell Bay Country Park.
- Saxon Shore Way – a long-distance footpath between Gravesend and Hastings. In the proximity of the proposed study area, it follows the River Stour.
- Viking Coastal Trail – a 50km circular route on the Isle of Thanet passing along Cottington Road in proximity of the proposed study area.

3.8.4.17 There are no formal equestrian facilities (i.e. bridleways) in the vicinity of the proposed study area.

Future Baseline

3.8.4.18 The ES will consider future baseline conditions for the land within the proposed study area for the relevant assessment year. For example, base traffic flows will be factored up to the future base year using growth factors derived from TEMPro v7.2 for the relevant areas impacted by the Kent Onshore Scheme. In addition, consideration will be given to any committed developments or highway schemes that are due to be under construction or operational during the future baseline year; see **Part 3, Chapter 13 Cumulative Effects** for further details.

3.8.1 Embedded and Control & Management Measures

Embedded Measures

3.8.1.1 The Project will be designed in accordance with National Grid design standards. The Project will also need to comply with design safety standards including NETS SQSS and the suite of National Grid policies and processes which contains details on design standards required to be met when designing, constructing and operating its projects.

3.8.1.2 The proposed High Voltage Direct Cable (HVDC) cable route will typically be installed within a 40m wide working width. The exception to this is where environmental or engineering constraints mean additional land is required such as where the proposed HVDC route is required to cross obstacles such as roads, watercourses or railway lines using a non-open cut technique. In these locations working width may be required to be larger in order to accommodate the larger construction equipment required to undertake installation works.

3.8.1.3 Trenchless methods will typically be utilised where obstacles (watercourses, roads, railway lines, flood defences or other utilities) require to be crossed. This would involve the installation of ducts below the obstacle. The cables would then be pulled through

the ducts. This method is designed to avoid any potential impacts on the railway network.

3.8.1.4 In addition to the above, a trenchless crossing is proposed beneath the sensitive saltmarsh habitat at the landfall.

Control and Management Measures

3.8.1.5 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice.** Measures relevant to the control and management of impacts that could affect the traffic and transport assessment are:

- GG03: A Construction Traffic Management Plan (CTMP) will be produced prior to construction.
- GG12: Appropriate site layout and housekeeping measures will be implemented by the contractor(s) at all construction sites. This will include but not be limited to:
  - Managing staff/vehicles entering or leaving site, especially at the beginning and end of the working day; and
  - Managing potential off-site contractor and visitor parking.
- GG13: Vehicles will be correctly maintained and operated in accordance with the manufacturers recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so. In addition, plant and vehicles will conform to relevant applicable standards for the vehicle type.
- TT01: The CTMP will set out measures to reduce route and journey mileage to and from, as well as around site, and prevent nuisance to the residents, businesses and the wider community caused by parking, vehicle movements and access restrictions. It will also provide suitable control for the means of access and egress to the public highway and set out measures for the maintenance and upkeep of the public highway. The plan will also identify access for emergency vehicles. It will also set out measures to reduce safety risks through construction vehicle and driver quality standards.
- TT02: The contractor(s) will implement a monitoring and reporting system to check compliance with the measures set out within the CTMP. This will include the need for a GPS tracking system to be fitted to Heavy Goods Vehicles to check for compliance with authorised construction routes. The contractor(s) will also be expected to monitor the number of construction vehicles between the site and the strategic road network. Deviations from the authorised routes or changes to traffic levels that are higher than the CTMP assumptions will require discussion of the need for additional mitigation measures with highways authorities.
- TT03: All designated Public Rights of Way (PRoW) will be identified, and any potential temporary closures applied for/detailed in the DCO. All designated PRoW crossing the working area will be managed with access only closed for short periods while construction activities occur. Any required temporary diversions will be clearly marked at both ends with signage explaining the diversion, the duration of the diversion and a contact number for any concerns.

3.8.1.6 In addition to the above, construction vehicles will be managed at any road/rail/pedestrian/cycle crossing points such as by implementing manned controls (marshals/banksmen) at each crossing point, with a default priority that construction traffic will give-way to other users. Further details will be provided within the Framework CTMP.

3.8.2 Potential for Significant Effects

3.8.2.1 The traffic and transport assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.8.2.2 The proposed scope of the traffic and transport assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.8.2.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.8.2.4 The nature of the Kent Onshore Scheme is such that the greatest impact is likely to occur during the construction phase and this will be the focus of the assessment of transport effects presented in the ES.

3.8.2.5 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

3.8.2.6 During the operational and maintenance phase, the Kent Onshore Scheme will be manned by a limited number of operatives across the site, with additional infrequent trips associated with maintenance/inspections or repairs when required. Staff vehicles and those used for maintenance are primarily expected to be pickup trucks and vans, with HGVs rarely accessing the site. Therefore, due to the low level of trips likely to be generated, it is proposed to exclude operational phase transport effects from the EIA. Further detail of the operational phase transport arrangements will be set out in the ES and Transport Assessment to support this approach.

3.8.2.7 In the event that the Project is decommissioned, there is expected to be fewer HGV, LGV and construction worker arrivals and departures associated with the decommissioning phase of the Kent Onshore Scheme than during the construction phase. It is therefore considered reasonable to assume that the impacts will be the same as, or not greater than, the construction phase. Therefore, and given that the exact timing of this scenario is unknown, it is proposed to adopt the assessment of the construction phase to determine the anticipated impact of the Kent Onshore Scheme during its decommissioning phase. Further detail of the decommissioning stage transport arrangements will be set out in the ES and Transport Assessment to support this approach.

3.8.2.8 It is recognised that a potential source of impacts arises from hazardous loads. These include the transport of explosives, gases, flammable liquid/solids, oxidising/toxic

substances, radioactive material or corrosive substances. SF6 Gas will be required for the circuit breakers, oil for the transformers, and other mixed, non-SF6 gases will be used in the Gas Insulated Switchgear. These inputs are expected to be predominantly required during the construction and decommissioning phases and the transport of hazardous loads will be considered accordingly within the ES and Transport Assessment.

3.8.2.9 Although the Kent Onshore Scheme is located near to a number of settlements including Ramsgate, Cliffsend, Minster, Ebbsfleet and Sandwich, the majority of staff and/or visitors (associated with each phase) are expected to travel by vehicle as opposed to on foot, by bicycle or by public transport for logistical reasons e.g. due to travel distance or the requirement to carry equipment. Therefore, this has not been detailed in this Scoping Report although for completeness these modes will be reviewed within the Transport Assessment.

3.8.2.10 Vehicular access during each phase is anticipated to be taken from the A256 and Sandwich Road. Further details on proposed access to the Kent Onshore Scheme will be included within the ES and the Transport Assessment which will be submitted with the DCO application.

3.8.2.11 The ES and Transport Assessment will assess the peak construction period, which will include Heavy Goods Vehicle (HGV) movements, Light Goods Vehicle (LGV) movements and vehicle movements associated with construction worker arrivals and departures. Construction traffic forecasts will be confirmed in the ES and Transport Assessment.

Sources of construction impacts

- Construction works e.g. where these require temporary traffic management, or result in temporary diversions or closures to the highway network or pedestrian/cycle routes, including PRoW;
- Construction routes e.g. where these interact with the existing transport networks (road/rail/pedestrian/cycle) such as at vehicle crossing points; and
- Construction vehicles:
  - HGVs;
  - LGVs;
  - Construction staff vehicles; and
  - Abnormal loads.

Sources of operational impacts

- Operational staff vehicles.

Sources of maintenance impacts

- Maintenance staff vehicles relating to monthly visual inspections, and rolling three year maintenance cycle; and

- Repair staff vehicles (including LGVs) relating to refurbishment and repair works, including the transportation of materials for such works.

Sources of decommissioning impacts

3.8.2.12 The potential sources of decommissioning impacts (traffic and transport) are considered to be the same as those set out above for the construction phase, albeit these would relate to the decommissioning phase.

Potential impacts

3.8.2.13 Table 3.8.1 identifies the potential impacts that could result from the sources identified above.

Table 3.8.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction	Construction works, routes and vehicles	Yes - Additional severance to pedestrians and cyclists	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Yes - Additional delay to drivers	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Yes - Additional delay to pedestrians	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Yes - Decline in pedestrian and cyclist amenity	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Yes - Additional fear and intimidation to pedestrians and cyclists	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Decline in road safety	Yes	**Scoped in**
Construction	Construction works, routes and vehicles	Results in PRoW Diversions and/or Closures	Yes	**Scoped in**
Construction	Construction vehicles	Additional hazardous loads	Yes	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Operation	Operational staff vehicles	Additional severance to pedestrians and cyclists	No (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Additional delay to drivers	No (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Additional delay to pedestrians	No (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Decline in pedestrian and cyclist amenity	No (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Decline in road safety	No (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Results in PRoW Diversions and/or Closures	No (limited traffic movements)	Scoped out
Operation	Operational staff vehicles	Additional hazardous loads	No (few expected)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Additional severance to pedestrians and cyclists	No (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Additional delay to drivers	No (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Additional delay to pedestrians	No (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Decline in pedestrian and cyclist amenity	No (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Decline in road safety	No (limited traffic movements)	Scoped out
Maintenance	Maintenance and repair staff vehicles	Results in PRoW Diversions and/or Closures	No (limited traffic movements)	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Maintenance	Maintenance and repair staff vehicles	Additional hazardous loads	No (few expected)	Scoped out
Decommissioning	Decommissioning works, routes and vehicles	Additional severance to pedestrians and cyclists	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Additional delay to drivers	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Additional delay to pedestrians	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Decline in pedestrian and cyclist amenity	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Additional fear and intimidation to pedestrians and cyclists	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Decline in road safety	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning works, routes and vehicles	Results in PRoW Diversions and/or Closures	Yes	**Scoped in** (to be inferred by assessment of construction)
Decommissioning	Decommissioning vehicles	Additional hazardous loads	Yes	**Scoped in** (to be inferred by assessment of construction)

Impact Pathways with Receptors (Step 2)

3.8.2.14 This section identifies whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the proposed study area. Further details of the road links, junctions, PRoW and

national/regional walking and cycling routes relevant to the study area are set out within section 3.8.4.

3.8.2.15 Table 3.8.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme.**

Table 3.8.2: Impact pathways with receptors

Impact pathway	Receptors	Potential for a significant effect	Proposed to be scoped in/out
Construction and decommissioning Additional severance to pedestrians and cyclists	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Additional delay to drivers	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not utilised by drivers so no impact	Scoped out
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by drivers so no impact	Scoped out
Construction and decommissioning Additional delay to pedestrians	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking routes	Yes	**Scoped in**
Construction and decommissioning Decline in pedestrian and cyclist amenity	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**

Impact pathway	Receptors	Potential for a significant effect	Proposed to be scoped in/out
Additional fear and intimidation to pedestrians and cyclists	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	Yes	**Scoped in**
Construction and decommissioning Decline in road safety	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – no collision data available for footpaths and bridleways (not utilised by vehicles so no impact)	Scoped out
	National/regional walking and cycling routes	No – no collision data available for walking and cycling routes (not utilised by vehicles so no impact)	Scoped out
Construction and decommissioning Results in PRoW Diversions and/or Closures	Road links	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
	Road junctions	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
	PRoW	Yes	**Scoped in**
	National/regional walking and cycling routes	No – this impact pathway relates solely to PRoW, not applicable to this receptor type	Scoped out
Construction and decommissioning Additional hazardous loads	Road links	Yes	**Scoped in**
	Road junctions	Yes	**Scoped in**
	PRoW	No – footpaths and bridleways not utilised by vehicles or hazardous loads so no impact	Scoped out

Impact pathway	Receptors	Potential for a significant effect	Proposed to be scoped in/out
	National/regional walking and cycling routes	No – walking and cycling routes not utilised by vehicles or hazardous loads so no impact	Scoped out

3.8.3 Proposed Assessment Methodology

Proposed Data Sources

3.8.3.1 To inform the assessment of the Kent Onshore Scheme, information from a number of sources will be collected. The sources which will be used are set out below:

- Local travel and network information from various sources including KCC and local rail and bus operators;
- Personal Injury Accident (PIA) data from KCC;
- OS/Architectural Base Mapping to ascertain an accurate geographical representation of the areas in the vicinity of the Kent Onshore Scheme;
- Highway boundary information from KCC;
- Mode share data from the 2011 Census (or 2021 data if available and considered appropriate given the context of COVID-19); and
- Various traffic count and speed survey data where required (see below).

3.8.3.2 Peak hour traffic flows will be identified from historic data held by KCC with respect to A259 and Sandwich Road or traffic survey company databases if available. If suitable data is not available traffic counts will be undertaken at locations in the vicinity of the Kent Onshore Scheme to determine the baseline traffic conditions on the surrounding highway network. The extent of the traffic data and scope for any traffic surveys that may be required will be agreed with the Highway Authority (Kent County Council), as a statutory consultee, where possible.

3.8.3.3 To determine the impact of the Kent Onshore Scheme, a number of scenarios will be assessed using the information collated above. The scenarios considered appropriate for assessment are:

- Baseline (2022) – AM, PM and Daily; and
- Peak Construction Year (to be confirmed) With and Without Development – AM, PM and Daily.

3.8.3.4 The proposed construction period for the Kent Onshore Scheme is 2026 to 2030, and the peak construction year will be identified when the ES is prepared as this is not currently known.

3.8.3.5 The Transport Assessment Scoping Report will be formally presented to KCC as a statutory consultee in order to seek to agree the scope of the Transport Assessment.

In the event that junction capacity analysis is required, this will be discussed and agreed with KCC where necessary.

Proposed Assessment Methodology

3.8.3.6 In accordance with the Institute of Environmental Management and Assessment (IEMA) Guidelines for the Environmental Assessment of Road Traffic (1993) for assessing the environmental impacts of road traffic, the following criteria will be considered in this assessment.

- Severance;
- Pedestrian delay;
- Pedestrian and cyclist amenity;
- Fear and intimidation;
- Driver delay;
- Highway safety;
- PRoW diversions and/or closures; and
- Hazardous and dangerous loads.

3.8.3.7 The IEMA guidelines set out two rules in identifying potential links for analysis:

- Rule 1: include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); and
- Rule 2: include any other specifically sensitive areas (e.g. accident black spots, conservation areas, hospitals, links with high pedestrian flows etc) where traffic flows have increased by 10% or more.

3.8.3.8 Based on this, it is proposed to assess links where traffic flows are expected to increase by 30% or more. However, it is not proposed to assess links where there is expected to be a less than a 30% increase in traffic flows as a result of the Kent Onshore Scheme, unless any specifically sensitive areas are identified. In addition, it is proposed to assign a very low magnitude of change as there is expected to be fewer than 30 additional vehicle trips per hour during each of the development peak hours as a result of the Kent Onshore Scheme, irrespective of the proportional increase in traffic flows.

3.8.3.9 In addition to the above, potential traffic-related effects will also be considered by other topics, including (and not limited to) the following examples:

- Potential effects of construction traffic on sites of ecological and nature conservation value are considered in **Part 3, Chapter 3 Ecology and Biodiversity**;
- Potential effects of construction traffic on air quality are considered in **Part 3, Chapter 9 Air Quality**;
- Potential effects of construction traffic on noise and vibration are considered **in Part 3, Chapter 10 Noise and Vibration**; and

- Potential effects of construction traffic on tourists, visitor attractions and other businesses are considered in **Part 3, Chapter 11 Socio Recreation and Tourism**.

3.8.3.10 The type of traffic which is anticipated to be generated by the Kent Onshore Scheme will be categorised as follows; primarily general traffic, LGVs, HGVs and Abnormal Indivisible Loads (AILs). The vehicle routeing and movement associated with the Project's construction will be considered in detail and will be discussed through consultation with the relevant Highway Authority (Kent County Council).

3.8.3.11 Once the locations and volumes of the proposed traffic have been identified it will be necessary to identify those receptors that may be impacted upon, due to the increase in vehicle movements. This will be done by identifying the percentage increase in vehicular activity along the identified construction routes following the collection of traffic data. The Automatic Traffic Counts (ATCs) will be used to derive baseline Annual Average Daily Traffic (AADT) for individual links, subdivided into 24 hour and 18 hour counts for total traffic and HGVs.

3.8.3.12 Typically, when assessing the impacts of traffic effects, there are a range of particular groups and locations which may be sensitive to changes in traffic conditions compliant with the criteria previously outlined.

3.8.3.13 These are outlined in the IEMA Guidance as 'Affected Parties', as follows:

- People at home;
- People in workplaces;
- Sensitive groups including children, elderly and disabled;
- Sensitive locations, e.g. hospitals, churches, schools, historic buildings;
- People walking;
- People cycling;
- Open spaces, recreational sites, shopping areas;
- Sites of ecological/nature conservation value; and
- Sites of tourist/visitor attraction.

3.8.3.14 The IEMA guidance states that this list of affected parties is not exhaustive. One affected party that is not on the list but will nevertheless be considered in this assessment is 'other road users'. All of the affected parties have one thing in common which is that their potential exposure to changes in traffic volumes comes about through their proximity to a construction traffic route.

3.8.3.15 It is important to note that the IEMA methodology does not consider the duration of effect, especially whether it is temporary (construction and decommissioning) or permanent (operational traffic). As such, effects that, using this methodology, may appear to be significant, may be considered not significant if the effect is temporary or infrequent (occurring only occasionally during construction for example).

3.8.3.16 To calculate the trip distribution of workers travelling to and from the proposed construction compounds each day, a simple gravity model will be developed (based on 2011 Census data, given that relevant 2021 Census data is not currently available).

Construction traffic associated with the Kent Onshore Scheme will be distributed onto the local highway network to calculate the resultant percentage increase on each link.

3.8.3.17 Assessments will be undertaken at the peak of construction, and this may cover more than one year as the peak year for traffic volumes can vary along various routes depending on which section of the Kent Onshore Scheme they serve.

3.8.3.18 Currently, it is anticipated that construction may take approximately two years. If historical data is utilised, base traffic flows will be factored up to the future base year in order to establish baseline flows and then factored up further to the identified peak year of construction. Growth factors will be derived from TEMPro v7.2 for the relevant areas impacted by the Kent Onshore Scheme. Meanwhile, the peak construction traffic flows will be derived by analysing construction traffic data and construction programmes provided by Design Engineers.

Transport Assessment

3.8.3.19 The ability of the highway network to accommodate the development traffic will be assessed and reported in a Transport Assessment (TA) which will form a technical annex to the ES Chapter. The TA will include information on:

- A review of relevant national, regional and local policies;
- Description of the existing baseline conditions – a description of the roads, railway lines, footpaths, bridleways and cycle paths crossed by the route and/or impacted by the works. The requirement to carry out any surveys on these routes will be agreed with the relevant planning authority;
- A review of the road safety data for the most recent five-year period within the proposed study area;
- Description of the Project and Kent Onshore Scheme setting out timescales for construction, identification of route sections, typical working width layout, compound locations, access routes to compounds, construction methods for individual railway and road crossings (where required);
- Traffic generation of compounds and any other relevant sites for construction staff with a profile of arrivals and departures for the day and HGV traffic with a profile of arrivals and departures for the day;
- Distribution and assignment of trips to the network with construction traffic distributed based on a simple gravity model of worker catchment area and HGVs assigned from the A road network;
- Mitigation measures; and
- Summary and conclusions.

Defining Significance

3.8.3.20 The significance of effect is determined through consideration of two elements; the magnitude of the impact and the sensitivity of the receptor. The following sections outline the approach that would be used to determine these factors.

Sensitivity, value, or importance

3.8.3.21 The general criteria for defining the importance or sensitivity of receptors are set out in Table 3.8.3. Key factors influencing this include:

- The value of the receptor or resource based upon empirical and/or intrinsic factors, for example considering any legal or policy protection afforded which is indicative of the receptor or resources' value internationally, nationally or locally; and
- The sensitivity of the receptor or resource to change, for example is the receptor likely to acclimatise to the change. This will consider legal and policy thresholds which are indicative of the ability of the resources to absorb change.

