



SCOPING OPINION:

Proposed Five Estuaries Offshore Wind Farm

Case Reference: EN010115

Adopted by the Planning Inspectorate (on behalf of the Secretary of State) pursuant to Regulation 10 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

November 2021

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1. INTRODUCTION

1.1 Background

- 1.1.1 On 05 October 2021, the Planning Inspectorate (the Inspectorate) on behalf of the Secretary of State (SoS) received a scoping request from Five Estuaries Wind Farm Ltd (the Applicant) under Regulation 10 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) for the proposed Five Estuaries Offshore Wind Farm (the Proposed Development).
- 1.1.2 In accordance with Regulation 10 of the EIA Regulations, an Applicant may ask the SoS to state in writing its opinion *'as to the scope, and level of detail, of the information to be provided in the environmental statement'*.
- 1.1.3 This document is the Scoping Opinion (the Opinion) provided by the Inspectorate on behalf of the SoS in respect of the Proposed Development. It is made on the basis of the information provided in the Applicant's report entitled Five Estuaries Offshore Wind Farm Environmental Impact Assessment: Scoping report (the Scoping Report). This Opinion can only reflect the proposals as currently described by the Applicant. The Scoping Opinion should be read in conjunction with the Applicant's Scoping Report.
- 1.1.4 The Applicant has notified the SoS under Regulation 8(1)(b) of the EIA Regulations that they propose to provide an Environmental Statement (ES) in respect of the Proposed Development. Therefore, in accordance with Regulation 6(2)(a) of the EIA Regulations, the Proposed Development is EIA development.
- 1.1.5 Regulation 10(9) of the EIA Regulations requires that before adopting a scoping opinion the Inspectorate must take into account:
- (a) *any information provided about the proposed development;*
 - (b) *the specific characteristics of the development;*
 - (c) *the likely significant effects of the development on the environment; and*
 - (d) *in the case of a subsequent application, the environmental statement submitted with the original application.*
- 1.1.6 This Opinion has taken into account the requirements of the EIA Regulations as well as current best practice towards preparation of an ES.
- 1.1.7 The Inspectorate has consulted on the Applicant's Scoping Report and the responses received from the consultation bodies have been taken into account in adopting this Opinion (see Appendix 2).
- 1.1.8 The points addressed by the Applicant in the Scoping Report have been carefully considered and use has been made of professional judgement and experience in order to adopt this Opinion. It should be noted that when it comes to consider the ES, the Inspectorate will take account of relevant legislation and guidelines. The Inspectorate will not be precluded from requiring additional information if it

is considered necessary in connection with the ES submitted with the application for a Development Consent Order (DCO).

- 1.1.9 This Opinion should not be construed as implying that the Inspectorate agrees with the information or comments provided by the Applicant in their request for an opinion from the Inspectorate. In particular, comments from the Inspectorate in this Opinion are without prejudice to any later decisions taken (eg on submission of the application) that any development identified by the Applicant is necessarily to be treated as part of a Nationally Significant Infrastructure Project (NSIP) or Associated Development or development that does not require development consent.
- 1.1.10 Regulation 10(3) of the EIA Regulations states that a request for a scoping opinion must include:
- (a) *a plan sufficient to identify the land;*
 - (b) *a description of the proposed development, including its location and technical capacity;*
 - (c) *an explanation of the likely significant effects of the development on the environment; and*
 - (d) *such other information or representations as the person making the request may wish to provide or make.*
- 1.1.11 The Inspectorate considers that this has been provided in the Applicant's Scoping Report. The Inspectorate is satisfied that the Scoping Report encompasses the relevant aspects identified in the EIA Regulations.
- 1.1.12 In accordance with Regulation 14(3)(a), where a scoping opinion has been issued in accordance with Regulation 10 an ES accompanying an application for an order granting development consent should be based on *'the most recent scoping opinion adopted (so far as the proposed development remains materially the same as the proposed development which was subject to that opinion)'*.
- 1.1.13 The Inspectorate notes the potential need to carry out an assessment under The Conservation of Habitats and Species Regulations 2017 ('the Habitats Regulations'), as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and The Conservation of Offshore Marine Habitats and Species Regulations 2017 ('the Offshore Marine Regulations'), as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. This assessment must be co-ordinated with the EIA in accordance with Regulation 26 of the EIA Regulations.

1.2 The Planning Inspectorate's Consultation

- 1.2.1 In accordance with Regulation 10(6) of the EIA Regulations the Inspectorate has consulted the consultation bodies before adopting a scoping opinion. A list of the consultation bodies formally consulted by the Inspectorate is provided at Appendix 1. The consultation bodies have been notified under Regulation 11(1)(a) of the duty imposed on them by Regulation 11(3) of the EIA

Regulations to make information available to the Applicant relevant to the preparation of the ES. The Applicant should note that whilst the list can inform their consultation, it should not be relied upon for that purpose.

- 1.2.2 The list of respondents who replied within the statutory timeframe and whose comments have been taken into account in the preparation of this Opinion is provided, along with copies of their comments, at Appendix 2, to which the Applicant should refer in preparing their ES.
- 1.2.3 The ES submitted by the Applicant should demonstrate consideration of the points raised by the consultation bodies. It is recommended that a table is provided in the ES summarising the scoping responses from the consultation bodies and how they are, or are not, addressed in the ES.
- 1.2.4 Any consultation responses received after the statutory deadline for receipt of comments will not be taken into account within this Opinion. Late responses will be forwarded to the Applicant and will be made available on the Inspectorate's website. The Applicant should also give due consideration to those comments in preparing their ES.

2. THE PROPOSED DEVELOPMENT

2.1 Introduction

2.1.1 The following is a summary of the information on the Proposed Development and its site and surroundings prepared by the Applicant and included in their Scoping Report. The information has not been verified and it has been assumed that the information provided reflects the existing knowledge of the Proposed Development and the potential receptors/ resources.

2.2 Description of the Proposed Development

2.2.1 The Applicant's description of the Proposed Development, its location and technical capacity (where relevant) is provided in Scoping Report sections 3 and 5.5 to 5.9.

2.2.2 The Proposed Development relates to an extension to the existing Galloper Offshore Wind Farm (OWF), to be known as Five Estuaries Offshore Wind Farm. The proposed development will have an installed capacity of more than 100 megawatts (MW) and will be located approximately 30 km off the coast of Suffolk, within two array areas to the east of the existing Galloper OWF.

2.2.3 Location plans for the for the Proposed Development are provided in Figures 1.1 (offshore) and 1.2 (onshore) of the Scoping Report.

2.2.4 The Proposed Development comprises both onshore and offshore infrastructure components as follows:

- Up to 79 offshore wind turbine generators (WTGs), associated foundations and inter-array cabling.
- Up to two offshore substation platforms (OSP).
- Up to four offshore export circuits in a cable corridor, with interconnector cables between the northern and southern array areas.
- A 'landfall' site using Horizontal Directional drilling (HDD) or open-cut trenching techniques to bring offshore cables onshore.
- Onshore cabling (up to four circuits) with cable construction width of up to 62m, comprising up to three power cables and up to four communications and earthing cables in each circuit.
- An onshore substation with a maximum footprint of 50,000 m² .
- A series of construction compounds including up to three cable construction compounds.

2.2.5 Tables 3.1 to 3.18 of the Scoping Report set out the maximum parameters of the offshore components of the Proposed Development (eg array area, offshore cable route length and burial depth, maximum WTG rotor diameter and tip

height, minimum separation between WTGs and maximum array cable length) to the extent that they are known at this stage. The electrical transmission technology proposed is High Voltage Alternating Current (HVAC). Potential foundation options are described at Table 3.4 of the Scoping Report.

- 2.2.6 The offshore components would be located within the Southern North Sea Special Area of Conservation (SAC), the Outer Thames Estuary Special Protection Area (SPA) and Kentish Knock East Marine Conservation Zone (MCZ). Margate and Long Sands SAC is located immediately to the south of the offshore cable corridor. The Blackwater Crouch, Roach and Colne Estuaries MCZ are within 5km of the Proposed Development offshore Area of Search (AoS); the Kentish Knock East MCZ is within 7.2 km of offshore AoS and the Orford Inshore MCZ is within 14.4 km of the array areas.
- 2.2.7 The landfall search area has been refined down from a range of options along the Tendring Peninsula from Colne Point to Dovercourt. The stretch of coast between Holland-on-Sea and Frinton-on-Sea has been selected for potential landfall in the onshore AoS shown on Figure 1.2 of the Scoping Report, which will be used to establish a location to bring the export cables onshore. The Holland Haven Marshes Site of Special Scientific Interest (SSSI) coincides with the landfall AoS. The selection process for the final landfall option will be reported in the ES.
- 2.2.8 Paragraph 5.9.1 of the Scoping Report states that there will be a new National Grid connection point to which the Proposed Development will connect into the electricity transmission network, known as East Anglia Coastal Substation (EACS) to be located within Essex within the onshore AoS in Figure 1.2, which will form part of a separate consenting process to be progressed by National Grid. The geographic location of this connection point has not yet been confirmed. A new onshore substation will be required for the Proposed Development and is likely to be located near the EACS.
- 2.2.9 The precise route of the onshore export cables has not been confirmed so the Scoping Report presents an AoS which covers the area where the cable could be located. The onshore scoping area is shown on Figure 1.2 of the Scoping Report. Paragraph 1.1.15 states that the Applicant is aware that the onshore scoping boundary is similar to that for the North Falls Offshore Wind Farm project (as detailed in their Scoping Report) and this could enable coordination between the two projects for onshore siting and routing studies, should this be deemed feasible and appropriate

2.3 The Planning Inspectorate's Comments

Description of the Proposed Development

- 2.3.1 The ES should include the following:
- a description of the Proposed Development comprising at least the information on the site, design, size and other relevant features of the development; and

- a description of the location of the development and description of the physical characteristics of the whole development, including any requisite demolition works and the land-use requirements during construction and operation phases.

- 2.3.2 The Scoping Report does not include an indicative construction programme for the Proposed Development; Table 22.3 states that traffic assessment will be identified using an indicative construction programme and part of the traffic and transport assessment. The ES should describe the construction programme, and any phasing in delivery, including the expected duration and overlap of different components to enable an assessment of the effects on the basis of a worst case scenario.
- 2.3.3 The anticipated generating capacity of the Proposed Development is not stated in the Scoping Report, although paragraph 1.1.2 explains that the expected capacity is greater than 100 MW. The maximum technical capacity (ie electrical output) of the individual WGTs and of the Proposed Development as a whole should be confirmed within the ES.
- 2.3.4 The Scoping Report provides limited information about the operational and maintenance activities for the operational phase of the Proposed Development. The ES should provide a full description of the nature and scope of these activities, including types of activity, frequency, and how works will be carried out for both offshore and onshore components. This should include consideration of potential overlapping of activities with those required for the continuing operation of Galloper OWF and the construction of the proposed North Falls OWF.
- 2.3.5 Paragraph 3.8.1 of the Scoping Report confirms that a decommissioning programme will be prepared, which will consider the potential for impacts during decommissioning of the Proposed Development, but limited information is provided about the physical characteristics associated with this activity. The subsequent aspect sections of the Scoping Report address decommissioning in respect of the Proposed Development, noting that activities would be similar to those during the construction phase, but in reverse, without describing the activities in great detail. The ES should therefore include a description of the anticipated decommissioning activities and their likely duration. Where there is uncertainty of impacts during decommissioning, this should be clearly explained along with the implications for the assessment of significant effects (including assumptions and mitigation on which reliance is placed).
- 2.3.6 Section 3.4.3 of the Scoping Report states that port facilities will be required to support the construction and operation of the Proposed Development. The ES should make effort to identify the location of the port(s), where possible, and assess any likely significant effects associated. In the event that the port(s) have not been confirmed, the ES should make effort to assess the likely significant effects associated with relevant assumptions and a worst case scenario. The worst case parameters applied in relation to port location(s) should be clearly defined and consistently applied across the relevant assessments in the ES.

- 2.3.7 The ES should include a description of the nature and quantity of materials and natural resources used in the Proposed Development, including water, land, soil and biodiversity.

Offshore

- 2.3.8 Paragraph 3.4.4 of the Scoping Report states that the array areas will be defined in the draft Development Consent Order (dDCO). Table 3.3 states that the number of WTGs will vary from 79 (for the smallest size WTG) to 48 larger WTGs. In addition, Table 3.1 of the Scoping Report states that the exact WTG model will be chosen post-consent. The ES should include a full and detailed description of the potential WTG models and the parameters associated with their design (including distance between WTGs), as well as establishing and assessing the layout(s) that result in the worst case adverse effects.
- 2.3.9 Paragraph 3.4.5 of the Scoping Report states that the design of foundations for the WTGs and OSP would be informed by site investigation post consent, and that it is possible that more than one type of foundation would be used. Table 3.4 describes the foundation design options being considered: monopiles, pin-piled jackets or suction bucket jackets, and gravity base foundations. Table 3.5 – 3.10 of the Scoping Report sets out indicative dimensions and construction materials for the range of options. The ES should include a full and detailed description of foundation options and any scour protection for which development consent is sought, including the location, maximum diameter and depth and the maximum diameter of piles should they be used.
- 2.3.10 The maximum parameters for inter-array cabling and offshore export cables are described in Tables 3.17 and 3.18 of the Scoping Report. The target minimum cable depth is 0.5m. The ES should describe the range of burial depths that have been considered as part of the assessment and the degree of confidence in these parameters. It should establish the parameters likely to result in the maximum adverse effects and include an assessment of these to determine likely significance of effects.
- 2.3.11 Paragraph 3.4.8 of the Scoping Report states that there may be a potential need for seabed preparation prior to installation of the foundations including levelling and clearance of boulders and debris. The ES should identify the worst case footprint of seabed disturbance that would arise from offshore construction activities. The maximum footprints of all permanent components should also be identified, dependant on the models and foundation types chosen. Should seabed preparation involve dredging, the ES should identify the quantities of dredged material and likely location for disposal.

Landfall and offshore

- 2.3.12 The Inspectorate understands that the onshore location and cable routing will in part be determined based on the selected location of the EACS. The ES should explain the relationship between the preferred options and the EACS, the status of the separate project, any uncertainty remaining if it is not yet finalised and how that has been addressed in the assessment presented in the ES.

- 2.3.13 As the landfall and onshore components are still subject to areas of search, the Inspectorate notes that it is not yet clear whether any temporary or permanent crossings of watercourses, major roadways and / or railways would be required as part of the Proposed Development. The ES should identify the locations and types of all such crossings. Where reliance is placed in the ES on the use of a specific method as mitigation, the Applicant should ensure that such commitments are appropriately defined and secured.
- 2.3.14 Similarly, the ES should identify where new access routes, either temporary or permanent, are required to facilitate onshore construction and / or maintenance of the onshore substation and underground cable, as well as any requirement for upgraded or additional utilities infrastructure e.g. sewerage or water supply.

Alternatives

- 2.3.15 The EIA Regulations require that the Applicant provide 'A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects'.
- 2.3.16 The Inspectorate acknowledges the Applicant's intention to consider alternatives within the ES as stated in paragraph 5.1.1 of the Scoping Report. The Inspectorate would expect to see a discrete section in the ES that provides details of the reasonable alternatives studied and the reasoning for the selection of the chosen option(s), including a comparison of the environmental effects.

Flexibility

- 2.3.17 The Inspectorate notes the Applicant's desire to incorporate flexibility into their draft DCO (dDCO) and its intention to apply a Rochdale Envelope approach for this purpose. Where the details of the Proposed Development cannot be defined precisely, the Applicant will apply a worst case scenario. The Inspectorate welcomes the reference to Planning Inspectorate Advice Note nine 'Using the 'Rochdale Envelope'¹ in this regard.
- 2.3.18 The Applicant should make every attempt to narrow the range of options and explain clearly in the ES which elements of the Proposed Development have yet to be finalised and provide the reasons. At the time of application, any Proposed Development parameters should not be so wide-ranging as to represent effectively different developments. The development parameters should be clearly defined in the dDCO and in the accompanying ES. It is a matter for the Applicant, in preparing an ES, to consider whether it is possible to robustly assess a range of impacts resulting from a large number of undecided parameters. The description of the Proposed Development in the ES must not be so wide that it is insufficiently certain to comply with the requirements of Regulation 14 of the EIA Regulations.

¹ Advice Note nine: Using the Rochdale Envelope. Available at:
<https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/>

2.3.19 It should be noted that if the Proposed Development materially changes prior to submission of the DCO application, the Applicant may wish to consider requesting a new scoping opinion.

3. ES APPROACH

3.1 Introduction

- 3.1.1 This section contains the Inspectorate's specific comments on the scope and level of detail of information to be provided in the Applicant's ES. General advice on the presentation of an ES is provided in the Inspectorate's Advice Note Seven 'Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements'² and associated appendices.
- 3.1.2 Aspects/ matters (as defined in Advice Note Seven) are not scoped out unless specifically addressed and justified by the Applicant, and confirmed as being scoped out by the Inspectorate. The ES should be based on the Scoping Opinion in so far as the Proposed Development remains materially the same as the Proposed Development described in the Applicant's Scoping Report.
- 3.1.3 The Inspectorate has set out in this Opinion where it has/ has not agreed to scope out certain aspects/ matters on the basis of the information available at this time. The Inspectorate is content that the receipt of a Scoping Opinion should not prevent the Applicant from subsequently agreeing with the relevant consultation bodies to scope such aspects / matters out of the ES, where further evidence has been provided to justify this approach. However, in order to demonstrate that the aspects/ matters have been appropriately addressed, the ES should explain the reasoning for scoping them out and justify the approach taken.
- 3.1.4 Where relevant, the ES should provide reference to how the delivery of measures proposed to prevent/ minimise adverse effects is secured through dDCO requirements (or other suitably robust methods) and whether relevant consultation bodies agree on the adequacy of the measures proposed.

3.2 Relevant National Policy Statements (NPSs)

- 3.2.1 Sector-specific NPSs are produced by the relevant Government Departments and set out national policy for NSIPs. They provide the framework within which the Examining Authority (ExA) will make their recommendation to the SoS and include the Government's objectives for the development of NSIPs. The NPSs may include environmental requirements for NSIPs, which Applicants should address within their ES.
- 3.2.2 The designated NPSs relevant to the Proposed Development are the:
- Overarching NPS For Energy (NPS EN-1);
 - NPS on Renewable Energy Infrastructure (NPS EN-3); and
 - NPS for Electricity Networks Infrastructure (NPS EN-5).

² Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements and annex. Available from: <https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/>

- 3.2.3 The Applicant should ensure that the revised requirements set out in any emerging or updated NPSs for energy infrastructure have been considered in the ES where relevant to the Proposed Development.

3.3 Scope of Assessment

General

- 3.3.1 The Inspectorate recommends that in order to assist the decision-making process, the Applicant uses tables:

- to demonstrate how the assessment has taken account of this Opinion;
- to identify and collate the residual effects after mitigation for each of the aspect chapters, including the relevant interrelationships and cumulative effects;
- to set out the proposed mitigation and/ or monitoring measures including cross-reference to the means of securing such measures (eg a dDCO requirement);
- to describe any remedial measures that are identified as being necessary following monitoring; and
- to identify where details are contained in the Habitats Regulations Assessment (HRA report) (where relevant), such as descriptions of National Site Network sites and their locations, together with any mitigation or compensation measures, that inform the findings of the ES.

- 3.3.2 Section 4.6 of the Scoping Report sets out the Applicant's approach to the assessment of cumulative effects. The Inspectorate considers that the Applicant should consider all NSIPs with zones of influence which overlap those of the Proposed Development.

- 3.3.1 The Inspectorate understands that areas of search for the landfall and onshore components of the Proposed Development will be refined during the assessment process to identify preferred options, which would be reported in the ES as part of any DCO submission. The Inspectorate therefore expects that the DCO boundary is likely to change from the boundary used for scoping. The ES should clearly describe changes that have been made to the DCO boundary from the scoping red line boundary, including reduction or increase in extent, and the reasons for such change. Where changes are made, each aspect chapter of the ES should explain the effect of such changes on the approach to assessment, including where this results in additional matters needing to be scoped into the ES.

Baseline Scenario

- 3.3.2 The ES should include a description of the baseline scenario with and without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge. The ES should provide clear justification as to how the study areas reflect the zones of influence of the

Proposed Development for each aspect of the environment covered and how receptors have been identified.

- 3.3.3 In light of the number of ongoing developments within the vicinity of the Proposed Development application site, the Applicant should clearly state which developments will be assumed to be under construction or operational as part of the future baseline.

Forecasting Methods or Evidence

- 3.3.4 The ES should contain the timescales upon which the surveys which underpin the technical assessments have been based. For clarity, this information should be provided either in the introductory chapters of the ES (with confirmation that these timescales apply to all chapters), or in each aspect chapter.
- 3.3.5 The Inspectorate expects the ES to include a chapter setting out the overarching methodology for the assessment, which clearly distinguishes effects that are 'significant' from 'non-significant' effects. Any departure from that methodology should be described in individual aspect assessment chapters.
- 3.3.6 The Scoping Report lists the guidance which would be used to inform the methodology in each aspect chapter. However, limited explanation has been provided on the methodologies that will actually be used in the assessments and how these have been derived from the guidance which limits the Inspectorate's capacity to provide useful advice. The ES should provide detailed descriptions of the assessment methods used in each aspect chapter and include evidence of agreement with relevant stakeholders wherever possible. Where project specific changes have been made to the proposed methodologies or there are limitations with the approaches taken, these should also be explained in the ES.
- 3.3.7 The ES should include details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.

Residues and Emissions

- 3.3.8 The EIA Regulations require an estimate, by type and quantity, of expected residues and emissions. Specific reference should be made to water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases, where relevant. This information should be provided in a clear and consistent fashion and may be integrated into the relevant aspect assessments.
- 3.3.9 The Scoping Report does not include a specific section about waste. The ES should include information regarding the expected quantities and types of waste that will be produced during construction, operation and decommissioning. An assessment of effects relating to waste should be provided in the relevant aspect chapters where significant effects are likely to occur, including in relation to transport effects arising from the movement of waste.

Mitigation and Monitoring

- 3.3.10 Any mitigation relied upon for the purposes of the assessment should be explained in detail within the ES. The likely efficacy of the mitigation proposed should be explained with reference to residual effects. The ES should also address how any mitigation proposed is secured, with reference to specific dDCO requirements or other legally binding agreements.
- 3.3.11 The Scoping Report refers to mitigation to be provided through various different plans which would be developed in the post-consent phase. These include a Cable Specification and Installation Plan (CSIP) and a Project Environmental Management Plan (PEMP). Where the ES relies on mitigation delivered through these plans to avoid significant effects on the environment, as a minimum an outline or 'in principle' version of the plans should be provided as part of the application documents.
- 3.3.12 The ES should identify and describe any proposed monitoring of significant adverse effects and how the results of such monitoring would be utilised to inform any necessary remedial actions.

Risks of Major Accidents and/or Disasters

- 3.3.13 The ES should include a description and assessment (where relevant) of the likely significant effects resulting from accidents and disasters applicable to the Proposed Development. The Applicant should make use of appropriate guidance (e.g. that referenced in the Health and Safety Executives (HSE) Annex to the Inspectorate's Advice Note 11) to better understand the likelihood of an occurrence and the Proposed Development's susceptibility to potential major accidents and hazards. The description and assessment should consider the vulnerability of the Proposed Development to a potential accident or disaster and also the Proposed Development's potential to cause an accident or disaster. The assessment should specifically assess significant effects resulting from the risks to human health, cultural heritage or the environment. Any measures that will be employed to prevent and control significant effects should be presented in the ES.
- 3.3.14 Relevant information available and obtained through risk assessments pursuant to national legislation may be used for this purpose. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.

Climate and Climate Change

- 3.3.15 The ES should include a description and assessment (where relevant) of the likely significant effects the Proposed Development has on climate (for example having regard to the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change. Where relevant, the ES should describe and assess the adaptive capacity that has been incorporated into the design of the Proposed Development. This may include, for example, alternative measures such as changes in the use of materials or construction and design techniques that will be more resilient to risks from climate change.

Transboundary Effects

- 3.3.16 Schedule 4 Part 5 of the EIA Regulations requires a description of the likely significant transboundary effects to be provided in an ES. The Scoping Report states at paragraph 4.8.6 that the Proposed Development is unlikely to have significant effects on a European Economic Area (EEA) State but also states that issues (sic) will be taken up and assessed fully in the ES.
- 3.3.17 Regulation 32 of the EIA Regulations inter alia requires the Inspectorate to publicise a DCO application on behalf of the SoS if it is of the view that the proposal is likely to have significant effects on the environment of an EEA state, and where relevant, to consult with the EEA state affected.
- 3.3.18 The Inspectorate considers that where Regulation 32 applies, this is likely to have implications for the examination of a DCO application. It is noted that the Scoping Report proposes further consideration for potential transboundary effects in relation to marine mammals, seabirds, shipping and navigation and marine archaeology. The Inspectorate recommends that the ES should identify whether the Proposed Development has the potential for significant transboundary effects and if so, what these are and which EEA States would be affected.

A Reference List

- 3.3.19 A reference list detailing the sources used for the descriptions and assessments must be included in the ES.

3.4 Coronavirus (COVID-19) Environmental Information and Data Collection

- 3.4.1 The Inspectorate understands that measures adopted in response to COVID-19 may have consequences for an Applicant's ability to obtain relevant environmental information for the purposes of their ES. For example the ability to conduct specific surveys and obtain representative data may be affected by these measures. The ES should explain any such limitations and any assumptions made relating to the environmental information on which it relies.
- 3.4.2 The Inspectorate has a duty to ensure that the environmental assessments necessary to inform a robust DCO application are supported by relevant and up to date information. It is anticipated that Applicants will make every effort to overcome any limitations encountered as a result of the COVID-19 situation. However, where this has not been possible, the Inspectorate will seek to adopt an approach which balances the requirement for suitable rigour and scientific certainty in assessments with pragmatism in order to support the preparation and determination of applications in a timely fashion.
- 3.4.3 Applicants should make effort to agree their approach to the collection and presentation of information with relevant consultation bodies. In turn the Inspectorate expects that consultation bodies will work with Applicants to find suitable approaches and points of reference to allow preparation of applications.

The Inspectorate is required to take into account the advice it receives from the consultation bodies and will continue to do so in this regard.

3.5 Confidential and Sensitive Information

- 3.5.1 In some circumstances it will be appropriate for information to be kept confidential. In particular, this may relate to personal information specifying the names and qualifications of those undertaking the assessments and / or the presence and locations of rare or sensitive species such as badgers, rare birds and plants where disturbance, damage, persecution or commercial exploitation may result from publication of the information.
- 3.5.2 Where documents are intended to remain confidential the Applicant should provide these as separate documents with their confidential nature clearly indicated in the title and watermarked as such on each page. The information should not be incorporated within other documents that are intended for publication or which the Inspectorate would be required to disclose under the Environmental Information Regulations 2004.
- 3.5.3 The Inspectorate adheres to the data protection protocols set down by the Information Commissioners Office³ . Please refer to the Inspectorate's National Infrastructure privacy notice⁴ for further information on how personal data is managed during the Planning Act 2008 process.