Table 3.8.3:Categorising the overall sensitivity of receptors

Receptor sensitivity	Receptor examples
Very High	Highway Links and Junctions: More than two sensitive users present (e.g. schools, play areas, care/retirement homes, disabled parking bays, hospitals, places of worship, historic buildings) Walk/Cycle Links including PRoW: Heavily trafficked highway with on-road pedestrian/cycle route
High	Highway Links and Junctions: Two sensitive users present (e.g. schools, play areas, care/retirement homes, disabled parking bays, hospitals, places of worship, historic buildings) Walk/Cycle Links including PRoW: Lightly trafficked highway with on-road pedestrian/cycle route
Medium	Highway Links and Junctions (at least one of the following): - One sensitive user present (e.g. schools, play areas, care/retirement homes, disabled parking bays, hospitals, places of worship, historic buildings) - Many residential properties with direct frontage to highway link being used as construction route - Pedestrians using footways, PRoW and/ or crossings on highway link - Cyclists using on-road designated cycle routes along highway link Walk/Cycle Links including PRoW: Heavily trafficked highway with off-road pedestrian/cycle route
Low	Highway Links and Junctions (at least one of the following): - Few residential properties with direct frontage to the highway link being used as a construction traffic route - Workplaces with direct frontage to highway link being used as construction route

Receptor sensitivity	Receptor examples
	- Cyclists using off-road designated cycle routes along highway link Walk/Cycle Links including PRoW: Lightly trafficked highway with off-road pedestrian/cycle route
Neutral	Highway Links and Junctions: No receptors along link Walk/Cycle Links including PRoW: Pedestrian/cycle route not running alongside highway

3.8.3.22 An assessment of the railway network is proposed to be scoped out from the Traffic and Transport chapter given that trenchless methods will be employed when installing cables to avoid any potential impacts on the railway, and that any vehicle crossing points of the railway (if required) will be managed to ensure operational rail safety.

Magnitude

3.8.3.23 The IEMA guidelines state that the magnitude of each impact should be determined as the predicted deviation from the baseline conditions.

3.8.3.24 This assessment will consider a range of potential effects that could be experienced during the construction stage of the Kent Onshore Scheme and this section identifies how magnitude will be considered for each.

3.8.3.25 **Severance** is defined in the IEMA guidelines as the *"perceived division that can occur with a community when it becomes separated by a major traffic artery"*. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by the road itself. It can also relate to quite minor traffic flows if they impede pedestrian access to essential facilities. The assessment will consider both total traffic and the proportion of HGVs. The guidance for thresholds of magnitude is taken from DMRB Volume 11, Section 3, Part 8.

3.8.3.26 **Pedestrian Delay** is considered to be affected by the changes in volume, composition or speed of traffic, in terms of their respective impacts on the ability of pedestrians to cross roads. In general, increases in traffic levels and/or traffic speeds are likely to lead to greater increases in pedestrian delay. Effects are only likely to be realised when the total two-way traffic on the carriageway exceeds 1,400 vehicles per hour (IEMA Guidelines).

3.8.3.27 **Pedestrian and Cyclist Amenity** is broadly defined as "the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic". The guidance suggests that a tentative threshold for judging the significance of changes in pedestrian and cycle amenity would be where the traffic flow is halved or doubled.

3.8.3.28 **Fear and Intimidation** occurs through a combination of traffic flow, speed, proportion of HGVs and the proximity of the above to people or receptors on highway links. These indicators are often heightened by a perceived lack of protection or buffers from the

highway or through narrow or non-existent footways. The assessment will consider each road on a case by case basis, however there are indicative thresholds provided in the IEMA guidelines which are presented in Table 3.8.4.

3.8.3.29 **Driver Delay** is an effect cited in the IEMA guidance and relates to incremental increases in traffic (as outlined in Table 3.8.4). As a further consideration, where any temporary road closures or traffic management is likely to be in place to enable the construction of the Kent Onshore Scheme, any additional potential delay caused by these resultant diversion routes will be reported.

3.8.3.30 **Highway Safety** considers Personal Injury Collision (PIC) data obtained for the most recent five-year period available at junctions and links along the proposed construction traffic routes. These will be used to assess whether the additional traffic during construction of the Kent Onshore Scheme would be likely to have a detrimental effect of road safety.

3.8.3.31 **PRoW Diversions and Closures** will be considered on the basis of the type of impact i.e. whether a temporary PRoW closure or diversion is proposed, as well as any increases in pedestrian journey length following a closure/ diversion and how long any potential disruption to an existing route would occur for. The assessment will consider the indicative thresholds presented in Table 3.8.5 below which have been derived based on professional judgement.

3.8.3.32 With regard to **Hazardous and Dangerous Loads**, the guidance indicates that "the Statement should include a risk or catastrophe analysis to illustrate the potential for an accident to happen and the likely effect of such an event". Analysis of the road network within the proposed study area and understanding of the Kent Onshore Scheme works indicates that there are no particular features, such as a significant vertical drop immediately beyond the carriageway, which would suggest that the transfer of materials poses a particular risk beyond that which would be expected on the general highway network. However, there will be a requirement to transport gas and oil during the Project (particularly during the construction and decommissioning phases) which are categorised as Hazardous and Dangerous Loads (see Section 3.8.6).

3.8.3.33 In view of the above, the impacts of Hazardous and Dangerous Loads will be considered within the ES, in the form of a qualitative risk assessment to establish the likelihood and extent of such effects. The projected impacts of the Kent Onshore Scheme will be measured separately, dependent upon the receptor, for the construction and decommissioning periods. The Framework CTMP and the ES will include details of measures that will be employed to ensure the safe vehicular transport of components to and from the Kent Onshore Scheme.

3.8.3.34 Tables 3.8.4 and 3.8.5 summarise the criteria that will be used to assess the magnitude of effect (based on increases i.e. 'adverse' effects), along with the thresholds that will be used to determine whether effects are considered large, medium, small and negligible. Depending on the baseline information available, the various thresholds identified for the proportional increases in traffic flow relate to peak hour flows and daily flows (whichever is highest). Within these tables, neither the sensitivity of receptors, nor the duration of effects, is taken into consideration. These tables are formed using IEMA Guidelines and professional judgement.

Table 3.8.4:Categorising the overall magnitude of effect of a highway link

Impact	Negligible	Small	Medium	Large
Severance	Increase in total traffic flows of 29% or under (or increase in HGV flows under 10%).	Increase in total traffic flows of 30-59% (or increase in HGV flows of between 20%-39%).	Increase in total traffic flows of 60%-89% (or increase in HGV flows between 40%-89%).	Increase in total traffic flows or HGV flows of 90% and above.
Pedestrian Delay	Total traffic flows under 1,400 per hour	Where traffic flows exceed 1,400 vehicles per hour the severity of the impact will be determined based on the thresholds identified above for severance.		
Pedestrian and Cycle Amenity	Increase in total traffic flows of 49% or under.	Increase in total traffic flows of 50-69%.	Increase in total traffic flows of 70%-99%.	Increase in total traffic flows of 100% or above.
Fear and Intimidation	Increase in total traffic flows or HGV flows of 29% or under (or increase in HGV flows under 10%).	Increase in total traffic flows of 30-59% (or increase in HGV flows of between 10%-39%).	Increase in total traffic flows of 60%-89% (or increase in HGV flows between 40%-89%).	Increase in total traffic flows or HGV flows of 90% and above.
Driver Delay	Increase in total traffic flow of less than 29%.	Increase in total traffic flow of between 30% and 59%.	Increase in total traffic flow of between 60% and 89%.	Increase in traffic flow of 90% and above.
Highway Safety	Increase in total traffic flows of 30% or under (or increase in HGV flows under 10%).	All links estimated to experience increases in total traffic flows above 30% or increases in HGV flows above 10% are analysed further on a case by case basis.		
Hazardous Loads	Based on the probability of a personal injury collision, categorised as fatal or serious, involving a hazardous load occurring.			

3.8.3.35 An assessment of national/regional walking and cycling routes, as well as PRoW will also be carried out where these are directly affected by construction works or intersected by a construction route (for example), including in terms of severance, pedestrian delay, pedestrian and cycle amenity and for fear and intimidation, by reviewing the thresholds as identified in Table 3.8.4 above where relevant. In terms of

PRoW diversions and/or closures, the following thresholds are proposed to identify magnitude of effect based on professional judgement.

Table 3.8.5:Categorising the overall magnitude of effect of a PRoW diversion and/or closure

Impact	Negligible	Small	Medium	Large
PRoW Diversions and/or Closures	A temporary PRoW diversion (no closure) with either no increase in pedestrian journey length or an increase in pedestrian journey length for one to five days.	A temporary PRoW diversion (no closure) with an increase in pedestrian journey length for one to four weeks.	A short term PRoW closure (for less than four weeks in any 12 month period) without a diversion route; OR A temporary PRoW diversion (no closure) with an increase in pedestrian journey length for more than four weeks.	A short term PRoW closure (for more than four weeks in any 12 month period) without a diversion route.

3.8.3.36 Tables 3.8.4 and 3.8.5 above set out the proposed magnitude thresholds for the respective environmental effects that will be considered in the ES. With the exception of PRoW Diversion and Closure effects, all effects have a proposed magnitude that does not, initially, consider the duration over which an effect is likely to be experienced.

3.8.3.37 Duration is considered when assessing the overall significance of residual effects, noting that the DMRB Volume 11 Section 2 Part 5 states in Paragraph 1.47:

"*Recognition should be made that permanent impacts will be more significant than those of a temporary nature. For example, the impact may only occur during a single phase of the project construction and may be temporary. Alternatively, the impact may be long-term or irreversible and hence permanent. It is, therefore, important that the assessment distinguishes between permanent and temporary impacts*".

3.8.3.38 All of the traffic and transport effects associated with the construction and decommissioning of the Kent Onshore Scheme would be temporary effects. Some temporary effects would be likely to last longer than others, and these will be clearly reported in the ES. Following the quantified assessment, residual effects will be reported taking into account professional judgement on the duration over which effects are likely to be experienced.

Significance

3.8.3.39 In order to determine the effect on specific receptors, both the sensitivity of receptors and the magnitude of impact, as outlined above, are considered. Table 3.8.6 below shows the matrix that has been used to determine the effect category. Effects which are classified as **major** or **moderate** are considered to be significant (shown in **bold**).

Table 3.8.6: Significance matrix

Magnitude of effect	Receptor sensitivity				
	Very High	**High**	**Medium**	**Low**	**Neutral**
Large	**Major**	**Major/ Moderate**	**Major/ Moderate/ Minor**	**Moderate**/ Minor	Minor/ Negligible
Medium	**Major/ Moderate**	**Major/ Moderate**	**Moderate**/ Minor	Minor/ Negligible	Negligible
Small	**Major/ Moderate/ Minor**	**Moderate**/ Minor	**Moderate**/ Minor	Minor/ Negligible	Negligible
Negligible	Minor/ Negligible	Minor/ Negligible	Minor/ Negligible	Negligible	Negligible

3.8.4 Conclusion

3.8.4.1 This scoping chapter presents the potential for effects in respect of traffic and transport that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

Proposed Scope of the Assessment

3.8.4.2 A summary of the proposed scope of the assessment is provided in Table 3.8.7.

Table 3.8.7: Proposed scope of the assessment

Receptor	Potential significant effect	Project Phase(s)	Proposed to be scoped in/out
Road links	Severance Pedestrian Delay	Construction and decommissioning	**Scoped in**
	Pedestrian and Cycle Amenity Fear and Intimidation Driver Delay Highway Safety Hazardous Loads	Operation and maintenance	Scoped out

Road junctions	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation Driver Delay Highway Safety Hazardous Loads	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
PRoW	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation PRoW Diversions and/or Closures	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out
National/regional walking and cycle routes	Severance Pedestrian Delay Pedestrian and Cycle Amenity Fear and Intimidation	Construction and decommissioning	**Scoped in**
		Operation and maintenance	Scoped out

3.9 Air Quality

3.9.1 Introduction

3.9.1.1 This chapter presents how the air quality assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in Part 1, Chapter 4, Description of the Project). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

3.9.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.9.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Project Description**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.9.2 Regulatory and Planning Context

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

Legislation

- EU Framework Directive 96/62/EC[168];
- Directive 2008/50/EC on ambient air quality and cleaner air for Europe[169];
- Part IV of the Environment Act (1995, amended 2021)[170]; and

[168] Council Directive 96/62/EC (1996). Ambient Air Quality Assessment and Management. [online] Available at: https://www.legislation.gov.uk/eudr/1996/62

[169] Directive 2008/50/EC of the European Parliament and of the Council (2008). Ambient Air Quality and Cleaner Air for Europe. [online] Available at: https://www.legislation.gov.uk/eudr/2008/50/introduction

[170] Environment Act 1995 (amended 2021) [online]. Available at: https://www.legislation.gov.uk/ukpga/2021/30/part/4/enacted

- Air Quality Standards Regulations[171];
- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)[172]; and
- The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018[173].

Planning Policy

National planning policy

- Overarching National Policy Statement for Energy (EN-1)174 - Section 5.2 of EN-1 suggests that if a project is likely to have adverse effects on air quality an assessment of the impacts should be included in the Environmental Statement (ES). Paragraph 5.2.7 puts forth a number of aspects associated with the assessment of air quality that should be included in the ES, for example, “existing air quality levels and the relative change in air quality from existing levels”; and
- National Planning Policy Framework (Revised) (NPPF)[175].

Local planning policy

- Kent and Medway Energy and Low Emissions Strategy[176];
- Dover District Council Core Strategy[177]; and
- Thanet District Council Local Plan[178].

Guidance

- National Planning Policy Guidance (update) (NPPG)[179];

[171] The Air Quality Standards Regulations 2010 [online]. Available at: https://www.legislation.gov.uk/uksi/2010/1001/contents

[172] Department for Environment, Food and Rural Affairs (2007). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf

[173] The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018. [online] Available at: https://www.legislation.gov.uk/uksi/2018/764/made

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

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

[176] Kent County Council and Medway Council (2020). Kent and Medway Energy and Low Emissions Strategy. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0009/112401/Kent-and-Medway-Energy-and-Low-Emissions-Strategy.pdf

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

[178] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

[179] Department for Levelling Up, Housing and Communities, and Ministry of Housing, Communities & Local Government (2019). Planning Practice Guidance – Air Quality. [online] Available at: https://www.gov.uk/guidance/air-quality--3

- Institute of Air Quality Management Guidance on the assessment of dust from demolition and construction, 2014[180];
- Institute of Air Quality Management and Environmental Protection UK: Land-use Planning & Development Control: Planning for Air Quality. v1.2. Institute of Air Quality Management, London[181]; and
- Local Air Quality Management Technical Guidance (LAQM.TG(16))[182].

3.9.3 Study Area

3.9.3.1 The Institute of Air Quality Management (IAQM) construction dust guidance[180] requires that construction dust impacts are assessed up to 350m from the locations of demolition, construction and earthworks activities for human receptors and up to 50m for ecological receptors. Construction activities are assumed to take place anywhere within the Kent Scoping Boundary, therefore as a worst-case approach, the construction dust study area will include up to 350m from the edge of the scoping boundary. The construction phase Study Area also includes the first 50m of any road within 500m from the main site entrance(s) used by the site construction vehicles, as per IAQM construction dust guidance[180].

3.9.3.2 The number of vehicles associated with the construction phase of the Kent Onshore Scheme is not yet confirmed; however, it is anticipated that detailed assessment of construction vehicle emissions will be scoped out as traffic flows are expected to be below the IAQM screening criteria[181]. This will be confirmed upon receipt and screening of construction traffic data. If construction Heavy Duty Vehicle (HDV) flows are expected to be greater than 100 Annual Average Daily Traffic (AADT) flows on a road during the construction phase or 25 AADT within an Air Quality Management Area (AQMA), then exhaust emissions from construction vehicles will be modelled at receptors within 200m of these roads.

3.9.3.3 The IAQM development control guidance[181] details its own indicative criteria with respect to change as a result of a project's operational phase that, if met, highlight the need for an assessment, rather than necessarily defining the boundaries of a Study Area. The criteria are:

- A change in Light Duty Vehicle (LDV) flows of >100 AADT within or adjacent to an AQMA, or >500 AADT elsewhere;
- A change in HDV flows of >25 AADT within or adjacent to an AQMA, or >100 AADT elsewhere;
- Where a road is realigned by 5m or more and is within an AQMA;
- Where a junction is added or removed close to existing receptors; and

[180] Institute of Air Quality Management (2014). Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management, London. V.1.1.

[181] Institute of Air Quality Management and Environmental Protection UK (2017). Land-use Planning & Development Control: Planning for Air Quality. Institute of Air Quality Management, London. V.1.2.

[182] Department for Environment, Food and Rural Affairs (2018). Local Air Quality Management Technical Guidance (TG16). [online] Available at: https://www.scottishairquality.scot/sites/default/files/publications/2022-08/LAQM-TG16-April-21-v1.pdf

- Where there are one or more substantial combustion processes where there is a risk of impacts at relevant receptors.

3.9.3.4 The same screening criteria will be used to define the Study Area should the operational phase be scoped in for assessment. However, operational phase traffic flows are expected to be below these screening criteria and therefore it is proposed to scope out the assessment of operational vehicle emissions as air quality impacts will be negligible.

3.9.4 Baseline Conditions

Data Sources

3.9.4.1 The air quality environment baseline described in this section has been informed by the following data sources:

- Defra UK Air website[183] – to establish predicted background concentrations for Nitrogen Dioxide (NO_2), Particulate Matter less than 10 microns in diameter (PM_{10}) and Particulate Matter less than 2.5 microns in diameter ($PM_{2.5}$).
- Local authority websites and annual Air Quality Status Reports – to determine existing AQMAs and local air quality monitoring results:
  - KentAir website[184];
  - LondonAir website[185];
  - Kent and Medway Air Quality Monitoring Network Annual Report 2019[186];
  - Dover District Council Annual Status Report 2021[187]; and
  - Thanet District Council Annual Status Report 2021[188].
- MAGIC website[189] – to identify ecological sites within the air quality Study Area.

Baseline

3.9.4.2 Baseline data has been collated to determine the existing air quality conditions in the area that is likely to be affected by the Project. A review of the existing baseline will be undertaken to establish an understanding of the baseline air quality environment, to

[183] Department of Environment, Food and Rural Affairs (2022). UK Air – An Information Resource. [online] Available at: https://uk-air.defra.gov.uk/

[184] KentAir (2022). Reporting Air Quality in Kent and Medway. [online] Available at: https://kentair.org.uk/

[185] LondonAir (2022). [online] Available at: https://londonair.org.uk/LondonAir/Default.aspx

[186] Air Quality Data Management (2020). Kent and Medway Air Quality Monitoring Network (KMAQMN) Annual Report 2019. [online] Available at: https://kentair.org.uk/report/kent-medway-air-quality-monitoring-network-annual-report-2019

[187] Dover District Council (2021). Annual Status Report 2021. Bureau Veritas. [online] Available at: https://www.dover.gov.uk/Environment/Environmental-Protection/Air-Quality/Dover-District-Council-2021-ASR-v5.pdf

[188] Thanet District Council (2021). Annual Status Report 2021. Bureau Veritas. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/Thanet-ASR_England_2021_Final_v1.0.pdf

[189] Department for Environment, Food and Rural Affairs (2022). Multi-Agency Geographic Information for the Countryside (MAGIC). [online] Aailable at: https://magic.defra.gov.uk/

identify areas that are likely to be sensitive to changes in emissions as a result of the Project.

3.9.4.3 As required by Part IV of the Environment Act (1995), all local authorities produce Annual Status Reports (ASRs) each year. The most recently available reports for Dover District Council and Thanet District Council is the 2021 ASRs[187] [188] which summarises air quality within their areas during 2020.

3.9.4.4 A review of the most recently published ASRs[187] [188] confirmed that exceedances of the NO_2 annual mean objective set in the AQS have been identified in Dover and Thanet, resulting in the current declaration of the following s AQMAs:

- Thanet Urban AQMA – declared in 2011;
- A20 AQMA – declared 2004, amended 2009; and
- High Street/ Ladywell AQMA – declared 2007.

3.9.4.5 The Kent Scoping Boundary area is located close to the Thanet Urban AQMA, which encompasses a number of urban areas within Thanet.

3.9.4.6 The closest monitoring location to the Kent Scoping Boundary is diffusion tube site TH16 which is a background site monitored by Thanet District Council. The annual average NO_2 concentration at this site is well below the AQS objective for all monitored years.

3.9.4.7 A review of the available modelled background concentrations for the Site and surrounding area has been carried out using Defra predicted annual mean background concentrations provided in 1km x 1km grid squares. Background concentrations for 2022 are well below the relevant objective values for all pollutants.

Future Baseline

3.9.4.8 Background pollutant concentrations and are predicted to decrease in future years, along with air pollutant concentrations from vehicle emissions sources due to improvements in technologies and increased emissions standards. This is supported by trends observed from local authority monitoring data and future predicted Defra background map concentrations.

3.9.5 Embedded and Control & Management Measures

Embedded Measures

3.9.5.1 The routeing and siting of the Kent Onshore Scheme has been evolved to avoid settlement areas as far as possible.