³ <https://ico.org.uk>

⁴ <https://www.gov.uk/government/publications/planning-inspectorate-privacy-notice>

4. ASPECT BASED SCOPING TABLES

4.1 Physical processes

(Scoping Report Section 7)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.1.1	n/a	n/a	No matters have been proposed to be scoped out of the assessment

ID	Ref	Other points	Inspectorate's comments
4.1.2	Section 7.2	Study area	The Scoping Report provides a general description on how the study area has been defined but lacks a detailed justification. The ES should provide a much more detailed description as to how the final study area reflects the zone of influence of the Proposed Development. Where expert judgement has been relied on, the ES should include a discussion of the reasoning and evidence used to inform that judgement.
4.1.3	Paragraph 7.2.2	Designated sites	The Scoping Report states that the study area overlaps with a number of designated sites which are listed in Table 7.2. It would be helpful if the ES included a figure which both showed the designated site boundaries and named them.
4.1.4	Table 7.1, paragraphs 7.3.2 -7.3.3	Baseline data	Some of the datasets listed in Table 7.1 only provide partial coverage of the study area. The intention to augment this data with geophysical data from the Galloper and Greater Gabbard offshore wind farms (OWFs) is welcomed but it is not clear from the Scoping Report how much of the study area would be covered. It is also noted that site specific geophysical surveys for the array area and the offshore AoS are currently being undertaken but no further

ID	Ref	Other points	Inspectorate's comments
			<p>information is provided on the extent of the coverage. The Scoping Report does not include any reference to geotechnical surveys.</p> <p>The Inspectorate is concerned that the approach described in the Scoping Report to gathering baseline data may not be sufficient to ensure a robust assessment. The Applicant's attention is drawn to the comments from Natural England (NE) and the Marine Management Organisation (MMO) in Appendix 2 of this report. The ES must provide a justification as to why the baseline data can be considered adequate to assess the effects of the Proposed Development, supported if possible by evidence of agreement with relevant stakeholders.</p>
4.1.5	Paragraphs 7.4.14 – 7.4.15	Shoreline Management Policy	<p>The Inspectorate notes that the advice from Essex County Council (ECC) and the Environment Agency (EA) as provided in Appendix 2 of this report is that the information in these paragraphs is inaccurate. The information in the ES must correctly reflect the situation relating to responsibilities for maintaining flood defences. The assessments in the ES should also take account of the of the dual policy in the Shoreline Management Plan (both "hold the line" and managed realignment) which applies to the landfall area.</p>
4.1.6	Paragraphs 7.5.5 – 7.5.6	Use of studies from other projects	<p>The Scoping Report states that modelling studies from Galloper and Greater Gabbard OWFs will be used to supplement the analyses of changes to physical processes. It is noted that no new numerical modelling is proposed and that a detailed rationale for this position will be provided to the members of the Expert Working Group. The Inspectorate is concerned that this approach may not be adequate to model the effects from the Proposed Development, particularly in the light of the comments from NE (see Appendix 2 of this report). The assessment in the ES should either be based on updated numerical modelling which covers the area affected by the Proposed Development or give a justification as to why use of the existing modelling provides a robust approach, supported by evidence of</p>

ID	Ref	Other points	Inspectorate's comments
			agreement by the members of the Expert Working Group (EWG) to this approach.
4.1.7	Table 7.3, impact 7.1	Use of spreadsheet-based models	The Scoping Report does not provide a justification as to why spreadsheet-based models are the chosen method for modelling changes in SSC. The ES should explain the methodology used to undertake the assessment and provide a justification as to why the assessment is robust, supported by evidence of agreement with relevant stakeholders if possible.
4.1.8	Table 7.3, impact 7.1	Dredged material	It is not clear from Table 7.3 if the assessment of SSC will consider the effects from deposition of any dredged material. The ES must provide a comprehensive assessment of the effects of changes in SSC levels from all aspects of the Proposed Development and must explain how long any effects would persist. The Applicant's attention is drawn to the comments from NE in relation to this matter (see Appendix 2 of this report).
4.1.9	Table 7.3, impacts 7.2 & 7.11	Impacts on seabed morphology during construction and decommissioning	The Scoping Report states that the effects of sandwave levelling and cable trenching would be assessed using a semi-quantitative desktop exercise. It is not clear to the Inspectorate what is meant by a semi-quantitative assessment. The ES must clearly explain the methodology used to undertake the assessment and provide a justification as to why the assessment is robust, supported by evidence of agreement with relevant stakeholders if possible. The Applicant's attention is drawn to the comments from NE in relation to this matter (see Appendix 2 of this report).
4.1.10	Table 7.3, impact 7.9	Scour	It is not clear from Table 7.3 how the effects of scour would be assessed. The ES should explain the methodology used to undertake the assessment and provide a justification as to why the assessment is robust, supported by evidence of agreement with relevant stakeholders if possible.

ID	Ref	Other points	Inspectorate's comments
4.1.11	Table 7.3	Impacts on flood defences	It is not clear from Table 7.3 if the assessment of effects on landfall will include consideration of the effects on flood defences in the study area. The ES should ensure that effects on flood defences are captured within the assessment. The Applicant's attention is drawn to the comments from ECC (Appendix 2 of this report) on this point.
4.1.12	Table 7.3	Cable protection	It is not clear from Table 7.3 how the effect of cable protection on offshore physical processes would be covered in the assessments in the ES. The ES should explain how this has been covered by the assessment and what assumptions have been made on the likely extent and type of cable protection that could be required. The Applicant's attention is drawn to the comments from NE (Appendix 2 of this report) on this point.

4.2 Marine water and sediment quality

(Scoping Report Section 8)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.2.1	Table 8.4, impact 8.9	Deterioration in water quality during operational phase	<p>The Scoping Report notes the potential for sediment to be re-suspended as a result of scour around structures associated with the Proposed Development but concludes that the volume of material released during operation would be much smaller than that released during construction (within the ranges of natural variability) and highly localised. The Scoping Report does not provide any evidence to support this position. In addition, the Inspectorate notes that part of offshore cable route runs through the Margate and Long Sands Special Area of Conservation (SAC). In the absence of information such as evidence demonstrating clear agreement with relevant statutory bodies, the Inspectorate is not in a position to agree to scope these matters from the assessment. Accordingly, the ES should include an assessment of these matters or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of a likely significant effect (LSE) on the environment.</p>
4.2.2	Table 8.4, impact 8.10	Cumulative effects from release of sediment bound contaminants	<p>The Scoping Report seeks to scope this matter out on the grounds that the effects from the Proposed Development would be highly localised and small scale. Contaminants are present at low levels, particularly offshore and this matter was scoped out of cumulative assessment for other OWFs, notably East Anglia THREE and Norfolk Vanguard. Paragraph 8.3.2 states that the baseline data will be a combination of published literature and site specific surveys. The Inspectorate notes that according to Table 8.1 there are no existing studies of sediment contaminants which cover the full study area. As the site-specific surveys have not undertaken yet, the Inspectorate considers that it would be premature to agree that this matter can be scoped out of the assessment. In the absence of information such as</p>

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			evidence demonstrating clear agreement with relevant statutory bodies, the Inspectorate is not in a position to agree to scope these matters from the assessment. Accordingly, the ES should include an assessment of these matters or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of LSE.
4.2.3	Table 8.4, impact 8.11	Transboundary effects from potential deterioration in water quality	The Scoping Report seeks to scope this matter out on the grounds that effects on water quality would be highly localised and small scale with limited potential for transboundary effects. Notwithstanding the comments under ID 4.2.1 above, the Inspectorate agrees that this effect is unlikely to extend far enough to affect a European Economic Area (EEA) state. This matter can be scoped out of further assessment.

ID	Ref	Other points	Inspectorate's comments
4.2.4	Figure 8.1	Location of existing OWF	The existing OWF shown in this figure seems to include OWF which are still at the planning stage (such as the North Falls OWF) and does not match other figures shown in the Scoping Report. The figures in the ES should be consistent and make a clear distinction between existing and planned OWF.
4.2.5	Table 8.3, impact 8.1	Hydrodynamic modelling	The Inspectorate notes that no project specific hydrodynamic modelling or sediment transport simulations would be undertaken. Please see the comments under impact 4.1.3 in section 4.1 of this report.
4.2.6	Table 8.2, impact 8.3	Mitigation measures	The Scoping Report refers to a PEMP which would be developed post-consent. A decommissioning programme would be developed to cover the decommissioning phase. Where the ES relies on mitigation to be

ID	Ref	Other points	Inspectorate's comments
	& paragraph 8.5.7		delivered through these plans to avoid significant environmental effects, as a minimum an outline version of the plan should be provided as part of the application documents.
4.2.7	Figure 8.1	Location of existing OWF	The existing OWF shown in this figure seems to include OWF which are still at the planning stage (such as the North Falls OWF) and does not match other figures shown in the Scoping Report. The figures in the ES should be consistent and make a clear distinction between existing and planned OWF.

4.3 Benthic and intertidal ecology

(Scoping Report Section 9)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.3.1	Table 9.4, impact 9.11	Noise pollution on benthic ecology during foundation installation	The Scoping Report seeks to scope this matter out on the grounds that benthic invertebrates are most likely to be affected by the particle motion component of noise which is expected to be dissipated within metres of the noise source. The noise would also be temporary in nature. The Inspectorate agrees that this matter can be scoped out of further assessment.
4.3.2	Table 9.4, impact 9.12	Accidental pollution during all phases of the development	The Scoping Report seeks to scope this matter out on the grounds that the magnitude of any spill would be limited by the quantity of chemicals or oils carried by construction vessels. Any spilled hydrocarbons would be subject to rapid dilution and unlikely to persist in the marine environment. The implementation of the PEMP (which would include a Marine Pollution Contingency Plan) would reduce the likelihood on an incident. The Scoping Report does not quantify the volume of oils/chemicals that would be carried on board vessels or provide any detail on the various plans. The Inspectorate does not consider that the Scoping Report contains sufficient information for it to agree that this matter can be scoped out of further assessment. In the absence of information such as evidence demonstrating clear agreement with relevant statutory bodies, the Inspectorate is not in a position to agree to scope these matters from the assessment. Accordingly, the ES should include an assessment of these matters or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of an LSE.
4.3.3	Paragraph 9.5.10	Transboundary effects	The Scoping Report notes that as the impacts from the Proposed Development are likely to be localised. As the distance between the array areas and the Dutch, Belgian and French Exclusive Economic

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			Zones is at least 16km, effects on benthic ecology within the boundaries of EEA states are not expected to occur. The Inspectorate agrees that this matter can be scoped out of further assessment.

ID	Ref	Other points	Inspectorate's comments
4.3.4	Paragraph 9.4.18	EU Habitats Directive	The Applicant is reminded that following EU exit, reference should be made to the relevant UK regulations, rather than to the Directive.
4.3.5	Paragraph 9.2.1 & section 9.3	Study area/baseline data for the wider study area	The Scoping Report describes two study areas. The first comprises the array area and the offshore area of search for the cable route, ending at Mean High Water Springs (MHWS). Site-specific survey will be undertaken within this area. The second study area is based on the study area identified for the physical processes assessments to capture any indirect effects on benthic ecology. The Scoping Report does not refer to any site-specific surveys for this wider area. The Inspectorate assumes therefore that baseline data for this wider area would be derived from the data sources listed in Table 9.1 and shown on Figure 9.2. However, some of this data was collected in 2009 or 2011 and coverage across the study area is uneven. The Inspectorate queries whether reliance on existing data will provide an accurate description of the existing situation, given the age and patchy distribution of the survey samples. The ES must provide a justification as to the validity of the baseline data used in the assessment, supported by evidence of agreement with relevant stakeholders or undertake further site-specific surveys. The Applicant's attention is drawn to the comments from NE on this point (see Annex 2 of this report).
4.3.6	Table 9.3, impact 9.6	Temporary habitat disturbance during operation and maintenance	The assessment of effects during the operational phase should explain how the frequency of maintenance activities has been

ID	Ref	Other points	Inspectorate's comments
			determined. If this remains to be determined at the point of assessment then the assessment should be based on a worst case scenario.
4.3.7	Table 9.3	Impacts from unexploded ordnance (UXO) clearance	Paragraph 3.4.25 of the Scoping Report states that consent for the removal of UXO will be sought in a future Marine Licence but included in the assessments in the ES. However, it is not referred to in Table 9.3. It is not clear to the Inspectorate how UXO clearance impacts will be treated in the ES. The Inspectorate advises that these impacts (including those associated with site preparation) should be included in the ES but should be clearly badged as activities to be consented separately via a Marine Licence.

4.4 Fish and shellfish ecology

(Scoping Report Section 10)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.4.1	Table 10.4, impacts 10.13, 10.15, and 10.17	Direct damage (eg crushing) and disturbance to mobile demersal and pelagic fish and shellfish species arising from construction and decommissioning activities, and direct disturbance resulting from maintenance during operational phase	<p>The Scoping Report states that the affected species are likely to be mobile and can move away from disturbance and that the habitats likely to be disturbed represent a small area of the total distribution of that habitat type in the central southern North Sea.</p> <p>The Inspectorate agrees that fish are generally a mobile receptor, however those species having a close affiliation with the seabed (ie sandeel and herring) may be reliant on specific habitat for part of their life stages. In addition, sedentary shellfish species have limited ability to move in order to avoid danger. The Applicant's attention is drawn to the advice from the MMO on this point (see Appendix 2 of this report).</p> <p>The Inspectorate considers therefore that direct damage and disturbance to mobile demersal and pelagic fish and shellfish species should be scoped into the assessment for all phases of the development. Accordingly, the ES should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of an LSE on the environment.</p>
4.4.2	Table 10.4, impacts 10.14, 10.16 and 10.18	Accidental pollution events resulting in potential effects on fish and shellfish receptors (for all phases of the development)	<p>The Scoping Report seeks to scope this matter out on the grounds that the risk of accidental pollution events will be mitigated through the implementation of an Environmental Monitoring Programme (EMP) and a Marine Pollution Contingency Plan (MPCP). However, the Scoping Report does not provide any detail on the content of these plans. In the absence of this information, the Inspectorate is not in a position to agree to scope this matter out of further assessment. Accordingly, the ES should include an assessment of these matters or</p>

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			evidence demonstrating agreement with the relevant consultation bodies and the absence of an LSE on the environment. The Applicant's attention is drawn to the comments from the MMO on this point (see Appendix 2 of this report).
4.4.3	Paragraphs 10.5.14 – 10.5.15	Transboundary impacts	The Scoping Report seeks to scope this matter out from further assessment on the grounds that the assessment will consider the distribution of fish and shellfish species across the biogeographic region, irrespective of national jurisdictions. The Inspectorate agrees that the distribution of such species is independent of national geographical boundaries and agree that a specific assessment of transboundary effects is unnecessary in relation to fish ecology. On this basis and given that transboundary impacts will be assessed in regard to commercial fisheries as part of the construction, operation and decommissioning phases of the Proposed Development, the Inspectorate is satisfied that this matter can be scoped out of the assessment.

ID	Ref	Other points	Inspectorate's comments
4.4.4	Table 10.1	Sources of information	<p>ESs from other OWF developments within the Outer Thames Strategic Area are proposed as sources of information for this aspect. Other developments in the area may provide further relevant data.</p> <p>Some of the identified data sources to be used are greater than 5 years old. The Applicant should ensure that the baseline data used in the ES assessments are sufficiency up to date to provide a robust baseline. The Applicant's attention is drawn to the advice from the MMO in Appendix 2 of this report on this point.</p>
4.4.5	10.3.3	Baseline data	The Report states that should " <i>sufficient information exist to enable a robust characterisation of the receiving environment, including</i>

ID	Ref	Other points	Inspectorate's comments
			<p><i>identification of relevant valued fish and shellfish receptors, additional site-specific surveys are not proposed to be undertaken".</i> If existing data is used, the ES should provide evidence to justify that it constitutes a robust characterisation of the receiving environment, with reference to the date, seasonal period and geographic coverage of the data. Use of existing data should be done in agreement with consultees.</p>
4.4.6	Section 10.3	Baseline - seabass	<p>The Scoping Report does not identify European seabass within the baseline environment for fish species. The wider Thames estuary supports bass populations as important Bass Nursery Areas (BNAs). The Inspectorate considers the assessment should consider potential impacts to seabass within the context of the proposed activities ie activities likely to disturb or potentially impact juvenile fish and nursery grounds. The Applicant's attention is drawn to the advice from the MMO in Appendix 2 of this report on this point.</p>
4.4.7	Table 10.3	Direct removal of shellfish	<p>Table 10.3 does not include the impacts from the direct removal of shellfish. The ES should either include an assessment of this matter or provide a justification as to why such an assessment is not required, supported by evidence of agreement to this approach with relevant stakeholders.</p>
4.4.8	Paragraphs 10.4.14 – 10.4.15	The Eels Regulation 2009	<p>The Inspectorate notes the potential for eels to be passing through the study area. No reference is made within the Scoping Report to the Eel Regulations 2009 nor Eel Recovery Plans. The ES should include reference to the Eel Regulations and any relevant requirements. The Applicant should agree the approach to meeting the requirements of the Eels Regulations with the EA and other relevant bodies, including any requirements for eel survey and the provision of eel and other fish pass facilities.</p>

ID	Ref	Other points	Inspectorate's comments
4.4.9	10.4.16, Table 10.2	Migratory species and designated sites	The Scoping Report states that river and sea lamprey and the allis and twaite shads are known to migrate through the study area. The Scoping Report lists two internationally designated sites of relevance to the Fish and Shellfish Ecology aspect. The ES should ensure that all sites designated for the migratory species that could interact with the Proposed Development are assessed, where significant effects are likely to occur.
4.4.10	-	Impact on the spread of INNS	The assessment should consider the potential for INNS spread via turbine structures within the region. The ES should describe any necessary mitigation and / or biosecurity precautions required to prevent the spread of INNS. Any measures relied upon in the ES should be discussed with relevant consultation bodies, including NE and the EA, in effort to agree the approach. Measures relied upon in the ES should be adequately secured.
4.4.11	Table 10.3, Impact 10.1	Impacts arising from underwater noise and vibration	<p>The Scoping Report proposes site-specific predictive noise modelling will be undertaken to assess the potential for mortality, permanent and temporary injury and behavioural disturbance of noise sensitive fish and shellfish receptors based on impact thresholds reported in Popper et al (2014). The Inspectorate notes the recommendations of the MMO on this matter (see Appendix 2 of this report) and therefore considers that fish should be treated as a stationary receptor in any modelling used to make predictions for noise propagation on fish spawning and nursery grounds.</p> <p>The outputs of modelling should be presented in map-form depicting the predicted noise impact range contours. The Inspectorate agrees with the MMO's recommendation that 10 years of International Herring Larvae Survey data should be presented in the form of a 'heat map' which should be overlaid with the mapped noise contours.</p> <p>The ES should make clear whether it is proposed to undertake simultaneous piling (i.e. the installation of more than one pile at a</p>

ID	Ref	Other points	Inspectorate's comments
			time), in which case the underwater noise modelling for impacts to fish should be based on this scenario.
4.4.12	Paragraphs 10.5.6 – 10.5.8	Mitigation measures	The Scoping Report does not state whether the Applicant intends to control the time of the proposed construction and / or operational activities to avoid key and sensitive periods to species, such as fish spawning seasons and fish migration periods. Mitigation measures to help reduce the impact of piling (ie soft start and ramp-up or twin-walled piles) are not mentioned either. The ES should assess the duration of impacts in relation to the ecological cycles (eg life cycles, breeding and spawning seasons, etc.) of the receptors being assessed. The ES should also consider the potential of the Proposed Development to disrupt fishing and recreational activities (including restriction of access) during both the construction and operational phases and any likely significant effects should be reported within the relevant assessments of the ES.
4.4.13	-	Impacts from underwater noise and vibration during operation	Impacts arising from underwater noise and vibration are scoped in for the construction and decommissioning phases (Table 10.3, impacts 10.1 and 10.9). Activities during maintenance work such as the use of jack-up barges and vessels will generate underwater noise and vibration. Accordingly, the ES should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation bodies that these activities are unlikely to give rise to LSE on the environment.
4.4.14	-	Impacts from increases in suspended sediment concentrations (SSC) and sediment deposition during operation	Increases in suspended SSC and sediment deposition are scoped in for the construction phase (Table 10.3, impact 10.2). Activities such as the repair/replacement of inter-array and export cables and other windfarm infrastructures are likely to cause disturbance to seabed habitats, and temporarily increase SSC and sediment deposition. Accordingly, the ES should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation

ID	Ref	Other points	Inspectorate's comments
			bodies and the absence of an LSE on the environment. The Applicant's attention is drawn to the comments from the MMO on this point (see Appendix 2 of this report).
4.4.15	-	Temporary habitat loss/physical disturbance (all phases)	Temporary habitat loss/physical disturbance has not been included for further assessment. Construction activities such as sandwave clearance, ploughing and jetting for seabed preparation and cable laying activities will cause temporary habitat loss and physical disturbance to benthic fish habitats. Similar effects are likely to occur as a result of maintenance work and decommissioning activities. Accordingly, the ES should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of an LSE on the environment. The Applicant's attention is drawn to the comments from the MMO on this point (see Appendix 2 of this report).

4.5 Marine mammals

(Scoping Report Section 11)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.5.1	Paragraph 11.4.2	Effects on marine mammals other than harbour porpoise, grey seals & harbour seals	The Scoping Report seeks to scope this matter as the site-specific surveys (covering two years) did not record any marine mammal species other than the three species listed. It is noted that Table 11.1 of the Scoping Report lists various other sources of baseline data, some of which is not yet available. NE has also advised of additional data sources which could be used to inform the baseline (see Appendix 2 of this report). The Inspectorate agrees that this matter can be scoped out of further assessment unless any of the data sources listed in Table 11.1 indicate the presence of other marine mammal species in the vicinity of the Proposed Development.
4.5.2	Table 11.4, impact 11.11	Accidental pollution during all phases of the Proposed Development	The Scoping Report seeks to scope this matter out on the grounds that the Proposed Development a PEMP. It states that it has been agreed with statutory nature conservation bodies (SNCBs) on previous OWF projects that major incidents which would lead to substantial mortality are unlikely and significant effects are unlikely. However, the Scoping Report does not quantify the volume of oils/chemicals that would be carried on board vessels or provide any detail on the PEMP. The Inspectorate does not consider that the Scoping Report contains sufficient information for it to agree that this matter can be scoped out of further assessment. In the absence of information such as evidence demonstrating clear agreement with relevant statutory bodies, the Inspectorate is not in a position to agree to scope these matters from the assessment. Accordingly, the ES should include an assessment of these matters or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of LSE on the environment.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.5.3	Table 11.4, impact 11.12	Temporary threshold shift (TTS) for marine mammals during all phases of the Proposed Development	<p>The Scoping Report seeks to scope out TTS on the grounds that the effects of TTS would be captured through the assessment of disturbance. The effects of TTS are stated to be difficult to interpret in terms of effects on individuals and unsuitable for determining the significance of effects. However, the ES will present TTS ranges and areas based on underwater noise modelling and the number of animals in the affected areas. It will not discuss the magnitude of TTS, marine mammal sensitivity or the overall significance of impact. This is stated to be in line with stakeholder advice.</p> <p>It is noted that NE and the MMO agree that the approach of presenting TTS areas without a significance assessment in order to provide a context for the assessment of effects although neither body agrees that this matter should be scoped out of the ES altogether. The Inspectorate considers that since it has been agreed by the relevant stakeholders that an assessment of the significance of TTS is not required and the Applicant has undertaken to report on TTS ranges and areas, this matter can be scoped out of further assessment.</p>
4.5.4	Table 11.4, impact 11.13	Electro-magnetic fields (EMF) during operation & maintenance	<p>The Scoping Report states that there is no evidence so far of EMF associated with marine renewables having any effect on marine mammals. Only one marine mammal, a non-native species which uses electrical stimuli when foraging, is known to respond to EMF. The Inspectorate agrees this matter can be scoped out of further assessment.</p>
4.5.5	Table 11.4, impact 11.14	Barrier effects	<p>The Scoping Report seeks to scope this matter out on the grounds that long-term monitoring at various OWF has demonstrated that marine mammals are present within the array areas during operation and may be using these areas for foraging. The Scoping Report also notes that evidence shows that individuals are displaced during</p>

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			<p>construction and then return. The extent of disturbance is expected to be localised and short-term. However, it is not clear on the basis of the evidence presented in the Scoping Report exactly what 'localised' and 'short-term' mean or whether barrier effects (for instance as a result of underwater noise) during construction would be assessed. The Inspectorate does not therefore agree that this matter can be scoped out of further assessment. The Applicant's attention is also drawn to the comments from NE on this matter in Appendix 2 of this report. In the absence of information such as evidence demonstrating clear agreement with relevant statutory bodies, the Inspectorate is not in a position to agree to scope these matters from the assessment. Accordingly, the ES should include an assessment of these matters or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of a LSE.</p>

ID	Ref	Other points	Inspectorate's comments
4.5.6	Paragraph 11.4.12	Harbour seal breeding colonies	<p>The ES should provide details about the nearest breeding colony of harbour seal to the Proposed Development (as has been done for the grey seal).</p>
4.5.7	Paragraph 11.5.6	Mitigation measures	<p>The measures listed include a number of plans including a Vessel Management Plan, a Site Integrity Plan for the Southern North Sea SAC and Marine Mammal Mitigation Protocols. As advised in paragraph 3.3.11 of this report, where these plans are relied on to avoid significant environmental effects, outline or in-principle plans should be submitted as part of the dDCO application.</p>
4.5.8	Paragraph 11.5.9	Cumulative effects assessment	<p>The Scoping Report states that the assessment will be based on a range of realistic scenarios. The ES must also provide an assessment</p>

ID	Ref	Other points	Inspectorate's comments
			of the worst case scenario which could arise as a result of the works that would be consented by the dDCO.

4.6 Offshore ornithology

(Scoping Report Section 12)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.6.1	Table 12.5, impact 12.7	Impacts on prey species and habitats from accidental pollution during construction	The Scoping Report states that it has been agreed with SNCBs on previous OWF applications that major incidents which would lead to substantial mortality are unlikely and significant effects are unlikely. However, the Scoping Report does not provide any detail on the content of the PEMP. In the absence of this information, the Inspectorate is not in a position to agree to scope this matter out of further assessment. Accordingly, the ES for this project should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of an LSE on the environment.
4.6.2	Table 12.5, impact 12.8	Collision risk with installed but not commissioned WTG and construction vessels	The Scoping Report seeks to scope this matter out on the grounds that while the WTG rotors may rotate this would only be for a few months while WTG installation is completed and only a small number of WTG would be involved. The collision risk would be relatively small compared with the risk during operation over the life time of the Proposed Development. Risks of vessel collision are considered to be low as the species with lower flight manoeuvrability are those most likely to avoid vessels altogether. The Inspectorate agrees that this matter can be scoped out of further assessment. It is noted that NE also agree that collision risk during the WGT installation is low (see Appendix 2 of this report).
4.6.3	Table 12.5, impact 12.9	Disturbance and displacement along the export cable route during operation	The Scoping Report seeks to scope this matter out on the grounds that impacts along the cable route would be localised and episodic. Measures would be included in the Deemed Marine Licence (DML) and dDCO to ensure that vessels would follow best practice to ensure minimal disturbance to species such as red-throated diver. It is noted

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			that NE agree with this approach, provided a commitment is secured in the dDCO/DML. The Inspectorate agrees that this impact can be scoped out of further assessment, subject to the dDCO and DML including clear and detailed commitments on the management of vessel movements during the operation and maintenance stage.
4.6.4	Table 12.5, impact 12.10	Barrier effects during operation	The Scoping Report states that it is not normally possible to distinguish between displacement and barrier effects during operation so the assessment in the ES will consider both effects together for resident bird species. The Scoping Report does not provide a definition of what qualifies as a resident species and whether it includes species which disperse after breeding. The Inspectorate considers that barrier effects could potentially occur for these species and for migratory species. Accordingly, the ES should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of an LSE on the environment. The Applicant's attention is drawn to NE's comments in Appendix 2 of this report.
4.6.5	Paragraphs 12.5.21 – 12.5.22	Cumulative effects with non-OWF developments	The Scoping Report identifies the potential for cumulative effects with marine aggregate extraction, oil and gas exploration/extraction, sub-sea cables and pipelines and commercial shipping. However, it states that birds may already be habituated to ongoing activities and effects could be considered as part of the baseline and it is not expected that the Proposed Development would contribute to cumulative effects with the listed offshore activities. The Inspectorate agrees that activities which were being carried out at the time that the aerial surveys were undertaken can be classed as part of the baseline. Activities that have begun after the completion of the surveys or which are intermittent should not be treated as part of the baseline. No other evidence has been provided to support the statement that the Proposed Development would not contribute to cumulative

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			effects. The Inspectorate does not agree that this matter can be scoped out of further assessment. Accordingly, the ES should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of an LSE on the environment.
4.6.6	Paragraphs 12.5.23 – 12.5.24	Cumulative construction and decommissioning effects	The Scoping Report seeks to scope out this matter on the grounds that the contribution of the Proposed Development is likely to be small to any such effects. The overlap of construction phases is considered to be unlikely based on the project information in the Crown Estate's 2019 OWF Extensions Plan-level Habitats Regulations Assessment. However, the Proposed Development is located close to the North Falls OWF and it appears to the Inspectorate that the possibility of cumulative construction effects cannot be excluded. The Inspectorate does not agree that this matter can be scoped out of further assessment. Accordingly, the ES should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of an LSE on the environment.

ID	Ref	Other points	Inspectorate's comments
4.6.7	Paragraph 12.2.1	Study area	The Scoping Report states that the study area is the area considered to represent a realistic maximum spatial extent of potential impacts. However, no justification is provided for this statement. It is noted that the study area may be refined as the details of the Proposed Development are further developed. The ES should provide a clear justification as to why the study area used in the assessments reflects the zone of influence for the Proposed Development.

ID	Ref	Other points	Inspectorate's comments
4.6.8	Paragraphs 12.3.1 & 12.6.2	Aerial survey data	The Scoping Report states that the aerial surveys achieved a coverage of 10 – 15% of the array area and a 4km buffer but does not explain why this is considered to provide adequate coverage. The ES should provide evidence as to why this level of coverage is considered to provide a robust baseline data set. The Applicant's attention is drawn to the advice from NE in Appendix 2 of this report on this point.
4.6.9	Table 12.1	Data sources	The list of data sources is noted. The baseline in the ES should be as comprehensive as possible to give the Examining Authority confidence in the assessments. The Applicant's attention is drawn to the advice from NE (see Appendix 2 of this report) on additional data sources which could be used in the assessment.
4.6.10	Paragraph 12.4.7 & Table 12.2	Important ornithological features (IOF)	The list of IOF should include all species recorded in the site-specific aerial surveys which are features of designated sites with connectivity to the study area.
4.6.11	Table 12.4	Assessment methodology	The Applicant is advised to agree assessment methodologies with relevant stakeholders represented on the ornithology Expert Working Group (EWG). If fundamental disagreements remain on the methods for assessing effects from displacement and collision-related mortality the ES should include assessments based on the Applicant's preferred method and those advocated by NE.
4.6.12	Table 12.4	Non-breeding season impacts	It is not clear from Table 12.4 if the ES will include an assessment of effects on bird populations during the non-breeding season. The Applicant is advised to agree the approach to assessing these impacts with the ornithology EWG. The ES should either include an assessment of effects during the non-breeding season or provide a justification as to why no such assessment is required.

ID	Ref	Other points	Inspectorate's comments
4.6.13	Table 12.4	Displacement impacts	Table 12.4 states that displacement impacts will be assessed but does not explain how this would be done. The ES should provide a clear explanation of how displacement impacts have been assessed for both the array areas and the cable route. As noted under ID 4.6.11 if it is not possible to an appropriate methodology with the ornithology EWG then the ES should include assessments based on the Applicant's preferred method and those advocated by NE.
4.6.14	Paragraph 12.5.17	Cumulative effects assessment	The Scoping Report proposes to consider operational disturbance, displacement and collision risk. It is not clear why disturbance during construction has not been included. The ES should either include disturbance/displacement during construction in the cumulative effects assessment or provide a justification as to why no LSE would arise.

4.7 Commercial fisheries

(Scoping Report Section 13)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.7.1	Table 13.3, impact 13.15	Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the Proposed Development area	The Scoping Report states that this effect will be localised to safety zones and installed structures and therefore limited deviations to steaming routes are expected. The Report also states that notification would be issued to enable vessels (which typically have an operation range beyond the footprint of the Proposed Development) to avoid construction/ decommissioning areas and installed infrastructure with minimal impact. On this basis the Inspectorate agrees this matter can be scoped out of further assessment in the ES.

ID	Ref	Other points	Inspectorate's comments
4.7.2	Table 13.1	Data sources	The baseline in the ES should be robust and should if possible be agreed with the relevant stakeholders. The MMO has identified several additional data sources in their advice (see Appendix 2 of this report) which the Applicant should consider incorporating into their baseline data.
4.7.3	Paragraphs 13.3.2, 13.3.3 & 13.6.2	Baseline	The Scoping Report notes that the Vessel Monitoring System data only covers vessels 12m or more in length, and that existing baseline data does not capture any potential changes in commercial fisheries activity resulting from events including withdrawal from the EU and Covid-19. It is proposed that the baseline will be informed by the most up-to-date versions of publicly available data and consultation with fleets active in the study area. The ES should clearly state the limitations associated with any data used. Information on survey methods should include the age of the data, fishing gear selectivity, and timing of surveys in relation to seasonal

ID	Ref	Other points	Inspectorate's comments
			presence/absence/abundance of species. Efforts should be taken to agree the baseline with relevant consultees and outcomes should be evidenced within the ES.
4.7.4	Section 13.3	Baseline – landings data	When using landings data, any conservation or management measures for species captured in the vicinity of the windfarm should be considered and acknowledged, as this may affect the species abundance and distribution within the windfarm area, but also within the fisheries dependent and interdependent data
4.7.5	-	Socio-economic effects	Given that the scale of any potential impacts from the Proposed Development on commercial fishing is not yet known, the ES should report on any socio-economic effects in the appropriate chapter or provide a justification as to why LSE would not arise.

4.8 Shipping and navigation

(Scoping Report Section 14)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.8.1	n/a	n/a	No matters have been proposed to be scoped out of the assessment.

ID	Ref	Other points	Inspectorate's comments
4.8.2	Paragraphs 14.2.1 – 14.2.4 Figure 14.1	Study areas	<p>The Scoping Report describes several different study areas designed to assess effects on different aspects of shipping and navigation (10 nautical miles (nm) around the array areas for the traffic study area, 20 nm around the array areas for the routeing study area and 2 nm around the boundary of the cable export route). The Inspectorate notes that these areas may be refined in response to consultees' advice or as the details of the Proposed Development are confirmed.</p> <p>The ES should fully explain the rationale behind the choice of study area, why any parts of the chosen study area have been omitted and the approach should be discussed and agreed, if possible, with the relevant consultation bodies. A figure should be provided showing the boundaries of the various study areas.</p> <p>The Inspectorate note that a portion of the 10 nm buffer for the array areas intersecting the North Hinder Junction and North Hinder South Traffic Separation Scheme (TSS) has been excluded from the study area and that this approach has been agreed with the Maritime and Coastguard Authority (MCA) and Trinity House during pre-scoping consultation. The ES should provide evidence of this agreement and a justification as to why the assessment of effects (specifically on major shipping routes) is considered to be robust.</p>

ID	Ref	Other points	Inspectorate's comments
4.8.3	Section 14.2 & Figure 14.3	Baseline environment /Navigational Risk Assessment (NRA)	The Scoping Report states that numerous navigational features are not shown in Figure 14.3 and that a detailed assessment will be undertaken in the NRA for relevant features using the latest available sources. The Applicant should make effort to agree the approach to the assessment with relevant consultation bodies, such as the MCA and Trinity House. The ES should explain how the views of the consultation bodies have informed the NRA.
4.8.4	Section 14.5 & Table 14.3	Potential impacts.	<p>The ES should demonstrate how the Proposed Development has been designed eg the location/ extent of the proposed array boundary, and would be managed, eg navigational management measures, including the use of marine navigation marking, to ensure that vessels can safely navigate their passage without significant large-scale deviations.</p> <p>The Applicant should make efforts to agree the approach to the assessment of safety relating to shipping and navigation with relevant consultation bodies, such as the MCA and Trinity House. The Applicant's attention is drawn to the advice from the MCA on the impacts which should be considered in the ES (see Appendix 2 of this report). The ES should explain how the views of the consultation bodies have informed the assessment including the identification of any likely significant effects and any mitigation required.</p>
4.8.5	-	Potential impacts.	The Applicant should ensure that any structures which would be placed outside the array areas are included in the assessment of effects. If cable protection is likely to be required, then the assessment should use a worst-case scenario based on the maximum extent of cable protection expected to be used.
4.8.6	-	Implications for other assessments in the ES	This aspect chapter should cross-refer to the relevant assessments of the ES, including assessments which consider the potential for vessel movements which may introduce new substrate which could facilitate

ID	Ref	Other points	Inspectorate's comments
			the spread of INNS (eg through ballast water, accidents and spillages) or which displace shipping traffic into designated wildlife sites.

4.9 Military and civil aviation

(Scoping Report Section 15)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.9.1	Table 15.5, impact 15.6	Practice and Exercise Area (PEXA)	The Scoping Report states that there are no aviation PEXA within or surrounding the airspace of the Proposed Development arrays. On this basis, the Inspectorate agrees that this matter can be scoped out of the ES.
4.9.2	Table 15.5, impact 15.7	Presence of marine cabling	The Inspectorate agrees that this matter can be scoped out of the ES as offshore cables will be below sea-level, and consequently there is no potential source/ receptor pathway for an impact to arise on aviation interests.
4.9.3	Table 15.5, impact 15.8	Presence of onshore cabling	The Inspectorate agrees that this matter can be scoped out of the ES as all of the onshore cables will be buried below ground level and consequently there is no potential source/ receptor pathway for an impact to arise on aviation interests.
4.9.4	Table 15.5, impact 15.9	Presence of the onshore substation	Whilst the onshore substation will have infrastructure up to 18 m, this is considered comparable to other buildings and structures within the AoS. Therefore, no impacts are anticipated to arise on aviation interests and the Inspectorate agrees that this matter can be scoped out of further assessment.
4.9.5	Table 15.5, impact 15.10	Impact to Secondary Surveillance Radar (SSR) systems	The Scoping Report states that the Civil Aviation Authority (CAA) advice is that impact to SSR systems may occur if wind turbines are located within 10 km of the radar source. As there are no such systems within this distance of the array areas, the Scoping Report seeks to scope this matter out of further assessment. The

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			Inspectorate agree on the basis of this information that this matter can be scoped out of further assessment for the ES.
4.9.6	Paragraphs 15.4.13 – 15.4.16 Table 15.3 Table 15.5, impacts 15.11 – 15.13	Impacts to Southend Airport, Norwich Airport and London Stansted Airport Primary Surveillance Radars (PSRs)	<p>Aviation radar systems located within the search area have been discounted due to the radar limited range of operation; details of those radar systems excluded from the analysis are provided in Table 15.3. Southend Airport PSR, Norwich Airport PSR, and London Stansted Airport PSR have been scoped out from the assessment for the reasons given in Table 15.3.</p> <p>The Inspectorate notes that NATS EN-route have indicated that the impacts on radar are considered to be acceptable (see Appendix 2 of this report) and therefore agrees that this matter can be scoped out of further assessment.</p>
4.9.7	Table 15.5, impacts 15.14 – 15.16	Impact to Royal Airforce (RAF) PSRs at RAF Marham, RAF Lakenheath, RAF Wattisham and RAF Honington	The Scoping Report states that the proposed array area locations are outside of the operational range of the radar for these RAF bases. On this basis the Inspectorate agrees that the impact on PSRs for these RAF bases can be scoped out of further assessment.
4.9.8	Table 15.5, impact 15.17	Impact to Kent International Airport	The Inspectorate agrees that this matter can be scoped out of the assessment for the ES because no decision on the reopening of the airport has been made. However, if this situation changes the ES should either include an assessment of the effects on Kent International Airport or a justification as to why no LSE would arise.
4.9.9	Table 15.5, impacts 15.18 & 15.19	Impact to aviation radar systems during the construction and decommissioning phases	The Scoping Report states that there will be no specific impact on aviation radar from construction and decommissioning activities over and above that identified at operation, and potential impacts arising from the presence of wind turbines are considered in more detail under operational impacts. The Inspectorate agrees that this matter can be scoped out of further assessment as permanent structures would only be present during the operational phase and impacts

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			arising from construction activity eg cranes and vessels will be separately assessed.
4.9.10	Table 15.5, impact 15.20	Use of helicopters during all phases of the Proposed Development	<p>The Scoping Report states that the continued safe operation of uncontrolled airspace between the shore and the Proposed Development would not be affected by the addition of support helicopter flights, because the airspace in which the helicopters will be operating is uncontrolled, and aircraft will operate on a 'see and be seen' basis with flights likely to be conducted under Visual Meteorological Conditions (VMC).</p> <p>The Inspectorate considers that insufficient evidence has been given in the Scoping Report to justify this matter being scoped out of the assessment for the ES; evidence should be provided in the ES to clearly justify why the impact of the use of helicopters during all phases of the Proposed Development would not be likely to have significant effects.</p>
4.9.11	Paragraphs 15.5.15 – 15.5.16	Transboundary impacts	The Scoping Report seeks to scope this matter out on the grounds that the array areas are located completely within UK airspace. The Inspectorate agrees that this matter can be scoped out of further assessment in the ES.

ID	Ref	Other points	Inspectorate's comments
4.9.12	Paragraphs 15.4.9 - 15.4.12	Radar Line of Sight (LOS) analysis	The Scoping Report states that final layout of the structures within the array areas will be designed post-consent. The radar LOS analysis to be undertaken to inform this scoping chapter provide theoretical radar LOS results to assessed radar systems. The anticipated final layout of the structures should be consulted on with relevant

ID	Ref	Other points	Inspectorate's comments
			consultation bodies prior to the submission of the ES so that an assessment of significant effects relating to this layout can be made.
4.9.13	Paragraphs 15.4.1 – 15.4.2	Consultation	The Scoping Report states that global airspace is divided into Flight Information Regions (FIRs) with different national bodies taking responsibility for Air Traffic Services (ATS) for aircraft. The boundary between London FIR (under the regulation of the UK CAA) and Amsterdam FIR (under the regulation of the Netherlands Inspectie Leefomgeving en Transport (ILT)) is located to the east of the array areas which both lie within the lateral confines of the London FIR. The Applicant should ensure that all relevant consultation bodies are informed on the details of the Proposed Development including the Netherlands ILT if necessary and any responses should inform the final assessment for the ES.
4.9.14	Table 15.4 Paragraphs 15.5.7 - 15.5.12	Mitigation measures	<p>The Scoping Report states that consultation with radar stakeholders will work towards reaching agreement of a technical primary radar mitigation scheme (if required) which will remove all impacts created by operational wind turbines.</p> <p>Any mitigation measures, including embedded and additional mitigation, such as the need for the proposed Emergency Response Co-operation Plan (ERCoP), should be clearly explained and based on evidence provided in the ES.</p>

4.10 Seascape, landscape and visual impact assessment

(Scoping Report Section 16)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.10.1	Table 16.4, impacts 16.1, 16.5 & 16.10	<p>Construction, operation impact (daytime) of array areas on:</p> <ul style="list-style-type: none"> • Suffolk, South Norfolk and North Essex Seascape Character Types 01,02 and 04; and • MMO Marine Character Areas 11 and 15 – 17 	<p>Scoping Report Figure 16.5 shows that these Seascape Character Types (SCT) and Marine Character Areas (MCA) lie within the 60km study area. No justification has been provided in the Scoping Report for their exclusion. In the absence of this information, the Inspectorate is not in a position to agree to scope this matter out of further assessment. Accordingly, the ES should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of LSE on the environment.</p>
4.10.2	Table 16.4, impacts 16.2, 16.6 & 16.10	<p>Construction, operation impact (daytime) of array areas on:</p> <ul style="list-style-type: none"> • Landscape Character Types (LCT) in Suffolk other than LCTs 5 -8 & 29; • Landscape Character Areas (LCA) in Essex other than LCAs F7 – F10; and • all LCT within Kent. 	<p>Scoping Report Figure 16.5 shows that only a very small area of Kent lies within the 60km study area. The Inspectorate agrees that LCT in Kent can be scoped out of further assessment. However, as no information is provided in the Scoping Report on the location of the other LCTs and LCAs it has not been possible for the Inspectorate to determine if they fall within the 60km study area. In the absence of this information, the Inspectorate is not in a position to agree to scope this matter out of further assessment. Accordingly, the ES should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of LSE on the environment.</p>
4.10.3	Table 16.4, impacts 16.3, 16.7 & 16.11	<p>Construction impact (daytime) of array areas on:</p> <ul style="list-style-type: none"> • Kent Downs Area of Outstanding Natural Beauty; 	<p>Scoping Report Figure 16.4 shows that these designated areas lie within the 60km study area. No justification has been provided in the Scoping Report for their exclusion. The Inspectorate notes the advice from East Suffolk Council (ESC) that special landscape areas no longer exist in their district and agrees that these can be scoped out of further assessment. However, in the absence of evidence</p>

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
		<ul style="list-style-type: none"> • Campsey Ashe Registered Park and Garden (RPG); • Glenham Hall (RPG); and • Special Landscape Areas (Suffolk). 	<p>supporting the exclusion of the other designated sites, the Inspectorate is not in a position to agree to scope this matter out of further assessment. Accordingly, the ES should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of an LSE on the environment.</p>
4.10.4	Table 16.4, impacts 16.3, 16.8	Construction, operation impact (daytime) of array areas on visual receptor outside the Zone of Theoretical Visibility (ZTV)	The Inspectorate agrees this matter can be scoped out of further assessment.
4.10.5	Table 16.4, impact 16.9	Night-time impact of the array areas lighting on visual receptors during operation and maintenance beyond the aviation lighting ZTV	The Inspectorate agrees this matter can be scoped out of further assessment.
4.10.6	Table 16.5, impact 16.13	Construction phase seascape, landscape and visual impacts of the offshore elements of the array areas outside the 60km radius Seascape, Landscape and Visual Impact Assessment (SLVIA) study area (Figure 17.1).	The Scoping Report seeks to scope this matter out on the basis that at distances over 60km, visibility of the Proposed Development will be limited. On the basis of the justification provided in paragraph 16.2.8, of the Scoping Report, the Inspectorate agrees this matter can be scoped out of the seascape, landscape and visual assessment.
4.10.7	Table 16.5, impact 16.14	Impacts of the construction of the array areas on physical aspects of landscape character.	The Scoping Report seeks to scope out this matter on the grounds that landscape character is likely to experience low levels of change during the construction phase. The Inspectorate agrees that this matter can be scoped out of the SLVIA

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.10.8	Table 16.5, impact 16.15	The seascape, landscape and visual impacts of the offshore cable route construction.	The Scoping Report seeks to scope out this matter on the grounds that much of the offshore construction activities involve vessels which are an existing seascape component and that the construction activities are temporary in nature. The Inspectorate agrees that this matter can be scoped out of the SLVIA.
4.10.9	Table 16.5, impact 16.16	Impact of the array area lighting on seascape and landscape character at night during construction.	The Scoping Report seeks to scope out this matter on the grounds that navigational lights associated with construction buoyage and construction vessels will not be visible from the coast. The Scoping Report states that aviation marking lights may be required on top of cranes, but this will be temporary in nature. The Inspectorate agrees that this matter can be scoped out of the SLVIA.
4.10.10	Table 16.5, impact 16.17	Operation and maintenance phase seascape, landscape and visual impacts of the offshore elements of VE array areas outside the 60km radius SLVIA study area (Figure 17.1).	The Scoping Report seeks to scope this matter out on the basis that at distances over 60km, visibility of the Proposed Development will be limited. On the basis of the justification provided in paragraph 16.2.8 of the Scoping Report, the Inspectorate agrees this matter can be scoped out of the SLVIA.
4.10.11	Table 16.5, impact 16.18	The seascape, landscape and visual effects of the operation of the offshore cable route.	The Scoping Report seeks to scope out this matter on the grounds that the offshore cable will be located below the surface of the sea. The Inspectorate agrees that this matter can be scoped out of the SLVIA.
4.10.12	Table 16.5, impact 16.19	Impact of the array area lighting on seascape and landscape character at night during operation and maintenance.	The Scoping Report seeks to scope out this matter on the basis that the proposed aviation lighting will not have significant effects on the perception of landscape or seascape character, which is not readily perceived at night in darkness, it also states that no attributes of seascape or landscape character will be changed as a result of the lighting of the array areas.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			<p>The Inspectorate agrees that impacts during maintenance can be scoped out but does not agree to scope out impacts during operation and considers that effects of lighting during operation should be assessed together with cumulative effects with other existing and proposed wind farms to be able to fully understand the potential impacts on seascape and landscape character. Accordingly, the ES should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of LSE on the environment.</p>
4.10.13	Table 16.5, impact 16.20	Impact of the operation and maintenance of the array areas on the views experienced by offshore visual receptors.	<p>The Scoping Report seeks to scope out this matter on the basis that the array will be located in the vicinity of other wind farms which are already operational and that offshore receptors are not of a high sensitivity. The Inspectorate also notes that offshore visual receptors are only likely to be subject to temporary effects and agrees that this matter may be scoped out of the SLVIA.</p>
4.10.14	Table 16.5, impact 16.21	Decommissioning phase seascape, landscape and visual impacts of the offshore elements of the array areas outside the 60km radius SLVIA study area (Figure 17.1).	<p>The Scoping Report seeks to scope this matter out on the basis that at distances over 60km, visibility of the Proposed Development will be limited. On the basis of the justification provided in paragraph 16.2.8 of the Scoping Report, the Inspectorate agrees this matter can be scoped out of the SLVIA.</p>
4.10.15	Table 16.5, impact 16.22	Impacts of the decommissioning of the array areas on physical aspects of landscape character.	<p>The Scoping Report seeks to scope this matter out on the basis that landscape character is likely to experience low levels of change during the decommissioning phase. The Inspectorate agrees that this matter can be scoped out of the SLVIA.</p>
4.10.16	Table 16.5, impact 16.23	Impact of the array area lighting on seascape and landscape character at night during decommissioning.	<p>The Scoping Report seeks to scope this matter out on the basis that navigational lights associated with decommissioning will not be visible from the coast and that any aviation marking lights required will be</p>

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			temporary in nature. The Inspectorate agrees that this matter can be scoped out of the seascape, landscape and visual assessment.
4.10.17	Table 16.6 & Table 16.7	Cumulative effects during construction, operation and maintenance with offshore windfarms within French, Belgian and Dutch territorial waters	The Scoping Report seeks to scope this matter out on the grounds that the offshore windfarms in French, Belgian and Dutch territorial waters are over 80km away from the UK coast. The Inspectorate agrees this matter can be scoped out of further assessment.
4.10.18	Table 16.5, impact 16.20	Impact of the operation and maintenance of the array areas on the views experienced by offshore visual receptors.	The Scoping Report seeks to scope out this matter on the basis that the array will be located in the vicinity of other wind farms which are already operational and that offshore receptors are not of a high sensitivity. The Inspectorate also notes that offshore visual receptors are only likely to be subject to temporary effects and agrees that this matter may be scoped out of the SLVIA.

ID	Ref	Other points	Inspectorate's comments
4.10.19	Table 16.3	Receptors	It is noted that many of the viewpoints identified in Table 16.3 include the Suffolk Coast Path as a receptor. Consideration should be given to the effects of sequential views of the Proposed Development (both offshore and onshore) by people using the coast path and the potential for a series of insignificant effects to become significant cumulatively.
4.10.20	Figure 16.3	Viewpoints and ZTV	Figure 16.3 of the Scoping Report shows the viewpoint locations for the SLVIA. The locations are shown as being largely at coastal areas or a few miles inland, however, the ZTV shading clearly shows that the blade tip would be visible much further inland. The ES should justify why additional viewpoints further inland were not included within the SLVIA.

ID	Ref	Other points	Inspectorate's comments
4.10.21	Paragraphs 16.4.33 & 16.4.39	Viewpoints	<p>The Scoping Report states that viewpoints selected for Galloper, Greater Gabbard and East Anglia TWO projects will be used in the assessment. The Inspectorate advises that the Applicant should consider also using viewpoints suggested for North Falls offshore wind farm. The Applicant should seek to agree the range of viewpoints with relevant stakeholders. The Applicant's attention is drawn to the comments from ECC and Suffolk County Council (SCC) in Appendix 2 of this report on this point.</p> <p>The Scoping Report also states that "<i>further photomontages will also be produced from up to five key viewpoints to be agreed with stakeholders, showing the existing night-time view alongside a representation of the appearance of visible aviation and marine navigation lighting</i>". The Inspectorate considers that justification should be provided in the ES for the limitation to only five viewpoints. The Applicant should discuss this issue with stakeholders and increase the number of viewpoints if necessary.</p>
4.10.22	Paragraph 16.4.36	Written assessment of illustrative viewpoints.	<p>The Scoping Report states that a baseline panorama and wireframe visualisation will be produced, but that a written assessment of the visual effects from these viewpoints will not be included in the SLVIA. The Inspectorate considers that a written assessment will be required to understand the impacts of the Proposed Development and fully assess its effects.</p>
4.10.23	Paragraph 16.4.39	Photomontages	<p>The Scoping Report states that photographs for photomontages will be taken in summer represent the greatest visibility of the turbines. The photographs should also be taken at the time of day when visibility is greatest. The Applicant should take account of the advice from ESC, ECC and SCC in Appendix 2 of this report.</p>

ID	Ref	Other points	Inspectorate's comments
			The ES should also include photomontages prepared during winter months to reflect views when trees are not in leaf and therefore visibility may be increased.
4.10.24	-	Guidance	<p>The Inspectorate considers that the following guidance should also be used in the assessment in the ES:</p> <ul style="list-style-type: none"> - The National Historic Seascape Characterisation Consolidation (Land Use Consultants, 2018) should be used within the assessment for Historic Seascape Characterisation. - Technical Guidance Note (TGN) 02-21 'Assessing the Value of Landscapes outside National Designations'

4.11 Marine archaeology and cultural heritage

(Scoping Report Section 17)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.11.1	n/a	n/a	No matters have been proposed to be scoped out of the assessment

ID	Ref	Other points	Inspectorate's comments
4.11.2	Paragraphs 17.2.1 – 17.2.3	Study area	The Scoping Report states that the proposed study area represents an industry standard. The Inspectorate notes that many of the potential impacts from the Proposed Development result from changes to marine physical processes. It is not clear why the study area to be used for the assessment is different to that proposed for the assessments of physical processes in Chapter 7 of the Scoping Report. The ES should provide a justification for the extent of the study area used in the assessment which addresses this point.
4.11.3	Paragraph 17.2.4	Geographic scope	The marine archaeological and cultural heritage chapter of the Scoping Report refers to a geographic scope within the intertidal zone up to Mean High Water Springs. The onshore cultural heritage chapter includes the intertidal zone down to Mean Low Water Springs. The Scoping Report states that this 'intertidal overlap' is to ensure there is total coverage of the offshore area of search between the two chapters. The ES should ensure that there is no 'double counting' of heritage receptors and that there is consistency between the assessments.
4.11.4	Table 17.1	Data sources	The assessment should consider the following additional data sources:

ID	Ref	Other points	Inspectorate's comments
			<ul style="list-style-type: none"> National Historic Seascape Characterisation Consolidation (Land Use Consultants, 2018). Sturt, Fraser and Dix, Justin K., EMU Ltd. (2009) The Outer Thames Estuary Regional Environmental Characterisation (09/J/1/06/1305/0870) London, GB. ALSF/MEPF (DEFRA) 145pp.
4.11.5	Table 17.5, paragraph 17.6.1	Methodology	<p>The Scoping Report proposes to undertake archaeological assessments of available marine geophysical and geotechnical survey data, and based on known receptors, establish Archaeological Exclusion Zones. No new surveys are explicitly proposed within the scope of the ES. The production of an Outline Marine Written Scheme of Investigation (WSI) is proposed to outline the methodological approach to the post-consent mitigation measures.</p> <p>The baseline environment should be established with agreement from relevant stakeholders. Desk-based sources of information should be corroborated with survey work. The Inspectorate recommends that a WSI is developed at the early stage of survey commissioning to set out methodological approaches for survey data analysis, such as geophysical, geotechnical and visual inspection techniques. Following the analysis, any proposed mitigation measures should be outlined in an archaeological mitigation strategy.</p>
4.11.6	Paragraph 17.4.10	Baseline – peat	<p>The Report notes that although there are no recorded peat deposits at the landfall site, peat has been recorded in adjacent areas. Consequently, there is some potential for peat to be present at the landfall. The Applicant should ensure that presence of peat deposits is considered in informing alternative route options.</p>
4.11.7	Paragraph 17.5.1	Guidance	<p>The ES should take into consideration the following additional guidance:</p>

ID	Ref	Other points	Inspectorate's comments
			Gribble, J. and Leather, S. for EMU Ltd. (2011) Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector. Commissioned by COWRIE Ltd (project reference GEOARCH-09).
4.11.8	Paragraph 17.5.12	Study area for cumulative effects	The Inspectorate notes that an initial study area of 50km around the array areas and offshore AoS has been proposed which may be subject to revision as the Proposed Development progresses. The ES must clearly describe the final extent of the study area and explain how it reflects the zone of influence for the Proposed Development.
4.11.9	Paragraphs 17.5.18 – 17.5.19	Transboundary impacts	It is not clear from the wording in the Scoping Report if the ES will deal with transboundary impacts on marine archaeology or not. The ES should either include an assessment of transboundary effects or provide a justification as to why these would not arise.