Control and Management Measures

3.9.5.2 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. The Outline CoCP contains a list of relevant good practice measures, including the following key commitments relating to air quality:

- GG04: The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans.
- GG10: Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.
- GG13: Plant and vehicles will conform to relevant applicable standards for the vehicle type as follows:
- Euro 4 (NOx) for petrol cars, vans and minibuses;
- Euro 6 (NOx and PM) for diesel cars, vans and minibuses; and
- Euro VI (NOx and PM) for lorries, buses, coaches and Heavy Goods Vehicles (excluding specialist abnormal indivisible loads).
- Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so.
- GG14: Materials and equipment will not be moved or handled unnecessarily. When loading and unloading materials from vehicles, including cable drums and excavated materials, drop heights will be limited.
- GG18: Wheel washing will be provided at each main compound access point on to the highway. An adequate supply of water will be made available at these locations at all times. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits.
- GG19: Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression where appropriate.
- GG20: Bonfires and the burning of waste material will be prohibited.
- TT01: The CTMP will set out measures to reduce route and journey mileage to and from and around site, and prevent nuisance to the residents, businesses and the wider community caused by parking, vehicle movements and access restrictions. It will also provide suitable control for the means of access and egress to the public highway and set out measures for the maintenance and upkeep of the public highway. The plan will also identify access for emergency vehicles. It will also set out measures to reduce safety risks through construction vehicle and driver quality standards and measures to manage abnormal loads.

3.9.5.3 During construction, mitigation measures will be employed to ensure that dust emissions are minimised to a negligible impact, such as:

- Site management (logging of incidents/complaints);
- Monitoring (site inspections, soiling checks, compliance with Dust Management plan, etc);

- Preparing and maintaining the site (locate dust causing activities away from receptors, barriers, cleaning, enclosed specific operations with high potential for dust production, cover stockpiles, etc);
- Operating vehicle/machinery and sustainable travel (comply with NRMM standards, no idling, use mains electricity, travel plan etc);
- Operations (employ dust suppression, use enclosed chutes, minimise drop heights, etc);
- Demolition measures (damp down, avoid explosive blasting, soft strip interiors before demolition, etc);
- Earthworks measures (revegetate promptly, use hessian mulches and cover with topsoil, etc);
- Construction measures (avoid scabbling, keep aggregates damp, ensure fine powder materials are delivered enclosed and stored in silos, ensure bags are sealed after use); and
- Trackout measures (wash access and local roads, avid dry sweeping of large areas, ensure vehicle-borne materials are covered, install hard surface haul routes, wheel washing, etc).

3.9.5.4 Construction dust mitigation measures are considered tertiary mitigation i.e., actions that are standard best practices used to manage commonly occurring environmental effects.

3.9.5.5 Construction phase mitigation measures will be proposed as a function of the dust soiling and human health risk ratings allocated by following the IAQM construction dust guidance[180]. The IAQM construction dust guidance[180] also details an extensive list of potential mitigation measures by construction activity. Appropriate mitigation measures identified from the construction dust risk assessment will be secured through a draft Construction Environmental Management Plan (CEMP), that will be secured as a requirement in the draft Development Consent Order (DCO).

3.9.6 Potential for Significant Effects

3.9.6.1 The air quality assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.9.6.2 The proposed scope of the air quality assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.9.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.9.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- construction activities such as earthworks and trackout resulting in emissions of dust;
- emissions from NRMM; and
- emissions from construction traffic.

Sources of operational impacts

3.9.6.5 There are no other operational phase emissions sources or air quality impacts associated with the Project anticipated for inclusion in the air quality assessment.

Sources of maintenance impacts

3.9.6.6 Traffic trips associated with the maintenance of the Project are anticipated to be below the IAQM indicative criteria[181] for potential significant effects. Therefore, air quality impacts associated with operational phase vehicle emissions will be negligible and are proposed to be scoped out of further assessment.

3.9.6.7 Any potential NRMM emissions or dust generating activities associated with maintenance would be transient and temporary in nature, therefore there are no other maintenance emissions sources or air quality impacts associated with the Project anticipated for inclusion in the air quality assessment.

Sources of decommissioning impacts

3.9.6.8 The decommissioning phase of the Project will be assessed following the same approach as construction to consider any dust impacts associated with demolition and potential impacts from vehicle emissions. Therefore the potential sources of decommissioning impacts are:

- decommissioning activities such as earthworks and trackout resulting in emissions of dust;
- emissions from NRMM; and
- emissions from decommissioning traffic.

Potential impacts

3.9.6.9 The most common air quality impacts that may arise during demolition and construction activities are:

- dust deposition, resulting in the soiling of surfaces and reduction in amenity; and
- elevated PM_{10} concentrations, as a result of dust generating activities on site.

3.9.6.10 These impacts may affect human and ecological receptors. The IAQM construction dust guidance[180] defines a human receptor as:

3.9.6.11 “any location where a person or property may experience the adverse effects of airborne dust or dust soiling, or exposure to PM_{10} over a time period relevant to the Air Quality Objectives. In terms of annoyance effects, this will most commonly relate to dwellings, but may also refer to other premises such as buildings housing cultural heritage collections (e.g. museums and galleries), vehicle showrooms, food manufacturers, electronics manufacturers, amenity areas and horticultural operations (e.g. salad or soft-fruit production).”

3.9.6.12 An ecological receptor is defined as:

3.9.6.13 “any sensitive habitat affected by dust soiling. This includes the direct impacts on vegetation or aquatic ecosystems of dust deposition, and the indirect impacts on fauna (e.g. on foraging habitats)”.

3.9.6.14 The potential for dust emissions will be assessed for each activity that is likely to take place and considers three separate dust effects:

- Annoyance due to dust soiling;
- Harm to ecological receptors; and
- The risk of health effects due to a significant increase in exposure to PM_{10}.

3.9.6.15 Table 3.9.1 identifies the potential impacts that could result from the sources identified above

Table 3.9.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction	Construction activities such as earthworks and trackout resulting in emissions of dust	Dust deposition and human health impacts	Yes - Negligible	**Scoped in**
	Emissions from NRMM	Change in local air pollutant concentrations	No - Not significant– due to temporary and transient nature and incorporation of best practice measures (CoCP)	Scoped out
	Emissions from construction traffic	Change in local air pollutant concentrations	No - Not significant– due to traffic numbers	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			anticipated to be below IAQM screening criteria	
Operation	Operational traffic vehicle emissions	Change in local air pollutant concentrations	No - Not significant– due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out
Maintenance	Maintenance traffic vehicle emissions	Change in local air pollutant concentrations	No - Not significant– due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out
Decommissioning	Decommissioning activities such as earthworks and trackout resulting in emissions of dust	Dust deposition and human health impacts	Yes - Negligible	**Scoped in**
	Emissions from NRMM	Change in local air pollutant concentrations	No - Not significant– due to temporary and transient nature and incorporation of best practice measures (CoCP)	Scoped out
	Emissions from decommissioning traffic	Change in local air pollutant concentrations	No - Not significant– due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out

Impact Pathways with Receptors (Step 2)

3.9.6.16 Table 3.9.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the air quality assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme**.

Table 3.9.2: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effect	Proposed to be scoped in / out
Construction activities	Nearby Air Quality Sensitive Receptors	Yes - Negligible	**Scoped in**
Construction traffic	Nearby Air Quality Sensitive Receptors	Negligible - due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out
Operational traffic	Nearby Air Quality Sensitive Receptors	Negligible - due to traffic numbers anticipated to be below IAQM screening criteria	Scoped out

3.9.7 Proposed Assessment Methodology

3.9.7.1 Detailed technical assessment methodologies are presented in **Part 1 Chapter 5 EIA Approach and Method**. This section provides on overview of the methodologies used in the assessment of air quality from the Project.

Proposed Data Sources

3.9.7.2 No additional data sources are proposed other than those outlined in section 3. Should detailed dispersion modelling of vehicle emissions be required following the screening of construction traffic data then one year of meteorological data would be obtained from a nearby met station for the base year.

Proposed Assessment Methodology

Construction dust assessment

3.9.7.3 There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These will be assessed in accordance with the methodology outlined in the IAQM construction dust guidance[180].

3.9.7.4 If there are no ecological receptors within 50m or human receptors within 350m of the Kent Onshore Scheme boundary, or within 50m of the haul routes (up to 500m from the site entrance(s)) then the need for a construction dust assessment is to be screened out. However, if there are receptors within in these distances then an assessment should be carried out. Initial review of the study area has identified that receptors are present and therefore a construction dust risk assessment is required.

3.9.7.5 A site is allocated a risk category based on two factors:

- The scale and nature of the works, which determines the magnitude of dust arising as: small, medium or large; and
- The sensitivity of the area to dust impacts, which can be defined as low, medium or high sensitivity.

3.9.7.6 The two factors are combined to determine the risk of dust impacts without mitigation applied.

3.9.7.7 The relevant criteria to define the potential magnitude of dust emission includes the following factors detailed in Table 3.9.3.

Table 3.9.3: Dust emission magnitude criteria

Magnitude	Criteria
Small	Demolition volume under 20,000m^3 less than 10m above ground level, total site area less than 2,500m^2, soil type with large grain size, total material moved less than 20,000 tonnes, construction material with low potential for dust release, less than 10 HDV trips per day, unpaved road length less than 50m etc.
Medium	Demolition activities 10m-20m above ground level, moderately dusty soil type, potentially dusty construction material, total material moved 20,000-100,000 tonnes, 10 to 50 HDV trips per day, unpaved road length 50-100m etc.
Large	On-site crushing and screening demolition, demolition activities greater than 20m above ground level, total site area greater than 10,000m^2, more than 10 heavy earth moving vehicles active at any one time, more than 10,000 tonnes of material moved, on site concrete batching, sandblasting, more than 50 HDV trips per day, unpaved road length greater than 100m etc.

3.9.7.8 The influencing factors to define receptor sensitivity to dust impacts are detailed in Table 3.9.4.

Table 3.9.4:Receptor sensitivity criteria

Sensitivity	Criteria

High	Where human receptors expected to be present continuously for extended periods of time e.g. residential properties, hospitals, schools and care homes. Internationally or nationally designated ecological sites.
Medium	Where users would expect to enjoy a reasonable level of amenity and value could be diminished by dust soiling e.g. parks and places of work. Nationally designated ecological sites.
Low	Where enjoyment of amenity would not reasonably be expected and exposure would be for limited periods e.g. footpaths, shopping streets and car parks. Locally designated ecological sites.

3.9.7.9 The IAQM construction dust guidance[180] categorises the unmitigated risk of dust impacts on human health and amenity (rather than ascribe a significance of effect) as a means of identifying the level of dust emissions mitigation required to ensure that residual impacts are 'not significant'. A higher dust risk rating requires more stringent mitigation measures in order to limit residual effects.

Vehicle emissions assessment

3.9.7.10 Assessment of vehicle emissions will be undertaken should the screening of traffic data meet the criteria set out by IAQM development control guidance[181] as detailed in paragraph 3.9.3.3.

3.9.7.11 If these criteria are not exceeded, then the IAQM development control guidance[181] considers air quality impacts associated with a scheme in terms of traffic emissions to be negligible and no further assessment is required.

3.9.7.12 Should screening of the relevant data indicate that any of the above criteria are met, then potential impacts at sensitive receptor locations can be assessed by calculating the change in NO_2 and particulate matter concentrations as a result of the Project. Detailed dispersion modelling would be undertaken using Atmospheric Dispersion Modelling Software (ADMS) to predict pollutant concentrations at worst case receptor locations within 200m of affected vehicle routes and compared against relevant AQS objectives. The significance of predicted impacts can then be determined in accordance with the methodology outlined in the IAQM development control guidance[181].

3.9.7.13 The significance of impacts would be assessed dependent upon the percentage change in concentration between the without and with Project scenarios, relative to the relevant air quality objectives, as presented in Table 3.9.5.

Table 3.9.5: IAQM impact descriptors for individual receptors

Long term average concentration at receptor in assessment year	% change in concentration relative to air quality assessment level (AQAL)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76 - 94% of AQAL	Negligible	Slight	Moderate	Moderate
95 - 102% of AQAL	Slight	Moderate	Moderate	Substantial
103 - 109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

3.9.8 Conclusion

3.9.8.1 With regards to air quality impacts associated with the Kent Onshore Scheme, the assessment of construction dust is scoped into the assessment. It is proposed that construction traffic vehicle emissions are scoped out of the assessment due to the number of vehicles anticipated to be below the IAQM screening criteria[181], subject to confirmation upon receipt of construction traffic data.

Proposed Scope of the Assessment

3.9.8.2 A summary of the proposed scope of the assessment is provided in Table 3.9.6.

Table 3.9.6: Proposed scope of the assessment

Receptor	Potential significant effect	Project phase(s)	Proposed to be scoped in/out and for which option
Nearby Air Quality Sensitive Receptors	Dust deposition	Construction and Decommissioning	**Scoped in**

Receptor	Potential significant effect	Project phase(s)	Proposed to be scoped in/out and for which option
Nearby Air Quality Sensitive Receptors	Human health dust impacts	Construction and Decommissioning	**Scoped in**
Nearby Air Quality Sensitive Receptors	Increase in vehicle emissions	Construction, Operational, Maintenance and Decommissioning	Scoped out
Nearby Air Quality Sensitive Receptors	Emissions from NRMM	Construction and Decommissioning	Scoped out

3.10 Noise and Vibration

3.10.1 Introduction

3.10.1.1 This chapter presents how the noise and vibration assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter4, Description of Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

3.10.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.10.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.10.1.4 This chapter is supported by the following figure:

- **Figure 3.10.1 Noise and Vibration Baseline Kent**.

3.10.1.5 The potential effects of noise and vibration on ecological receptors and heritage assets are considered in **Part 3, Chapter 3, Ecology and Biodiversity**, and **Part 3, Chapter 4, Cultural Heritage**, respectively.

3.10.2 Regulatory and Planning Context

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

Legislation

3.10.2.2 The below legislation will be considered when identifying potential constraints to the Kent Onshore Scheme and wider Project, design options and mitigation.

- The Control of Pollution Act 1974[190]; and
- Environmental Protection Act 1990[191].

Planning Policy

National planning policy

3.10.2.3 The assessment will take account of the relevant National Policy Statements (NPSs) for energy: the Overarching National Policy Statement for Energy (EN-1) [192] and the National Policy Statement for Electricity Networks (EN-5) [193]. These NPSs are, in the process of being updated and therefore relevant sections of the draft NPSs are also included below, where relevant.

3.10.2.4 EN-1 states that 'where noise impacts are likely to arise from the proposed development, the applicant should include the following in the noise assessment' including a description of the noise generating aspects leading to noise impacts, noise sensitive properties that may be affected, an assessment of the effect of predicted changes in the noise environment at noise sensitive properties and measures to be employed in mitigating noise.

3.10.2.5 EN-5 contains the following guidance relating to noise, specifically from overhead lines, which has been considered within this chapter:

'The IPC should ensure that relevant assessment methodologies have been used in the evidence presented to them, and that the appropriate mitigation options have been considered and adopted. Where the applicant can demonstrate that appropriate mitigation measures will be put in place, the residual noise impacts are unlikely to be significant.'

3.10.2.6 The National Planning Policy Framework (NPPF) (2012; revised in 2021)[194] details the Government's planning policies for England and how these are expected to be applied. The NPPF includes statements relating to noise and the requirement to take it into account in the planning process. Section 174 indicates that the planning system should contribute to and enhance the natural and local environment by:

'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.'

3.10.2.7 Section 185 is specifically related to noise, requiring, planning policy decisions to:

[190] Control of Pollution Act 1974 [online]. Available at: https://www.legislation.gov.uk/ukpga/1974/40 [Accessed July 2022].

[191] Environmental Protection Act 1990 [online]. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents [Accessed July 2022].

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

[193] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf

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

- Mitigate and reduce to a minimum, potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life; and
- identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason

3.10.2.8 The terms 'significant adverse effect' and 'adverse effect' reflect the terminology used in the Noise Policy Statement for England, 2010 (NPSE) [195] which sets out the long-term vision of Government noise policy:

'to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.'

3.10.2.9 The NPSE outlines three aims for the effective management and control of environmental, neighbour and neighbourhood noise:

- avoid significant adverse impacts on health and quality of life;
- mitigate and minimise adverse impacts on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life.

3.10.2.10 In its aims, the NPSE uses the key phrases "significant adverse" and "adverse". The NPSE states in its explanatory note that there are two established concepts that are currently being applied to noise impacts, which are:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected.
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected.

3.10.2.11 The NPSE then extends this concept to include:

- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

3.10.2.12 The NPSE notes that it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to vary for different noise sources, receptors and times. It is for the project to identify relevant SOAELs taking account of the sources of exposure and receptors.

3.10.2.13 The NPPF and NPSE do not, therefore, provide absolute limits on noise that are acceptable or unacceptable in a given situation. It does however, set out the need to use planning decisions, including through the use of conditions, to avoid or mitigate adverse impacts on health and quality of life resulting from noise. The Planning Practice Guidance for Noise (PPGN)[196] advises on how planning can manage potential noise impacts. In this guidance it advises that local planning authorities' plan making

[195] Department for Environment, food and Rural Affairs (2010). Noise Policy Statement for England. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69533/pb13750-noise-policy.pdf

[196] Department for Levelling Up, Housing and Communities, and Ministry of Housing, Communities and Local Government (2019). Planning Practice Guidance – Noise. [online] Available at: https://www.gov.uk/guidance/noise--2 [Accessed July 2022].

and decision taking should take account of the acoustic environment and in doing so consider:

- whether or not a significant adverse effect is occurring or likely to occur;
- whether or not an adverse effect is occurring or likely to occur; and
- whether or not a good standard of amenity can be achieved.

3.10.2.14 PPGN provides a noise exposure hierarchy explaining how effects of noise can be categorised, as reproduced in Table 3.10.1.

Table 3.10.1: PPGN noise exposure hierarchy

Response	Example of outcomes	Increasing effect level	Action
Not present	No effect	No Observed Effect	No specific measures required
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response.		
	Lowest Observed Effect Level (LOAEL)		
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
	Significant Observed Effect Level (SOAEL)		
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite,	Unacceptable Adverse Effect	Prevent

Response	Example of outcomes	Increasing effect level	Action
	significant, medically definable harm, e.g. auditory and non-auditory.		

Local planning policy

3.10.2.15 The study area runs through both Thanet Borough Council at the north end of the Kent Onshore Scheme, and Dover Borough Council, in the south of the Kent Onshore Scheme, and as such the policies of both bodies regarding biodiversity and the protection of natural resources apply to the Kent Onshore Scheme.

3.10.2.16 The planning policies that relate to the footprint of the Kent Onshore Scheme are shown in Table 3.10.2 for policies set in place by both Thanet Borough Council[197] and by Dover Borough Council[198][199].

Table 3.10.2: Planning policies that relate to the Kent Onshore Scheme

Document	Planning policy	Purpose
Thanet Local Plan, Adopted July 2020	SE01 – Potentially Polluting Development	Development with potential to pollute will be permitted only where: 1) Applicable statutory pollution controls and siting will effectively and adequately minimise the impact upon existing and proposed land uses and the environment including the effects, including cumulative effects, on health, the natural environment such as significant natural and heritage assets, or general amenity resulting from the release of pollutants to water, land or air or from noise, dust, vibration, light, odour or heat; and In determining individual proposals, regard will be paid to: 2) The economic and wider social need for the development; and 3) The visual impact of measure needed to comply with any statutory environmental quality standards or objectives. 4) where there is an impact and the development is acceptable, a suitable mitigation is proposed to the satisfaction of the pollution control regimes. Permission for development which is sensitive to pollution will be permitted only if it is sufficiently separated from any existing or potential source of pollution as to reduce pollution impact upon health, the natural environment or general amenity to an

[197] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

[198] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf [Accessed 13/07/2022].

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

		acceptable level, and adequate safeguarding and mitigation on residential amenity.
	SE06 – Noise Pollution	In areas where noise levels are relatively high, permission will be granted for noise sensitive development only where adequate mitigation is provided, and the impact of the noise can be reduced to acceptable levels. Development proposals that generate significant levels of noise must be accompanied by a scheme to mitigate such effects, bearing in mind the nature of surrounding uses. Proposals that would have an unacceptable impact on noise-sensitive areas or uses will not be permitted.
Dover District Local Development Framework Core Strategy Adopted February 2010	No specific policies	
Dover District Local Plan Regulation 18 Draft	No specific policies	

3.10.3 Study Area

3.10.3.1 This section describes the study areas for each aspect of the noise and vibration assessment. The study areas for each aspect of the noise and vibration assessment are shown in **Figure 3.10.1 Noise and Vibration Baseline - Kent.**

Construction Noise Study Area

3.10.3.2 The study area for construction noise impacts within the ES will consider noise sensitive receptors (NSRs) within 300m of the Kent Scoping Boundary, excluding construction traffic on the public highway which is assessed separately. This is based on guidance in British Standard 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise' (BS 5228-1) [200], which states that caution is needed when making construction noise predictions beyond 300m due to meteorological effects, particularly when a soft ground correction factor has been applied. A 300m construction noise study area is also advocated by DMRB LA 111[201]. This will be refined as the Kent Onshore Scheme develops.

[200] British Standards Institute (2008). BS 5228-1:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites: Noise.