4.12 Infrastructure and other marine users

(Scoping Report Section 18)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.12.1	Paragraph 18.4.12	Atlantic Crossing 1 and UK-Netherlands 12 telecommunications cables	The Scoping Report seeks to scope this matter out on the grounds that both cables are disused. The Inspectorate agrees that this matter can be scoped out of further assessment.
4.12.2	Paragraph 18.4.22	Impacts on military practice and exercise areas (PEXA)	Figure 18.2 shows that the Proposed Development would cross several PEXA. The Scoping Report states that the Applicant has consulted with the Ministry of Defence (MOD) on this matter and no concerns were raised. The Inspectorate notes that the response from the MOD (see Appendix 2 of this report) does not address this point. The ES should provide information on the PEXA and either provide an assessment of effects or a justification as to why no LSE would arise.
4.12.3	Table 18.4, impact 18.14	Effects on wind farm arrays	The Scoping Report seeks to scope this matter out on the grounds that there would be no spatial overlap with existing or proposed OWF arrays so there would be no pathway for LSE. However, as described under ID 4.12.12 below, the Inspectorate has concerns about the definition of the study area for the Proposed Development. The Inspectorate is not in a position to agree to scope this matter from the assessment. Accordingly, the ES should include an assessment of these matters or the information demonstrating agreement with relevant stakeholders and the absence of LSE.
4.12.4	Table 18.4, impact 18.15	Effects on carbon capture and storage sites (CCS)	The Scoping Report seeks to scope this matter out on the grounds that there would be no spatial overlap with existing or proposed CCS sites so there would be no pathway for LSE. Notwithstanding the Inspectorate's concerns about the definition of the study area, the Inspectorate agrees that this matter can be scoped out of further

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			assessment. Should proposed CCS sites be identified within the study area in future, the ES would need to address this matter.
4.12.5	Table 18.4, impact 18.16	Effects on active, closed or disused disposal sites	The Scoping Report seeks to scope this matter out on the grounds that there would be no spatial overlap with these sites so there would be no pathway for LSE. The Inspectorate does not agree that this matter can be scoped out of further assessment at present. See comments under ID 4.12.3.
4.12.6	Table 18.4, impact 18.17	Effects on oil infrastructure	The Scoping Report seeks to scope this matter out on the grounds that there would be no spatial overlap with any existing or planned extraction sites or pipelines so there would be no pathway for LSE. The Inspectorate does not agree that this matter can be scoped out of further assessment at present. See comments under ID 4.12.3.
4.12.7	Table 18.4, impact 18.18	Effects on nuclear facilities	The Scoping Report seeks to scope this matter out on the grounds that there would be no spatial overlap with any existing or planned nuclear facilities so there would be no pathway for LSE. The Inspectorate does not agree that this matter can be scoped out of further assessment at present. See comments under ID 4.12.3.
4.12.8	Table 18.4, impact 18.19	Effects on wave and tidal energy sites	The Scoping Report seeks to scope this matter out on the grounds that there would be no spatial overlap with any such sites so there would be no pathway for LSE. Notwithstanding the Inspectorate's concerns about the definition of the study area, the Inspectorate agrees that this matter can be scoped out of further assessment. Should proposed wave and tidal energy sites be identified within the study area in future, the ES would need to address this matter.
4.12.9	Table 18.4, impact 18.20	Effects on UXO disposal sites	The Scoping Report seeks to scope this matter out on the grounds that there would be no spatial overlap with any existing or planned UXO disposal sites so there would be no pathway for LSE. The

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			Inspectorate does not agree that this matter can be scoped out of further assessment at present. See comments under ID 4.12.3.
4.12.10	Table 18.4, impact 18.21	Alterations in wave energy direction and periods from the presence of infrastructure that could affect recreational users	The Scoping Report states that no measurable changes in wave energy at the coast are expected based on the assessments for similar projects including Galloper and Greater Gabbard OWF. The Inspectorate considers that it is premature to conclude this when the assessment of effects on physical processes has not been carried out. Accordingly, the ES should include an assessment of these matters or the information referred to demonstrating agreement with the relevant stakeholders and the absence of an LSE.
4.12.11	Paragraphs 18.5.11 – 18.5.12	Transboundary impacts	The Scoping Report seeks to scope out this matter on the grounds that effects would be localised; the EEZs for other European Economic Area states are at least 16km away. However, the Scoping Report also refers to various cables which could interact with the Proposed Development including the proposed Neuconnect Interconnector which would run between the UK and Germany. On the basis of the evidence currently available the Inspectorate is not convinced that effects on an EEA state would not arise. Accordingly, the ES should include an assessment of these matters or the information referred to demonstrating agreement with the relevant stakeholders and the absence of an LSE.

ID	Ref	Other points	Inspectorate's comments
4.12.12	Section 18.2	Study area	The definition of the study area in paragraph 18.2.1 of the Scoping Report is confusing. Figure 18.1 shows the study area comprising the array areas and the preferred offshore cable export route but not the area of the Outer Thames Estuary which is also stated to have been reviewed. On the basis of the evidence in the Scoping Report the

ID	Ref	Other points	Inspectorate's comments
			<p>Inspectorate is not convinced that the study area shown on Figure 18.1 is sufficient to capture the significant effects which could arise as a result of the Proposed Development. Table 18.3 states that displacement of activities or access would be considered for all phases of the Proposed Development but it is difficult to see how a meaningful assessment could be undertaken on the basis of the study area shown on Figure 18.1. It is also unclear how cumulative effects would be considered which is of particular concern given the proximity of the North Falls OWF to the Proposed Development. The ES should provide a clear justification for the extent of the study area and how it relates to the zone of influence for the Proposed Development.</p>
4.12.13	Table 18.3	Assessment methodology	<p>The Scoping Report has not provided a description of the methodology that would be used in the assessment or listed any guidance that might be used to inform the methodology. As such the Inspectorate has limited confidence that the assessment will be comprehensive. The ES should explain the methods behind the assessment and why they are considered suitable to provide a robust assessment of effects.</p>

4.13 Terrestrial ecology and nature conservation

(Scoping Report Section 19)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.13.1	Paragraph 19.5.12	Transboundary effects	The Applicant proposes to scope out major transboundary impacts on populations of migratory species. Given the early stage of the project, the Inspectorate considers that there is insufficient evidence to predict that significant transboundary effects will not arise and does not agree that this matter can be scoped out of the assessment at this stage. Accordingly, the ES should include an assessment of these matters or information demonstrating the absence of LSE.

ID	Ref	Other points	Inspectorate's comments
4.13.2	Paragraph 19.1.2	Cross – references to other chapters	The Inspectorate notes that effects on SSSIs within the onshore scoping study boundary are also considered in the Physical Processes aspect chapter of the Scoping Report. The Terrestrial Ecology and Nature Conservation chapter in the ES should cross-refer to the assessments in this aspect chapter.
4.13.3	Section 19.2	Study area	The Inspectorate notes the intention to further refine the study area as more information on the Proposed Development becomes available. Paragraph 19.2.6 states that information derived from noise, air quality and hydrology assessments and the presence of mobile species may also be used to define the study area. The Inspectorate considers that the assessments in the ES should be based on a clear understanding of the zone of influence of the Proposed Development so these factors should be considered as a minimum. The ES must provide clear justification as to how the final

ID	Ref	Other points	Inspectorate's comments
			study area reflects the zone of influence of the Proposed Development.
4.134	Paragraph 19.2.3	Baseline data	The Scoping Report states that species records have not been obtained from around 10% of the onshore AoS but the existing baseline data is sufficient and covers a wide enough geographical area to inform the approach and scope of the ecological surveys. The Inspectorate does not agree with this approach since the desk-based data may be relied on to inform the extent of ecological surveys. The Applicant should ensure that the desk-based assessment is as comprehensive as possible. The Applicant's attention is drawn to the advice from NE and ECC in Appendix 2 of this report in relation to additional sources of baseline data.
4.135	Paragraph 19.4.1	Designated sites	The Inspectorate notes the advice from NE (see Appendix 2 of this report) that candidate Local Wildlife Sites may also be present within the AoS. Since these sites are likely to include at least some priority habitat, the ES should include these sites where significant effects are likely.
4.136	Paragraph 19.4.10	Rare plant species	The Scoping Report states that rare plant species are likely to be very localised and associated with areas where conservation activities are being undertaken or set-aside/recently abandoned land. However, it is not clear how the methods described in the Scoping Report would lead to such land being identified for targeted survey. The ES should explain why the approach to identifying survey sites for arable weeds can be considered robust and if possible include evidence of agreement with relevant stakeholders.
4.137	Table 19.5, impact 19.2	Ancient woodland	The Inspectorate considers that in addition to identifying the location of ancient woodland, the ES should also identify the locations of veteran trees through appropriate desk and, where necessary, field-based survey. The ES should assess the effects of the Proposed

ID	Ref	Other points	Inspectorate's comments
			Development on veteran trees where significant effects are likely to occur.
4.13.8	Table 19.5	Consideration of indirect effects on ecological receptors	It is not clear from the impacts listed in Table 19.5 if the full range of indirect effects on ecological receptors will be considered in the assessments in the ES. Notably, potential hydrological effects on designated sites or priority habitats and lighting effects during construction and operation have not been included. The ES should explain how the indirect effects on ecological receptors have been identified and assessed.
4.13.9	Table 19.5	Habitat fragmentation	While direct loss of habitats is listed in Table 19.5 as a potential effect of the Proposed Development, habitat fragmentation is not explicitly listed. The Inspectorate considers that given the stage of the project and as the location and design of the onshore elements are yet to be defined, that potential significant effects from habitat fragmentation should be scoped into the assessment where significant effects are likely to occur.
4.13.10	Table 19.5, impacts 19.1 & 19.2	Potential effects from 'damage'	The Inspectorate notes that for the sake of brevity, the Scoping Report has combined all the effects on designated sites under the heading of 'damage'. The ES must describe all the individual forms of damage identified which would lead to significant effects on designated sites.
4.13.11	Table 19.5, impacts 19.1 & 19.2	Horizontal Direct Drilling (HDD)	The Inspectorate notes that HDD or similar trenchless methods of cable laying are being considered as a form of mitigation. However, these methods can create impact-pathways to sensitive habitats and designated sites through changes to water flow and release of potentially polluting drilling fluids. The impact of such construction methods should be addressed within the ES.

ID	Ref	Other points	Inspectorate's comments
4.13.12	Table 19.5	Effects on aquatic species and watercourses	Table 19.5 identifies potential effects on aquatic species and watercourses from accidental spillages of vehicle fluids from construction machinery. Based on the evidence provided in the Scoping Report, the Inspectorate considers that there is potential for other effects on these receptors, particularly as a result of watercourse crossings through changes to topography, channel morphology and flow during construction. These effects should be assessed in the ES where significant effects would arise. The assessment should also cross-refer and be consistent with the assessment of Hydrology and Flood Risk in relation to the Water Framework Directive.
4.13.13	Paragraph 19.5.7	Embedded design measures and seasonal constraints	The mitigation measures proposed in the ES should also take account of timings of migration and spawning periods for relevant species.
4.13.14	Paragraph 19.5.7	Mitigation for bat species	Mitigation measures should aim to maintain the movement of species across the wider landscape and avoid leaving any population isolated. The Applicant's attention is drawn to the advice from ECC on maintaining commuting routes for bats where sections of hedgerows are removed (Appendix 2 of this report).
4.13.15	Paragraph 19.6.3	Ground truthing of selected areas	The Inspectorate notes the intention to prepare an initial habitat map of the AoS using aerial imagery and the UKHab classification system with ground truthing by field survey at selected areas (such as proposed substation sites) where access is possible. The Scoping Report does not explain how areas would be selected for ground truthing. The ES should provide a rationale and a justification as to why the approach provides a robust baseline. In addition, access should not be treated as a reason not to carry out field surveys – there are legal routes available to the Applicant to gain access to land to carry out surveys which should be pursued if necessary.

ID	Ref	Other points	Inspectorate's comments
4.13.16	Paragraph 19.6.4	Wintering bird surveys	<p>The Scoping Report refers to wintering bird surveys being carried out in agricultural fields known to support or with potential to support key species located within the AoS plus 250m. No explanation is given as to why a 250m buffer is considered to be sufficient. The wintering bird surveys should extend to a 400m buffer as advised by NE (see Appendix 2 of this report) unless otherwise agreed with relevant stakeholders.</p>
4.13.17	Paragraph 19.6.8	Great crested newt	<p>The Inspectorate notes that NE has highlighted the existence of a district level licensing scheme in Essex for great crested newts (GCN). In the event that the Applicant chooses to pursue this, it would still be necessary to include information about effects on GCN in the ES.</p> <p>The Inspectorate understands that the DLL approach includes strategic area assessment and the identification of risk zones and strategic opportunity area maps. The ES should include information to demonstrate whether the Proposed Development is located within a risk zone for GCN. If the Applicant enters into the DLL scheme, NE will undertake an impact assessment and inform the Applicant whether their scheme is within one of the amber risk zones and therefore whether the Proposed Development is likely to have a significant effect on GCN. The outcome of this assessment will be documented on an Impact Assessment and Conservation Payment Certificate (IACPC). The IACPC can be used to provide additional detail to inform the findings in the ES, including details of information on the Proposed Development's impact on GCN and the appropriate compensation required.</p>

4.14 Archaeology and cultural heritage

(Scoping Report Section 20)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.14.1	Table 20-4, impact 20.7	Construction - Settings impact on assets greater than 500m away from the centre point of the onshore cable routes and other temporary disturbances (indirect permanent)	The Report states that the harm to the settings of assets will be more likely to result from noise and construction activity rather than damage to landscape settings or spatial relationships, and therefore a focused assessment area of 500m around the centre point of the cable routes would be appropriate. The Inspectorate agrees that assets beyond 500m away may be scoped out of the assessment. However, the Report does not consider the potential for construction traffic to impact on the setting of assets (eg through noise and vibration). The study area should therefore also include an appropriate buffer around the construction traffic affected road network, where significant effects are likely to occur.
4.14.2	Table 20-4, impact 20.8	Operation - Settings impact on assets greater than 2km away from permanent onshore installations ie the substation (indirect permanent)	The Scoping Report does not provide any evidence to support the statement that the settings of assets over 2km away would not be affected. However, the Inspectorate notes that 2km is a considerable distance so agrees that this matter can be scoped out of further assessment, subject to the ES including a ZTV which demonstrates that 2km is a sufficient distance to avoid effects on the setting of historic features. In the event that this cannot be achieved, the ES should include an assessment of this matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of LSE on the environment.

ID	Ref	Other points	Inspectorate's comments
4.14.3	Table 20-1	Sources of information	Table 20.1 lists sources of information that will be used to inform the baseline for the assessments in the ES. The responses from Historic

ID	Ref	Other points	Inspectorate's comments
			<p>England (HE) and ECC list the additional sources of information which they think should be taken into account (see Appendix 2 of this report).</p>
4.14.4	Paragraph 20.4.19	Technical guidance	<p>In addition to the documents listed, the Inspectorate considers that the following additional guidance documents should be taken into consideration:</p> <ul style="list-style-type: none"> • Principals of Cultural Heritage Assessment in the UK (Institute of Environmental Management and Assessment, Institute of Historic Buildings Conservation, Chartered Institute for Archaeologists 2021); • Historic England Advice Note 15 Commercial Renewable Energy Development and the Historic Environment (2021): https://historicengland.org.uk/images-books/publications/commercial-renewable-energy-development-historic-environment-advice-note-15/ • Historic England (2016) Preserving Archaeological Remains https://historicengland.org.uk/images-books/publications/preserving-archaeological-remains/ • Historic England (2019) Piling and Archaeology https://historicengland.org.uk/images-books/publications/piling-and-archaeology/
4.14.5	Paragraphs 20.4.20 - 22	Baseline archaeology – desk-based assessment	<p>The Scoping Report proposes a desk-based assessment to inform additional surveys that may be required. This desk-based assessment should include an assessment of the Palaeolithic/Pleistocene potential of the area to inform baseline conditions due to the importance of these deposits within the study area, as this information may not be fully represented in the Historic Environment Record.</p>

ID	Ref	Other points	Inspectorate's comments
4.14.6	Paragraphs 20.4.20 - 22	Baseline archaeology surveys	The Report states that further investigations such as geophysical survey and trial trenching will be considered " <i>if required</i> ". The ES must provide a clear understanding of the impacts on the known deposits, assess the impact of the route on previously unknown deposits (geophysics and trial trenching along the route and sub-station), and agree a mitigation strategy that can be submitted with the DCO application. The Inspectorate considers that an appropriate evaluation technique will need to be defined in consultation with the County archaeologists and Historic England. Supporting technical heritage information (full survey reports) should be included as appendices to the ES.
4.14.7	Paragraph 20.4.25	Impacts on setting	The report states that " <i>where it is found that the proposed change to the setting will not affect the significance of specific assets this will be noted in the ES and no further assessment of those assets undertaken</i> ". Justification should be provided in the ES to support screening out assets from further detailed assessment.
4.14.8	Table 20-2	Coastal Asset Clusters	The Applicant should ensure that the individual heritage assets making up the Coastal Asset Clusters are listed within the ES. Given the number of heritage assets within Harwich, the Applicant may wish to consider it as a potential additional coastal asset cluster.
4.14.9	Table 20-3	Indirect impacts	In respect of indirect physical impacts, the Inspectorate considers that there is potential for effects to below ground heritage assets arising from changes to groundwater levels and/ or movement of water through deposits. The Applicant should ensure that all relevant indirect impacts are agreed with consultation bodies and assessed in the ES where significant effects are likely to occur.
4.14.10	Paragraph 20.4.36	Mitigation of direct physical impacts	The Scoping Report states that mitigation of unavoidable direct physical impacts (including archaeological investigation, recording,

ID	Ref	Other points	Inspectorate's comments
			analysis and dissemination of the results) will be designed following the EIA and detailed within a WSI. Where reliance is placed in the ES on the use of a specific method as mitigation, the Applicant should ensure that such commitments are appropriately defined and secured.
4.14.11	Paragraph 20.4.40	Cumulative effects on coastal assets	The Scoping Report proposes to limit the other developments in the assessment of cumulative effects on coastal heritage assets to wind farm developments only. All types of plans and projects should be considered in the assessment of cumulative impacts where significant effects are likely to occur. The list of other developments should be agreed with the local planning authorities and the MMO.

4.15 Airborne noise and vibration

(Scoping Report Section 21)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.15.1	Paragraph 21.1.2	Offshore airborne noise during all phases of the Proposed Development	On the basis of the information presented in paragraph 21.1.2 of the Scoping Report about the types of offshore activity, and the distance of the array boundaries, the Inspectorate agrees that offshore airborne noise impacts are unlikely to result in significant effects and can be scoped out of further assessment in the ES. It is noted that the effects of construction noise at the landfall and along the nearshore export cable route. The Inspectorate agrees that this matter can be scoped out of further assessment in the ES.
4.15.2	Table 21.2, impact 21.10	Vibration effects arising from the operation of the onshore substation	The Scoping Report states that it is considered unlikely that the substation operation will lead to any significant vibration effects. Paragraph 21.7.5 states that with regard to the operational noise of the onshore substation, any mitigation measures are dependent on the significance of the effects on noise and vibration. At this stage the location of the onshore substation has not been confirmed so the distance to any human or ecological noise sensitive receptor (NSR) is unknown. The Inspectorate is not in a position to agree to scope this matter from the assessment. Accordingly, the ES should include an assessment of these matters or the information demonstrating agreement with relevant stakeholders and the absence of LSE.
4.15.3	Table 21.2, impact 21.11	Noise and vibration effects associated with the operation of the underground cable	The Scoping Report states that the operation of the underground cable will not lead to any significant noise and vibration effects. The Inspectorate is content that this matter can be scoped out of further assessment, subject to agreement with the relevant Environmental Health Officer.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.15.4	Table 21.2, impact 21.12	Construction, operation and maintenance and decommissioning of the offshore extent of the export cable route and the array areas on the nearest onshore NSRs	The Scoping Report states that noise impact during all phases of the Proposed Development from the export cable route and the array areas is scoped out as the distance to onshore NSRs would make noise inaudible. It is noted that the effects of construction noise at the landfall and along the nearshore export cable route. The Inspectorate agrees that this matter can be scoped out of further assessment in the ES.
4.15.5	Paragraph 21.9.1	Transboundary impacts	The Scoping Report seeks to scope this matter out on the grounds that impacts would be localised. The Inspectorate agrees that this matter can be scoped out of further assessment.

ID	Ref	Other points	Inspectorate's comments
4.15.6	-	Construction vehicles and plant	The ES should explain any assumptions used in the assessment. This should include the types of vehicles and plant to be used during the construction phase. Where this is not known then the ES should explain how the noise levels have been derived. The ES should include an assessment based on the 'worst case' for receptors, ie that within the application boundary the vehicles and plant are at the closest possible point to a receptor.
4.15.7	-	Study area for construction traffic noise	The Inspectorate notes that the noise assessment will follow the methodology in Design Manual for Roads and Bridges (DMRB) LA 111 and will use data from the transport assessment to ascertain additional vehicles on roads during construction. However, as presented in the Scoping Report, the onshore search area for noise does not encompass the full extent of the potential construction traffic routes. The final noise study area and identification of noise

ID	Ref	Other points	Inspectorate's comments
			sensitive receptors should be informed by the expected construction traffic routes.

4.16 Traffic and transport

(Scoping Report Section 22)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.16.1	Table 22.4, impact 22.7	Noise from traffic and transportation during construction	The Inspectorate notes that this matter is scoped into the assessment of airborne noise and vibration at impact 21.3, and on that basis agrees that it does not also need to be assessed as part of traffic and transport chapter.
4.16.2	Table 22.4, impact 22.8	Disruption to railway network and users during construction	The Scoping Report states that operation of rail services on the Sunshine Coast Line, including stations within the area of search, should not be affected by construction of the Proposed Development. However, no information is presented as to the potential number and location of crossings of the railway track and the feasibility of the preferred HDD method is not yet known. In the absence of this information, the Inspectorate is not in a position to agree to scope this matter out of further assessment. Accordingly, the ES should include an assessment of these matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of LSE on the environment.
4.16.3	Table 22.4, impact 22.9	Any traffic and transportation impacts during operation	On the basis that there would be no permanent employees during operation of the onshore components (eg underground cables and substation) and these components would require infrequent maintenance visits (circa once per week), resulting in a negligible number of additional vehicles on the highway network compared to the baseline position as described in Table 22.4 of the Scoping Report, the Inspectorate agrees that significant effects from operational road traffic associated with onshore components are unlikely to occur and assessment of this matter can be scoped out of

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			the ES. However, the ES should clarify the anticipated number and routeing of road vehicle movements during the operational phase.
4.16.4	Paragraph 22.8.1	Cumulative effects of traffic and transportation during operation	On the basis of the information set out at ID 4.16.3 above, the Inspectorate agrees that cumulative effects from operational road traffic associated with onshore components of the Proposed Development are unlikely to be significant and can be scoped out of the ES.
4.16.5	Paragraph 22.9.1	Transboundary effects	On the basis that traffic and transport impacts from road and rail will be localised within ECC, Tendring District Council (TDC), SCC and ESC administrative areas and not experienced across international boundaries, the Inspectorate agrees that significant transboundary effects are unlikely and this matter can be scoped out of the ES.

ID	Ref	Other points	Inspectorate's comments
4.16.6	Section 22.2	Study area	The Inspectorate notes that the onshore AoS has been broadly defined and will be further refined as more information becomes available about the Proposed Development. The baseline data gathering and assessments in the ES should be based on a study area which captures the full range of effects on both the strategic and local road networks, including any affected junctions. It should be agreed with relevant stakeholders wherever possible. The Applicant's attention is drawn to the comments from National Highways (NH) and SCC in Appendix 2 of this report.
4.16.7	Table 22.1	Data sources	NH has advised of additional data sources which should also be used as part of the baseline data in the ES (see Appendix 2 of this report).

ID	Ref	Other points	Inspectorate's comments
4.16.8	-	Transport modes	<p>The Inspectorate notes that there is limited information in the Scoping Report about any potential use of alternative modes of transport to road, eg rail and boat, and their likely impacts. Where use of alternative transport modes is proposed, the ES should include information about the expected split of transport modes and the frequency, location and type of movements associated with each mode. The worst case scenario for traffic and transport impacts should be established in the ES and the assessment of significant effects should be undertaken on that basis.</p>
4.16.9	Paragraph 22.3.3	Traffic surveys	<p>The Scoping Report states that these would be undertaken in August 2022 with several samples in a neutral month. The traffic surveys should include a full set of surveys for the neutral month rather than being restricted to several samples. The Applicant's attention is drawn to the comments from NH on this point (see Appendix 2 of this report).</p>
4.16.10	Section 22.5	Assessment methodology	<p>The Scoping Report states that the assessment will be undertaken with reference to the Guidance for Environmental Assessment of Road Traffic (GEART). No reference is made within the Scoping Report about potential effects to driver amenity; to pedestrians from fear and intimidation to pedestrians; and to sensitive receptors from vibration caused by heavy goods vehicles (HGV), which are identified in GEART. The ES should include an assessment of these matters where significant effects are likely or otherwise explain why significant effects are not expected.</p> <p>The Inspectorate also notes that NH and SCC have identified additional sources of guidance which should be used in the assessments (see Appendix 2 of this report). The methodology should be agreed with relevant stakeholders and supported by evidence of agreement wherever possible.</p>

ID	Ref	Other points	Inspectorate's comments
4.16.11	Table 22.3, impact 22.1	Driver severance and delay	The Scoping Report states that the worst case scenario used in the assessment will comprise the peak period of anticipated movements for each construction site, using an indicative construction programme. The ES should explain what assumptions have been made about the construction programme used to inform assessment and how it represents the worst case scenario for the purposes of identifying significant effects.
4.16.12	Table 22.3, impact 22.2	Collision risk data	The assessments should use the collision risk data for the previous five years rather than three years as stated in the Scoping Report. The Applicant's attention is drawn to the comments from NH and ECC in Appendix 2 of this report on this point.
4.16.13	Table 22.3, impact 22.4	Abnormal indivisible loads (AIL)	<p>The Scoping Report states that a qualitative assessment of abnormal indivisible loads (AIL) is proposed in the ES. This assessment should consider the worst case number of AIL and types of vehicles that will be required. If mitigation is required, it should be clear how this will be secured in the DCO.</p> <p>The Applicant should also consider whether use of existing river and rail connections for the transport of AIL could represent an environmentally better outcome than road transport.</p>
4.16.14	Table 22.3, impact 22.4	Hazardous and dangerous loads	Impact 22.4 in the Scoping Report is titled 'Hazardous and dangerous loads' but the accompanying text describes AIL only. It is unclear from the Scoping Report whether there is also potential for hazardous loads to be required as part of the construction, operation or decommissioning of the Proposed Development. This should be clarified within the ES, and where there is potential for hazardous loads that could give rise to significant effects, an assessment should be undertaken and presented in the ES accordingly.

ID	Ref	Other points	Inspectorate's comments
4.16.15	Table 22.3, impact 22.4	Users of Public Rights of Way (PRoW)	The ES should confirm whether any permanent diversions or closures of PRoW would be required during the operational phase. The ES should include an assessment of the impact of any permanent diversions and closures on users of PRoW including walkers, cyclists and equestrians, where significant effects are likely to occur.

4.17 Air quality

(Scoping Report Section 23)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.17.1	Table 23.4, impact 23.5	Emissions generated from operation of non-road mobile machinery (NRMM) during construction	<p>The Inspectorate notes that no information is presented in the Scoping Report about the location, number, type and duration of use of potential non-road mobile machinery (NRMM) and/ or potential impact pathways to receptors (human and ecological). It is also noted that there is potential for use of HDD, which has the potential to temporarily increase pollutant concentrations.</p> <p>The Scoping Report identifies a series of controls that the Applicant proposes to implement through a CoCP to avoid significant effects arising from emissions generated by NRMM during construction. A definitive commitment is not made to implementing all of the controls, ie in some instances it is stated that they would be used where feasible.</p> <p>Whilst the Inspectorate considers that with implementation of the stated measures it is possible that significant effects from emissions generated by NRMM would be avoided, there is insufficient information to agree that this matter can be scoped out of the ES. Accordingly, the ES should include an assessment of this matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of LSE.</p>
4.17.2	Table 23.4, impact 23.6	Operational phase traffic movements and other works/ activities	<p>Given the nature of the onshore components of the Proposed Development, eg a substation and underground cables, and that maintenance activities are expected to generate a negligible increase in road vehicles compared to the baseline conditions (as described at Table 22.4 of the Scoping Report), the Inspectorate agrees that it is unlikely that there would be a significant change in vehicle flows and therefore it is also unlikely that significant effects would occur in</p>

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			<p>respect of air quality. The Inspectorate agrees that this matter can be scoped out of further assessment. However, the ES should explain how the anticipated road vehicle movements associated with the operational phase, including those relating to offshore operational maintenance, relate to the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK) screening values set out at paragraphs 23.5.11 and 23.5.14 of the Scoping Report.</p> <p>The Scoping Report does not specify what is meant by 'other works/ activities' but the Inspectorate assumes that this relates to potential emissions from onshore plant and machinery being used during operation and maintenance. Whilst the Inspectorate considers that with implementation of the stated measures it is possible that significant effects from emissions generated by NRMM would be avoided, there is insufficient information to agree that this matter can be scoped out of the ES. Accordingly, the ES should include an assessment of this matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of an LSE.</p>
4.17.3	Paragraph 23.3.3	Project specific air quality surveys	<p>The Scoping Report states that it is not anticipated that primary air quality data will be collected and it is proposed to establish the baseline for air quality through the use of Defra background mapping and Defra/ TDC monitoring data. Figure 23.1 shows the location of diffusion tube (for NO₂) and automatic monitoring locations.</p> <p>The Inspectorate agrees with the Applicant's proposed approach to collection of baseline data, and that the suitability of publicly available data and need for supplementary project specific data collection will be reviewed and confirmed with relevant consultation bodies. The assessment in the ES should be carried out with reference to a robust baseline position reflecting the relevant study area, including an understanding of relevant pollutant concentrations.</p>

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.174	Paragraph 23.5.30	Transboundary impacts	On the basis that air quality impacts will be localised within ECC and TDC administrative areas and not experienced across international boundaries, the Inspectorate agrees that the Proposed Development is unlikely to give rise to significant transboundary air quality effects. This matter can be scoped out of further assessment.

ID	Ref	Other points	Inspectorate's comments
4.175	-	Offshore air quality impacts	<p>The Scoping Report considers the potential for likely significant effects arising from air quality impacts in the onshore area of search. It does not make reference to potential for air quality impacts relating to the offshore components of the Proposed Development during construction, operation and decommissioning.</p> <p>The ES should include information about any potential emissions from offshore activity, eg from vessels, including the type and expected volume of emissions. It should explain whether there are any impact pathways to relevant human and ecological receptors. Where significant effects are likely to occur, an assessment of this matter should be included within the ES.</p>
4.176	-	Study area	The ES should include a figure/ figures to identify the final study areas for each element of the air quality assessment, including the location of human and ecological receptors that have been considered.

4.18 Hydrology and flood risk

(Scoping Report Section 24)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.18.1	Table 24.4, impact 24.7	Operational effects on WFD status of ground or surface water bodies	The Scoping Report proposes to scope out operational effects as the onshore cable route and landfall will be fully reinstated following construction and thus there will be no significant change to surface land use, hydro-morphology, runoff regimes, hydrogeological recharge and no potential for pollution. On the basis that effects on surface and groundwater during construction will be assessed in the ES, the Inspectorate agrees that this matter can be scoped out of further assessment.
4.18.2	Table 24.4, impact 24.8	Accidental spillages and leakages from all stages of the Proposed Development	The Scoping Report proposed to scope out pollution effects from accidental spillages and leakages due to the implementation of a Code of Construction Practice (CoCP) and containment at source of any potential pollutants during all stages of the Proposed Development. The Inspectorate agrees that this matter can be scoped out of further assessment, subject to the ES identifying the potential sources of pollutants, the measures designed as mitigation and how these measures have been secured. Specific reference should be made to accidental releases of bentonite.
4.18.3	Paragraph 24.5.26	Cumulative effects	The Scoping Report proposes to scope out consideration of cumulative effects from cable laying during operation. The Inspectorate agrees that this matter can be scoped out of further assessment, as there are unlikely to be significant effects once cables are installed.
4.18.4	Paragraph 24.5.28	Transboundary impacts	The Applicant proposes to scope out transboundary effects from the onshore elements of the Proposed Development for hydrology and flood risk because of the localised nature of the effects. The

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			Inspectorate agrees that this matter can be scoped out of further assessment.

ID	Ref	Other points	Inspectorate's comments
4.18.5	Section 24.3	Baseline data	The information listed should also include groundwater vulnerability mapping as advised by the Environment Agency (EA) in Appendix 2 of this report.
4.18.6	Table 24.1, impact 24.4	Effects on groundwater resources	The ES should provide information on the potential disruption to groundwater flow as a result of excavations in the secondary aquifer and include an assessment if an LSE could arise. The Applicant's attention is drawn to the advice on this point from the EA (see Appendix 2 of this report).
4.18.7	Table 24.1	Effects from HDD	The ES should provide information on the potential effects of HDD, including effects on hydraulic continuity and groundwater quality. If LSE could arise then an assessment of these matters should be included in the ES. The Applicant's attention is drawn to the advice on this point from the EA (see Appendix 2 of this report).
4.18.8	-	Impacts on water supply and the public sewerage network	The Scoping Report does not refer to any potential impacts through increased demand during construction or disruption to water supply or sewer systems. The ES should provide information on this point and undertake an assessment if LSE could arise. The Applicant's attention is drawn to the comments from Anglian Water in Appendix 2 of this report.

4.19 Geology and ground conditions

(Scoping Report Section 25)

4.19.1	Table 25.5, impact 25.14	Operational impacts on geology and ground conditions	The Scoping Report seeks to scope out this matter on the grounds that significant ground disturbance is unlikely during the operational phase of the Proposed Development. In addition, contractors appointed to carry out maintenance activities would be advised on any risks identified during the construction phase and so would adopt appropriate working methods. The Inspectorate notes that effects on the environment arising from ground disturbance during construction would be assessed as part of the ES. The Inspectorate agrees that this matter can be scoped out on the basis that further impacts on ground conditions are unlikely to lead to additional LSE.
4.19.2	Table 25.5, impact 25.15	Loss of agricultural land during operation of underground cables	The Scoping Report seeks to scope this matter out on the grounds that the onshore export cable route would avoid potentially sensitive land uses. It also states that construction of the cable route would be carried out so as not to have any long-term impact on agricultural land. The Inspectorate notes that underground cables have potential to restrict agricultural uses during operation and that the area of restricted use should be quantified both in terms of extent and agricultural land grade. Accordingly, the ES should include an assessment of this matters or evidence demonstrating agreement with the relevant consultation bodies and the absence of LSE.
4.19.3	Table 25.5, impact 25.16	Routine maintenance effects on sterilisation of minerals & loss of agricultural land	The Scoping Report seeks to scope out this matter on the grounds that large-scale maintenance works are not expected to occur during the operational phase. The maintenance works which are expected to occur would be localised and subject to control measures to reduce risks and impacts. The Inspectorate notes that the sterilisation of mineral deposits is listed as an impact which would be covered in the

			assessment of construction effects. The Inspectorate agrees that this matter can be scoped out of further assessment.
4.19.4	Paragraph 25.5.25	Transboundary impacts	The Scoping Report states that impacts are likely to be localised, based on the information already gathered on geology and ground conditions within the AoS. The Inspectorate agrees that there are unlikely to be any pathways which could lead to effects on EEA states and therefore agrees that this matter can be scoped out of further assessment.

ID	Ref	Other points	Inspectorate's comments
4.19.5	Paragraph 25.6.6	Study Area	Paragraph 25.6.6 states that the study area will be defined with reference to the likely significance of the contamination sources. The Inspectorate considers that an appropriate, consistent buffer zone around relevant receptors (such as controlled waters) should be included, with justification provided of the size of buffer zone provided.
4.19.6	Table 25.3	Environmental designations	Table 25.3 identifies Holland on Sea Cliff SSSI as a relevant environmental designation. However, the Terrestrial Ecology chapter (Chapter 19) of the Scoping Report identifies three geological SSSIs (Holland-on-Sea Cliff, Ardleigh Gravel Pit and St Osyth Pit) which it states will be considered in the Geology and Ground Conditions chapter. The ES must ensure that all the relevant geological sites are included in the assessment.
4.19.7	Paragraph 25.5.11	Methodology – quantitative effects	Paragraph 25.5.11 states that “ <i>it will not be possible to quantify these effects (physical impacts and pollution) and so qualitative assessments will be carried out based on available knowledge and professional judgement</i> ”. The Inspectorate is unclear why quantitative assessment cannot be used. Paragraphs 25.8.8 and 25.6.4 state that

ID	Ref	Other points	Inspectorate's comments
			targeted ground investigations and quantitative risk assessments may be required. Where the results of these ground investigations and quantitative assessments are available in time for production of the ES, they should be included within the assessment.
4.19.8	Paragraph 25.5.15	Potential project impacts	<p>Paragraph 25.5.15 states that <i>"Following the method laid out above, the PEIR will present various risk assessments and consider the potential for existing ground conditions and UXO to harm future site users, damage future buildings, pollute water or the wider environment including plants. In this case, the risk assessments will show that baseline conditions across most of the site will comprise undeveloped agricultural land and that the site can be made suitable for its new use"</i>.</p> <p>On the basis of the evidence provided in the Scoping Report this statement appears to be premature and excludes potential sources of contamination on agricultural land from sources such as slurry, fertiliser, fuel storage and fertiliser use. The ES should identify potential risks and contaminant linkages from these sources.</p>
4.19.9	Table 25.4, impact 25.4	Leaks or spills of contaminants during construction	This table section states that <i>"Bulk Storage of potential contaminants is judged to be unlikely during construction"</i> . The ES should indicate how this is to be ensured, for example site-based restrictions or implementation of a Construction Environmental management Plan or similar. See comments under ID 4.18.2 above.
4.19.10	Table 25.4, impact 25.8	Ground gases	The Scoping Report States that <i>"Risks of ground gases will only be applicable if the ECR was located on or near significant deposits of fill with the potential to generate ground gas"</i> . The Inspectorate considers that the ES (informed where appropriate by targeted ground investigations) should also assess the potential for other sources of ground gas such as natural soils that are subject to contamination, natural soils with the potential to generate ground gases and other sources such as agricultural slurry etc.

ID	Ref	Other points	Inspectorate's comments
4.19.11	Table 25.4, impact 25.9	Aggressive chemical environment	The Scoping Report States that this risk applies to " <i>Structures and services laid in direct contact with contaminated soils and groundwater</i> ". The ES should also consider the potential for natural soils and groundwater conditions to lead to an aggressive chemical environment for services and structures.
4.19.12	Paragraph 25.5.20	Mitigation measures	This paragraph refers to the management of stockpiles during the construction phase. The ES should consider whether a Materials management Plan (MMP), and if required use of the Contaminated Land: Applications in Real Environments (CL:AIRE) Definition of Waste: Code of Practice (DOW:COP) and donor / receiver site process is required as a mitigation measure for the scheme.
4.19.13	Paragraph 25.5.20	Mitigation measures	The ES should also describe how soil would be handled and stored

4.20 Landscape and visual

(Scoping Report Section 26)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.20.1	Table 26.4, impact 26.1	Landscape and visual effects resulting from construction traffic	The Inspectorate agrees that this matter may be scoped out from the assessment due to the short term and localised nature of the effects during the construction period.
4.20.2	Table 26.4, impact 26.2	Effects on landscape and visual receptors resulting from the cable infrastructure during the operational phase.	The Scoping Report seeks to scope this matter out on the grounds that the significant effects will occur during construction and would decrease in significance following land restoration. At this stage, the precise route of the onshore cable corridor has not been finalised. As such, it is considered that the potential effects such as vegetation removal and change in appearance of land in the onshore cable corridor are not yet known. It is also unknown how effective restoration proposals are likely to be. In the absence of information such as evidence demonstrating clear agreement with relevant statutory bodies, the Inspectorate is not in a position to agree to scope this matter from the assessment. Accordingly, the ES should include an assessment of these matters or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of an LSE.
4.20.3	Table 26.4, impact 26.3	Effects on landscape and visual receptors resulting from maintenance activities at the substation for the Proposed Development.	On the basis that maintenance activities at the onshore substation will be infrequent and short in duration, the Inspectorate agrees this matter may be scoped out of the landscape assessment.
4.20.4	Table 26.4, impact 26.4	Night time landscape and visual effect during operation	The Scoping Report states that there may be some limited permanent lighting at the onshore substation or lighting associated with temporary construction or maintenance activities. However, these are

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			not expected to lead to significant effects. The Inspectorate considers that as the location and design of the onshore infrastructure has not yet been ascertained, the potential effects on the night time landscape cannot be fully understood. Accordingly, the ES should include an assessment of this matter or information demonstrating agreement with the relevant consultation bodies and the absence of an LSE. The ES should also include an assessment of cumulative effects with nearby infrastructure.
4.20.5	Paragraph 26.9.1	Transboundary impacts.	The Scoping Report states that impacts are likely to be localised and that transboundary impacts are unlikely. The Inspectorate agrees that there are unlikely to be any pathways which could lead to effects on EEA states and therefore agrees that this matter can be scoped out of further assessment.

ID	Ref	Other points	Inspectorate's comments
4.20.6	Paragraphs 26.2.1 & 20.2.6	Study area	It is noted that the study area is based on a set buffer around the onshore AoS. The Inspectorate appreciates that this is partly in response to the currently lack of uncertainty around the location of the National Grid substation and is likely to be refined. However, the ES should include a ZTV which demonstrates that the assessment of effects covers an appropriate area.
4.20.7	Paragraph 26.5.2	Viewpoints	Viewpoints for the onshore landscape and visual assessment have not yet been confirmed. The Inspectorate considers that effort should be made to agree viewpoints with relevant stakeholders. A range of viewpoints should be used to represent the various receptors who will be affected by the Proposed Development, including designated and non designated heritage assets and their settings. A figure showing

ID	Ref	Other points	Inspectorate's comments
			locations of viewpoints used for the assessment should be provided in the ES.
4.20.8	n/a	Guidance	The Technical Guidance Note (TGN) 02-21 'Assessing the Value of Landscapes outside National Designations' has recently been published and should be used within the assessment.

4.21 Socioeconomics and tourism

(Scoping Report Section 27)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.21.1	Table 27.3, impact 27.11	Impact of construction on demand for housing and schools	The Applicant states that the construction and decommissioning phases of the Proposed Development are expected to be relatively short-term activities that will not lead workers to relocate to the area with their families, and therefore there is not expected to be an influx of workers seeking housing and schools' services in the wider study area. The Inspectorate agrees this impact is unlikely to result in significant effects and this matter can be scoped out of further assessment in the ES.
4.21.2	Table 27.3, impact 27.12	Impact of construction, operation or decommissioning on indoor recreational facilities such as gyms	The Scoping Report states that (beyond potential traffic impacts addressed in Chapter 22) the Proposed Development is not expected to have an impact on indoor recreational facilities. Subject to any direct impacts due to cable routing decisions, the Inspectorate considers that the scale of impact is not likely to result in significant effects and agrees that this matter can be scoped out of further assessment in the ES.
4.21.3	Table 27.3, impact 27.13	Impact on the Local Area of Influence due to presence of onshore infrastructure during operational phase	The above-ground presence of the onshore infrastructure during the operational phase will be restricted to the onshore substation. On the basis that the visual impact of this will be assessed in the Landscape and Visual chapter of the ES, the Inspectorate agrees that this matter can be scoped out of further assessment in the ES.
4.21.4	Table 27.3, impact 27.14	Socioeconomic and tourism impacts during decommissioning	The Scoping Report argues that socio-economic and tourism effects arising from decommissioning works are likely to be of a similar nature, but of smaller scale and geographical extent, to effects experienced during the construction phase. No justification has been provided to demonstrate that the effects of decommissioning would

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			not be significant. In light of this the Inspectorate is unable to agree to scope this matter out. Accordingly, the ES should include an assessment of this matter or information demonstrating agreement with the relevant consultation bodies and the absence of an LSE.
4.21.5	Paragraph 27.5.13	Transboundary impacts	The Scoping Report seeks to scope this matter out of further assessment on the grounds that the effects of the Proposed Development would be localised and would not affect EEA states. The Inspectorate agrees that this matter can be scoped out of further assessment.

ID	Ref	Other points	Inspectorate's comments
4.21.6	Table 27.2, impacts 27.1 and 27.8	Skills shortages	The proposed assessment has not factored in the impact on the development on the local workforce skills base, particularly with respect to the potential cumulative impact with other major infrastructure. The ES should include an assessment of the likely skills shortages at the construction and operation stage to allow early-stage intervention plans to mitigate against this likelihood. The assessment of the impact on the labour market should set out clearly the expected number and nature of employment opportunities during each phase of the development.
4.21.7	Table 27.2	Impacts on the fishing industry	The impacts scoped into the assessment do not include any consideration of potential socio-economic impacts on the fishing industry in the region. The ES should include information on this and an assessment if LSE are likely to arise from the Proposed Development alone or cumulatively with other projects.
4.21.8	27.5.11	Cumulative effects	The Scoping Report proposes to assess the disruption caused to tourism assets and community facilities within the local impact area

ID	Ref	Other points	Inspectorate's comments
			<p>arising from concurrent construction of the Proposed Development and any other major infrastructure projects. The Inspectorate considers that this should include any project with potential to affect the same receptors as the Proposed Development and should not be confined to other OWF. In addition to this, the assessment of cumulative impacts to tourism should consider perception and propensity for visiting and subsequent impact upon tourism. This should draw on the cumulative impact set out in chapters:</p> <ul style="list-style-type: none"> • Seascape, Landscape and Visual; • Marine Archaeology and Cultural Heritage; • Infrastructure and Other Marine Users • Archaeology and Cultural Heritage; • Airborne Noise and Vibration; • Traffic and Transport; • Air Quality; and • Landscape and Visual.

4.22 Health

(Scoping Report Section 28)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.22.1	Table 28.2, impact 28.13	Impact on health due to air emissions including dust and emissions during operation	The Scoping Report states that only limited and intermittent traffic movements and other maintenance activity which will result in negligible air quality effects are expected during the operational phase, and no planned activities during the operational phase (such as excavation) are anticipated. However, the Scoping Report does not explain if back-up generators are likely to be required at the onshore substation. As the location of the onshore substation is also unknown it is not clear if sensitive receptors could be affected. The Inspectorate does not consider that sufficient evidence has been presented to allow it to scope out this matter. Accordingly, the ES should include an assessment of these matters or information demonstrating the absence of LSE.
4.22.2	Table 28.2, impact 28.14	Impacts on health due to water emissions during operation	The Scoping Report states that no planned activities during the operation phase are anticipated which could result in notable additional run-off into the water environment. The Inspectorate agrees that this matter can be scoped out of further assessment in the ES.
4.22.3	Table 28.2, impact 28.15	Impacts on health due to soil emissions (including hazardous waste and substances) during operation	The Scoping Report states that no planned activities during the operation phase are anticipated which could result in the mobilisation of contaminants and hazardous substances. Based on this information the Inspectorate agrees that this matter can be scoped out of the assessment. However, the reasons for the absence of LSE must be fully justified in the ES.

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.22.4	Table 28.2, impact 28.16	Disruption to local road network (reduced access to services and amenities) during operation	<p>The Scoping Report states that no disruptions to the local road network are anticipated due to the low numbers of vehicles anticipated to be required during the operation and maintenance phase.</p> <p>Based on low anticipated vehicle numbers, the Inspectorate agrees that this matter can be scoped out of further assessment in the ES. The ES project description should explain the likely number and frequency of visits during operation and maintenance.</p>
4.22.5	Table 28.2, impact 28.17	Impacts from major disasters (all phases)	<p>The Scoping Report states that offshore wind developments have a low risk of causing major accidents for the reasons set out in Table 28.2, and the risk of major accidents and/or disasters occurring associated with any aspect of the project, during the construction, operation and decommissioning phases is anticipated to be negligible.</p> <p>The Inspectorate does not consider that sufficient information has been presented within the Scoping Report to conclude that there would be no likely significant effects from potential major accidents and disasters in respect of the vulnerability of the Proposed Development to these impacts or for the Proposed Development to cause them. The Applicant is referred to the advice presented in paragraphs 3.3.13 – 3.3.14 of this report.</p>
4.22.6	Table 28.2, impact 29.18	Impacts on health due to exposure to Electromagnetic fields (EMFs) (all phases)	<p>The Scoping Report states that all electrical infrastructure will have to comply with International Commission on Non-ionizing Radiation Protection (ICNIRP) guidelines for public exposure and design of electrical infrastructure, and the impact will be of negligible magnitude. The Inspectorate agrees that this matter can be scoped out of further assessment in the ES on this basis.</p>

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
4.22.7	Table 28.2, impact 29.19	Impacts on health due to pests (all phases)	No pathways are anticipated to result in the increase of pests. The Inspectorate agrees that this matter can be scoped out of further assessment in the ES.
4.22.8	Table 28.2, impact 29.20	Impacts on health due to odours (all phases)	The Scoping Report states that no notable odours are anticipated during any of the phases of the project. The Inspectorate agrees that this matter can be scoped out of the assessment, although the need for such an assessment should be revisited once final route alignments have been agreed and the risk of impact on contaminated land has been fully evaluated.
4.22.9	Paragraphs 28.5.18 – 25.8.19	Cumulative effects	<p>The Scoping Report considers that due to the localised nature of any potential impacts, cumulative impacts are unlikely to occur unless there is overlap with the working areas and proposes that cumulative impacts will be considered following the creation of the shortlisting process and will seek to scope out cumulative impacts with the relevant consultees under the Evidence Plan process.</p> <p>The Inspectorate considers there is insufficient evidence to scope this matter out of the ES. Cumulative effects in terms of inter relationships with other developments, projects and activities should be considered, and where significant effects are likely to occur, these should be assessed within the ES. Accordingly, the ES should include an assessment of these matters or information demonstrating the absence of an LSE.</p>
4.22.10	Paragraph 28.5.21	Transboundary impacts	The Scoping Report states that the localised nature of the impacts associated with the Proposed Development mean that transboundary impacts can be scoped out of the assessment. The Inspectorate agree that this matter can be scoped out of further assessment on this basis.

ID	Ref	Other points	Inspectorate's comments
4.22.11	-	Vulnerable groups.	For human health matters scoped into the ES, the assessment should include consideration of the potential for vulnerable groups to experience particular effects and identify any mitigation measures accordingly. The Applicant should make effort to agree the groups likely to be affected with relevant consultation bodies. The ES should explain how these vulnerable groups have been identified.

5. INFORMATION SOURCES

5.0.1 The Inspectorate's National Infrastructure Planning website includes links to a range of advice regarding the making of applications and environmental procedures, these include:

- Pre-application prospectus⁵
- Planning Inspectorate advice notes⁶:
 - Advice Note Three: EIA Notification and Consultation;
 - Advice Note Four: Section 52: Obtaining information about interests in land (Planning Act 2008);
 - Advice Note Five: Section 53: Rights of Entry (Planning Act 2008);
 - Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements;
 - Advice Note Nine: Using the 'Rochdale Envelope';
 - Advice Note Ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects (includes discussion of Evidence Plan process);
 - Advice Note Twelve: Transboundary Impacts;
 - Advice Note Seventeen: Cumulative Effects Assessment; and
 - Advice Note Eighteen: The Water Framework Directive.

5.0.2 Applicants are also advised to review the list of information required to be submitted within an application for Development as set out in The Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009.