[201] Highways England (2020). Design Manual for Roads and Bridges - LA 111 Noise and Vibration. [online] Available at: https://www.standardsforhighways.co.uk/prod/attachments/cc8cfcf7-c235-4052-8d32-d5398796b364?inline=true

Construction Traffic Noise Study Area

3.10.3.3 The construction traffic routes are not currently defined at this stage. However, noise from construction traffic on the existing road network will be assessed for each applicable road based on guidance from DMRB LA 111. The assessment principally considers the change in Basic Noise Level (BNL) of each road, calculated in line with the methodology described in technical memorandum Calculation of Road Traffic Noise (CRTN) [202], with a subsequent assessment of the impacts on NSRs within 50m of routes where a change in BNL of at least 1dB is identified due to construction traffic.

Construction Vibration Study Area

3.10.3.4 The proposed study area for construction vibration impacts, based on guidance from BS 5228-2:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration' (BS 5228-2) [203] and DMRB LA 111 (Highways England, 2020), will consider NSRs within 300m of the Kent Scoping Boundary. This will be refined as the Kent Onshore Scheme develops.

Operational Noise Study Area

3.10.3.5 The study area for operational noise impacts from the proposed converter station is 1000m from the Kent converter station Site Option Area, based on guidance from ISO 9613:1996 'Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of calculation' (ISO 9613) [204]. There will be particular emphasis on the NSRs closest to the converter station. This will be refined as the Kent Onshore Scheme develops.

3.10.3.6 The AC connection between the proposed converter station the National Grid connection point at Richborough substation will be via either an overhead line or underground cables. The selection has not been made at this stage. Depending on the proposed overhead line conductor and pylon types, the study area for operational noise impacts from any proposed overhead lines would extend 200m from the proposed route centre line. This is based on at least 60 years of experience operating the UK transmission network at 400kV. There is no significant audible noise effect beyond this distance, even in the most sensitive of locations.

3.10.3.7 Noise from underground cables are proposed to be scoped out since their operation does not generate material levels of noise.

Operational Vibration Study Area

3.10.3.8 There are no material sources of operational vibration proposed as part of the Kent Onshore Scheme. Operational vibration is therefore proposed to be scoped out of further assessment.

[202] Department of Transport and Welsh Office (1988). Calculation of Road Traffic Noise. London. HMSO

[203] British Standards Institute (2008). BS 5228-1:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites: Vibration.

[204] International Standards Organisation (1996). ISO 9613:1996 Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of calculation.

3.10.4 Baseline Conditions

Data sources

3.10.4.1 An initial baseline assessment has been informed by a desk study which has drawn on the following information sources:

- Defra strategic noise mapping (2017) [205];
- Ordinance Survey mapping; and
- Nemo Link Environmental Statement Volume 1, Chapter 12 – Noise and Vibration (2013).

3.10.4.2 Pertinent baseline information is provided in **Figure 3.10.1 Noise and Vibration Baseline – Kent.**

Baseline

3.10.4.3 The study area includes a mix of residential, rural, industrial, and commercial environments. The noise climate is therefore expected to vary throughout the study area.

3.10.4.4 The main sources of noise are likely to include road traffic from the A256 which runs between Ramsgate to the north and Dover to the south. There are potential railway noise sources from train services on the Ashford to Ramsgate Line and the Kent Coast Line. There are also potential industrial sources of noise, particularly in the vicinity of the A256. Away from these sources of noise into more rural areas, ambient sound levels would be expected to be lower.

3.10.4.5 Relative to the proposed converter station study area, there are isolated NSRs within the study area:

- to the south on Richborough Road, Whitehouse Drove, Castle Road and the A256;
- to the east on Ebbsfleet Lane and Sandwich Road;
- to the north on Ebbsleet Lane North and Grinsell Hill; and
- to the west on Marsh Farm Road.

3.10.4.6 There are also built-up residential areas to the northeast at Cliffsend, and to the northwest at Minster.

3.10.4.7 Defra strategic noise mapping indicates that ambient noise levels are moderate to high in the vicinity of the A256, but reduce to relatively low levels beyond approximately 300m from the road. This is concordant with existing noise survey data from the Nemo Link Environmental Statement (2013), taken during 2013.

3.10.4.8 There are a number of Noise Important Areas (NIA) on the existing public highway along routes which may be used for construction traffic associated with the Kent Onshore Scheme. NIAs are determined via strategic noise maps and highlight the

[205] Department for Environment, Food and Rural Affairs (2019). Strategic noise mapping: explaining which noise sources were included in the 2017 noise maps. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/902825/strategic-noise-mapping-round3.pdf

residential areas experiencing the highest 1% of noise levels from road and rail sources in England. These are generally away from the construction noise study area but may be applicable when identifying potential construction traffic noise impacts on the wider road network. The NIAs within the construction noise study area are as follows:

- NI_12135 – Ebbsfleet Lane, adjacent to Ramsgate Road; and
- NI_4487 – Sandwich Road at Foads Lane.

3.10.4.9 There are additional NIAs in the wider area on main transport routes (e.g. Island Road, and the A299) which are not likely to be significantly affected by the Kent Onshore Scheme.

3.10.4.10 With regards to background sound levels, which are applicable to the assessment of operational noise, the 2013 noise survey data indicates that background sound levels at the nearest NSRs are in the order of 40 to 61 dB $L_{A90,T}$ during daytime periods, and 27 to 33 dB $L_{A90,T}$ during night-time periods (further noise surveys will be conducted as part of this Kent Onshore Scheme).

3.10.4.11 With regards to the vibration baseline, it is assumed that existing vibration levels are negligible in the study area.

Future Baseline

3.10.4.12 The future baseline is not expected to materially change in the reasonably foreseeable future with regards to noise and vibration.

3.10.5 Embedded and Control & Management Measures

Embedded Measures

Construction noise and vibration

3.10.5.1 Where feasible, the Kent Onshore Scheme has avoided NSRs, such as settlements, through routeing and siting.

Operational noise

3.10.5.2 At this stage, the proposed converter station has not yet been designed. However, it will be designed to meet applicable noise limits at nearby NSRs using readily available techniques. This will include consideration of plant selection, site layout, screening, and enclosures, as may be considered appropriate. Additionally, the converter station siting has avoided NSR, such as settlements, through the optioneering process.

3.10.5.3 Similarly, the AC connection between the proposed converter station and the National Grid connection point at Richborough substation will be via either an overhead line or underground cables. Underground cables do not generate material levels of noise and the potential overhead line route has avoided NSRs, such as settlements, through routeing and siting.

3.10.5.4 There are no material sources of vibration from the operation of the converter station. There are, however, sources of low levels of vibration including transformers and

cooling plant. Such plant would be installed on anti-vibration mountings and levels of vibration would not be expected to be perceptible, even in close proximity to the equipment.

Control and Management Measures

Construction noise control and management measures

3.10.5.5 In developing the noise control measures to be used, the following hierarchy will be followed:

- Control at source – for example the selection of quieter equipment;
- The choice of location for equipment on site;
- Control of working hours; and
- The provision of acoustic enclosures around equipment or barriers around work sites.

3.10.5.6 As per the hierarchy above, the first source of control for noise pollution is to control at the source. To this end, where reasonably practicable, efforts will be made to use equipment that reduces the noise produced where located in close proximity to NSRs.

3.10.5.7 Where works may be required to be undertaken outside of the core hours, the local planning authority will be notified in advance along with any neighbouring receptors.

3.10.5.8 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect the noise and vibration assessment are:

- GG04 - The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans.
- GG06 - Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the project. Topics will include but are not limited to:
  - working hours and noise and vibration reducing measures; and
  - agreed traffic routes, access points, etc.
- GG11 - Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.
- GG26 - Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use to raise any concerns or complaints about the project. All construction-related complaints will be logged by the contractor(s) in a complaints register, together with a record of the responses given and actions taken.

- NV01 - Construction working will be undertaken within the agreed working hours set out within the Development Consent Order (DCO). Best practicable means to reduce construction noise will be set out within the CEMP.

Operational noise control and management measures

3.10.5.9 It is anticipated that further detailed assessment of operational noise from the proposed converter station, once the design has been finalised, detailing specific mitigation measures, would be secured via DCO Requirement.

Operational vibration control and management measures

3.10.5.10 There are no material sources of operational vibration proposed as part of the Project. Some converter station plant would include rotating and moving parts, such as the fans of cooling equipment. However, levels of vibration generated by such plant is low and all plant, including transformers, would be expected to be mounted on suitable anti-vibration mounts. These are primarily to protect the plant itself from potential vibration impacts but also serve to attenuate vibration generated by the plant. Vibration would therefore not be expected to be perceptible even in very close proximity to plant.

3.10.6 Potential for Significant Effects

3.10.6.1 The noise and vibration assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.10.6.2 The proposed scope of the noise and vibration assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.10.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.10.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Source of construction impacts

- noise effects from construction activities;
- vibration effects from construction activities; and
- noise effects from construction traffic.

Sources of operational impacts

- noise effects from the converter station.

Sources of maintenance impacts

- noise and vibration effects from maintenance activities.

Sources of decommissioning impacts

- noise and vibration effects from decommissioning activities.

Potential impacts

3.10.6.5 Table 3.10.3 below presents the potential impacts and noise and vibration and whether they are proposed to be scoped in or scoped out.

Table 3.10.3: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction	Construction activities	Construction noise at NSRs	Yes - There will be potential significant effects due to construction noise at NSRs within the study area. However, this depends on the nature and the duration of activities, the distance between the noise source and the NSR, and the good practice measures employed to reduce noise.	**Scoped in**
		Construction vibration at NSRs	Yes - There will be potential significant effects on human receptors (i.e. nuisance) due to construction vibration at NSRs within the study area. The level of significance will depend on the nature and the duration of activities, the distance between the source of vibration and the NSR, and the good practice measures employed to reduce vibration. However, the duration	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			of such activities would be expected to be relatively short at any one location, and, together with the implementation of good practice measures, significant effects from such works are not expected. Construction vibration would not be expected to cause damage to buildings or structures unless very high levels of vibration are generated. Such levels would only be expected to occur where vibration generating activities occur very close to structures, within several meters, and specific control measures would be in place in such instances.	
	Construction traffic	Construction traffic noise at NSRs	Yes - There is the potential for significant effects at NSRs close to construction traffic routes depending on the number of construction vehicle movements and existing traffic flows along proposed routes.	**Scoped in**
		Construction traffic vibration at NSRs	Vibration from traffic on the public highway is caused by irregularities in the road surface. Where the road surface is free from irregulates, such as potholes, significant vibration effects would not be expected, even at	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			relatively short distances. This is confirmed by the Design Manual for Roads and Bridges LA 111 Noise and Vibration (2020) (DRMB).	
Operation	converter station	Operational noise at NSRs	Yes - There are a number of potential sources of audible noise from converter stations. Each of these has its own characteristic frequency spectrum and pattern of occurrence due to the nature of the noise-generating mechanisms involved. The primary sources of noise are likely to be transformers, cooling equipment, alternating current (AC) and direct current (DC) switch gear, and AC filters and voltage smoothing equipment. Transformer noise is almost constant, with a hum occurring at exact harmonics of the supply frequency; 100Hz and 200Hz components are usually dominant. Transformers generally run continuously except for occasional maintenance and fault outages. Transformer coolers typically emit a broadband noise; however, their operation depends on temperature and loading.	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			No - Switchgear noise is generated, in the main, by the operation of circuit breakers, for which the noise emissions are 'impulsive' in character (i.e. of short duration). Switchgear operations would be very infrequent. Modern switchgear of the Sulphur Hexafluoride (SF6) type operates with a dull 'thud'. Switchgear would operate infrequently and is therefore proposed to be scoped out.	Scoped out
			Auxiliary plant may comprise standby diesel generators and air compressors to provide emergency back-up power to cooling plant. When present and operating, these may contribute to the broadband noise climate. They do not run continuously, and in any case, would be housed in a building or outdoor acoustic enclosure. Noise from such assets is therefore not considered significant, given its emergency function and as such is proposed to be scoped out.	
		Operational vibration at NSRs	No - There are no material sources of operational vibration proposed as part of the	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			Project. Some converter station plant would include rotating and moving parts, such as the fans of cooling equipment. However, levels of vibration generated by such plant is low and all plant, including transformers, would be expected to be mounted on suitable anti-vibration mounts. These are primarily to protect the plant itself from potential vibration impacts but also serve to attenuate vibration generated by the plant. Vibration would therefore not be expected to be perceptible even in very close proximity to plant.	
	Overhead lines	Operational noise at NSRs	No - Overhead lines can generate audible noise due to corona discharge from the conductors. A portion of the energy associated with the corona process is released as acoustic energy which radiates into the air as sound pressure waves. The level of noise generated is affected by a number of factors, including the type of conductor, conductor bundle and pylon design, weather conditions (typically more noise is generated during wet conditions), and contamination on the	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			conductors. The nearest NSR are approximately 500m away from the closest potential proposed overhead line. This is outside the study area for operational noise from overhead lines, defined as 200m from the proposed overhead line. There is no significant audible noise effect beyond this distance, even in the most sensitive of locations and as such is proposed to be scoped out. Additional information will be provided as part of the ES to justify scoping out.	
	Maintenance activities	Operational noise and vibration at NSRs	Yes - Maintenance of the underground cables, overhead lines and the converter station would be infrequent, localised, and would follow good practice measures for the reduction of noise and vibration where required. Noise and vibration effects from maintenance activities would be expected to be no worse, and typically less than, the effects of during the construction phase.	**Scoped in**
	Underground cables	Operational noise and vibration at NSRs	No - Underground cables are practically quiet. Operational noise from underground cables is scoped out of the ES	Scoped out

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	Operational road traffic	Operational road traffic noise and vibration at NSRs	No - The Kent Onshore Scheme is not likely to generate significant levels of additional road traffic during operation, with a low level of manned activity at the converter station site and occasional maintenance activities.	Scoped out
Maintenance	Decommissioning activities	Decommissioning noise and vibration at NSRs	Yes - Decommissioning of the underground cables, overhead lines and the converter station would follow good practice measures for the reduction of noise and vibration where required. Noise and vibration effects from decommissioning activities would be expected to be similar to the effects of during the construction phase.	**Scoped in**

Impact Pathways with Receptors (Step 2)

3.10.6.6 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the noise and vibration study areas. The potential impact pathways are described in Table 3.10.4.

Table 3.10.4: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be Scoped in/out
Disturbance from construction noise	Residential and non-residential NSR	Yes - There will be potential significant effects due to construction noise at NSRs within the study area. However, this depends on the nature and the duration of activities, the distance between the noise source and the NSR, and the good	**Scoped in**

Impact pathway	Receptors	Potential for significant effects	Proposed to be Scoped in/out
		practice measures employed to reduce noise.	
Disturbance from construction vibration	Residential and non-residential NSR	Yes - There will be potential significant effects on human receptors (i.e. nuisance) due to construction vibration at NSRs within the study area. The level of significance will depend on the nature and the duration of activities, the distance between the source of vibration and the NSR, and the good practice measures employed to reduce vibration. However, the duration of such activities would be expected to be relatively short at any one location, and, together with the implementation of good practice measures, significant effects from such works are not expected.	**Scoped in**
Structural damage from construction vibration	Structures	Yes - Construction vibration would not be expected to cause damage to buildings or structures unless very high levels of vibration are generated. Such levels would only be expected to occur where vibration generating activities occur very close to structures, within several meters, and specific control measures would be in place in such instances.	**Scoped in**
Disturbance from construction traffic noise	Residential and non-residential NSR	Yes - There is the potential for significant effects at NSRs close to construction traffic routes depending on the number of construction vehicle movements and existing traffic flows along proposed routes.	**Scoped in**
Disturbance from construction traffic vibration	Residential and non-residential NSR	No - Vibration from traffic on the public highway is caused by irregularities in the road surface. Where the road surface is free from irregulates, such as potholes, significant vibration effects would not be expected, even at relatively short distances. This is confirmed by the Design Manual for Roads and Bridges LA 111 Noise and Vibration (2020) (DRMB).	Scoped out
Disturbance from operational noise	Residential and non-	Yes - There are a number of potential sources of audible noise from converter stations. Each of these has its own	**Scoped in**

Impact pathway	Receptors	Potential for significant effects	Proposed to be Scoped in/out
from Proposed converter station	residential NSR	characteristic frequency spectrum and pattern of occurrence due to the nature of the noise-generating mechanisms involved. The primary sources of noise are likely to be transformers, cooling equipment, alternating current (AC) and direct current (DC) switch gear, and AC filters and voltage smoothing equipment. Transformer noise is almost constant, with a hum occurring at exact harmonics of the supply frequency; 100Hz and 200Hz components are usually dominant. Transformers generally run continuously except for occasional maintenance and fault outages. Transformer coolers typically emit a broadband noise; however, their operation depends on temperature and loading.	
		No - Switchgear noise is generated, in the main, by the operation of circuit breakers, for which the noise emissions are 'impulsive' in character (i.e. of short duration). Switchgear operations would be very infrequent. Modern switchgear of the Sulphur Hexafluoride (SF6) type operates with a dull 'thud'. Switchgear would operate infrequently and is therefore proposed to be scoped out. Auxiliary plant may comprise standby diesel generators and air compressors to provide emergency back-up power to cooling plant. When present and operating, these may contribute to the broadband noise climate. They do not run continuously, and in any case, would be housed in a building or outdoor acoustic enclosure. Noise from such assets is therefore not considered significant, given its emergency function and as such is proposed to be scoped out.	Scoped out
Disturbance from operational noise from overhead lines	Residential and non-residential NSR	No - Overhead lines can generate audible noise due to corona discharge from the conductors. A portion of the energy associated with the corona process is released as acoustic energy which	Scoped out

Impact pathway	Receptors	Potential for significant effects	Proposed to be Scoped in/out
		radiates into the air as sound pressure waves. The level of noise generated is affected by a number of factors, including the type of conductor, conductor bundle and pylon design, weather conditions (typically more noise is generated during wet conditions), and contamination on the conductors. The nearest NSR are approximately 500m away from the closest potential proposed overhead line. This is outside the study area for operational noise from overhead lines, defined as 200m from the proposed overhead line. There is no significant audible noise effect beyond this distance, even in the most sensitive of locations and as such is proposed to be scoped out. Additional information will be provided as part of the ES to justify scoping out.	
Disturbance from operational vibration	Residential and non-residential NSR	No - There are no material sources of operational vibration proposed as part of the Project. Some converter station plant would include rotating and moving parts, such as the fans of cooling equipment. However, levels of vibration generated by such plant is low and all plant, including transformers, would be expected to be mounted on suitable anti-vibration mounts. These are primarily to protect the plant itself from potential vibration impacts but also serve to attenuate vibration generated by the plant. Vibration would therefore not be expected to be perceptible even in very close proximity to plant.	Scoped out
Disturbance from operational traffic noise	Residential and non-residential NSR	No - The Kent Onshore Scheme is not likely to generate significant levels of additional road traffic during operation, with a low level of manned activity at the converter station site and occasional maintenance activities.	Scoped out
Disturbance from noise and vibration from	Residential and non-	Yes - Maintenance of the underground cables, overhead lines and the converter station would be infrequent, localised, and	**Scoped in**

Impact pathway	Receptors	Potential for significant effects	Proposed to be Scoped in/out
maintenance activities	residential NSR	would follow good practice measures for the reduction of noise and vibration where required. Noise and vibration effects from maintenance activities would be expected to be no worse, and typically less than, the effects of during the construction phase.	
Disturbance from decommissioning noise and vibration	Residential and non-residential NSR	Yes - Decommissioning of the underground cables, overhead lines and the converter station would follow good practice measures for the reduction of noise and vibration where required. Noise and vibration effects from decommissioning activities would be expected to be similar to the effects of during the construction phase.	**Scoped in**

3.10.7 Assessment Methodology

3.10.7.1 The assessment methodology for the EIA is outlined in **Part 1, Chapter 5 EIA Approach and Method**. This section provides on overview of the methodologies proposed to be used in the assessment of noise and vibration from the Kent Onshore Scheme.

Proposed Data Sources

3.10.7.2 The following data sources would be used in the noise and vibration assessment:

- AddressBase Plus data;
- Noise survey data;
- Project design information;
- Construction programme, schedule, and plant data (if available);
- Baseline and construction traffic data;
- Topography data;
- Substation plant noise and/or specification data;
- Converter station plant and/or specification data (if available).

3.10.7.3 Where detailed data is not available at the time of the ES, suitable assumptions will be made and documented. In terms of construction data, information would be based on the methodologies used in similar projects. With regards to the converter station, it is unlikely that a full design will be available at the time of the ES. As such, the ES will

serve to determine noise limits for the proposed converter station via the noise survey data. It is anticipated that further detailed assessment of operational noise from the proposed converter station, once the design has been finalised, detailing specific mitigation measures, would be secured via DCO Requirement to meet the determined noise criteria.