⁵ The Planning Inspectorate's pre-application services for applicants. Available from: <https://infrastructure.planninginspectorate.gov.uk/application-process/pre-application-service-for-applicants/>

⁶ The Planning Inspectorate's series of advice notes in relation to the Planning Act 2008 process. Available from: <https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/>

APPENDIX 1: CONSULTATION BODIES FORMALLY CONSULTED

TABLE A1: PRESCRIBED CONSULTATION BODIES⁷

SCHEDULE 1 DESCRIPTION	ORGANISATION
The Health and Safety Executive	Health and Safety Executive
The National Health Service Commissioning Board	NHS England
The relevant Clinical Commissioning Group	NHS North East Essex CCG
Natural England	Natural England
The Historic Buildings and Monuments Commission for England	Historic England
The relevant fire and rescue authority	Essex County Fire and Rescue Service
The relevant police and crime commissioner	Essex Police, Fire and Crime Commissioner
The relevant parish council(s) or, where the application relates to land [in] Wales or Scotland, the relevant community council	Thorpe-le-Soken Parish Council
	Great Oakley Parish Council
	Great Bentley Parish Council
	Little Clacton Parish Council
	Elmstead Parish Council
	Great Bromley Parish Council
	Ardleigh Parish Council
	Mistley Parish Council
	Lawford Parish Council
	Tendring Parish Council
Beaumont-cum-Moze Parish Council	

⁷ Schedule 1 of The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (the 'APFP Regulations')

SCHEDULE 1 DESCRIPTION	ORGANISATION
	Bradfield Parish Council
	Wix Parish Council
	Weeley Parish Council
	Little Bentley Parish Council
	Little Bromley Parish Council
	Frinton and Walton Parish Council
	St. Osyth Parish Council
The Environment Agency	The Environment Agency
The Joint Nature Conservation Committee	Joint Nature Conservation Committee
The Maritime and Coastguard Agency	Maritime & Coastguard Agency
The Maritime and Coastguard Agency - Regional Office	The Maritime and Coastguard Agency - Thames & East England
The Marine Management Organisation	Marine Management Organisation
The Civil Aviation Authority	Civil Aviation Authority
The Relevant Highways Authority	Essex County Council
The relevant strategic highways company	Highways England
Trinity House	Trinity House
Public Health England, an executive agency of the Department of Health	Public Health England
The Crown Estate Commissioners	The Crown Estate
The Secretary of State for Defence	Ministry of Defence

TABLE A2: RELEVANT STATUTORY UNDERTAKERS⁸

⁸ 'Statutory Undertaker' is defined in the APFP Regulations as having the same meaning as in Section 127 of the Planning Act 2008 (PA2008)

STATUTORY UNDERTAKER	ORGANISATION
The relevant Clinical Commissioning Group	NHS North East Essex CCG
The National Health Service Commissioning Board	NHS England
The relevant NHS Trust	East of England Ambulance Service NHS Trust
Railways	Network Rail Infrastructure Ltd
	Highways England Historical Railways Estate
Lighthouse	Trinity House
Civil Aviation Authority	Civil Aviation Authority
Licence Holder (Chapter 1 Of Part 1 Of Transport Act 2000)	NATS En-Route Safeguarding
Universal Service Provider	Royal Mail Group
The relevant Environment Agency	The Environment Agency
The relevant water and sewage undertaker	Affinity Water
	Anglian Water
The relevant public gas transporter	Cadent Gas Limited
	Last Mile Gas Ltd
	Energy Assets Pipelines Limited
	ES Pipelines Ltd
	ESP Networks Ltd
	ESP Pipelines Ltd
	ESP Connections Ltd
	Fulcrum Pipelines Limited
	Harlaxton Gas Networks Limited
	GTC Pipelines Limited

STATUTORY UNDERTAKER	ORGANISATION
	Independent Pipelines Limited
	Indigo Pipelines Limited
	Leep Gas Networks Limited
	Murphy Gas Networks limited
	Quadrant Pipelines Limited
	National Grid Gas Plc
	Scotland Gas Networks Plc
	Southern Gas Networks Plc
The relevant electricity generator with CPO Powers	Greater Gabbard Offshore Winds Limited
	Five Esutaries Offshore Windfarm Limited
	Galloper Wind Farm Limited
	North Falls Offshore Wind Farm Limited
The relevant electricity distributor with CPO Powers	Eclipse Power Network Limited
	Last Mile Electricity Ltd
	Energy Assets Networks Limited
	ESP Electricity Limited
	Forbury Assets Limited
	Fulcrum Electricity Assets Limited
	Harlaxton Energy Networks Limited
	Independent Power Networks Limited
	Indigo Power Limited
	Leep Electricity Networks Limited
	Murphy Power Distribution Limited
	The Electricity Network Company Limited
UK Power Distribution Limited	

STATUTORY UNDERTAKER	ORGANISATION
	Utility Assets Limited
	Vattenfall Networks Limited
	Eastern Power Networks Plc
	UK Power Networks Limited
The relevant electricity transmitter with CPO Powers	Diamond Transmission Partners Galloper Limited
	Greater Gabbard OFTO Plc
	National Grid Electricity Transmission Plc
	TC Gunfleet Sands OFTO Ltd
The relevant electricity interconnector with CPO Powers	BritNed Development Limited
	NeuConnect Britain Ltd

TABLE A3: SECTION 43 LOCAL AUTHORITIES (FOR THE PURPOSES OF SECTION 42(1)(B))⁹

LOCAL AUTHORITY ¹⁰
Tendring District Council
Essex County Council
Colchester Borough Council
Babergh District Council
Medway Council
Southend-on-Sea Borough Council
Thurrock Council
London Borough of Havering
London Borough of Enfield

⁹ Sections 43 and 42(B) of the PA2008

¹⁰ As defined in Section 43(3) of the PA2008

LOCAL AUTHORITY¹⁰
London Borough of Waltham Forest
London Borough of Redbridge
Hertfordshire County Council
Suffolk County Council
Cambridgeshire County Council

TABLE A4: NON-PRESCRIBED CONSULTATION BODIES

ORGANISATION
Royal National Lifeboat Institution
Maldon District Council
Rochford District Council
East Suffolk District Council

APPENDIX 2: RESPONDENTS TO CONSULTATION AND COPIES OF REPLIES

CONSULTATION BODIES WHO REPLIED BY THE STATUTORY DEADLINE:
Anglian Water
Colchester Borough Council
East Suffolk Council
Enfield Council
Environment Agency
Essex County and Tendring District Council (Joint response)
Health and Safety Executive
Historic England
Joint Nature Conservation Committee
Little Clacton Parish Council
London Brough of Havering
London Borough of Waltham Forest
Maldon District Council
Marine Management Organisation
Maritime and Coastguard Agency
Medway Council
Mid Suffolk and Babergh District Council
Ministry of Defence – Defence Infrastructure Organisation
National Highways
NATS Safeguarding
Natural England
North East Essex Clinical Commissioning Group
Suffolk County Council

Tendring District Council
Tendring Parish Council
Thorpe Le Soken Parish Council
UK Health Security Agency



Anglian Water Services

Thorpe Wood House
Thorpe Wood
Peterborough
PE3 6WT

www.anglianwater.co.uk

Our ref ScpR.5E.NSIP.21.ds

Helen Lancaster
Senior EIA Advisor
Environmental Services

The Planning Inspectorate

fiveestuaries@planninginspectorate.gov.uk

1 November 2021

Dear Helen

Five Estuaries Offshore Wind Scoping consultation

Thank you for the opportunity to comment on the scoping report for the above project. Anglian Water is the sewerage undertaker for the land identified as the Onshore Area of Search (Figure 1.2 and page 559) for the grid connection and related development. Anglian Water is also the water supply undertaker for the north west corner of the Onshore Scoping Area immediately to the east of Colchester. The response is submitted on behalf of Anglian Water in its statutory capacity.

Engagement, the draft DCO Order and assisting the applicant

Anglian Water would welcome discussions with Five Estuaries prior to the route and design fix for the onshore infrastructure and to assist the applicant before the PEIR consultation and the subsequent submission of the Draft DCO for examination. We would recommend discussion on the following issues:

- The Draft DCO Order including protective provisions specifically to ensure Anglian Water's services are maintained during construction
- Requirement for wastewater services and water supply for onshore infrastructure
- Impact of development on Anglian Water's assets and the need for mitigation
- Pre-construction surveys

1 Introduction

There are a significant number of existing Anglian Water assets including rising mains and sewers across the area and Anglian Water mains to the east of Colchester. Anglian Water works with

Registered Office
Anglian Water Services Ltd
Lancaster House, Lancaster Way,
Ermine Business Park,
Huntingdon, Cambridgeshire.
PE29 6XU
Registered in England

developers including those constructing projects under the 2008 Planning Act to ensure requests for alteration of sewers, wastewater and water supply infrastructure is planned to be undertaken with the minimum of disruption to the project and customers.

Works are conducted in accordance with the Water Industry Act 1991. The location and design of the onshore infrastructure should be refined by the applicant and will need to be defined with the assistance of Anglian Water. We note that unlike other windfarm schemes almost no reference has been made in the Report to onshore water and wastewater services and the potential impact of the onshore infrastructure construction on Anglian Water's services and customers. It is to be noted that the applicant (page 106, 5.9.3) refers to an ongoing exercise assessing the onshore grid connection footprint within the onshore area of search (page 35, figure 1.2). Anglian Water would want to be part of that assessment to ensure minimal disruption to customer services and to reduce or remove the need to divert or relocate pipelines with its attendant impacts included carbon emissions from construction. This is doubly important given the similarities between the onshore location and impacts of the project and the North Falls project (page 33, 1.1.15) and the consequent opportunity to reduce impacts, including cumulative impacts, through project coordination.

Anglian Water would have expected that the Scoping Report and consequently the Environmental Statement would include reference to existing sewerage infrastructure managed by Anglian Water and, if necessary, water supply infrastructure near Colchester. Maps of Anglian Water's assets are available to view at the following address:

<http://www.digdat.co.uk/>

3 Onshore

The Scoping Report neither explicitly scopes in or scopes out the potential impacts from construction on water and waste water infrastructure. At page 90, 4.6.9- 4.6.10 the applicant refers to projects to be considered for cumulative onshore impacts including pipelines. At page 105, 5.7.2, bullet point 4 the applicant advises that the selection of the landfall area included the consideration of 'The presence of other infrastructure assets & utilities. Anglian Water can confirm that the landfall location minimises the potential conflicts with wastewater infrastructure as the area is away from residential locations. The location does though restrict the options the applicant has for wastewater services during the onshore construction phase.

We note (page 105, 5.8.1) that the onshore cables will be buried underground. At page 106, 5.8.5 reference is made at bullet point 9 to the need to 'Avoid other services' as part of the final site selection of the onshore cable route. At page 409, 18.4.16 the applicants advise they have undertaken a preliminary view of waste water assets and identified the Clacton Waste Water Treatment works and its two outfalls. Anglian Water would welcome direct engagement with the applicant in the interactions between the project and Anglian Water's treatment and network assets. At page 546, table 25.4, line 25.9 the applicant references pipelines as pathways for contamination.

The Scoping Report touches at places on the impacts which the project may have on water and waste water assets and so by extension services for Anglian Water customers in Essex. No

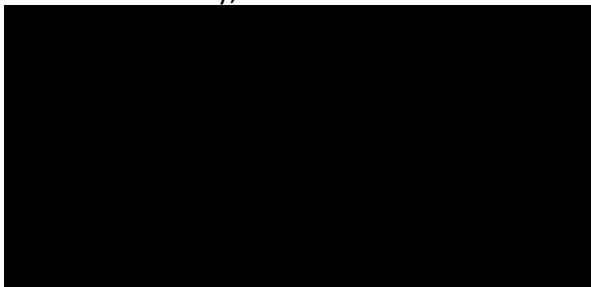
reference is made to Anglian Water as the statutory undertaker for sewerage and for water in the north east of the area of search. No engagement has been undertaken with Anglian Water and no data has been sought (see Table 6.2). We would urge the applicant to consider the impact on utilities early in cable route and design work to minimise impacts and to reduce to a minimum the carbon cost of diversions. As part of the applicant's next steps (page 107, 5.12.1) this engagement should be before the PEIR stage referenced at page 107, 5.10.3.

No reference is made to the need for upgraded and additional sewerage infrastructure or water supply for construction or operation. It is recommended that the Environmental Statement should include reference to identified impacts on the sewerage network and sewage treatment.

We note that (Table 24.1) the LLFA and EA datasets will be used for considering flood risk and would recommend that Anglian Water's flood records are also referenced. In the first instance Anglian Water recommends the use of Sustainable Drainage Systems (SuDS) for the onshore works to remove the risks of surface water inundation and pollution arising from surface water connections to the public sewer network. Anglian Water is responsible for management of the risks of flooding from surface water which are directed to foul water or combined water sewer systems. The risk of sewer flooding and any required mitigation within the public sewerage network should form part of a Flood Risk Assessment and Surface Water & Foul drainage strategy.

In conclusion, Anglian Water would want to minimise the disruption to customers and cost to the project of diverting, relocating and provision of waste water and water supply pipelines and infrastructure. Consideration of the location of these assets at an early stage in route and substation site selection will serve to reduce any project future delays in the late consideration of these aspects including their consideration in the Environmental Statement. From Anglian Water's experience one issue that early consideration would also avoid is the overly tightly drawn redline for the grid connection route which then fails to provide sufficient latitude to deliver the necessary pipeline diversions or connections for construction. Early engagement would then serve to enable pre submission agreement on Protective Provisions for those assets and the submission by the applicant of an agreed Statement of Common Ground with Anglian Water. This in turn reduces the Examining Authority questions for statutory undertakers and removes the possible need for changes to the project during Examination.

Yours sincerely,



Darl Sweetland MRTPI
Spatial Planning Manager

fiveestuaries@innogy.com

FAO Harriet Thomas

From: [REDACTED]
To: [Five Estuaries OSWF](#)
Cc: [Planning Services](#)
Subject: Scoping Report - your ref EN010115 (Our ref 212737)
Date: 02 November 2021 10:51:47

Dear Helen,

Colchester Borough Council do not have any specific comments to make on the scoping documentation.

We would like to be consulted on the NSIP in due course.

Many thanks

James

James Ryan
Principal Planning Officer
Place & Client Services
Colchester Borough Council, 33 Sheepen Road, Colchester, Essex, CO3 3WG.
☎: [REDACTED]

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Ms. Helen Lancaster
Senior EIA Advisor on behalf of the Secretary of State
The Planning Inspectorate
Environmental Services
Central Operations
Temple Quay House
2 The Square
Bristol, BS1 6PN

Date: 27 October 2021
Project Reference: EN010115-000012
Scoping Report Document Ref: 003444569-01
Our Ref: Five Estuaries Scoping Report Response
Enquiries to: Grahame Stuteley
Email: [REDACTED]@eastsoffolk.gov.uk

fiveestuaries@planninginspectorate.gov.uk

Dear Ms. Lancaster,

Planning Act 2008 and the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 – Regulation 10.

Application by Five Estuaries Offshore Wind Farm Ltd for an Order Granting Development Consent for the Five Estuaries Offshore Wind Farm - response from East Suffolk Council (ESC) to the Scoping Report submitted to the Secretary of State.

Thank you for your letter dated 05 October 2021 and the opportunity to comment on the Five Estuaries Offshore Wind Farm Scoping Report (30 September 2021).

ESC is not a host authority or a direct neighbouring authority of the onshore scoping area. The offshore array areas will however be visible from the Suffolk coastline and designated Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) and therefore we are providing comments in relation to the Seascape, Landscape and Visual Impacts of the project. Our response is provided on the basis that the Five Estuaries Offshore Wind Farm proposes an onshore grid connection located outside of Suffolk and beyond the East Suffolk Council District, however should this change in future, the scope of the Environmental Impact Assessment would need to be revisited.

Proposed Methodology

The following comments are provided for your consideration in relation to the proposed methodology as set out within the submitted Scoping Report:

- In reference to Sections 16.2.8 – 16.2.9 (page 338), ESC notes that the theoretical visibility of the proposed Five Estuaries wind turbines mainly occurs within 60km, beyond this distance visibility becomes restricted due to the geographic extent and earth curvature. The

proposed study area radius of 60km is therefore considered acceptable to ESC and confirms the conclusions of preliminary discussions held by the Applicant in August 2021. It is noted that if this distance requires refining as a result of the progress of further studies, additional consultation will take place with stakeholders which is welcomed.

- The Baseline Data applied in Section 16.3, Table 16.1 (pages 339 - 342) sets out the key sources of information for seascape, landscape and visual matters. This table has been reviewed and its contents are considered to be suitable and acceptable to ESC.
- ESC supports the recognition of existing windfarms in the assessment baseline, noting that this is an important factor for consideration.
- Table 16.2 (pages 349 – 351) sets out the landscape designations with relevance to the Seascape and Landscape Visual Impact Assessment (SLVIA) for Five Estuaries. ESC notes the reference to Special Landscape Areas (SLA); however these no longer form part of East Suffolk Local Plan policy and any reference to them should be removed from the assessment. The remaining designation items contained in Table 16.2 are agreed.
- Having regard to possible onshore visual effects, it should be noted that the maximum visual impact is likely to be experienced on late summer sunny afternoons/early evenings when there is a south-western airstream that turns turbine blades to ‘face’ towards the coast. When the sun is low in the sky behind the viewer, visual effects are expected to represent the worst-case scenario. Subject to weather conditions, views will be widely available from coastal locations both on the shore and from elevated locations back from the beach or cliffs. It is therefore recommended that assessors take this scenario into consideration when undertaking their assessment of onshore visual effects. Baseline photography should be taken late in the afternoon where possible, particularly from the most well used resort based public viewpoints, in order to capture these effects.
- It is noted on page 111 of the Scoping Report that initial discussions regarding the selection of viewpoints to inform the EIA were held on 15th July 2021, ESC attended this discussion and has reviewed the list of proposed viewpoints included in the SLVIA as listed in Table 16.3 (pages 335 – 358). We note that these contain both ‘representative’ and ‘illustrative’ viewpoints and can confirm that the list is acceptable to ESC.
- Table 16.3 includes night-time viewpoints; this is supported by ESC and is representative of the assessments undertaken for other projects on the Suffolk coast.
- Table 16.4 (pages 362 – 373), and section 16.3 therein, sets out the impacts proposed to be scoped in to the SLVIA. It is assumed that the Landscape Character Types listed to be scoped in will also be informed by relevant sections of the Suffolk Coastal Landscape Character Assessment. Table 16.4 is acceptable on that basis.

- Table 16.5 (pages 374 – 376) sets out the impacts to be scoped out of the SLVIA, these have been reviewed and are agreed by ESC.
- Sections 16.6.10 – 16.6.15 (page 382 - 383) state that ongoing consultation with relevant statutory and non-statutory organisations, the public and interested parties will be a key feature of the SLVIA process from the pre-application to examination stage. This is welcomed by ESC, and we look forward to the ongoing dialogue with the Applicant.
- The Baseline Data applied in Section 16.3, Table 16.1 (pages 339 - 342) and as listed in Section 16.5.3 (page 359) is acceptable to ESC, however we wish to emphasise the importance of the following documents when assessing the Suffolk Coast and AONB:
 - Suffolk Seascape Character Assessment <https://suffolklandscape.org.uk/landscape-typology/seascape-typology/> (Section 16.4.8, page 343)
 - Natural Beauty and Special Qualities of the Suffolk Coast and Heaths AONB <https://www.eastsuffolk.gov.uk/planning/national-infrastructure-and-energy-projects/sizewell-nuclear-power-station/aonb-special-qualities-document/> (Table 16.1, page 341)
 - Designation History Series <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-004113-SCC%20The%20Designation%20History%20of%20the%20Suffolk%20Coast%20and%20Heaths%20AONB%20220221.pdf>
 - Development in the setting of the Suffolk Coast & Heaths Area of Outstanding Natural Beauty (AONB) <https://www.suffolkcoastandheaths.org/wp-content/uploads/2021/01/ENDORSED-SCH-AONB-Position-Statement-on-Development-in-Setting-of-AONB-2015.pdf> (Table 26.1, page 553)

Assessment of sequential impacts on the Suffolk/England Coast Path

As part of the SLVIA the Applicant should also consider sequential visual effects on users of the Suffolk/England Coast Path. Furthermore, we note that the accumulation of multiple non-significant visual effects along such a route *may* when taken together be of significance. This assessment will also need to consider the cumulative and in-combination sequential visual effects with other projects and proposals.

Approach to consideration of visibility of the turbines

The seasonality of adverse impacts and the concentration of highest visibility days in certain period of the year, some of which coincide with peak visitor period, should also be a consideration and we refer the Applicant to the following published material as a guide to carrying out their own research and gathering baseline information:

<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010078/EN010078-001586-6.3.28.8%20EA%20ES%20Appendix%2028.8%20Offshore%20Windfarm%20Visibility.pdf>

<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010078/EN010078-001587-6.3.28.9%20EA%20ES%20Appendix%2028.9%20Met%20Office%20Vessel%20Visibility%20Data%20Study.pdf>

Assessment of the of the proposals on the Natural Beauty and Special Qualities of the AONB

ESC is pleased to see that the ‘*Suffolk Coast & Heaths AONB Natural Beauty and Special Qualities Indicators (2016)*’ document has been included in Table 16.1 (pages 339 – 342) which sets out the key sources of information applied for seascape, landscape and visual assessment. The [Natural Beauty and Special Qualities](#) of the AONB assessment describes how the purposes of AONB designation and the objective to “Conserve and Enhance Natural Beauty” is expressed, and this is an important consideration for this assessment.

Consideration of potential risks to the S82 purposes of designation of the AONB

Given the size and location of the proposed turbines in relation to the Suffolk Coast and Heaths AONB, it is considered that the Statutory Purposes of the designation may be put at risk by this development, both from its impacts alone and cumulatively with other developments. Therefore, it is considered that the effects of the development on statutory purposes are likely to be a key consideration for Statutory Consultees, Interested Parties, and the Secretary of State. Natural England will be able to provide further guidance on this issue as the advisory body to Government on protected landscapes, and we defer to their expertise in this matter. See <https://www.legislation.gov.uk/ukpga/2000/37/section/82>

Assessment of cumulative landscape and visual effects, including curtaining

Particularly in views from the northwest, it is anticipated that the proposal will contribute both alone and in combination with others to a curtaining of the horizon when viewed from the Suffolk Coast and Heaths AONB. The Applicant will need to carefully consider the extent and significance of these effects, and their implications for both the Natural Beauty of the AONB and the purposes of designation.

Scoping out of construction impacts

Table 16.5 (pages 374 – 376) seeks to scope out the impacts of construction, however noting the distance of the proposed Five Estuaries array offshore, and that construction impacts will not exceed the operation effects in terms of magnitude, they will both extend the duration of these effects and potentially interact with constructing projects both offshore and on the coast, (at Sizewell C for example). This is expected to generate adverse effects that should be understood and evaluated. In this respect the inclusion of two beach landing facilities during the Sizewell C construction phase strongly indicate that the Sizewell C development should be included in cumulative assessments.

Further consideration for consultees (Section 16.7 page 383)

Section 16.7 provides seven specific questions for consultees to consider in relation to the seascape, landscape and visual matters for the project. ESC has provided comments in this letter which address the questions raised as part of this consultation process.

Conclusion

East Suffolk Council's comments in relation to the seascape, landscape and visual section of the Scoping Report have been outlined above. We trust our comments are helpful and given due consideration to ensure that the environmental statement associated with the Five Estuaries Offshore Wind Farm Development Consent Order is robust.

East Suffolk Council is being consulted on and is aware of a number of energy related projects that may have an impact on our District. We welcome and support collaborative working between all applicants and the National Grid to ensure that the optimal solution is delivered. We expect this to involve coordination and the sharing of infrastructure where feasible to reduce the amount of infrastructure required onshore. This would align with intentions within the recently published Net Zero Strategy: Build Back Greener ([net-zero-strategy.pdf \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/101314/net-zero-strategy.pdf)), to *'adopt a new approach to onshore and offshore electricity networks to incorporate new low carbon generation and demand in the most efficient manner, taking account of the environment and local communities'* (p.94, October 2021).

Yours sincerely,

Grahame Stuteley
Senior Energy Projects Officer

The Planning Inspectorate
Environmental Services Central Operations
Temple Quay House
2 The Square
Bristol,
BS1 6PN

Please reply to: Sarah Odu
Email: Development.control@enfield.gov.uk
My ref: 21/03803/OA
Date: 2 November 2021

Dear Sir/Madam

Town and Country Planning Act 1990

NO COMMENTS

Proposed work: Development Consent for the Five Estuaries Offshore Wind Farm (Reference EN010115)
At: Five Estuaries Offshore Wind Farm

Thank you for your notification of the above development which was registered in this office on 5th October 2021.

This matter has been considered, and I now write to inform you that this Council has no comments to make on this proposal.

Thank you for consulting us in this matter.

Yours faithfully

Sarah Odu

IMPORTANT – Enfield residents should register for an online Enfield Connected account. Enfield Connected puts many Council services in one place, speeds up your payments and saves you time – to set up your account today go to www.enfield.gov.uk/connected



The Planning Inspectorate
Room 3/19A
Temple Quay House (2 The Square)
Temple Quay
Bristol
Avon
BS1 6PN

Our ref: AE/2021/126565/01-L01
Your ref: EN010115
Date: 27 October 2021

Dear Sir/Madam

PLANNING ACT 2008 (AS AMENDED) AND THE INFRASTRUCTURE PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2017 (THE EIA REGULATIONS) – REGULATIONS 10 AND 11

APPLICATION BY FIVE ESTUARIES OFFSHORE WIND FARM LIMITED (THE APPLICANT) FOR AN ORDER GRANTING DEVELOPMENT CONSENT FOR THE FIVE ESTUARIES OFFSHORE WIND FARM (THE PROPOSED DEVELOPMENT)

SCOPING CONSULTATION AND NOTIFICATION OF THE APPLICANT'S CONTACT DETAILS AND DUTY TO MAKE AVAILABLE INFORMATION TO THE APPLICANT IF REQUESTED

Thank you for your consultation dated 5 October 2021 on the Five Estuaries Offshore Windfarm Environmental Impact Assessment Scoping Report referenced 003444569-01 and dated 30 September 2021. We have reviewed the report and are generally in agreement with the scope. We have commented on each of the individual aspects of the report that are within our remit below.

Hydrology and Flood Risk

Flood Risk

We have reviewed the scoping report for proposed Five Estuaries Offshore Wind Farm referenced 003444569-01 and dated 30th September 2021. At present, we are satisfied with the scoping report and have no issues in regards to Flood Risk. When the FRA is drafted the below should be considered:

- The site lies within fluvial and tidal Flood Zones 3a, 3b, 2 and 1.
- The site outline covers main rivers Holland brook, Tendring brook, Bentley brook, Little Bentley brook, Weeley brook and Kirby brook
- We have modelled data that covers this area that can be requested to be used in

Environment Agency
Iceni House Cobham Road, Ipswich, IP3 9JD.
Customer services line: [REDACTED]
www.gov.uk/environment-agency

Cont/d..

the FRA:

- Clacton Coastal (2018)
 - Holland Brook (2006)
 - Kirby Brook (2015)
- Any built development within the fluvial 1:100 plus climate change outline should be compensated for on a level for level basis
 - Environmental Permitting Regulations permits will be required (further information is provided below).
 - An evacuation plan should be included
 - Climate change for peak river flow was updated in July 2021. Please see our latest guidance: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

Further advice relating to flood risk can be found in appendix 1 at the end of this letter.

Groundwater Resources

Please note that we have not provided comments in relation to groundwater resources on the offshore part of the scheme as this is within the MMOs remit.

Whilst the bedrock in the area comprises low permeability London Clay, it is overlain by shallow superficial aquifers (sometimes interbedded with clays) which support surface water features and are sometimes used as a resource.

For Horizontal Directional Drilling (HDD) at the landfall it will be crucial that the work is carried out in a manner that ensures that there is no significant adverse change to either a) the existing hydraulic continuity between the sea and the underlying strata, or between strata, or b) groundwater quality. The same protection must also be accorded to shallow aquifer strata and surface water features for inland HDD works.

For all HDD work the Code of Construction Practice (CoCP) or Environmental Management Plan (EMP) should include full details of the assessment and methodologies that will be followed in order to protect the water environment. This should include the selection of the correct drilling fluid pressure to prevent breakout, the installation of casing in a manner that will maintain existing hydraulic relationships, the need for inert drilling fluids, and the potential for clogging of the aquifer(s). There should be a monitoring plan that will allow breakouts to be identified rapidly and details of mitigation measures – both down hole and at the surface – in the case of a significant escape.

For all vulnerable ground and surface water features, hydrogeological impact assessments will be required for both HDD and dewatering, and in some cases, excavation, with the degree of detail being commensurate with the significance of the likely adverse effects. Dewatering is likely to require an abstraction licence.

We are pleased to note the commitment to review all public and private abstractions. When determining the value of a receptor, the importance of abstractions to the individual should be considered as opposed to solely the regional or local importance of an aquifer i.e. where a groundwater abstraction is the sole source of private water supply it should be considered of high value; no derogation of such an

abstraction will be permissible without the consent of the owner.
Questions at the end of Chapter 24 Hydrology and Flood Risk:

Do you agree that the data sources identified (Section 24.3) are sufficient to inform the onshore hydrology, hydrogeology, and flood risk baseline for the VE PEIR and ES?

Groundwater Vulnerability mapping (available via Magic) should be included.

Have all potential impacts resulting from VE been identified for water environment receptors?

The potential for excavations in the shallow aquifer to cause temporary changes to groundwater flow needs to be included, and the need to assess and mitigate resulting impacts on groundwater dependent water features (shallow abstractions, watercourses, wetlands, ponds etc). The potential for HDD to cause impacts (as opposed to being a mitigation measure to avoid trenched crossings at watercourses) should also be included, as should the potential impacts of dewatering on proximal controlled waters receptors.

Do you agree that the impacts described in Table 24.4 can be scoped out?

It is acceptable to scope out accidental spillages on the assumption that there will be an opportunity to review prevention and mitigation measures in the CoCP and/or EMP.

For those impacts scoped in (Table 24.3), do you agree that the methods described are sufficient to inform a robust impact assessment?

Yes.

Do you agree that the embedded mitigation measures described provide a suitable means for managing and mitigating the potential effects of VE on hydrology, hydrogeology, and flood risk for onshore receptors?

Yes, as long as HDD itself does not adversely impact hydraulic continuity or water quality, and the points on dewatering and groundwater flow are addressed (please see earlier comments).

Environmental Permitting

The landfall cables of this development may require a Flood Risk Activity Permit (FRAP). Without further detail on exactly where this location will be it is unclear if a FRAP will be required. From our point of view we need to know whether the work will impact the Tendring Wall, which is the tidal embankment between Holland-on-Sea and Frinton, which is hard to comment on without the onshore cable route being confirmed. What we will be looking to confirm is whether any of the work may impact the integrity of the defence or impede our access either during or after the work. We require access to maintain both the landward and seaward face of the wall as we have to carry out concrete repairs.

Once a location has been determined further advice can be sought from the Coastal Partnerships and Strategic Overview team in East Anglia via FDCCoastal@environment-agency.gov.uk.

Any work within 16 metres of a sea defence, as defined under The Environmental

Permitting (England and Wales) Regulations 2016, Schedule 25, Part 1, may require a FRAP.

The location of the proposed site is too far out to sea to have any real impacts for Flood Risk, the main area of focus is likely to be where the proposal meets the land and any potential impacts to the integrity of any existing defences and assets, and the relevance to the management options for the frontage.

The proposed location on Drawing 1.2 (Page 35 of the report) shows the likely landfall position between Frinton and Holland on Sea, and we understand the reasons for this location and it does make sense.

What the applicant will need to consider is the longer term management intent for the area as indicated in the Essex to South Suffolk Shoreline Management Plan (ESSSMP). As stated in the report (Section 7.4.15) the proposed location is within Management Unit C, which has the majority of the frontage being identified as Hold The Line for all 3 Epochs through until 2105. However, the proposed location falls within the Policy Development Zone (PDZ) C2 which actually has a dual policy within the ESSSMP for Epoch 3 (2055-2105) of Hold the Line/Managed Realignment. Therefore the location, construction and access/ egress to any infrastructure considered within the area will need to take account of the longer term management intent of the area, which could become a managed realignment site. As such, any proposed infrastructure would need to ensure it is adequately protected against flood risk as part of the planning stage.

We note that the proposed Expert Topic Groups relating to the proposed onshore works have been delayed until early 2022, and therefore without any further information it is difficult to provide any further comments at this stage.

Geology and Ground Conditions

Contaminated Land

We note that there appears to be a tendency to carry out the desk based assessment of land contamination sources *following* route selection (for example in section 25.6.2). We would suggest that in fact, key sources of known contamination are considered for the route selection itself – for example avoiding the historic landfills as part of the route planning. Due to the nature of the proposal, it would be a simpler process to, where possible, avoid areas of land contamination or landfills entirely.

Questions at the end of Chapter 25 Geology & Soils

Do you agree that the risks and impacts associated with contaminated land are unlikely to be significant across the large majority of any landfall, cable corridor and substation, and that any subsequent, more detailed assessments are most likely to target localised impacts?

Yes

Do you agree that the proposed phased approach to the assessment of risk and associated impacts are sufficient to inform the onshore baseline ground conditions for the VE ES?

Yes

Are there any potentially significant sources of ground contamination/contaminative activities within the UAOS that have not been identified by the initial data review?

This should be reviewed once the search area is reduced as it is currently too broad.

Have all potentially sensitive receptors within the wider UAOS been identified?

Yes

Do you agree that the impacts described in Table 25.5 can be scoped out?

Yes

For those impacts scoped in Table 25.4, do you agree that the methods described are sufficient to inform a robust impact assessment?

Yes

Fisheries, Biodiversity and Geomorphology

Having reviewed all the sections applicable we are satisfied that the series of approaches taken for EIA scoping are reasonable.

We have previously highlighted the residual risks of using HDD for cable laying under watercourses and designated sites. Leaks present a very real long term threat to water quality and key habitats and their biodiversity. Landfall through the Holland Haven marshes SSSI may be a complex location to achieve the ideal safe drilling through impermeable geology and this will need careful consideration. All watercourse crossings will also need to be carefully planned to be absolutely safe.


I've had a quick scan through of the sections you've highlighted, as I'm about to go on leave.

Yours faithfully



Mr Liam Robson
Sustainable Places - Planning Advisor

Direct dial 

Direct e-mail @environment-agency.gov.uk

Appendix 1 – Further Flood Risk Advice

Further Advice

Sequential approach on site

If the site contains a range of Flood Zones, the sequential approach should be applied within the site to direct development to the areas of lowest flood risk. If it isn't possible to locate all of the development in Flood Zone 1, then the most vulnerable elements of the development should be located in the lowest risk parts of the site. If the whole site is covered by Flood Zone 3, your FRA should assess the flood characteristics across the site and direct development towards those areas where the risk is lowest.

Compensatory Storage

It will need to be shown that any increase in built footprint within the 1% (1 in 100) annual probability flood extent, including allowances for climate change, can be directly compensated for on a volume-for-volume and level-for-level basis to prevent a loss of floodplain storage. If there are no available areas for compensation above the design flood level and compensation will not be possible then a calculation of the offsite flood risk impacts will need to be undertaken. If this shows significant offsite impacts then no increases in built footprint will be allowed. Further guidance on the provision of compensatory flood storage is provided in section A3.3.10 of the CIRIA document C624.

Data Available

Our Customers and Engagement team can provide any relevant flooding information that we have available. Please be aware that there may be a charge for this information. Please contact: Enquiries_EastAnglia@environment-agency.gov.uk. For further information on our flood map products please visit our website at: www.environment-agency.gov.uk/research/planning/93498.aspx

Flood Resilient/Resistant Construction

We recommend that consideration is given to the use of flood proofing measures to reduce the impact of flooding when it occurs. To minimise the disruption and cost implications of a flood event we encourage development to incorporate flood resilience/resistance measures up to the extreme 1 in 1000 year climate change flood level. Both flood resilience and resistance measures can be used for flood proofing. Flood resilient buildings are designed to reduce the consequences of flooding and speed up recovery from the effects of flooding; flood resistant construction can help prevent or minimise the amount of water entering a building. Information on preparing property for flooding can be found in the documents 'Improving the flood performance of new buildings' and 'Prepare your property for flooding' (<https://www.gov.uk/government/publications/flood-resilient-construction-of-new-buildings> and <http://www.environment-agency.gov.uk/homeandleisure/floods/31644.aspx>).

Safe Access

During a flood, the journey to safe, dry areas completely outside the 1% (1 in 100) / 0.5% (1 in 200) annual probability event with climate change floodplain would involve crossing areas of potentially fast flowing water. Those venturing out on foot in areas

where flooding exceeds 100 millimetres or so would be at risk from a wide range of hazards, including for example unmarked drops, or access chambers where the cover has been swept away.

Safe access and egress routes should be assessed in accordance with the guidance document [Defra/EA Technical Report FD2320: Flood Risk Assessment Guidance for New Development](#).

Where safe access cannot be achieved an emergency flood plan that deals with matters of evacuation and refuge should demonstrate that people will not be exposed to flood hazards. The emergency flood plan should be submitted as part of the FRA and will need to be agreed with the Local Council.

Emergency Flood Plan

Where safe access cannot be achieved, or if the development would be at residual risk of flooding in a breach, an emergency flood plan that deals with matters of evacuation and refuge should demonstrate that people will not be exposed to flood hazards. The emergency flood plan should be submitted as part of the FRA and will need to be agreed with the Local Council.

The local council will assess the adequacy of the evacuation arrangements, including the safety of the route of access/egress from the site in a flood event or information in relation to signage, underwater hazards or any other particular requirements. Their emergency planners will be consulted as they make this assessment.

Strategic Flood Risk Assessments

Strategic Flood Risk Assessments (SFRA) are undertaken by local planning authorities as part of the planning process. The SFRA may contain information to assist in preparing site-specific FRAs. Applicants should consult the SFRA while preparing planning applications. Please contact your local authority for further information.

Other Sources of Flooding

In addition to the above flood risk, the site may be within an area at risk of flooding from surface water, reservoirs, sewer and/or groundwater. We have not considered these risks in any detail, but you should ensure these risks are all considered fully within the FRA.

Informative – Environmental Permit for Flood Risk Activities

The applicant may need an environmental permit for flood risk activities if they want to do work in, under, over or within 8 metres (m) from a fluvial main river and from any flood defence structure or culvert or 16m from a tidal main river and from any flood defence structure or culvert.

Application forms and further information can be found at: <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits>. Anyone carrying out these activities without a permit where one is required, is breaking the law.

Stephanie Newman
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02 November 2021

██████████ [@planninginspectorate.gov.uk](mailto:██████████@planninginspectorate.gov.uk)
FiveEstuaries@planninginspectorate.gov.uk

Dear Stephanie Newman

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017(the EIA Regulations) – Regulations 10 and 11 Application by Five Estuaries Offshore Wind (the Applicant) for an Order granting Development Consent for the Five Estuaries Offshore Wind Farm (the Proposed Development)

Thank you for consulting Essex County Council (ECC) on Five Estuaries Offshore Wind (The Applicant) request for a Scoping Opinion on this proposal. The Council is happy to be given the opportunity to respond. Such was due on the 02 November, hence this response meets that deadline. This response is predicated by the fact that the Council are at this time continuing to deal with the current national pandemic which is resulting in stretched resources and time pressures which makes a response within the as set 4 weeks hugely problematic. It is also correct that the timing of the consultation comes at a in a period when many are taking their holidays during the Autumn Half Term, with schools being closed, as staff take the opportunity to take a break with Covid restrictions easing.

This is further prejudiced in part to the number of NSIP proposals ECC is asked to comment upon at this time.

Due to this, the response is as comprehensive as possible, but it hasn't been possible to secure engagement with some internal stakeholders, most notably our Health and Wellbeing Team who have other pressing priorities at this time. In future engagement with the applicants, such topics will need to be discussed and taken into account as the scheme develops prior to formal DCO submission.

ECC, and its internal stakeholders, have been involved in a series of meetings with the applicant during 2020, with a number of additional meetings programmed moving forwards on a variety of topics. The Council looks forward to future engagement on this complex and challenging project.

It is also correct to note that ECC is working in partnership with Tendring District Council on this project, this response should be considered as the Joint Response on behalf of both Authorities. A memorandum of understanding exists between the two Council's, which can be provided on request, a copy of the same has been provided to the applicant.

The proposals are set out in the Scoping Report and is for an extension of the Galloper Offshore Wind Farm (OWF) which currently consists of 56 Turbines and supplies electricity to approximately 380,000 households annually. The proposals being considered are for a new offshore windfarm to extend the existing Greater Gabbard Wind Farm off the Tendring coast. The proposal also includes a landfall connection, somewhere on the Tendring Coast between the towns of Holland on Sea and Frinton, with associated on shore infrastructure including a new substation, compounds etc, as well as a buried connection to the National Grid at a point which is not known at this time.

The eventual Development Consent Order (DCO) submission will be accompanied by an Environmental Statement (ES) prepared in accordance with the 2017 EIA Regulations, the development falling under Schedule 2 of the 2017 EIA Regulations. The as submitted Scoping Report forms a request for a formal EIA Scoping Opinion from the Planning Inspectorate the Planning Inspectorate in relation to the Five Estuaries Wind Farm (5E).

It is recognised that the key drivers for the scheme is for the production of renewable energy in the UK, reducing greenhouse gas emissions, providing increased energy security, and maximising economic opportunities for the UK and local economies. The proposal would be situated within two array areas to the east of the operational Galloper OWF which will be located approximately 30 km off the coast of Suffolk. The proposal as Scoped will provide a significant opportunity for cost reduction in offshore wind, an important driver under the highly competitive UK electricity market which aims to deliver the best possible value to the consumer.

It is noted that the proposal at this time has not undergone feasibility, as it is "yet to be confirmed", hence the prematurity of the scheme is questioned. This will be mentioned in respect of other parts pf the development later in this submission.

It is proposed that "*The project could consist of up to 79 WTGs. Cables will connect the turbines to the offshore substation platforms and then export the power generated to shore. It is expected that there will be a number of inter-*

array cables, up to four export cables and up to two offshore substation platforms.” Particular reference is made here to the word “could”, it is apparent that the proposals are far from known in any detail at this time.

In addition, the Scoping submission states, in its “Introduction” chapter that: “It is anticipated that the connection to the National Grid will be at a new substation to be called the East Anglia Coastal Substation (EACS) ... The location of the EACS has not yet been confirmed by National Grid. The VE onshore export cables will be installed (underground) between the landfall and the grid connection point. There are currently several options being explored for the onshore export cable route. A landfall area has been identified between Holland-on-Sea and Frinton-on-Sea on the Essex coast. The landfall point is yet to be determined but will be located within this area of coastline. A new VE onshore substation will be needed and is likely to be constructed near to the National Grid’s EACS”.

Hence it is correct to assume that the proposal are indeed far from developed at this time a number of key factors remain uncertain and are far from fixed. This is further highlighted within the submission, by the nature and extent of the area where the impacts are to be Scoped. As the landfall point for the onshore cables and the connection point to the National Grid are currently unknown, it is questioned how any impacts can effectively be Scoped. It may be premature at this time to assess the impacts it will have on the area, on the environment and local communities.

It is therefore not possible, in the view of the Council’s that it can correctly identify and comment in detail the on the physical, human and biological environments, which are key in assessing and evaluation the environmental constraints and considerations of the scheme as it comes forward.

It is understood that the offshore cable route has been developed, the impact of this is for other consultees to consider, but the onshore is far from specific.

It is noted that for on shore infrastructure, the development relies on the “Rochdale Envelope” as set out in Advice Note 9. However, and for the purpose of this Scoping Submission, the area to be covered by this envelope is set at over 150 square kilometres (ref Map 1.2 as outlined in black). It is firstly questioned as to whether this can correctly be considered as falling within this so-called “envelope” due to its significant size, and secondly makes the effects of the development hugely difficult to predict in anything other than general terms. ECC is told this will focus down to a proposed landfall and connection point early in 2021 however, and dependant on the same, it may be necessary to re-Scope the development and consider its true impacts relevant to specific proposals again.

It is similarly noted that the National Policy Statement (NPS) EN-3 allows for working within a non-prescriptive design envelope, but with the Scoping

Opinion as submitted being similarly vague as to the nature of the development as will be proposed, hence it is difficult to consider what the true impacts of the DCO will be. Certain impacts may be more or less relevant dependant on specific locations, so what topics are to be scoped and out, are similarly difficult to predict.

It is highlighted that this project comes at a time when a further development of NSIP size is proposed off the OWF which is called the North Falls project. Scoping on this took place earlier in Q2 2021 and ECC as a statutory consultee has provided the Planning Inspectorate with a response on the same. It is considered that the issues as raised here have many similarities with this in terms of their impact, prematurity, and scope. It is understood that commercially the proposals are different, never the less it is arguably showing a lack of both co-operation and co-ordination that the proposals are not coming together jointly in one NSIP which would be more efficient not only for consultees, but for the developers, their consultants, and the Planning Inspectorate in turn, who are asked to consider two remarkably similar proposals independent of each other. It is therefore welcomed that this submission states: *“However, co-ordination of stakeholder engagement, construction, infrastructure and operations plans are being explored for the project development phase and will be progressed where this is considered practicable and feasible.”*

It is correctly identified that the current NPS requests co-operation on projects, and when Scoped developments have to be considered in combination with other proposals, hence this has to be considered in combination with the North Falls project on all aspects of its submission. What is relevant in this case is that there are two very similar proposals, both where impacts are assumed. It is questioned whether any impacts can effectively be Scoped out when those impacts both singularly and in combination are not known at this time, with particular reference to the landfall elements of the proposal(s).

It is also correct that an additional NSIP is being considered between Bramford and Twinstead (B2T) to the north of the site in Suffolk, crossing the Essex border to link with the existing transmission line in Braintree, for which ECC are consultees. This proposal, which in combination with North Falls, suggests an additional link to the wider Grid network. Hence whilst there may be reasons why this is not being considered which are outside the knowledge of ECC, it seems correct to point out that this Grid connection, should the B2T connection eventually be Consented, potentially already could exist.

The Scoping submission correctly identifies that consultation prior to this Scoping submission has taken place, engagement has been extensive on a number of topics, but due to the proposals lacking definition, particularly on

the landward side of the DCO proposals, means comments have been generic rather than specific.

In addition, it is considered that as proposals remain underdeveloped, engagement with ECC on a number of topics, have not resulted in any headway being made to understand the impact on the highway network, rights of way or non-motorised users. Within Essex there are a large number of NSIPs involving both the strategic road network and other major developments, including those to implement the approved Bayside Bay development in Tendring, which will have a significant cumulative impact on the highway network, something that will require specific consideration going forward.

Further discussions are necessary on a variety of important topics including, but not limited to, highways and transportation, socio economic impacts, community benefits, health and wellbeing, impacts on tourism and leisure. A stakeholder engagement plan is however in place, something which is welcomed by the Joint Council's.

In addition, and at this time, we draw particular attention to the following matters:

- Further discussions are required with 5E in describing the true magnitude of impacts, in particular the spatial extent and duration of effect that are used to derive the corresponding magnitude. As currently described, the Environmental Statement (ES) is likely to underreport and underestimate potential localised impacts of significant duration. A better acknowledgement of the longevity, route and impacts of the temporary construction period and the development in general is required.
- ECC is concerned that the details as to the as proposed landfall are vague at this time, as are the details of where the as generated electricity will enter the grid. Both could have a significant impact on the proposals, alternatives cannot be scoped out of the process at an early stage, without a full appreciation of the effects of 5E which are considered underdeveloped at this time.
- The ES should clearly articulate the cumulative effects of all individual elements of the project as many receptors will be impacted by the development. This needs to be fully acknowledged. It isn't at this time as the impacts are not precise.
- As the submitted SR indicates, additional studies and data collection remain necessary from a wide variety of topics to inform and supplement the eventual EIA submission and it is anticipated that the

development proposals will be refined and change as a result. For example, there is scant detail on the highways implications of this development both on its own and in combination with other proposals which will be taking place at the same time. ECC look forward to engaging with other Authority partners and the applicants on this.

Specific comment is raised on the following topics which are material planning considerations.

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1. CLIMATE CHANGE

It is noted that updates to the EIA Regs in 2017 state this this important topic requires consideration, within Schedule 4 of the same it states at para 5 that: *A description of the likely significant effects of the development on the environment resulting from, inter alia (f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change.* It is also backed up by case law which states this is now a consideration for NSIPs.

It is correct that the development of the magnitude as proposed would be subject to a number of factors in relation to climate change going forward, providing post construction a low carbon energy source to fall in with Government guidance to promote the same. It is also considered necessary that the development itself must show how it can achieve zero carbon during its lifetime from construction, implementation and operation in order to contribute to net carbon gain.

Measures to avoid, prevent, mitigate and to seek to offset carbon impact must be ensured, including the adaption to its effects, such as protecting communities from water shortages, flooding and heatwaves.

ECC is seeking to take a lead and innovative role in addressing climate change. The Essex Climate Action Commission was set up and a series of Special Interest Groups (SIG) advise the Council about tackling climate change across a wide variety of topics.

The commission has over 30 members over a wide range of senior professionals, local councillors, academics, business's, people and 2 members of the Young Essex Assembly. The commission will run for 2 years initially and make recommendations about how we can improve the environment and the economy of Essex.

The findings of the commission will not be published until Q4 2021, but the applicant should have knowledge of this initiative, their values and objectives and the implications for the future aspirations of the development.

Mitigation against the climate change impacts of the development will be brought through a range of issues that will need to be considered in the EIA, including, but not limited to transportation (electric vehicles and charging points, use of public transport, car sharing, sustainable low carbon traffic modes etc) the built environment, green infrastructure (planting), Sustainable Urban Drainage, greenhouse gas emissions, air quality etc.

The submitted ES should include a description and assessment (where relevant) of the likely significant effects the Proposed Development has on climate (for example having regard to the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project during its construction phase, and operational phase, to climate change. Where relevant, the ES should describe and assess the adaptive capacity that has been incorporated into the design of the Proposed Development. This may include, for example, alternative measures such as changes in the use of materials or construction and design techniques that will be more resilient to risks from climate change.

It is noted and recognised in the Scoping submission that climate change as an important topic which is of relevance to their submission as set out in principle. However, it is of considerable concern that this topic is not commented on in any detail in a specific chapter to set out how this will be achieved by the development as will be proposed.

This is considered an unacceptable omission, in the view of ECC there is simply no basis why Climate Change should not be included as a key consideration in this DCO proposal.

The Joint Council's request that targeted specific engagement takes place going forward on this specific topic, including but not limited to the following which require including in the eventual ES:

2. ECOLOGY

General Comments: We have reviewed the chapters on terrestrial ecology and nature conservation (including onshore and intertidal ornithology), benthic and inter-tidal ecology, marine mammals and (offshore) ornithology in the EIA scoping report (Five Estuaries Wind Farm Ltd, Sept 2021) and associated tables & figures.

In accordance with Regulation 14 of the EIA Regulations, the ES should provide a statement about the relevant expertise or qualifications of the competent experts involved in its preparation.

Where ecological impacts are scoped out of the VE EIA, it will be necessary to also provide sufficient information on non-significant impacts on protected and Priority species and habitats at DCO submission either in a non-EIA chapter or separate documentation. This is necessary in order that the LPAs and the SoS have certainty of all likely impacts, not just significant ones, from the development and can issue a lawful decision with any mitigation and compensation measures needed to make the development acceptable, secured by condition.

As for any proposal, a planning application will need to be supported by adequate ecological surveys and assessments to enable the SoS to determine any application submitted in line with national and local policy and its statutory duties. This will include likely impacts on designated sites (international, national and local), Protected species and Priority habitats and species - not just significant ones.

Ecological assessments should take data search records & survey information and use professional judgement to come to reasoned conclusions as to the likelihood of species being present and affected by the proposed development. All surveys must be undertaken by suitably qualified ecologists at the appropriate time of year using standard methodologies.

Effective and robust measures, in line with the mitigation hierarchy, must be also proposed which have a high degree of certainty for their deliverability in the long term. We welcome the embedded mitigation measures as part of the project.

However, where there are any residual impacts, these will need to be compensated for onshore or offshore with long term management secured, and appropriate enhancements, for both terrestrial and marine habitats, included to ensure measurable Biodiversity Net Gain from this development.

We are therefore concerned that, despite reference in Table 4.3 to Biodiversity Net Gain (BNG) in the mitigation hierarchy, there is no statement about BNG assessment in Table 4.3 of the Scoping Report. We recommend that this report demonstrates the baseline assessment and details of losses and compensatory habitat as well as biodiversity enhancements to demonstrate net gain of habitats in both the Terrestrial Ecology and Benthic ecology ES chapters.

As there is no Local Nature Recovery Network for Essex as yet, we would support improving the condition of existing Priority habitat as enhancements particularly in relation to losses from the cable landfall and onshore substation. We also expect this report to include details of enhancements for relevant species on the site and any need for off-site habitat provision and its long-term management and monitoring. Full Metric calculations should also be provided using v 3.0 or any successor. We recommend that the applicant thoroughly explores all reasonable options to deliver additionality for the measurable BNG to restore biodiversity networks & their ecological functionality and also provide enhancements for Priority species affected by the development. We look forward to the BNG feasibility report to be submitted which shows how these species will benefit from these new habitats created and enhanced.

Section Specific Comments:

The following table provides more specific comments by section:

Section	Comment
1.5.18, 10.4.17, 10.5.15, 11.4.22, 11.5.15-16, 12.4.5, 19.1.3 and 19.4.2	We note that a separate HRA screening report has been prepared (VE OWFL, 2021) for formal consultation with relevant stakeholders (although this has not been provided for review and is not available on the National Infrastructure Planning portal) and that a Report to Inform Appropriate Assessment will be prepared and included with the DCO application. As a relevant stakeholder the Council welcomes the opportunity to be involved in HRA discussions under the relevant Ecology Technical Groups.
Table 9.1	An additional data source for seahorses (benthic and inter-tidal ecology) is The Seahorse Trust (www.theseahorsetrust.org), which should be added. However, as this information is sensitive, we recommend that it is included as a separate confidential appendix to avoid release into the public domain.
Table 12.2	All birds which are listed in s41 NERC Act e.g. Herring Gull, should be referenced as such in this Table as Priority species. All birds which are SPA designation features e.g. Lesser Black-backed Gull, should also be identified as such.
Offshore ecology	Given that some species are very susceptible to collision injuries from wind farms, we are concerned that there is no mention of assessment of potential impacts on migratory bats in the offshore ecology sections of the EIA. We seek confirmation that any omission for European Protected Species will be addressed.
Drawing 19.3 Local Designations and Ecological Features 19.3.2 & 19.4.1	We welcome the mapping of Priority Habitats on this drawing. Please note that in Essex, Local Wildlife sites should be labelled as LoWS, not LWS so the Legend and labels on this drawing and abbreviation in the text, needs amending.
Table 19.2	Since 1 October, Essex Wildlife Trust has closed its Biological Records Centre. Data on Protected and Notable Species Records and Local Wildlife Sites as in Table 19.1 will not be available from this source Open source mapping for Essex Great crested newt District Level Licensing (Natural England) GCN Risk Zones (Essex) GCN Risk Zones (Essex) Natural England Open Data Geoportal (arcgis.com) should be added to this Table

Table 19.5	<p>We note that bats particularly Barbastelle (Appendix II species) – noted in 19.4.23 as recorded within the 2km study area - are included under Impact 19.9 as being likely to be affected by disruption of movement due to temporary habitat loss. We highlight that any temporary loss of the hedgerows will require temporary fencing to be used during construction to fill any gaps in hedgerows caused by the cable corridor works and remain until replacement hedging reaches a height where it can provide ecological functionality as a foraging or commuting route for these bats. We also highlight that all hedgerows will need assessment for bats as all with Any passes of Barbastelle bats may qualify hedgerows as Important Hedgerows under the Hedgerow Regulations.</p>
19.4.26, Table 19.5 and 19.6.8	<p>We highlight a recent publication for dormouse surveys relates to detectability of these European Protected Species and advise that this should inform the methodology for the surveys to maximise the probability of their success. <i>Bullion, S., Burrough, K., Chanin, P., Langton, S. & Looser, A. (2021) Detecting hazel dormice Muscardinus avellanarius with nest tubes and tracking tunnels: maximising the probability of success. Mammal Communications 7: 38-46, London.</i></p> <p>We highlight that a small population of these European Protected Species was found to be present in non-woodland habitat (on the embankment to the south of the existing A120 and the population was considered to be of value at a County level. This is a live application with ECC (CC/TEN/31/21) within the onshore scoping area which is scheduled for next Committee. We therefore recommend that the optimal survey window for Phase 2 dormouse surveys in East Anglia is later than Bright et al 2006, and this change in methodology is to be published soon (pers comm, Essex & Suffolk Dormouse Group).also critical as East Anglian Dormice have been found to breed later in the year.</p> <p>Please note that any section relating to badgers should be clearly marked on the front cover as confidential due to its sensitive information so that it will not be widely available. If this information is contained within the ES ecology chapter, the above requirements applies so that the sensitive section can be redacted before it goes into the public domain.</p>
19.6.4-5	<p>We would welcome early sight of the PEA wintering bird surveys to inform the scope of the project level Report to Inform an Appropriate Assessment (Shadow HRA) in relation to any functionally linked land for the coastal SPA & Ramsar sites particularly at Hamford Water.</p>

3. LANDSCAPE

Section Specific Comments:

The following table provides more specific comments by section:

Section	Comment
16.2	<p>Guidance</p> <p>The Scoping report makes reference to the third edition of "Guidelines for Landscape and Visual Impact Assessment" (GLVIA3) and NatureScot's Visual Representation of Wind Farms Guidance (NatureScot, 2017), which is welcomed.</p>
Methodology 16.5	<p>In principle, we are generally satisfied with the methodology proposed. However, we ask that the detailed methodology is submitted for review as soon as possible. The key terms and values that should be defined include:</p> <ul style="list-style-type: none"> ▪ Susceptibility and value – which contribute to sensitivity of the receptor; ▪ Scale, duration and extent - which contribute to the magnitude of effect; and ▪ Significance.
Technical Guidance 16.5.3	<p>We would recommend the LI Technical Guidance Note 06/19 'Visual Representation of development proposal's' is used for reference.</p> <p>There is also an expectation that the assessment takes into consideration the Technical Guidance Note (TGN) 02-21 'Assessing the Value of Landscapes Outside National Designations' that has recently been published and builds on the details within GLVIA3 and the assessment of value (GLVIA3 Box 5.1). GLVIA3 recognises that landscape value is not always signified by designation: 'the fact that an area of landscape is not designated either nationally or locally does not mean that it does not have any value' (paragraph 5.26). This TGN provides further information on the subject matter and introduces additional factors that should be taken into consideration when assessing value.</p>
Table 16.3	<p>Proposed viewpoint selection</p> <p>Table 16.3 shows the proposed locations for Viewpoints and Illustrative Viewpoints, including reference to Clacton-on-Sea and Harwich. Whilst the viewpoints proposed are broadly acceptable, we would advise a specific viewpoint from Clacton-on-Sea pier is also included.</p>
Viewpoints 16.4.32	<p>Assessment of sequential impacts on the England coast path</p>

Section	Comment
	<p>The Jaywick to Harwich stretch of the England Coast Path was approved by the Secretary of State on the 7th July 2021. Work is now underway to prepare the new stretch of coast path for public use and therefore the LVIA should consider sequential visual effects on users of the England coast path along this stretch and in turn, additional viewpoints along this stretch of coast will be necessary to ensure this assessment can be undertaken.</p>
Viewpoints 16.4.32	<p>Cable Corridor viewpoints and receptors</p> <p>Viewpoints have primarily been selected based on the potential impacts from the turbines. However, we would also be expecting receptors along the onshore cable corridor to also be assessed where impacts may occur.</p>
Viewpoints 16.4	<p>Approach to viewpoint photography</p> <p>The applicant should note that the turbines are likely to be at their most visible in the evening as the sun will be setting in the west, and views will, subject to weather conditions, be widely available from coastal locations both on the shore and from elevated locations back from the beach or cliffs. Therefore, it is requested that baseline photography is taken late in the afternoon where possible, particularly from the most well used resort based public viewpoints, to capture these effects.</p> <p>Furthermore, we draw note that the accumulation of non-significant visual effects along such a route may together be of significance. This assessment will also need to consider the cumulative and in-combination sequential visual effects with other projects and proposals.</p>
Viewpoints 16.4	<p>Representation and assessment of Night-time lighting effects</p> <p>In the absence of more detailed proposals regarding the mitigation of night-time lighting effects it is suggested that these should be assessed on a reasonable worst-case basis. In addition, the agreed viewpoints should also be shot at night and likely visual impacts illustrated.</p>

4. GREEN INFRASTRUCTURE

ECC currently provides advice on green infrastructure (GI) schemes for major developments. ECC have been consultee on GI since the 2018. Although there are no statutory requirements for GI, the 25-Year Environment Plan and emerging Environment Bill will place significant importance on protecting and enhancing GI, accessibility and biodiversity net gain.