Ascribing Sensitivity

3.10.7.4 NSRs are determined partly on property type, for example residential properties are of a higher sensitivity than factories and offices.

3.10.7.5 Although all residential NSRs are sensitive to noise and vibration, there are also cases where the sensitivity of an NSR may depend on the pre-existing noise climate. For example, NSRs falling with NIAs (existing high noise areas) may be more sensitive to increases in noise than those outside NIAs. Consideration will be given to such instances as part of the assessment of construction impacts.

3.10.7.6 The sensitivity of residential NSRs is factored into the assessment criteria for noise and vibration impacts through the various guidance documents. The significance of effects at residential NSR is therefore directly related to magnitude of effect. However, additional consideration of sensitivity may be required in certain cases for non-residential NSRs. The criteria used to determine the value and sensitivity of non-residential NSRs specific to noise and vibration are set out in Table 3.10.5. These values are based on standard practice.

Table 3.10.5: Criteria for determining value/sensitivity (Non-Residential NSRs)

Sensitivity/value	Criteria
Very High	Schools and education premises, hospitals, clinics.
High	Care homes, places of worship, community centres, libraries.
Medium	Areas primarily used for leisure activities including PRoWs, sports facilities, and sites of historic or cultural importance, camp sites, hotels, gardens, parks.
Low	Offices, cafes/bars with external areas.
Negligible	Industrial or retail premises

Ascribing Impact Magnitude

Construction noise

3.10.7.7 Construction noise impacts will be assessed in accordance with BS 5228-1 and will take account of the guidance of DMRB.

3.10.7.8 Construction noise levels will be calculated at NSRs within the study area in accordance with the methodology described in Annex F of BS 5228-1. The predicted construction noise levels at NSRs will be compared against applicable noise thresholds

as detailed in Section E.3.2 of BS 5228-1 (the 'ABC' method) together with temporal criteria as detailed in DMRB. Given the rural area of the majority of the Kent Onshore Scheme area, the lower threshold values (Category 'A') would be applied as a worst-case assessment to all residential NSR in lieu of baseline noise monitoring for construction impacts.

3.10.7.9 The lowest observed adverse effect level (LOAEL) and the significant adverse effect level (SOAEL) will be established in accordance with Table 3.10.6.

Table 3.10.6: Criteria for determining value/sensitivity (Non-Residential NSRs)

Time period	LOAEL	SOAEL
Weekdays 7:00am to 7:00pm, and Saturdays 7:00am to 1:00pm	50dB $L_{Aeq,T}$	65dB $L_{Aeq,T}$
Weekdays 7:00pm to 11:00pm, Saturdays 1:00pm to 11:00pm, and Sundays 7:00am to 11:00pm	50dB $L_{Aeq,T}$	55dB $L_{Aeq,T}$
Night-time 11:00pm to 7:00am	40dB $L_{Aeq,T}$	45dB $L_{Aeq,T}$

Construction vibration

3.10.7.10 Construction vibration levels will be calculated and assessed in accordance with the methodologies described in BS 5228-2 and will take account of the guidance of DMRB. No vibration baseline study is proposed.

3.10.7.11 Vibration levels from construction activities will be calculated in accordance with the methodology described in Annex E of BS 5228-2. Predicted vibration levels will be compared against applicable guidance values for both potential annoyance to human receptors together with temporal criteria detailed in DMRB.

3.10.7.12 Construction vibration effect threshold levels, including applicable LOAEL and SOAEL, are shown Table 3.10.7.

Table 3.10.7: Construction vibration effect magnitudes at residential receptors

Magnitude	Vibration Level mm/s PPV*	Effect
Negligible	0.14	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration
Small	0.3	Vibration might be just perceptible in residential environments (LOAEL)

Medium	1.0	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents (SOAEL)
Large	10	Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments
	* Peak Particle Velocity	

Construction traffic noise

3.10.7.13 Noise from construction traffic on the public highway will be calculated in accordance with CRTN and assessed against the criteria detailed in DMRB. The BNL from roads within the construction traffic study area will be calculated in accordance with CRTN for the do-nothing and do-something scenarios in the construction year. The calculated BNL values will be compared to determine the magnitude of the impact as detailed in Table 3.10.8.

Table 3.10.8: Magnitude of impact from construction traffic at residential receptors

Magnitude	Increase in BNL of closest public road used for construction traffic (dB)
Large	Greater than or equal to 5.0
Medium	Greater than or equal to 3.0 and less than 5.0
Small	Greater than or equal to 1.0 and less than 3.0
Negligible	Less than 1.0

Operational converter station noise

3.10.7.14 The assessment of operational noise will follow the methodology stated in BS 4142:2014+A1:2019 ‘Methods for rating and assessing industrial and commercial sound’ (BS 4142)[206].

3.10.7.15 Noise limits will be determined based on background sound level surveys at locations representative of nearby NSR. Surveys will be conducted in accordance with the requirements of BS 4142 and in general accordance with the methodology detailed in BS 7445-1:2003 ‘Description and measurement of environmental noise. Guide to quantities and procedures’ (BS 7445)[207].

3.10.7.16 BS 4142 assesses the potential significance of effects by comparing the 'rating sound level' of an industrial source to the typically representative ‘background sound level’ at the location of nearby receptors. The sound rating is a combination of the specific

[206] British Standards Institute (2019). BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound. BSI

[207] British Standards Institute (2003). BS 7445-1:2003 Description and measurement of environmental noise. Guide to quantities and procedures. BSI

sound level at the NSR and any applicable penalties that may be required for acoustic character, such as tonality or impulsivity.

3.10.7.17 The specific sound level at nearby NSR will be predicted by incorporating the available converter station design information in a computer noise model, based on the methodology detailed in from ISO 9613.

3.10.7.18 The predicted sound rating levels will be compared against the relevant noise limits determined from the baseline sound level survey data. The lower the rating level is relative to the measured background sound level, the less likely it is that there will be an adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

3.10.7.19 When considering context, BS 4142 references BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings' (BS 8233)[208] as providing context where background and rating noise levels are low. BS 8233 recommends internal sound levels in habitable spaces such as living rooms and bedrooms.

3.10.7.20 As noted above, it is anticipated that further detailed assessment of operational noise from the proposed converter station, once the design has been finalised, detailing specific mitigation measures would be secured via a condition attached to the outline planning permission, if granted. The assessment will therefore focus on setting of noise limits such that adverse impacts are avoided. It is standard practice to set the limit for operational noise such that the sound rating level does not exceed the background sound level, such that the impact is 'low'. The magnitude impacts for operational noise are detailed in Table 3.10.9.

Table 3.10.9: Magnitude of impact from operational converter station noise

Magnitude	Comparison of sound rating level and background sound level
Large	Rating level > 10dB above the background sound level
Medium	Rating level between 5 and 9 dB above background sound level
Small	Rating level between 0 and 4 dB above background sound level
Negligible	Rating level below background sound level

Maintenance noise and vibration

3.10.7.21 Noise and vibration effects from maintenance activities during operation will be assessed as per construction noise and vibration impacts, as described above.

Decommissioning noise and vibration

3.10.7.22 Noise and vibration effects from decommissioning activities during operation will be assessed as per construction noise and vibration impacts, as described above.

[208] British Standards Institute (2014). BS 8233:2014 Guidance on sound insulation and noise reduction for buildings. BSI

Ascribing Significance of Effect

Construction, maintenance, and decommissioning noise and vibration – residential receptors

3.10.7.23 Noise and vibration from construction, maintenance, and decommissioning activities, and construction traffic noise will constitute a significant adverse effect where it is determined that a Large or Medium magnitude of impact will occur at a residential NSR for a duration exceeding:

- 10 or more days or nights in any 15 consecutive days or nights; or
- a total number of days exceeding 40 in any six consecutive months.

Operational noise and vibration – residential receptors

3.10.7.24 Operational noise impacts will constitute a significant adverse effect where it is determined that a major magnitude of impact will occur at residential NSRs.

Significance of effect at non-residential NSR

3.10.7.25 With regards to non-residential receptors, the significance of effect will be determined via the matrix shown in Table 3.10.10, taking account of the sensitivity of the NSR and the impact magnitude. For construction impacts, the duration of impact will also be taken into account, as above.

Table 3.10.10: Significance matrix at Non-Residential NSR

		NSR sensitivity				
		Very High	**High**	**Medium**	**Low**	**Negligible**
Impact magnitude	**Large**	Major	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Moderate	Minor	Negligible
	Small	Moderate	Moderate	Minor	Negligible	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible

3.10.7.26 Major and moderate effects are typically considered to be significant, whilst minor and negligible effects are considered to be not significant. However, professional judgement will also be applied in reaching conclusions as to the significance of effects.

3.10.8 Conclusion

3.10.8.1 This chapter has considered the scoping of noise and vibration impacts during the construction, operation, and decommissioning of the Kent Onshore Scheme and describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential

significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an EIA.

Proposed Scope of the Assessment

3.10.8.2 A summary of the proposed scope of the assessment is provided in Table 3.10.11.

Table 3.10.11: Proposed scope of the assessment

Receptor	Potential for significant effect	Project phase(s)	Proposed to be scoped in/out
Nearby NSRs	Construction noise	Construction	**Scoped in**
Nearby NSRs and structures	Construction vibration	Construction	**Scoped in**
Nearby NSRs	Construction traffic noise	Construction	**Scoped in**
Nearby NSRs	Operational converter station noise	Operation	**Scoped in**
Nearby NSRs	Operational overhead line noise	Operation	Scoped out
Nearby NSRs	Operational vibration	Operation	Scoped out
Nearby NSRs	Operational road traffic	Operation	Scoped out
Nearby NSRs	Operational maintenance noise and vibration	Operation	**Scoped in**
Nearby NSRs	Decommissioning noise and vibration	Decommissioning	**Scoped in**

3.11 Socio-economics, Recreation & Tourism

3.11.1 Introduction

3.11.1.1 This chapter presents how the socio-economics, recreation and tourism assessment will consider the potentially significant effects that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in Part 1, Chapter 4, Description of the Project). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential significant effects to be considered within the assessment, and how the potential significant effects will be assessed for the purpose of an Environmental Impact Assessment (EIA).

3.11.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary, hereafter referred to as the Kent Scoping Boundary, is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.11.1.3 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**; and
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**.

3.11.1.4 This chapter is supported by the following figure:

- **Figure 3.11.1 Socio-economic, Recreation and Tourism Study Areas and Receptors**.

3.11.1.5 The assessment will consider potentially significant socio-economic, recreation and tourism effects on the following receptors:

- Employment (including training and apprenticeship opportunities);
- Users of recreational routes and Public Rights of Way (PRoW);
- Local communities that could be affected by community severance; and
- Residential properties, local businesses, visitor attractions, community facilities, open space and development land.

3.11.2 Regulatory and Planning Context

3.11.2.1 **Part 1, Chapter 2, Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and guidance relevant to the assessment of potential effects on socio-economics, recreation and

tourism associated with the construction, operation, maintenance and decommissioning of the Project is presented below.

3.11.2.2 Detailed below is a summary of planning policy of relevance to socio-economics, recreation and tourism. It includes relevant paragraphs of the Overarching National Policy Statement for Energy (EN1)[209]; the National Policy Statement for Electricity Networks Infrastructure (EN-5)[210]; the National Planning Policy Framework (NPPF)[211]; and National Planning Practice Guidance (NPPG)[212], as well as relevant local planning policy.

Legislation

3.11.2.3 No legislation of relevance to socio-economic, recreation and tourism effects.

Planning Policy

National planning policy

National Policy Statement for Energy (EN-1)

3.11.2.4 Paragraphs 5.12.2 – 5.12.5 of the Overarching National Policy Statement for Energy (EN-1)[209] details requirements for NSIP applications to consider all relevant socio-economic impacts, and to highlight that socio-economic impacts may be linked to other impacts (for example links between visual impacts and tourism and local businesses). Socio-economic impacts may include:

- "the creation of jobs and training opportunities;
- the provision of additional local services;
- effects on tourism;
- the impact of a changing influx of workers during the different construction, operation and decommissioning phases…There could also be effects on social cohesion depending on how populations and service provision change as a result of the development; and
- cumulative effects."

National Policy Statement for Energy (EN-5)

3.11.2.5 The National Policy Statement for Electricity Networks Infrastructure (EN-5)[210] supplements EN-1, with additional guidance specific to the development of electricity

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

[210] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf

[211] Department for Levelling Up, Housing & Communities, (2021). National Planning Policy Framework. London. [online] Available at: National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk) [Accessed 16 June 2022].

[212] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2021). Planning Practice Guidance. [online] Available at: https://www.gov.uk/government/collections/planning-practice-guidance

networks infrastructure. This document makes no reference to socio-economics, recreation or tourism.

National planning policy framework

3.11.2.6 The National Planning Policy Framework (NPPF)[211] sets out various policies with respect to the social and economic objectives of the planning system.

- Paragraph 8 outlines the economic objective of the planning system 'to help build a strong, responsive, and competitive economy by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity'.
- Paragraph 100 states 'decisions should protect and enhance public rights of way'.

National planning practice guidance

3.11.2.7 The National Planning Practice Guidance (NPPG)[212] provides guidance on which includes planning and the economy and to consider the existing and potential future needs of the population in terms of economic development, jobs and employment opportunities; and on open space, sports and recreation facilities, public rights of way and local green space. The contents of the NPPG are not materially relevant to the assessment of socio-economic, recreation and tourism effects as the content does not influence the undertaking of the assessment of effects.

Local planning policy

3.11.2.8 Local planning policy and guidance of relevance to the socio-economic, recreation and tourism assessment includes:

- South East Local Enterprise Partnership (SELEP) Economic Renewal Strategy, 2021[213];
- SELEP, Coast to Capital LEP, Enterprise M3 LEP, Local Energy Strategy[214];
- Kent County Council (KCC), Kent and Medway Growth and Infrastructure Framework (GIF), 2018 Update[215];
- KCC A 2050 Picture of Kent and Medway 2018[216];
- KCC Rights of Way Improvement Plan 2018-2028[217];

[213] South East Local Enterprise Partnership (2021). Economic Recovery and Renewal Strategy. [online] Available at: https://www.southeastlep.com/our-strategy/economic-recovery-and-renewal-strategy/

[214] Coast to Capital, Enterprise M3, and South East Local Enterprise Partnerships (2019). Local Energy Strategy. [online] Available at: https://www.southeastlep.com/app/uploads/2019/03/Local-Energy-Strategy-FINAL.pdf

[215] Kent County Council (2018). Kent and Medway Growth and Infrastructure Framework (2018 Update). [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0018/80145/GIF-Framework-full-document.pdf

[216] Kent County Council (2018). A 2050 Picture of Kent and Medway. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0009/79920/GIF-2050-Picture.pdf

[217] Kent County Council (2018). Rights of way Improvement Plan. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0005/90491/Rights-of-Way-Improvement-Plan-2018-2028.pdf

- Dover District Council Core Strategy 2010[218], including:
  - ‘Policy CP 2 – Provision for Jobs and Homes between 2006-2026’
  - ‘Policy CP 7 – Green Infrastructure Network’
  - ‘Policy DM 25 – Open Space’;
- Draft Dover New District Local Plan 2022 (Regulation 18 Draft)[219], including:
  - ‘Strategic Policy 8 – Economic Growth’
  - ‘Strategic Policy 9 – Employment Allocations’ (including draft designation - Sandwich Industrial Estate strategic employment area);
  - ‘DM Policy 18 New Employment Development’;
- Dover District Economic Growth Strategy, 2021[220];
- Thanet Local Plan, 2020[221], including:
  - ‘SPO4 – Economic Growth’
  - ‘SP13 – Housing Provision’
  - ‘SP38 – Healthy and Inclusive Communities’;
  - ‘HO14 – Land south of Cottington Road’;
  - ‘HO15 – Land north of Cottington Road’; and
  - ‘SP46 – New Railway Station’.
- Economic Growth Strategy for Thanet, 2016; and
- Ash Neighbourhood Development Plan 2021, including:
  - Objective 1: Environmental (landscape, open spaces, biodiversity and climate change);
  - Objective 2: Housing, requirements, design, built environment, site allocations, sustainability and climate change resilience;
  - Objective 3: Leisure, Well-being, Education and Healthcare; and
  - Objective 4: Employment in the local economy.

[218] Dover District Council (2010). Dover District Local Development Framework Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf [Accessed 13/07/2022].

[219] Land Use Consultants Ltd. On behalf of Dover District Council (2020). Draft Dover District Local Plan (Reg 18) Habitats Regulations. [online] Available at: https://www.doverdistrictlocalplan.co.uk/uploads/pdfs/habitat-regulation-assessment-of-the-draft-local-plan-2020.pdf

[220] Dover District Council (2021). Dover District Economic Growth Strategy. [online] Available at: https://moderngov.dover.gov.uk/documents/s44639/Economic%20Growth%20Strategy%20-%20Appendix%201.pdf#:~:text=This%20Economic%20Growth%20Strategy%20sets%20out%20Dover%20District,local%20communities%20to%20prosper%20in%20a%20fast-changing%20world.

[221] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

3.11.3 Study Area

3.11.3.1 The study area for socio-economic, recreation and tourism varies depending on the likely spatial extent of the effect under consideration.

3.11.3.2 This chapter of the Scoping Report sets out potential effects with respect to the Kent Scoping Boundary (as illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**).

3.11.3.3 Effects on employment will be considered within the local authorities of Dover and Thanet, the two local authorities that the Kent Scoping Boundary falls within.

3.11.3.4 Effects on users of recreational routes and PRoW will consider impacts on routes and PRoW likely to be affected by alterations in their use. This will include all routes located within 500 m of the Kent Scoping Boundary, this study area is illustrated on **Figure 3.11.1 Socio-economic, recreation and Tourism Study Areas and Receptors**.

3.11.3.5 The study area for local communities that could be affected by community severance will consider communities that may potentially be directly and indirectly affected by the Kent Onshore Scheme. These will include communities directly connected by recreational routes and PRoW. The communities that could be impacted are within 1km of the Kent Scoping Boundary and which is illustrated on **Figure 3.11.1 Socio-economic, Recreation and Tourism Study Areas and Receptors.**

3.11.3.6 The study area for residential properties, local businesses, visitor attractions relevant for tourism, community facilities, open space and development land will consider receptors that could be directly or indirectly affected by the Kent Onshore Scheme. The receptors that could be impacted are within 500 m of the Kent Scoping Boundary as illustrated on **Figure 3.11.1 Socio-economic, Recreation and Tourism Study Areas and Receptors.** Potential significant effects included within the Landscape and Visual chapter will also be reviewed and receptors beyond 500m will be considered should significant amenity impacts be identified.

3.11.4 Baseline Conditions

Data Sources

3.11.4.1 The socio-economic, recreation and tourism assessment baseline environment described in this section has been informed by the following data sources:

- Office of National Statistics (ONS), (2021), Mid-Year Population Estimates[222];
- ONS, (2021), Claimant count by sex and age (February 2022)[223];

[222] Office for National Statistics (2021). Population estimates for the UK, England and Wales, Scotland and Northern Ireland: mid-2020. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/latest

[223] ON Office for National Statistics (2022). CLA02: Claimant Count by age group (Experimental Statistics). [online] Available at: https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/outofworkbenefits/datasets/cla02claimantcountbyagegroup

- ONS, (2020), Annual Population Survey (January 2020 to December 2020)[224]; and
- Ministry of Housing, Community and Local Government (MHCLG), (2020), English Indices of Deprivation (2019)[225].

3.11.4.2 The baseline for recreational routes and PRoW is based on:

- KCC PRoW map[226]; and
- Sustrans National Cycle Network route map[227].

3.11.4.3 The baseline for private assets is based on AECOM desk research with reference to:

- Dover District Local Plan Adopted Policies Map[228]; and
- Thanet District Local Plan Policies Map[229].

3.11.4.4 The baseline for development land is based on:

- Dover District Land Allocations Local Plan[230];
- Thanet District Local Plan[231]; and
- Planning applications portals for Dover and Thanet Districts.

Baseline

3.11.4.5 The Kent Scoping Boundary straddles the local authorities of Dover District (hereafter 'Dover') and Thanet District (hereafter 'Thanet'). Dover had an estimated population of approximately 118,500 and Thanet an estimated population of 141,500 in 2020.

3.11.4.6 The Kent Scoping Boundary comprises predominantly agricultural land. A number of small towns and villages lie outside of, but close to the Kent Scoping Boundary of the. These include: Minster, approximately 250m to the north west, Cliffsend adjacent to the north east of the Kent Scoping Boundary. The larger town of Ramsgate lies 2km away to the northeast. Port Richborough business park and The Discovery Park business park are approximately 600m and 3km to the south respectively.

3.11.4.7 Approximately 7.5% and 21.4% of Lower Layer Super Output Areas (LSOAs) located in Dover and Thanet respectively are ranked within the most deprived decile of LSOAs

[224] Office for National Statistics (2021). Annual Population Survey (January 2020 to December 2020). [online] Available at: https://www.nomisweb.co.uk/datasets/apsnew

[225] Ministry of Housing, Communities & Local Government (2019). English Indices of Deprivation 2019. [online] Available at: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019

[226] Kent County Council (2017). Public Rights of Way Map. [online] Available at: https://webapps.kent.gov.uk/countrysideaccesscams/standardmap.aspx

[227] Ordnance Survey Maps (2022). Map of the National Cycle Network. [online] Available at: https://explore.osmaps.com/?lat=52.229585&lon=1.342731&style=Standard&zoom=7.5461&overlays=os-ncn-layer&type=2d&placesCategory= [Accessed April 2022].

[228] Dover District Council (2010). Adopted Policies Map. [online] Available at: https://maps.dover.gov.uk/webapps/Adopted_Policies_Map/

[229] Thanet District Council (2020). Thanet Local Plan Map. [online] Available at: https://thanet.opus4.co.uk/planning/localplan/maps/thanetlocalplan#

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

[231] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

in England. Out of the 317 local authorities in England, Dover and Thanet ranked as the 107th and 34th most deprived respectively.

Employment and labour market

3.11.4.8 In 2020, the proportion of the population that was of working-age (16-64 years) in Dover (58.7%) and Thanet (57.1%) was slightly lower than the proportion for the South East region (61.1%) and England and Wales (62.2%).

3.11.4.9 In 2021, the economic activity rate in Dover (79.2%) was lower than the South East average (81.1%), but slightly higher than England and Wales (78.9%). The economic activity rate in Thanet of 69.9% was lower than both the regional and national averages.

3.11.4.10 The unemployment rate in 2021 in Dover (6.4%) and Thanet (6.6%) were higher than the South East average (4.2%) and England and Wales (5.0%). The claimant count (as a proportion of residents aged 16-64 years), recorded in February 2022, was 4.5% in Dover and 7.2% in Thanet. The count in Dover is broadly in line with England and Wales (4.4%) but higher than the South East average (3.4%). The claimant count in Thanet is higher than both these comparative averages.

3.11.4.11 In 2020, the proportion of the population that held a higher level NVQ Level 4+ qualification in Dover (39.4%) and Thanet (26.5%) was lower than the proportion across the South East (45.1%) and England and Wales (42.6%). The proportion of the population with no formal qualifications in Dover (4.3%) was lower than the South East (4.8%) and England and Wales (6.3%). By contrast, the proportion of the population with no formal qualifications in Thanet (9.2%) was higher than both the regional and national comparative geographies.

Recreational routes and PRoW

3.11.4.12 The study area for recreational routes and PROW is intersected by a number of recreational routes and PRoW, including National Cycle Network Route 15 (NCR 15), the England Coast Path, Viking Coastal Trail, the Saxon Shore Way, the Contra Trail and a number of footpaths and bridleways.

Residential properties

3.11.4.13 Residential areas in the communities of Cliffs End and Minster are within the study area to the north-east and north-west, respectively. The remainder of the study area for residential properties comprises a sparsely populated rural area and contains some dispersed private properties and farm buildings.

Business premises

3.11.4.14 There are a large number of businesses in Cliffs End within the study area. There are also five further business located within the study area in Minster including a garage, a private tutor, a farm and two holiday rental properties. These is also a farm located in the small settlement of Sevenscore to the north of the Kent Scoping Boundary. St Augustine's Golf Course, Stonelees Golf Club and Pegwell Bay Country Park are also within the study area as illustrated on **Figure 3.11.1 Kent Onshore Scheme Socio-economic, Recreation and Tourism Study Areas and Receptors.**

Visitor attractions

3.11.4.15 St Augustine's Cross Memorial site lies within the study area, to the northeast.

Community facilities

3.11.4.16 There are two community facilities located with the study area. Great Oaks Small School is located in the south of the Kent Scoping Boundary, while Cliffsend Village Hall is located to the northeast of the Kent Scoping Boundary, within the study area as illustrated on **Figure 3.11.1 Kent Onshore Scheme Socio-economic, Recreation and Tourism Study Areas and Receptors.**

Open space

3.11.4.17 Pegwell Bay Country Park falls within the study area.

Development land

3.11.4.18 Within the north-east of study area, adjacent to Cliffsend, there are two residential site allocations in the Thanet Local Plan. The allocations are for: up to 40 dwellings on land north of Cottington Road (Policy HO14); up to 23 dwellings on the land south of Cottington Road (Policy HO15). To the south of the Kent Scoping Boundary, within the study area, a Planning Application F/TH/20/0648 to construct 20 holiday homes at Stonelees Golf Course was submitted in May 2020. The application is awaiting a planning decision as illustrated on **Figure 3.11.1 Kent Onshore Scheme Socio-economic, Recreation and Tourism Study Areas and Receptors**.

Future Baseline

3.11.4.19 ONS population projections232 show over the 10-year period from 2022 to 2032 the population across Dover and Thanet is expected to grow by 8.5% and 4.5% respectively (to approximately 132,600 people in Dover and 151,400 in Thanet). The increase in both local authorities is greater than the projected rate of increase in the South East (3.5%) and across England as a whole (4.0%) over the same period.

3.11.4.20 The future baseline for residential properties, businesses, community facilities, open spaces, visitor attractions and development land over the medium-term is highly uncertain. Due to this uncertainty, for the purposes of this assessment, it is assumed the future baseline for the Kent Onshore Scheme study area would be unchanged from the current baseline to the completion of the Kent Onshore Scheme, except where new development is expected to be delivered in line with allocated and planned development sites as set out in section 3.

[232] Office for National Statistics (2018). Population Projections. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections

3.11.5 Embedded and Control & Management Measures

Embedded Measures

3.11.5.1 Mitigation measures will be included in the design where practicable to help avoid, prevent or reduce effects on the environment. The Kent Onshore Scheme has been routed and sited to avoid residential areas where possible.

Control and Management Measures

3.11.5.2 An outline Code of Construction Practice (CoCP) is provided **in Appendix 1.4.A Outline Code of Construction Practice.** Measures relevant to the control and management of impacts that could affect the socio-economics, recreation and tourism assessment are:

- GG03: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP) and a Construction Traffic Management Plan (CTMP) will be produced prior to construction;
- GG05: A suitably experienced Environmental Manager will be appointed for the duration of the construction phase. In addition, a qualified and experienced Environmental Clerk of Works will be available during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the CEMP. The Environmental Clerk of Works will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required good practice and mitigation measures;
- GG08: Land used temporarily will be reinstated where practicable to its pre-construction condition and use. Hedgerows, fences and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, with landowner agreement; and
- GG26: Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use to raise any concerns or complaints about the project. All construction-related complaints will be logged by the contractor(s) in a complaints register, together with a record of the responses given and actions taken.

3.11.6 Potential for Significant Effects

3.11.6.1 The socio-economics, recreation and tourism assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project**.

3.11.6.2 The proposed scope of the socio-economics, recreation and tourism assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.11.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.11.6.4 The potential for the Kent Onshore Scheme to result in the potential significant effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- generation of construction-related employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain;
- generation of Gross value added (GVA);
- potential temporary closure or diversions to PRoW and recreational routes;
- potential temporary severance of access to community facilities for residents leading to deterioration of social cohesion and affecting mental health; and
- potential temporary adverse land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land.

Sources of operational impacts

- potential permanent closure or diversions to PRoW and recreational routes;
- potential permanent severance of access to community facilities for residents leading to deterioration of social cohesion and affecting mental health;
- potential permanent adverse land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land;
- potential creation of permanent operational phase employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain; and
- potential generation of Gross value added (GVA) in Dover and Thanet during the operational phase.

Sources of maintenance impacts

- The sources of maintenance impacts are assessed to be the same as those listed as sources of construction impacts.

Sources of decommissioning impacts

- The sources of decommissioning impacts are assessed to be the same as those listed as sources of construction impacts.

Potential impacts

3.11.6.5 Table 3.11.1 below identifies the potential impacts that could result from the sources identified above.

Table 3.11.1:Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance and decommissioning	Generation of construction-related employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain.	Generation of construction-related employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain in Dover and Thanet.	Yes - The Kent Onshore Scheme will generate direct and indirect temporary employment, training and apprenticeship opportunities both on Site and in the supply chain during the construction, maintenance and decommissioning phases.	**Scoped in**
	Generation of Gross value added (GVA)	Generation of Gross value added (GVA) in Dover and Thanet.	Yes - The employment and wider economic activity created during the construction maintenance and decommissioning phases will generate GVA within the local Dover and Thanet economies.	**Scoped in**
	Potential temporary closure or diversions to PRoW and recreational routes.	Potential temporary closure or diversions to PRoW and recreational routes within 500m of the Kent Scoping Boundary causing disruption to users.	Yes - Disruption to PRoW or other recreational routes during the construction maintenance and decommissioning phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	Potential temporary severance of access to community facilities	Potential temporary severance of access to community facilities within 1km of the Kent Scoping Boundary for local residents, leading to deterioration of social cohesion and affecting mental health.	Yes - As above, disruption to PRoW or other recreational routes would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**
	Potential temporary land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land.	Potential temporary land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land within 500m of the Kent Scoping Boundary.	Yes - A number of residential properties, local businesses, visitor attractions, community facilities, open spaces and development land allocations have been identified within the study area.	**Scoped in**
Operation	Potential permanent closure or diversions to PRoW and recreational routes.	Potential permanent closure or diversions to PRoW and recreational routes within 500 m of the Kent Scoping Boundary.	No - Disruption to PRoW or other recreational routes during the operation phase would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	Scoped in
	Potential permanent severance of access to	Potential permanent severance of access to community facilities within 1km of the	Yes - As above, disruption to PRoW or other recreational routes would be avoided as far as possible. Where	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	community facilities.	Kent Scoping Boundary for local residents, leading to deterioration of social cohesion and affecting mental health.	necessary, suitable diversions would be agreed with KCC.	
	Potential permanent adverse land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land.	Potential permanent land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land within 500m of the Kent Scoping Boundary.	Yes - A number of residential properties, local businesses, visitor attractions, community facilities, open spaces and development land allocations have been identified within the study area.	**Scoped in**
	Creation of permanent operational phase employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain.	Creation of permanent operational phase employment, training and apprenticeship opportunities, both directly at work sites and indirectly in Dover and Thanet.	The scale of operational employment generated is likely to be very limited.	Scoped out
	Generation of Gross value added (GVA) during the operational phase.	Generation of Gross value added (GVA) in Dover and Thanet during the operational phase.	No - The scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small.	Scoped out

Impact Pathways with Receptors (Step 2)

3.11.6.6 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potentially significant effects on the receptors within the Kent Onshore Scheme study area.

3.11.6.7 Table 3.11.2 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme.**

Table 3.11.2: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Generation of employment, training and apprenticeship opportunities, both directly at work sites and indirectly in the supply chain in Dover and Thanet.	Employment levels within Dover and Thanet.	Yes - The Kent Onshore Scheme will generate direct and indirect temporary employment, training and apprenticeship opportunities both on Site and in the supply chain during the construction, maintenance and decommissioning phases. No - The scale of operational employment generated is likely to be very limited.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Generation of Gross value added (GVA) in Dover and Thanet.	Local economy within Dover and Thanet.	Yes - The employment and wider economic activity created during the construction maintenance and decommissioning phases will generate GVA within the local Dover and Thanet economies. No - The scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small.	**Proposed to be scoped in for construction, maintenance and decommissioning** Scoped out for operation
Potential temporary or permanent closure or diversions to PRoW and recreational routes within 500m	Users of PRoW and recreational routes within 500m of Kent Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Proposed to be scoped in for all project phases**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
of the Kent Scoping Boundary.			
Potential temporary or permanent severance of access to community facilities within 1km of the Kent Scoping Boundary.	Local communities within 1km of the Kent Scoping Boundary including Cliffsend and Minster.	Yes - As above, disruption to PRoW or other recreational routes would be avoided as far as possible at all phases. Where necessary, suitable diversions would be agreed with KCC.	**Proposed to be scoped in for all project phases**
Potential temporary or permanent adverse land take or amenity impacts on residential properties, local businesses, visitor attractions, community facilities, open space or development land within 500m of the Kent Scoping Boundary.	Residential properties within 500m of the Kent Scoping Boundary including those in Cliffsend, Minster and dispersed individual properties.	Yes - A number of residential properties, local businesses, visitor attractions, community facilities, open spaces and development land allocations have been identified within the study area.	**Proposed to be scoped in for all project phases**
	Businesses within 500m of the Kent Scoping Boundary including those located in Cliffsend and Minster as well as St Augustine Golf Club and Stonelees Golf Centre.		
	Visitor attractions within 500m of the Kent Scoping Boundary including St Augustine's Memorial Cross.		
	Community facilities within 500m of the Kent Scoping Boundary including, Great		

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
	Oaks Small School and Cliffsend Village Hall.		
	Development land within 500m of the Kent Scoping Boundary including, Land North of Cottington Road, Land South of Cottington Road and planning application F/TH/20/0648.		
	Open space within 500m of the Kent Scoping Boundary including Pegwell Bay Country Park.		

3.11.7 Proposed Assessment Methodology

3.11.7.1 The assessment methodology for the EIA is outlined in **Volume 1 Chapter 5 EIA Approach and Method.**

Proposed Data Sources

3.11.7.2 A desk-based baseline assessment will be undertaken using a rage of sources to provide a description of the socio-economic conditions within the socio -economic and land use study areas set out above. This will be done using established statistical sources, and in consultation with stakeholders, where relevant. Relevant policy will be reviewed at the local regional and national levels to identify the key issues of relevance to the Project.

Proposed Assessment Methodology

3.11.7.3 An assessment of potential impacts will be undertaken to determine the effect of the Kent Onshore Scheme on the baseline socio-economic conditions. The methodology for assessing socio-economic impacts will follow standard EIA guidance and will entail:

- assessment of the likely scale, permanence and significance of effects associated with socio-economics, recreation & tourism receptors; and

- an assessment of the potential cumulative impacts with other projects within the surrounding area.

3.11.7.4 The assessment of potential socio-economic impacts will use policy thresholds and expert judgment to assess the scale and nature of the impacts of the Project against baseline conditions. For socio-economics, recreation and tourism there is no accepted definition of what constitutes a significant (or not significant) socio-economic effect. It is however recognised that effects are categorised based upon the relationship between the scale (or magnitude) of effect and the sensitivity (or value) of the affected resource or receptor.

3.11.7.5 As such, the socio-economics, recreation and tourism effects will be assessed on the basis of:

- *Consideration of sensitivity to impact*: specific values in terms of sensitivity are not attributed to socio-economic resources/receptors due to their diverse nature and scale, however the assessment takes account of the qualitative (rather than quantitative) 'sensitivity' of each receptor and, in particular, their ability to respond to change based on recent rates of change and turnover (if appropriate); and
- *Scale of impact*: this entails consideration of the size of the impact on people or business in the context of the area in which effects will be experienced.

3.11.7.6 The assessment aims to be objective and quantify effects as far as possible. However, some effects can only be evaluated on a qualitative basis. Effects are proposed to be defined as follows:

- *Beneficial classifications of effect*: indicate an advantageous or beneficial effect on an area, which may be minor, moderate, or major in effect;
- *Negligible classifications of effect*: indicate imperceptible effects on an area;
- *Adverse classifications of effect*: indicate a disadvantageous or adverse effect on an area, which may be minor, moderate or major in effect; and
- *No effect classifications*: indicate that there are no effects on an area.

3.11.7.7 Based on consideration of the above, where an effect is assessed as being beneficial or adverse, the scale of the effect are proposed to be assigned using the below criteria:

- *Minor*: a small number of receptors are beneficially or adversely affected. The effect will make a small measurable positive or negative difference on receptors at the relevant area(s) of effect;
- *Moderate*: a noticeable number of receptors are beneficially or adversely affected. The effect will make a measurable positive or negative difference on receptors at the relevant area(s) of effect; and
- *Major*: all or a large number of receptors are beneficially or adversely affected. The effect will make a measurable positive or negative difference on receptors at the relevant area(s) of effect.

3.11.7.8 Those effects which are found to be moderate or major are considered to be 'significant' and those which are minor or negligible are 'not significant'.

3.11.7.9 Duration of impact will also be considered, with more weight given to reversible long-term or permanent changes than to temporary ones. Temporary impacts are

considered to be those associated with the construction works. Long-term reversible impacts are generally those associated with the completed and operational development.

Assumptions and Limitations

3.11.7.10 The commercial agreement for land, including productive land, between the proponent and land owners is beyond the scope of this assessment and the future Environmental Statement (ES) documentation.

3.11.7.11 The approximately four year construction period is expected to require a peak workforce across the Suffolk Onshore, Kent Onshore and Offshore Schemes of between 300-400 workers. A proportion of these workers are likely to live locally to the site, while a proportion will travel to the site to work. More detail on the average and peak number of workers expected to work on each of the Offshore and Onshore Schemes across the construction period, and the proportion of workers who will be expected to live locally to the site will be set out in the Preliminary Environmental Information Report.

3.11.8 Conclusion

3.11.8.1 This chapter of the Scoping Report has set out the proposed scope and methodology for the ES assessment of socio-economic effects arising from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. The socio-economic, recreation and tourism receptors that have been identified within the respective study areas surrounding the Kent Onshore Scheme include local communities, the local economy within Dover and Thanet, users of PRoW and open space, residential and business properties, visitor attractions, development land, and community facilities within the respective study areas. The preliminary baseline assessment indicates that there is the potential for significant effects on these receptors.

Proposed Scope of the Assessment

3.11.8.2 A summary of the proposed scope of the assessment is provided in Table 3.11.3

Table 3.11.3: Proposed scope of the assessment

Receptor	Potential significant effect	Project phase(s)	Proposed to be scoped in/out
Employment levels within Dover and Thanet	The Kent Onshore Scheme will generate direct and indirect temporary employment, training and apprenticeship opportunities both on Site and in the supply chain during the construction, maintenance and	Construction, maintenance and decommissioning	**Scoped in**
		Operation	Scoped out

	decommissioning phases. The scale of operational employment generated is likely to be very limited.		
Local economy within Dover and Thanet	The employment and wider economic activity created during the construction maintenance and decommissioning phases will generate GVA within the local Dover and Thanet economies. The scale of operational employment generated is likely to be very limited and therefore any effect on GVA will be small.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	Scoped out
Users of PRoW and recreational routes within 500 m of the Kent Scoping Boundary	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Local communities within 1 km of Kent Scoping Boundary	As above, disruption to PRoW or other recreational routes would be avoided as far as possible at all phases. Where necessary, suitable diversions would be agreed with KCC.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Residential properties within 500 m of the Kent Scoping Boundary	A number of residential properties, local businesses, visitor attractions, community facilities, open spaces and development land allocations have been identified within the study area.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Businesses within 500 m of the Kent Scoping Boundary			
Visitor attractions within 500 m of the Kent Scoping Boundary			
Community facilities within 500 m of the Kent Scoping Boundary			
Development land within 500m of the Kent Scoping Boundary			

Open Space within 500m of the Kent Scoping Boundary

3.12 Health and Wellbeing

3.12.1 Introduction

3.12.1.1 This chapter presents how the Health and Wellbeing assessment will consider the potential effects that may arise from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme (as described in **Part 1, Chapter 4, Description of the Project**). This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the potential effects to be considered within the assessment, and how the potential effects will be assessed for the purpose of an EIA).

3.12.1.2 The Project Scoping Boundary is illustrated on **Figure 1.1.1 Project Scoping Boundary** and the Kent Onshore Scheme Scoping Boundary hereafter referred to as the Kent Scoping Boundary is illustrated on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary**.

3.12.1.3 The assessment will consider potential health and wellbeing effects on the following receptors:

- Quality of life and safety of local residents, workers and visitors;
- Users of recreational routes and Public Rights of Way (PRoW);
- Users of open space;
- Users of local community services and social infrastructure; and
- Local communities that could be affected by community severance.

3.12.1.4 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Methodology**;
- **Part 3, Chapter 1, Evolution of the Kent Onshore Scheme**;
- **Part 3, Chapter 2, Landscape and Visual**;
- **Part 3, Chapter 6, Geology and Hydrogeology**;
- **Part 3, Chapter 8, Traffic and Transport**;
- **Part 3, Chapter 9, Air Quality**;
- **Part 3, Chapter 10, Noise and Vibration**; and
- **Part 3, Chapter 11: Socio-economics, Recreation and Tourism**.

3.12.1.5 This chapter is supported by the following figure:

- **Figure 3.12.1 Kent Onshore Scheme Health and Wellbeing Study Areas and Receptors**.

3.12.2 Regulatory and Planning Context

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

Legislation

3.12.2.2 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017; and The Marine Works (Environmental Impact Assessment) Regulations 2007[233] also require the EIA for infrastructure projects to consider potential impacts on health and wellbeing.

Planning Policy

National planning policy

National Policy Statement for Energy (EN-1)

3.12.2.3 Paragraphs 4.3.1 – 4.3.5 of the Overarching National Policy Statement for Energy (NPS EN-1)[209] details requirements for National Policy Statement (NSIP) applications to consider all relevant impacts to health and wellbeing.

National Policy Statement for Energy (EN-5)

3.12.2.4 The NPS for Electricity Networks Infrastructure (NPS EN-5)[210] supplements EN-1, with additional guidance specific to the development for electricity networks infrastructure. This document provides guidance on the effects of electro-magnetic fields (EMFs) and their impact on health.

National planning policy framework (NPPF)

3.12.2.5 The National Planning Policy Framework (NPPF)[234] sets out various policies with respect to the health and wellbeing objectives of the planning system. Chapter 8 on 'Promoting healthy and safe communities' outlines the health and community objectives of the NPPF, including the management of PRoW, access to open spaces and access to community amenities.

[233] Department of Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf

[234] Department for Levelling Up, Housing & Communities (2021). National Planning Policy Framework. London. [online] Available at: National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk) [Accessed 16 June 2022].

National planning practice guidance

3.12.2.6 The National Planning Practice Guidance (NPPG)[235] provides additional guidance to the NPPF. Guidance of particular relevance to health includes Paragraphs 92 to 103 which set out how the design and use of the built and natural environment are major determinants of health and wellbeing, and how in turn, positive planning can contribute to healthier communities.

Additional national guidance

3.12.2.7 Additional national guidance relevant to health and wellbeing includes:

- Design Manual for Roads and Bridges (DMRB) Document LA112[236];
- NHS Healthy Urban Development Unit (HUDU)[237] Rapid Health Impact Assessment (HIA) Tool;
- Public Health England (PHE) Guidance 'Spatial Planning for Health: An evidence resource for designing healthier places'[238];
- PHE Strategy 2020 to 2025[239];
- The Marmot Review: Fair Society Healthy Lives (2010)[240];
- Health Equity in England 10 Years On (2020)[241]; and
- Build Back Fairer – The Covid-19 Marmot Review (2020)[242].

Local planning policy

- Kent County Council (KCC) A 2050 Picture of Kent and Medway 2018[243];
- KCC Rights of Way Improvement Plan 2018-2028[244];

[235] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2021). Planning Practice Guidance. [online] Available at: https://www.gov.uk/government/collections/planning-practice-guidance

[236] Highways England, Transport Scotland, Welsh Government and the Department for Infrastructure (2020). Design Manual for Roads and Bridges – LA112 – Population and Human Health. [online] Available at:https://www.standardsforhighways.co.uk/prod/attachments/1e13d6ac-755e-4d60-9735-f976bf64580a?inline=true

[237] NHS London Healthy Urban Development Unit (2019). Rapid Health Impact Assessment Tool. [online] Available at: https://www.healthyurbandevelopment.nhs.uk/wp-content/uploads/2019/10/HUDU-Rapid-HIA-Tool-October-2019.pdf#:~:text=The%20Rapid%20HIA%20tool%20The%20tool%20is%20designed,renewal%20programmes%20and%20outline%20and%20detailed%20planning%20applications.

[238] Public Health England (2017). Spatial Planning for Health: An evidence resource for designing healthier places. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729727/spatial_planning_for_health.pdf

[239] Public Health England (2019). PHE Strategy 2020 to 2025. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831562/PHE_Strategy_2020-25.pdf

[240] Marmot, M. (2010). Fair Society, Healthy Lives: The Marmot Review. Strategic Review of Health Inequalities in England Post 2010. [online] Available at: https://www.parliament.uk/globalassets/documents/fair-society-healthy-lives-full-report.pdf

[241] Marmot, M., Allen, J., Boyce, T., Goldblatt, P., and Morrison, J. (2020). Health Equity in England: The Marmot Review 10 Years On. [online] Available at: https://www.health.org.uk/publications/reports/the-marmot-review-10-years-on

[242] Marmot, M., Allen, J., Goldblatt, P., Morrison, J., and Herd, E. (2020). Build Back Fairer: The COVID-19 Marmot Review. [online] Available at: https://www.health.org.uk/publications/build-back-fairer-the-covid-19-marmot-review

[243] Kent County Council (2018). A 2050 Picture of Kent and Medway. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0009/79920/GIF-2050-Picture.pdf

[244] Kent County Council (2018). Rights of way Improvement Plan. [online] Available at: https://www.kent.gov.uk/__data/assets/pdf_file/0005/90491/Rights-of-Way-Improvement-Plan-2018-2028.pdf

- Dover District Council (DDC) Core Strategy 2010[245] including:
  - ‘Policy CP 7 – Green Infrastructure Network’; and
  - ‘Policy DM 25 – Open Space’.
- Draft Dover New District Local Plan 2022[246] (Regulation 18 Draft);
  - Includes a commitment to improving the health and wellbeing of residents, improving quality of life for all and reducing health inequalities;
- Thanet District Council Local Plan, 2020[247] including:
  - ‘SP27 – Green Infrastructure’;
  - ‘SP32 - Protection of Open Space and Allotments’;
  - ‘SP33 – Local Green Space’;
  - ‘SP34 – Provision of Accessible Natural and Semi-Natural Green Space, Parks, Gardens and Recreation Grounds’;
  - ‘SP38 – Healthy and Inclusive Communities’; and
  - ‘SP41 – Community Infrastructure’.
- Ash Neighbourhood Development Plan 2021[248] including:
  - Objective 1: Environmental (landscape, open spaces, biodiversity and climate change); and
  - Objective 3: Leisure, Well-being, Education and Healthcare.

3.12.3 Study Area

3.12.3.1 The study area for the health and wellbeing assessment will vary by the type of impact being assessed, these include:

- The human health profile baseline study area will comprise a local ward area comprising the wards in which the Kent Onshore Scheme is located, within which there is a high likelihood that effects arising from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme could be experienced: Thanet Villages ward and Cliffsend and Pegwell ward. Where data is not available at the ward level, local authority level data will be provided for Dover and Thanet districts.

[245] Dover District Council (2010). Core Strategy. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/Adopted-Development-Plans/Core-Strategy.aspx

[246] Land Use Consultants Ltd. On behalf of Dover District Council (2020). Draft Dover District Local Plan (Reg 18) Sustainability Appraisal. [online] Available at: https://www.doverdistrictlocalplan.co.uk/uploads/pdfs/sustainability-appraisal-of-the-draft-local-plan-2020.pdf

[247] Thanet District Council (2020). Thanet District Council Local Plan. [online] Available at: https://www.thanet.gov.uk/wp-content/uploads/2018/03/LP-adjusted.pdf [Accessed 13/07/2022].

[248] Ash Parish Council (2021). ASH PARISH COUNCIL NEIGHBOURHOOD DEVELOPMENT PLAN 2018-2037. [online] Available at: https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Ash-NDP-Plan-Final-Sept-2021.pdf

- The study areas for assessing the health and wellbeing impacts of the Kent Onshore Scheme will be influenced by the geographic extent of the relevant technical assessments, these include:
  - Part 3 Chapter 2, Landscape and Visual;
  - Part 3, Chapter 6: Geology and Hydrogeology;
  - Part, Chapter 8: Transport and Transport;
  - Part 3, Chapter 9: Air Quality;
  - Part 3, Chapter 10: Noise and Vibration; and
  - Part 3, Chapter 11: Socio-economics, Recreation and Tourism.

3.12.3.2 The assessment will refer to the study areas identified by the relevant EIA chapters.

3.12.4 Baseline Conditions

3.12.4.1 This section provides a high-level summary of key health and wellbeing indicators for the defined study areas detailed in section 3 above. Information gathered and presented has been identified through a desktop study.

Data Sources

3.12.4.2 This overview of community health indicators is based on the following public data sources:

- Office for National Statistics (ONS). Mid-year sub-national population estimate data (2020)[249];
- ONS 2011 Census Data[250];
- PHE Local Health Data[251]; and
- ONS Claimant Count Data[252].

Community Health Baseline Overview

3.12.4.3 Table 3.12.1 sets out a summary of key health indicators across the local ward and local authority study areas, compared to regional (South East) and national (England) averages.

[249] Office for National Statistics (2020). Subnational population projections for England. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2018based

[250] Office for National Statistics (2012). Census 2011. [online] Available at: https://www.ons.gov.uk/census/2011census

[251] Office for Health Improvement and Disparities (2019). Local Health. [online] Available at: https://www.gov.uk/government/collections/local-health-public-health-data-and-mapping-tool-for-small-areas

[252] Office for National Statistics (2022). CLA02: Claimant Count by age group (Experimental Statistics). [online] Available at: https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/outofworkbenefits/datasets/cla02claimantcountbyagegroup

Table 3.12.1 Community health profile

	Local wards	Dover	Thanet	South East England	England
Population (2020)	12,398	118,514	141,458	9,217,265	56,550,138
Population aged under 16 (%) (2020)	15.6%	17.6%	18.9%	19.3%	19.2%
Population aged over 65 (%) (2020)	29.0%	23.8%	24.1%	19.7%	18.5%
Unemployment rate	4.6%	6.6%	8.7%	4.8%	6.3%
Unemployment (% working age population claiming out of work benefits)	3.4%	3.6%	6.0%	2.9%	3.8%
General Health – bad or very bad (%)	6.1%	6.3%	7.5%	4.3%	5.5%
Long term health problem or disability (%)	19.4%	20.8%	23.4%	15.7%	17.6%
Life Expectancy at Birth (males) (2018-2020)	n/a	79.5	77.6	80.2	79.4
Life Expectancy at Birth (females) (2018-2020)	n/a	82.8	82.1	83.8	83.1
Inequality in Life Expectancy at Birth (males 2018-2020)	n/a	7.3	8.5	7.9	9.7
Inequality in Life Expectancy at Birth (females 2018-2020)	n/a	6.1	9.7	6.2	7.9
Obese children (Year 6) (%)	n/a	20.8	23.3	19.1	21.0%
Under 75 mortality rate from all causes	n/a	338.4	391.8	303.5	336.5

	Local wards	Dover	Thanet	South East England	England
(2018-2020) (per 100,000 people)					

Future Baseline

3.12.4.4 ONS population projections[253] show over the 10-year period from 2022 to 2032 the population across Dover and Thanet is expected to grow by 8.5% and 4.5% respectively (to approximately 132,600 people in Dover and 151,400 in Thanet). The increase in both local authorities is greater than the projected rate of increase in the South East (3.5%) and across England as a whole (4.0%) over the same period.

3.12.4.5 Due to the broad range of individual and environmental determinants that can influence physical and mental health outcomes, the future community health baseline over the medium-term is highly uncertain. Due to this uncertainty, for the purposes of this assessment, it is assumed the future baseline for the Kent Onshore Scheme study area would be unchanged from the current baseline to the completion of the Kent Onshore Scheme.

3.12.5 Embedded and Control & Management Measures

Embedded Measures

3.12.5.1 Mitigation measures will be included in the design where practicable to help avoid, prevent or reduce effects on the environment and local communities. The Kent Onshore Scheme has been routed and sited to avoid residential areas where possible.

3.12.5.2 The design of the Kent Onshore Scheme will be compliant with the guidelines and policies relating to electromagnetic fields stated in NPS EN-5, including the International Commission on Non-Ionizing Radiation Protection guidelines (1998).

Control and Management Measures

3.12.5.3 An outline Code of Construction Practice (CoCP) is provided in **Appendix 1.4.A Outline Code of Construction Practice**. Measures relevant to the control and management of impacts that could affect health and wellbeing are:

- GG03: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP) and a Construction Traffic Management Plan (CTMP) will be produced prior to construction;
- GG05: A suitably experienced Environmental Manager will be appointed for the duration of the construction phase. In addition, a qualified and experienced Environmental Clerk of Works (ECoW) will be available during the construction

[253] Office for National Statistics (2018). Population Projections. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections

phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the CEMP. The ECoW will monitor the works to ensure these proceed in accordance with the relevant environmental measures as set out in the DCI application and its Environmental Statement (ES) and adhere to the required best practice and mitigation measures as set out in the relevant applicable guidlines;

- GG06: Construction workers will undergo specific training to increase their awareness of environmentally sensitive sites across the Project as applicable to their role. Topics will include, will but not be limited to, the following:
  - pollution prevention and pollution incident response;
  - dust management and control measures;
  - working hours and noise and vibration reduction measures;
  - working with potentially contaminated materials;
  - waste management and storage; and
  - flood risk response actions;
- GG11: Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites as far as practicable;
- GG13: Plant and vehicles will conform to relevant applicable standards for the vehicle type as follows:
  - Euro 4 (NOx) for petrol cars, vans and minibuses;
  - Euro 6 (NOx and PM) for diesel cars, vans and minibuses; and
  - Euro VI (NOx and PM) for lorries, buses, coaches and Heavy Goods Vehicles (excluding specialist abnormal indivisible loads).
  - Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so;
- GG20: Bonfires and the burning of waste material on-site will be prohibited;
- GG21: Construction lighting will be of the lowest luminosity necessary to safely perform each task. It will be designed, positioned and directed to reduce the intrusion into adjacent properties, protected species and habitats;
- GG23: An Emergency Action Plan will be developed for the construction phase which will outline procedures to be implemented in case of unplanned emergency events, including but not limited to site flooding and pollution incidents; and
- GG26: Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use

to raise any concerns or complaints about the Project. All construction-related complaints will be logged by the appointed contractor(s) in the form of a complaints register, together with a record of the responses given and actions taken.

3.12.6 Potential for Significant Effects

3.12.6.1 The health and wellbeing assessment will consider the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. Details of each of these stages are set out in **Part 1, Chapter 4, Description of the Project.**

3.12.6.2 The proposed scope of the health and wellbeing assessment is set out below and has been determined using the approach described in **Part 1, Chapter 5, EIA Approach and Methodology**.

Sources and Impacts (Step 1)

3.12.6.3 This section identifies the sources and impacts that would occur as a result of the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme.

3.12.6.4 The potential for the Kent Onshore Scheme to result in potential effects described in this section takes into account the embedded and control and management measures described in section 5.

Sources of construction impacts

- Potential temporary and permanent impacts on the quality of life and safety of local residents, visitors and workers arising from construction of the Kent Onshore Scheme related to air quality, noise, landscape amenity and traffic and transport;
- Potential temporary and permanent impacts related to accessibility impacts of PRoW, recreational routes and open space, impacting local residents, visitor and worker accessibility to these active travel routes;
- Potential temporary and permanent accessibility impacts on PRoW and recreational routes impacting local resident access to local community services and social infrastructure; and
- Potential temporary and permanent impacts on community cohesion arising from impacts to accessibility and community engagement work impacting local residents.

Sources of operational impacts

- Potential permanent accessibility impacts on PRoW and recreational routes and open space, impacting local residents, visitor and worker accessibility to active travel routes and open space;
- Potential permanent accessibility impacts on PRoW and recreational routes impacting local resident access to local community services and social infrastructure;

- Potential permanent impacts on community cohesion arising from permanent accessibility impacts; and
- Potential permanent quality of life impacts on residents and visitors arising from noise disturbance; and
- Potential permanent impacts on local residents arising from the generation of electro-magnetic fields (EMFs).

Sources of maintenance impacts

3.12.6.5 The sources of maintenance impacts are assessed to be the same as those listed as sources of construction impacts.

Sources of decommissioning impacts

3.12.6.6 The sources of decommissioning impacts are assessed to be the same as those listed as sources of construction impacts.

Potential impacts

3.12.6.7 Table 3.12.2 below identifies the potential impacts that could result from the sources identified above.

Table 3.12.1: Sources and impacts

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
Construction, maintenance and decommissioning	Potential temporary and permanent impacts of construction, maintenance and decommissioning on air quality, noise, landscape amenity and traffic and transport.	Potential temporary quality of life and safety impacts on local residents, workers and visitors within the relevant technical assessment study areas.	Yes - Potential health related effects experienced during construction, maintenance and decommissioning of the Kent Onshore Scheme would be determined through the topic specific assessments, but are expected to include air quality, noise and vibration, landscape amenity and	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
			traffic and transport effects.	
	Potential temporary and permanent closure or diversions to PRoW and recreational routes.	Potential temporary closure or diversions to PRoW and recreational routes within 500m of the Kent Scoping Boundary causing disruption to users.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**
	Potential temporary and permanent severance of access to open space.	Potential temporary severance of access to open space within 500m of the Kent Scoping Boundary for local residents, workers and visitors affecting mental health.	Yes - As above, disruption to PRoW or other recreational routes and access to open space during all phases of the would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**
	Potential temporary and permanent severance of access to community services and social infrastructure.	Potential temporary closure or diversions to PRoW and recreational routes within 500m of the Kent Scoping Boundary impacting on local residents' access to	Yes - As above, disruption to PRoW, other recreational routes or roads offering access to community services and social infrastructure during all phases would be avoided as far as possible. Where	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		local community services and social infrastructure.	necessary, suitable diversions would be agreed with KCC.	
	Potential temporary and permanent severance of access to local communities.	Potential temporary severance of access to local communities within 1km of the Kent Scoping Boundary for local residents, leading to deterioration of community cohesion and affecting mental health.	Yes - As above, disruption to PRoW or other recreational routes which facilitate community cohesion during construction, maintenance and decommissioning phases of the Kent Onshore Scheme would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**
Operation	Potential permanent closure or diversions to PRoW and recreational routes.	Potential permanent closure or diversions to PRoW and recreational routes within 500 m of the Kent Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes affecting access to facilities would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**
	Potential permanent severance of	Potential permanent severance of access to	Yes - Disruption to PRoW or other recreational routes affecting	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
	access to open space.	open space within 500m of the Kent Scoping Boundary for local residents, workers and visitors affecting mental health.	access to facilities would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	
	Potential permanent severance of access to community services and social infrastructure.	Potential permanent severance of access to community services and social infrastructure within 1km of the Kent Scoping Boundary for local residents, leading to deterioration of social cohesion and affecting mental health.	Yes - Disruption to PRoW or other recreational routes affecting access to facilities would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Scoped in**
	Potential permanent severance of access to local communities.	Potential permanent severance of access to local communities within 1km of the Kent Scoping Boundary for local residents, leading to	Yes - Disruption to PRoW or other recreational routes affecting access to facilities would be avoided as far as possible. Where necessary, suitable diversions would	**Scoped in**

Project phase	Source	Impact	Potential for significant effects	Proposed to be scoped in/out
		deterioration of community cohesion and affecting mental health.	be agreed with KCC.	
	Potential permanent impacts of operational noise.	Potential permanent quality of life impacts on residents and visitors within 1km of the Kent Scoping Boundary.	Yes - Potential health related effects experienced during the operation of the Kent Onshore Scheme would be determined through the topic specific assessments but are expected to include noise effects.	**Scoped in**
	Potential permanent impacts of operation associated with the generation of EMFs.	Potential permanent impacts on local residents and workers associated with the generation of EMFs.	No - The Applicant will ensure that policies and procedures are in place at the design phase to ensure that all equipment will comply with public EMF exposure limits.	Scoped out

Impact Pathways with Receptors (Step 2)

3.12.6.8 This section identities whether there are any impact pathways from the impacts identified above that could give rise to potential effects on the receptors within the health and wellbeing study areas.

3.12.6.9 Table 3.12.3 provides a summary of the impact pathways identified and those proposed to be scoped into and or out of the assessment of health and wellbeing for the Kent Onshore Scheme as shown on **Figure 1.1.3 Kent Onshore Scheme Scoping Boundary** and **Figure 3.1.2 Kent Onshore Scheme**.

Table 3.12.2: Impact pathways with receptors

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
Potential temporary and permanent quality of life and safety impacts on local residents, workers and visitors within the relevant technical assessment study areas.	Local residents, workers and visitors within the relevant technical assessment study areas. This may include receptors within Cliffsend and Minster.	Yes - Potential health related effects experienced as a result of the Kent Onshore Scheme would be determined through the topic specific assessments, but are expected to include air quality, noise and vibration, landscape amenity and traffic and transport effects during the construction, maintenance and decommissioning phase, and noise and vibration during the operational phase.	**Proposed to be scoped in for all phases**
Potential temporary and permanent closure or diversions to PRoW and recreational routes within 500m of the Kent Scoping Boundary.	Users of PRoW and recreational routes within 500m of Kent Scoping Boundary.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent severance of access to open space within 500m of the Kent Scoping Boundary for local residents, workers and visitors.	Users of open space within 500m of Kent Scoping Boundary including Pegwell Bay Country Park.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Proposed to be scoped in for all phases**
Potential temporary and permanent closure or	Community facilities within 500m of the Kent	Yes - Disruption to PRoW or other recreational routes	**Proposed to be scoped in for all phases**

Impact pathway	Receptors	Potential for significant effects	Proposed to be scoped in/out
diversions to PRoW and recreational routes within 500m of the Kent Scoping Boundary impacting on local residents' access to local community services and social infrastructure.	Scoping Boundary including, Great Oaks Small School and Cliffsend Village Hall.	during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	
Potential temporary and permanent severance of access to local communities within 1km of the Kent Scoping Boundary for local resident.	Local communities within 1km of the Kent Scoping Boundary, including Cliffsend and Minster.	Yes - Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	**Proposed to be scoped in for all phases**

3.12.7 Proposed Assessment Methodology

3.12.7.1 There is no consolidated methodology or practice for the assessment of effects on human health and wellbeing. Best practice principles are provided in the NHS England's Healthy Urban Development Unit's Rapid Health Impact Assessment (HIA) Toolkit 2019 and this toolkit will form the basis of the approach to assessing the impacts on health arising from the Kent Onshore Scheme.

3.12.7.2 The World Health Organisation (WHO) Europe defines health as: 'a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity'[254]. Public health therefore encompasses general wellbeing, not just the absence of illness.

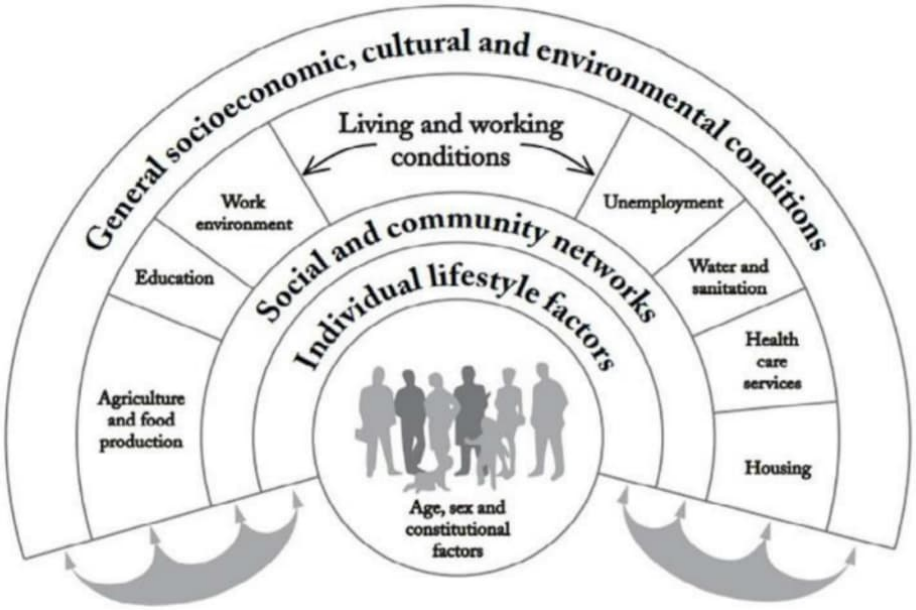
3.12.7.3 The health and wellbeing of individuals is determined by a broad range of individual constitutional and behavioural factors, as well as broader environmental, social and economic factors. Some factors are direct and obvious, others are indirect.

3.12.7.4 Dahlgreen and Whitehead's model of the main determinants of health illustrates the breadth of possible influences on health, as show in Image 3-12-1. At the centre of the illustration are factors that are largely fixed – including individual age, sex, constitutional and genetic factors. Outside of this are factors generally described as the wider or broader determinants of health. The model emphasises interactions between the layers. Moving outwards from the centre, individual lifestyle choices are embedded in social norms and community networks, and in living and working

[254] World Health Organisation (2018). Health inequities and their causes. [online] Available at: https://www.who.int/news-room/facts-in-pictures/detail/health-inequities-and-their-causes

conditions, which in turn are shaped by and related to the wider socioeconomic and cultural environment.

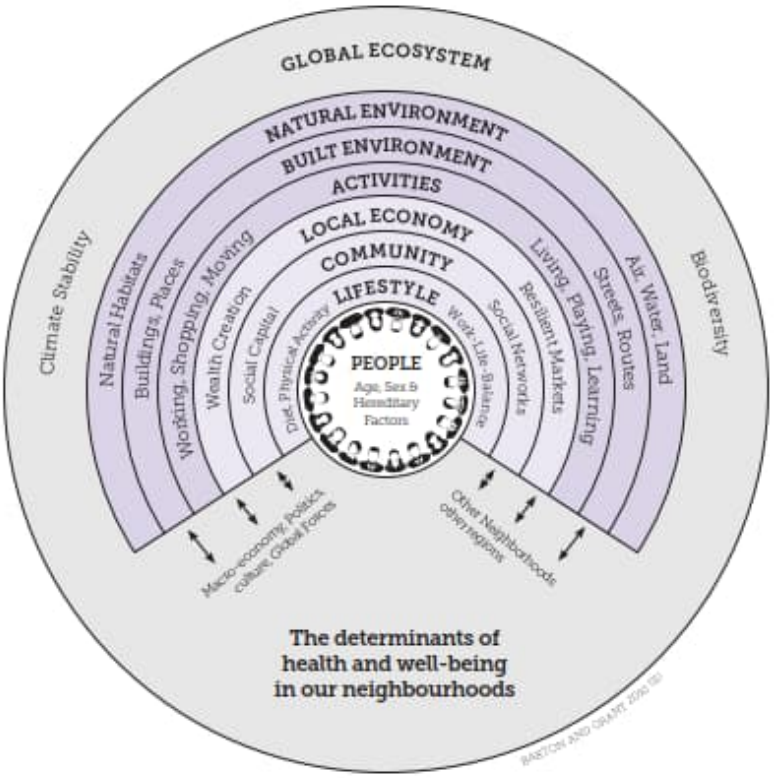
Image 3.12.1: Determinants of health



Source: Dahlgreen and Whitehead, 1993

3.12.7.5 This model has been developed to show elements of the built environment and communities that are the key determinants of health, as shown in Image 3-12-2.

Image 3.12.2: Determinants of health in neighbourhoods



Source: Barton and Grant, 2006

3.12.7.6 Within a population there can also be health inequalities, defined by the WHO as 'differences in health status or in the distribution of health determinants between different population groups. For example, differences in mobility between elderly people and younger populations or differences in mortality rates between people from different social classes'[255].

Baseline

3.12.7.7 Relevant policy will be reviewed at the local, regional and national levels to identify the key issues of relevance to the Kent Onshore Scheme.

3.12.7.8 A baseline assessment will be undertaken using a range of sources to provide a description of the health conditions within the health study areas as set out above. This will be done using established statistical sources and desk based research.

Assessment of Potential Effects

3.12.7.9 As set out above the factors contributing to individual health and wellbeing are broad, and the health of existing and new residents, workers and visitors will be largely

[255] World Health Organisation (2018). Health inequities and their causes. [online] Available at: https://www.who.int/news-room/facts-in-pictures/detail/health-inequities-and-their-causes

determined by individual age and constitutional factors and lifestyle factors unrelated to the Kent Onshore Scheme.

3.12.7.10 Taking account of these factors, the health assessment will use relevant guidance set out in the framework for assessment set out by the *NHS HUDU Planning for Health Rapid HIA Tool* to consider how the Kent Onshore Scheme could influence health – including how it could influence health inequalities, during the construction, maintenance, operational and decommissioning phases.

3.12.7.11 The HUDU assessment tool identifies eleven broad determinants that are likely to be influenced by specific development proposals and can be influenced through design and management measures, against which the likely impacts of new developments can be assessed. Of these, the following five broad determinants are relevant to the potential health impacts arising from the Kent Onshore Scheme:

- Access to health and social care services and other social infrastructure;
- Access to open space and nature;
- Air quality, noise and neighbourhood amenity;
- Accessibility and active travel; and
- Social cohesion and inclusive design.

3.12.7.12 Due to the diverse nature of health determinants and outcomes which are assessed, and the difficulty of quantifying these with respect to health outcomes, NHS HUDU guidance does not provide a methodology for assessing the significance of effects. In line with this, the assessment of likely health impacts of the Kent Onshore Scheme will be described qualitatively, based on professional judgement and best practice guidance, and effects will be assessed as: 'positive', 'negative', 'neutral' or 'uncertain', using the criteria set out in Table 3-12-4.

3.12.7.13 Where an impact is identified, actions will be proposed to mitigate any negative impact on health, or to realise opportunities to create health benefits. It should be noted that in many cases, mitigation will be embedded within the design of the Kent Onshore Scheme, and the implementation of this will be an underlying assumption of the assessment.

Table 3.12.4: Health assessment impact categories

Impact category	Description
Positive	A beneficial impact is identified
Neutral	No discernible health impact is identified
Negative	An adverse impact is identified
Uncertain	Where uncertainty exists as to the overall impact

3.12.7.14 The assessment will draw on the findings of related technical assessments, as listed at 3.12.3.1. The geographical extent of health effects will be determined by the assessments set out in those related chapters.

3.12.8 Conclusion

Summary

3.12.8.1 This chapter of the Scoping Report has set out the proposed scope and methodology for the ES assessment of health and wellbeing effects arising from the construction, operation, maintenance and decommissioning of the Kent Onshore Scheme. The socio-economic, recreation and tourism receptors that have been identified within the respective study areas surrounding the Kent Onshore Scheme include local communities, residents and workers, as well as visitors and users of PRoW, open space and community facilities within the respective study areas.

Proposed Scope of the Assessment

3.12.8.2 A summary of the proposed scope of the assessment is provided in Table 3.12.5.

Table 3.12.3:Proposed scope of the assessment

Receptor	Potential for significant effects	Project phase(s)	Proposed to be scoped in/out
Local residents, workers and visitors within the relevant technical assessment study areas.	Potential health related effects experienced as a result of the Kent Onshore Scheme would be determined through the topic specific assessments, but are expected to include air quality, noise and vibration, landscape amenity and traffic and transport effects during the construction, maintenance and decommissioning phase, and noise and vibration during the operational phase.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Users of PRoW and recreational routes within 500m of Kent Scoping Boundary.	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Users of open space within 500m of Kent Scoping Boundary.	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**

Community facilities within 500m of the Kent Scoping Boundary.	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Local communities within 1km of the Kent Scoping Boundary.	Disruption to PRoW or other recreational routes during all phases would be avoided as far as possible. Where necessary, suitable diversions would be agreed with KCC.	Construction, maintenance and decommissioning	**Scoped in**
		Operation	**Scoped in**
Local residents and workers in close proximity to the Kent Scoping Boundary.	The Applicant will ensure that policies and procedures are in place at the design phase to ensure that all equipment will comply with public EMF exposure limits.	Construction, maintenance and decommissioning	Scoped out
		Operation	Scoped out

3.13 Cumulative Effects

3.13.1 Introduction

3.13.1.1 This chapter presents how the intra-project and inter-project cumulative effects assessment will consider the potentially significant cumulative effects that may arise from the Kent Onshore Scheme. A description of intra-project and inter-project cumulative effects is presented in **Part 1, Chapter 5, EIA Approach and Method**.

3.13.1.2 This chapter should be read in conjunction with:

- **Part 1, Chapter 4, Description of the Project**;
- **Part 1, Chapter 5, EIA Approach and Method**; and
- **Part 3, Technical Chapters 2-12**

3.13.1.3 This chapter is supported by the following figures:

- **Figure 3.13.1 Zone of Influence for the Kent Onshore Scheme**;
- **Figure 3.13.2 All Projects and Development Plans Located within the Zone of Influence for the Kent Onshore Scheme**; and
- **Figure 3.13.3 Projects proposed to be taken to Stage 2 for the Kent Onshore Scheme**.

3.13.2 Intra-Project

3.13.2.1 The proposed method for assessing the intra-project cumulative effects is presented in **Part 1, Chapter 5**, **EIA Approach and Method**. This describes a proposed three staged approach that will be used to assess whether the culmination of effects on an individual receptor is likely to lead to an overall effect of greater significance.

3.13.2.2 The first stage (pre-screening) in the process is to identify whether individual or groups of receptors could be affected by more than one type of effect (usually where they are considered by more than one technical chapter).

3.13.2.3 Where multiple types of effects are considered within one chapter, the findings are not proposed to be presented within the Intra-Project Cumulative Effects Chapter. This is likely to be:

- effects on ecological receptors as the Ecology and Biodiversity Chapter will identify all potential types of effects on ecological receptors; and
- effects on Human Health as the Human Health Chapter will identify all potential types of effect.

3.13.2.4 Where this first stage identifies that either:

- there is only one type of effect for a particular receptor; or
- only one topic has identified effects on that receptor,

- it is considered that there will be no potential for an intra-project effects and receptors will not be taken through to the next stage (screening) of the assessment.

3.13.2.5 An initial pre-screening assessment is presented in Table 3.13.1 showing how the receptor groups are likely to interact between chapters. This will be revisited as part of the ES to ensure all receptors considered within the ES are taken through this pre-screening assessment.

Table 3.13.1: Pre-screening Stage

Receptors	Technical chapters+										
	2	3	4	5	6	7	8	9	10	11	12
Landscape elements	✓		✓								
Residential receptors	✓							✓	✓	✓	
Commercial receptors									✓	✓	
Designated Sites		✓						✓	✓	✓	
Ecological receptors		✓						✓			
Notable Habitats (terrestrial and aquatic)		✓		✓				✓			
Designated heritage assets	✓		✓								
Non-designated heritage assets			✓								
Water resources (existing abstractions and discharges)				✓	✓						
Watercourses and waterbodies				✓	✓						
Flood risk receptors				✓							
BMV Agricultural Land						✓					
Agricultural holdings						✓					
Soil						✓				✓	
Public rights of way	✓						✓			✓	
Cycle Routes	✓						✓			✓	
Roads							✓				
Communities	✓				✓				✓	✓	
Geology					✓						
Groundwater					✓						
Human Health					✓						✓

+ Chapter numbers refer to the Scoping Technical Chapters: Chapter 2 Landscape and Visual (Part 3.2); Chapter 3 Ecology and Biodiversity (Part 3.3); Chapter 4 Cultural Heritage (Part 3.4); Chapter 5 Water Environment (Part 3.5); Chapter 6 Geology and Hydrogeology (Part 3.6); Chapter 7 Agriculture and Soils (Part 3.7); Chapter 8 Traffic

and Transport (Part 3.8); Chapter 9 Air Quality (Part 3.9); Chapter 10 Noise and Vibration (Part 3.10); Chapter 11 Socioeconomic, Recreation and Tourism (Part 3.11); and Chapter 12 Human Health (Part 3.12).

3.13.3 Inter-Project

3.13.3.1 The proposed method for assessing the inter-project cumulative effects is presented in **Part 1, Chapter 5, EIA Approach and Method**. The following section sets out the methodology for Stage 1 and Stage 2 in relation to the Kent Onshore Scheme.

Stage 1

3.13.3.2 Stage 1 of the approach outlined in PINS Advice Note Seventeen requires a 'long list' of other developments to be identified, as well as high level information, such as the location/application boundary. This initial long list is provided in **Appendix 1.5.A Inter Project Cumulative Effects Long List** and will be continually reviewed and updated as required.

Establishing the ZOI

3.13.3.3 The first step in identifying the long list is to establish the Zone of Influence (ZOI) for the Kent Onshore Scheme. **Part 1, Chapter 5, EIA Approach and Methodology** describes how the ZOI has been defined based on the largest study area of the technical chapters.

3.13.3.4 The study areas proposed for technical chapters 2-12 are summarised in Table 3.13.2. The rationale for these study areas are explained in section 3 of the relevant technical topic chapters 2-12.

Table 3.13.2:Study Areas for Environmental Topics

Environmental topic	Study areas
Ecology and Biodiversity	10km
Landscape and Visual	3km
Cultural Heritage	1km
Water Environment, Geology and Hydrogeology, Air Quality	<0.5km
Noise and Vibration, Agriculture and Soils, Traffic and Transport*	<0.25km

*at this stage construction traffic routes are not yet known, however it is not anticipated that construction traffic routes ultimately assessed within the ES routes would extend beyond 10km due to the proximity of the strategic road network. This will be reviewed once construction traffic routes are known.

3.13.3.5 The largest topic study area has been identified as 10km from the Kent Onshore Scheme Scoping Boundary, therefore a ZOI of 20km from the Kent Onshore Scheme Scoping Boundary has been set to establish the long list of developments. This is illustrated on **Figure 3.13.1 Zone of Influence for the Kent Onshore Scheme**.

3.13.3.6 This will be kept under review as the Project develops and the long list updated as required.

Identify the long list of 'Other Developments'

3.13.3.7 A long list of other projects within the ZOI has been established and is presented in **Appendix 1.5.A Inter Project Cumulative Effects Long List** and those that are within the ZOI for the Kent Onshore Scheme are shown on **Figure 3.13.2 All Projects and Development Plans Located within the Zone of Influence for Kent Onshore Scheme**. This has been established using the guidance provided in Advice Note Seventeen and the 'other developments' have been categorised into three Tiers as described in **Part 1, Chapter 5, EIA Approach and Method**. The long list has been established by a search of the Planning Inspectorate's Programme of Projects (undertaken in July 2022) and planning applications held on the following relevant planning authority websites:

- Thanet District Council;
- Dover District Council; and
- Canterbury City Council

3.13.3.8 Allocated sites in Local Plans or other Development Plans which were not yet subject to planning applications have also been identified on the long list.

3.13.3.9 Minor planning applications have been excluded from the assessment, as these relate to projects of small which are unlikely to give rise to significant environmental effects. These projects are therefore unlikely to give rise to significant cumulative environmental effects with the Kent Onshore Scheme.

Stage 2

3.13.3.10 The long list is presented in **Appendix 1.5.A Inter Project Cumulative Effects Long List** and those projects relevant to the Kent Onshore Scheme are illustrated on **Figure 3.13.2 All projects and Development Plans located within the Zone of Influence for the Kent Onshore Scheme**. The projects included on the long list were then screened as to the nature and scale of development to identify whether they would be likely to result in a potential for a significant cumulative effect with the Kent Onshore Scheme.

3.13.3.11 The long list of projects to be proposed to be taken forward to Stage 2 are listed in Table 3.13.3 below and illustrated on **Figure 3.13.3 Projects proposed to be taken forward to Stage 2 for the Kent Onshore Scheme**.

Table 3.13.3:Projects proposed to be taken forward for Stage 2

ID	Application Ref (where applicable)	Planning Authority	Project and location	Description	Distance from Project Scoping Boundary (km)	Tier

10	TR020002	Planning Inspectorate	Manston Airport	Reopen and develop Manston Airport	1.8	Tier 1
16	OL/TH/22/0414	Thanet	Land on the north side of Foxborough Lane RAMSGATE Kent	Outline planning application for the erection of up to 115 dwellings with all matters reserved except for access	1.0	Tier 1
17	F/TH/21/1671	Thanet	Land south of Canterbury Road West RAMSGATE Kent	Erection of 145 dwellings, with open space, landscaping, access and associated infrastructure.	0.8	Tier 1
30	F/TH/20/0648	Thanet	Stonelees Golf Course Ebbsfleet Lane RAMSGATE Kent CT12 5DJ	Erection of 10 No. detached and 10 No. semi-detached 2-storey holiday homes together with single storey site office/reception building, parking and landscaping. Open for comment icon	0.1	Tier 1
44	F/TH/19/0173	Thanet	Hoo Farm 147 Monkton Road Minster RAMSGATE Kent CT12 4JB	Erection of 23 no. dwellings following the demolition of existing buildings, with associated parking, open space and landscaping.	1.6	Tier 1
79	F/TH/22/0579	Thanet	Richborough Energy Park Sandwich Road RAMSGATE Kent CT13 9NL	Extension of electricity battery storage facility to provide additional 249mw capacity including electrical plant and equipment, alterations to land levels, landscaping and associated works, following removal of existing wind turbine, site clearance and levelling Open for comment icon	0.7	Tier 1
100	22/00245	Dover	Goshall Valley East	Environmental Impact Assessment - Scoping	3.8	Tier 2

			Street Ash Kent	Opinion for a proposed solar farm		
108	20/00540	Dover	Field southwest of Solton Manor Farm The Lane Guston Kent	Request for EIA Screening Opinion for proposed solar farm	16.7	Tier 2

3.13.4 Conclusion

3.13.4.1 As outlined above inter and intra cumulative effects are proposed to be scoped into the EIA and the results will be presented in the Environmental Statement (ES). **Appendix 1.5.A Inter-Project Cumulative Effects Long List** considers each scoped in environmental discipline, the ZOI and whether effects associated with each of the developments could interact with the effects associated with this project. Table 3.13.3 outlines the proposed short-listed developments that further information including, design, location, programme, operation and decommissioning information and reported environmental effects will be gathered for, to inform which of those developments will be assessed as part of the inter-project cumulative effects assessment.