In providing advice we look to ensure that adequate provision, protection and improvements of high-quality GI comply with the objectives and planning principles set out in the following documents:

- Tendring's Infrastructure Delivery Plan (2017), Tendring's Open Spaces Strategy (2008) and associated Infrastructure Delivery Plan, as well as Tendring's Local Development Plan policies regarding the Council's approach to green infrastructure provision in the local authority area.
- Essex Green Infrastructure Strategy, 2020 aims to enhance the urban and rural environment, through creating connected multi-functional GI that delivers multiple benefits to people and wildlife. It meets the Council's aspirations to improve GI and green spaces in our towns, cities and villages, especially close to areas of deprivation. This can be viewed here:
<https://www.placeservices.co.uk/resources/built-environment/essex-gi-strategy/>

ECC GI position

Having reviewed the Environment Impact Assessment Scoping report, we do not object to the methodology described in the report. We would support the approach via the technology and cable route that minimise the impact on the sensitive and designated features of the site location from turbines, cables and substation. We would advise the following recommendations are considered for enhancements to the scheme that would improve the GI network and help achieve net environmental gains.

Key Principles (5.8.5 pages 105 – 106)

- Minimise the impact on existing green infrastructure features.

Onshore GI Landscape Network (in relation to Chapter 16 Seascape, Landscape and Visual Impact Assessment and Chapter 19 Terrestrial, Ecology and Nature Conservation).

The Environment Impact Assessment (EIA) and Environment Statement (ES) will need to identify appropriate measures for avoiding or reducing significant adverse effects on the functionality of GI assets. It can also assist in identifying measures for compensating/off-setting unavoidable significant adverse effects on GI assets to protect the overall integrity of the surrounding and wider landscape scale GI network. Existing habitats, green and blue features should be considered as GI *Essex GI Strategy, 2020, Chapter 8.5) and designed and managed correctly to improve the environmental benefits of the wider landscape. It is recommended as part of the habitat survey (that the report refers to that will be undertaken on page 96: 5.2.6), to include an audit of existing GI within the site boundary, identifying existing GI assets, areas for

improvement and opportunities to meet gaps in provision in response to local need, that contributes to a wider GI landscape network.

The Essex and South Suffolk Shoreline Management Plan has noted that Holland Haven Marshes SSSI represents an outstanding example of a freshwater to brackish water transition and includes a number of nationally and locally scarce species. Holland Haven country park, situated on the flood plain of Holland Brook, is important both for conservation and recreational value. The reclaimed Holland Haven marshes are likely to contain well-preserved palaeoenvironmental deposits and internationally important Palaeolithic remains are known from the Clacton Cliffs and foreshore SSSI. There are also important links to be made between historic freshwater grazing marshes, for example, and the rare plants and animals they support. Finally, the historic environment makes an important economic contribution to the area, through tourism associated with heritage assets and historic landscapes.

Chapter 19 mentions that there will be some habitat fragmentation and impact on local ecology through the installation of cables and onshore substations. These impacts need to be minimised by mitigation measures and habitats or vegetation reinstated where appropriate. Any habitat enhancements, whether boundary hedgerow, field margin, grassland or wildflower meadow, grass strips, or woodlands all need to be connected to landscape wide GI network to prevent fragmentation and promote biodiversity migration. It is recommended that a Landscape and Ecology Management Plan is produced that incorporates the mitigation measure for habitat/ GI removal, fragmentation and potential impact on protected designated sites (i.e., Holland Haven Marshes and Weeleyhall Wood SSSI's etc.) to be identified in the EIA. There should also be the inclusion of a 'Landscaping and Screening Proposal' for the onshore substation that could result in a beneficial impact.

Onshore: Biodiversity Net Gain

The report on page 87 in table 4 references Biodiversity Net Gain as part of the compensation measures, but It does not mention that the EIA will include an assessment of biodiversity net gain, that should be appended to Terrestrial, Ecology and Nature Conservation chapter of the ES. The Environment Bill now requires NSIPs to delivery biodiversity net gain. It is recommended as a proposal from the EIA is the creation of a biodiversity enhancement plan (BEP). The purpose of the BEP is to lay out the specific objectives for biodiversity and the means by which these objectives will be achieved, including the protection of existing species and habitats (GI), the establishment of specific enhancements (including net gain), their maintenance and monitoring. Biodiversity enhancements should be selected to fit the physical attributes of the site and should tie in with existing habitats and species of value on and around the site. Furthermore, they should be compatible with the primary purpose of the site – to generate wind power (a

be it mainly onshore substations and underground cables). If agricultural production is also planned for the site, biodiversity enhancements should aim to dovetail with these goals.

Long-term GI Stewardship & mitigating measures

The report makes reference that management procedures will follow the Code for Construction Practices that will be secured in a Construction Environmental Management Plan (CEMP), which is welcomed. GI will require sustainable management and maintenance if it is to provide benefits and services in the long term. Documents such as the CEMP, Landscape and Ecological Management Plan (LEMP) and Biodiversity Enhancement Plan are documents that will help ensure appropriate tasks, mitigating measures and methods are in place to:

- Protect the retained trees and hedgerows.
- Schedule of advanced planting to create a landscape structure or evidence is shown that substantive GI is secured as early as possible in subsequent phases.
- Landscape management and maintenance plan and work schedule for a minimum of 10 years including how management company services for the maintenance of GI assets and green spaces shall be funded and managed for the lifetime of the development.
- Address recommendations within the habitat and ecology survey to enhance the ecological value through the proposed development.
- Demonstrate measurable net gains for biodiversity, as outlined under paragraph 8[C], 153, 174[a][d] and 179 of the National Planning Policy Framework updated 2021.

The inclusion of phased implementation within the CEMP of new GI and protecting of retained vegetation of the development during construction will allow for the GI to mature and it will provide further benefit of reducing/buffering the aesthetic impact from the construction work. While the LEMP will ensure appropriate management and maintenance arrangements and funding mechanisms are put in place to maintain high-quality value and benefits of the GI assets.

The Biodiversity Enhancement Plan will provide opportunities for biodiversity and environmental net gains through the development, enhancing the current value of the site. This can contribute positively to reversing the long-term decline in biodiversity and enhance quality of life for people. Ultimately, the best Landscape/GI/ biodiversity plans will be those developed through engagement with the local community, the landowner and local and national conservation organisations.

Although we recommend these are submitted early in the planning process, these documents can be conditioned or submitted at reserved matters stage.

Decommissioning

The EIA Scoping report refers to a potential decommissioning program (page 499 and 574) but the decommissioning and future regulatory context are unknown, therefore an assessment of the programme is not proposed to be undertaken. The development should be capable of removal and reversible i.e., at the end of the life of the development, the land can be return to an appropriate after use, either to its former use or an alternative use meeting local needs. Including removal of all cables, substation and other temporary structures onsite. It is recommended that restoration plans/decommission programs are identified at early stage of planning and updated as development progresses and it needs to be a recommendation from the EIA. Restoration plans can provide significant opportunities for habitat creation, biodiversity, climate change mitigation GI and blue infrastructure enhancements and can include elements of public access for recreation. However, it is important that any benefits created are maintained, this includes any gains in biodiversity, habitat creation, multifunctional green infrastructure assets, sustainable drainage features, improvement in land and soil quality, etc.

ECC further Coastal Comments

In 5.4.3 it is stated that a grid offer had originally been given to connect to Friston in Suffolk, but that this was revoked by National Grid and a fresh offer was accepted in late 2020 to connect to a new substation called East Anglia Coastal Substation (EACS) – currently part of an ongoing National Grid site selection exercise. The reasons for this revocation should be clarified as it would make much more sense, given the location of the 5 Estuaries Windfarm proposal being further offshore from the Essex coast than the existing windfarms, for the connection to be made in Suffolk (the reason why this suggestion was not made in a recent North Falls Offshore Windfarm Consultation). Whilst it is understood that the same cabling infrastructure cannot be used as for Galloper due to capacity, the on grid connection was obviously considered sufficient for the previous offer to be granted, and hence the unnecessary impact on a pristine greenfield site at Holland Haven should be avoided if possible.

It is difficult to return a thorough response to this consultation, without knowing the precise locations of cable routes and infrastructure and further consultation is likely to be appropriate once these have been confirmed.

The commitment in 5.3.1. to bury onshore cables as opposed to using overhead lines (to minimise landscape effects of overhead cables) to connect the landfall to the project substation and between the project substation and the National Grid substation is welcomed and supported. It is not clear from the Scoping Report whether the connection points will also be buried, but this should certainly be undertaken if technically feasible to avoid negative impacts above ground.

A stronger commitment (than purely to consider) is required (than is made in 5.3.2.) for the use of trenchless technologies such as HDD at the landfall to ensure existing sea defences are not compromised and to protect sensitive features and minimise the extent of direct interaction with the intertidal areas and coastal features. If beach access will be required for construction vehicles, equipment and materials at landfall (3.5.3) then it is important that measures are put in place to similarly protect the features mentioned above.

The brackets at the end of 3.6.3 listing key project parameters should also list that HDD will be used under Holland Haven Marshes SSSI (as stated in 19.5.7).

As the proposed onshoring site is in Essex, the South East Marine Plan (2021) should also form part of the legislation and guidance which provides the framework for the site selection and consideration of alternative process (5.2.2.). As this section also lists guidance then the Essex and South Suffolk Shoreline Management Plan should also be listed.

There is insufficient information provided about the size and nature of the new project onshore substation which has been deemed necessary to make informed comment. Again, the need for this is questioned given the availability of infrastructure in Suffolk where onshoring should be directed.

It is surprising to find such little attention is paid to the Essex and South Suffolk Shoreline Management Plan (SMP) in this Scoping Study given the importance of this document in guiding coastal policy decisions through until 2105. Although 7.4.14 mentions the existence of different preferred policies in different areas within the study area, it glosses over the fact that the proposed landfall location at Holland Haven has a dual policy in the SMP for the 3rd Epoch (2055 – 2105) of Hold the Line / Managed Realignment. It should be noted that even for the earlier periods (present day to 2055) where the current preferred policy is for one of “Hold The Line”, this will only be possible if there is sufficient funding available to undertake the required works. The SMP also states (in section 4.4 on page 132) that in the longer term, holding the line at this frontage will be challenging, and funding may have to come from a variety of sources.

7.4.15 states that “defences within the Tendring Peninsula are under pressure although are renewed as part of a rolling programme undertaken by Tendring District Council” (TDC). The responsibilities for the Tendring Peninsula are however split between TDC and the Environment Agency taking responsibility for coast erosion frontages and coastal flood risk frontages respectively. A more precise location would need to be provided for where the cables will come ashore before it is possible to determine which organisation is responsible for coast protection there. Much of the area being considered for onshoring is the responsibility of the Environment Agency. Whilst TDC undertakes maintenance of some of the existing defences and having liaised with TDC they have confirmed there is no rolling programme of renewal of defences.

The risks of increased suspended sediments have been highlighted and these could result in changes to seabed and shoreline levels due to deposition and / or erosion. With a significant and costly coast protection scheme having been undertaken in the area in recent years at a total cost of £36 million (including £3 million contribution from Essex County Council) it is vital that any impacts are fully modelled, and results taken into account to ensure that no work is undertaken which could undermine or negatively impact on these previous investments. The Scoping Study (table 7.3 p 128) states that only spreadsheet-based models will be developed to quantitatively inform the assessment of potential changes to Suspended Sediment Concentrations. It is important that TDC / Environment Agency receive further clarification about what modelling will be undertaken to assess whether this would be sufficient and that numerical modelling is undertaken if considered appropriate by those responsible for either coastal flood risk or coast erosion schemes.

Essex County Council is listed as having shoreline monitoring data, but ECC does not undertake monitoring of this type. This type of data is obtained and held by the Environment Agency through their national coastal overview responsibility.

5. MINERALS AND WASTE

The onshore 'project area' forms the basis for the minerals and waste safeguarding assessment set out below. It is recognised that the 'project area' takes the form of a large Area of Search within which it is intended to locate onshore equipment associated with the offshore windfarm and that there is no intention to develop anything approaching the full extent of the area.

This response deals with mineral policy matters and waste policy matters in turn. A spatial representation of the project area and the matters discussed can be found in Appendix One. A list of relevant designations and specific facilities which would potentially be affected are listed, with their most recent planning application reference where relevant, in Appendix Two.

It is noted that the project area used to inform this response is that received by the MWPA in relation to the North Falls Windfarm. Spatial data pertaining to the Five Estuaries Windfarm was requested but was unfortunately not received in time to inform this response. A comparison between the two project areas shows that they are broadly similar, but it is nonetheless acknowledged that there may be some discrepancies in the below assessment. The MWPA would welcome an opportunity to resolve any discrepancy should they be pertinent as the application moves forward.

Mineral Matters

Safeguarding Mineral Resources

Within the Area of Search, there lies approximately 6819.7ha of land which is designated as a Mineral Safeguarding Area (MSA) for sand and gravel. Depending on the final location and land-take of the on-shore element of the proposal, the application may trigger Policy S8 of the Essex Minerals Local Plan 2014 (MLP). The MLP can be viewed on the County Council's website via the following link:

<https://www.essex.gov.uk/minerals-waste-planning-policy/minerals-local-plan>

Policy S8 of the MLP requires that a non-mineral proposal located within an MSA which exceeds defined thresholds must be supported by a Minerals Resource Assessment to establish the existence, or otherwise, of a mineral resource capable of having economic importance. This will ascertain whether there is an opportunity for the prior extraction of that mineral to avoid the sterilisation of the resource, as required by the National Planning Policy Framework (Paragraph 210). The NPPF requires policies that encourage the prior extraction of mineral where it is practical and environmentally feasible.

The threshold set out in Policy S8 of the MLP for sand and gravel is 5ha, and the policy therefore applies if the proposed non-mineral development covers 5ha or more of land covered by a MSA designation. Policy S8 states that “... *Proposals which would unnecessarily sterilise mineral resources or conflict with the effective workings of permitted minerals development or Preferred Mineral site allocation shall be opposed.*”

Where non-mineral development proposals are made which intersect with 5ha or more of sand and gravel, **a Minerals Resource Assessment (MRA) is required as part of the planning application** to establish the practicality and environmental feasibility of the prior extraction of mineral such that the resource is not sterilised where this can be avoided. If found to be practical and environmentally feasible, prior extraction is expected to take place ahead of sterilisation by non-mineral development.

The relationship between the sand and gravel MSA and the project area is shown in Appendix One.

The scope and level of detail of a Minerals Resource Assessment will be influenced by the specific characteristics of the site's location, its geology, and the nature of the development being applied for. However, a number of key requirements can be identified which are likely to satisfy the MWPA that the practicality and environmental feasibility of prior extraction have been suitably assessed in the MRA. The detail to be provided should be in proportion to the

nature of the proposed application. The MWPA welcomes early engagement to clarify the requirements of MRA.

MRA Section	Matters to Cover
<p>Site location, relevant boundaries, timescale for development</p>	<p>Application area in relation to MSA/MCA</p> <p>Description of development including layout & phasing</p> <p>Timescale for development</p> <p>Whether there is any previous relevant site history – this could include previous consideration of site or adjacent land in preparation of Minerals Local Plan, any previous mineral assessments and market appraisals, boreholes, site investigations, technical reports and applications to the MWPA for extraction.</p>
<p>Nature of the existing mineral resource</p>	<p>Type of mineral</p> <p>Existing mineral exploration data (e.g. previous boreholes in area)</p> <p>Results of further intrusive investigation if undertaken</p> <p>Extent of mineral – depth & variability</p> <p>Overburden – depth & variability, overburden:mineral ratio. To be expressed as both actual depths and ratio of overburden to deposit, as well as variation across the site.</p> <p>Mineral quality – including silt %/content and how processing may impact on quality. Consideration should give given to the extent to which the material available on site would meet the specifications for construction.</p> <p>An assessment of the amount of material that would be sterilised (whole site area) and could be extracted (following application of any required buffer zones).</p> <p>Estimated economic/market value of resource affected across whole site and that which could be extracted.</p>
<p>Constraints impacting on the practicality of mineral extraction (distinct from those that would arise from the primary development)</p>	<p>Ecology designations,</p> <p>Landscape character,</p> <p>Heritage designations,</p> <p>Proximity to existing dwellings,</p> <p>Highways infrastructure,</p> <p>Proximal waterbodies,</p> <p>Hydrology,</p> <p>Land stability,</p> <p>Restoration requirements,</p> <p>Effect on viability of non-minerals development including through delays and changes to landform and character,</p>

	<p>Utilities present etc.</p> <p>Constraints should be assessed in light of the fact that construction of the non-minerals development would be taking place e.g. landscape issues are to be presented in light of the final landscape likely to be permanent built development. It is held that mitigation methods employed as part of the construction of the non-minerals development may also facilitate prior extraction at that locality.</p>
<p>Potential opportunities for mineral extraction at location</p>	<p>Ability of site to incorporate temporary mineral processing plant,</p> <p>Proximity to existing mineral sites or processing plant,</p> <p>Context of site and mineral within wider mineral resource area,</p> <p>Proximity to viable transport links for mineral haulage,</p> <p>The potential for indigenous material to be used in the construction of the proposed development, thereby reducing/removing the need for import,</p> <p>Potential benefits through mineral restoration e.g. land reclamation, landscape enhancement,</p> <p>Any opportunities for ancillary extraction as part of the primary development of the site such as foundations, footings, landscaping, sustainable drainage systems,</p> <p>Evidence or otherwise of interested operators/local market demand.</p>
<p>Conclusion (as relevant to the findings)</p>	<p>Whether mineral extraction at the site would be practical, based on conclusions of a competent person,</p> <p>Whether prior extraction is practical at the site in the context of the non-mineral development, taking into account the estimated value of the mineral, restoration and the viability of the proposed development,</p> <p>How the MRA has informed the proposed non-mineral development,</p> <p>If prior extraction is not practical, the justification for sterilising the mineral,</p> <p>If prior extraction is practical, how this will be phased as part of, or preceding, the non-mineral development,</p> <p>Whether prior extraction is environmentally feasible,</p> <p>Whether the site has the potential to be worked for mineral in the future.</p>

An MRA is expected to be evidence based and informed by quantified information.

To ensure that a comprehensive assessment of the mineral resource at risk of sterilisation is undertaken, it is recommended that:

- Any questions regarding the scope of an MRA are discussed with the MWPA as early as possible;
- a draft borehole location plan is agreed prior to commencement, and preferably as part of pre-application;
- the borehole depths should be sufficient to prove the depth of the safeguarded deposit;
- borehole analysis must note the depth of the water table;
- a non-stratified sampling technique is applied. An initial spacing of approximately 100m-150m centre to centre should be considered, with additional locations if required to determine the extent of deposits on site; and
- The MRA provides documented evidence confirming any commercial interest in working the resource at risk of sterilisation based on its quality, quantity, and viability of prior extraction.

The MRA should be prepared using the [Pan-European Standard for Reporting of Exploration Results, Mineral Resources and Reserves \(PERC\) Standard](#), which was revised and published on 23 May 2013.

Any application, through a MRA or otherwise, is required to be submitted with sufficient information such that the issues raised through Policy S8 of the MLP can be appropriately considered.

Mineral Infrastructure Matters

The project area passes through a number of Mineral Consultation Areas as shown in Appendix One and listed in Appendix Two. With regard to Mineral Consultation Areas, Policy S8 of the MLP seeks to ensure that existing and allocated mineral sites and infrastructure are protected from inappropriate neighbouring developments that may prejudice their continuing efficient operation or ability to carry out their allocated function in the future. Policy S8 of the MLP defines Mineral Consultation Areas as extending up to 250m from the boundary of an infrastructure site or allocation for the same.

Paragraph 187 of the NPPF states that “Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.”

Due to the proposed project passing through a Mineral Consultation Area, a Mineral Infrastructure Impact Assessment (MIIA) is required as

part of the planning application. The MWPA has designed a generic schedule of information requirements that should be addressed as relevant through an MIIA. The detail to be provided should be in proportion to the nature of the proposed application.

Mineral Infrastructure Impact Assessment Components

Minerals Infrastructure Impact Assessment Components	Information requirements & sources
Site location, boundaries and area	Application site area in relation to safeguarded site(s), Description of proposed development, Timescale for proposed development,
Description of infrastructure potentially affected	Type of safeguarded facility e.g. wharf, rail depot, concrete batching plant; asphalt plant; recycled aggregate site, Type of material handled/processed/supplied, Throughput/capacity.
Potential sensitivity of proposed development as a result of the operation of existing or allocated safeguarded infrastructure (with and without mitigation)	Distance of the development from the safeguarded site at its closest point, to include the safeguarded facility and any access routes, The presence of any existing buildings or other features which naturally screen the proposed development from the safeguarded facility, Evidence addressing the ability of vehicle traffic to access, operate within and vacate the safeguarded development in line with extant planning permission, Impacts on the proposed development in relation to: <ul style="list-style-type: none"> • Noise • Dust • Odour • Traffic • Visual • Light

Potential impact of proposed development on the effective working of the safeguarded infrastructure/allocation	Loss of capacity – none, partial or total, Potential constraint on operation of facility – none or partial.
Mitigation measures to be included by the proposed development to reduce impact from existing or allocated safeguarded infrastructure	External and internal design & orientation e.g. landscaping; living & sleeping areas facing away from facility, Fabric and features e.g. acoustic screening & insulation; non-opening windows; active ventilation.
Conclusions	How the MIIA informed the final layout of the proposed development. Potential sensitivity of proposed development to effects of operation of the safeguarded infrastructure/facility and how these can be mitigated satisfactorily; or If loss of site or capacity, or constraint on operation, evidence it is not required or can be re-located or provided elsewhere.

A MIIA is expected to be evidence based and informed by quantified information. It is recognised that the requirements of an MIIA may be addressed through other evidence base documents, such as those addressing transport, odour and noise issues. In these instances, it would be acceptable for the MIIA to signpost to the relevant section of complementary evidence supporting the planning application. The MWPA welcomes early engagement to clarify the requirements of MIIA.

Waste Matters

Safeguarding Waste Infrastructure

The project area passes through a number of Waste Consultation Areas shown in Appendix One. Its location within these Waste Consultation Areas means that the application is subject to Policy 2 of the Essex and Southend-on-Sea Waste Local Plan 2017 (WLP). The WLP can be viewed on the County Council's website via the following link:

<https://www.essex.gov.uk/minerals-waste-planning-policy/waste-local-plan>

Policy 2 of the WLP seeks to ensure that existing and allocated waste sites and infrastructure are protected from inappropriate neighbouring developments that may prejudice their continuing efficient operation or ability to carry out their allocated function in the future. Policy 2 defines Waste Consultation Areas as extending up to 250m from the boundary of existing or allocated waste infrastructure, unless they are Water Recycling Centres, where the distance increases to 400m.

Due to the proposed project passing through a Waste Consultation Area, a Waste Infrastructure Impact Assessment (WIIA) is required as part of the planning application. In order to satisfy the provisions of Policy 2, the MWPA has designed a generic schedule of information requirements that should be addressed as relevant within the supporting evidence of any application which falls within a Waste Consultation Area. The detail to be provided should be in proportion to the nature of the proposed application.

Waste Infrastructure Assessment Components

Waste Infrastructure Assessment Components	Information requirements & sources
Site location, boundaries and area	<ul style="list-style-type: none"> • Application site area in relation to safeguarded site(s) • Description of proposed development • Timescale for proposed development
Description of infrastructure potentially affected	<ul style="list-style-type: none"> • Nature of relevant safeguarded facility • Type of material handled/processed/supplied • Throughput/capacity
Potential sensitivity of proposed development as a result of the operation of existing or allocated safeguarded infrastructure	<ul style="list-style-type: none"> • Distance of the development from the safeguarded site at its closest point, to include the safeguarded facility and any access routes. • The presence of any existing buildings or other features which naturally screen the proposed development from the safeguarded facility • Evidence addressing the ability of vehicle traffic to access, operate within and vacate the safeguarded development in line with extant planning permission. • Impacts on the proposed development in relation to: <ul style="list-style-type: none"> ○ Noise ○ Dust ○ Odour

	<ul style="list-style-type: none"> ○ Traffic ○ Visual ○ Light
Potential impact of proposed development on safeguarded infrastructure/ allocation	<ul style="list-style-type: none"> ● Loss of capacity – none, partial or total ● Potential constraint on operation of facility – none, partial or full
Measures to mitigate potential impacts of operation of infrastructure on proposed development	<ul style="list-style-type: none"> ● External and internal design & orientation eg landscaping; living & sleeping areas facing away from facility. ● Fabric and features eg acoustic screening & insulation; non-opening windows; active ventilation
Conclusions	<ul style="list-style-type: none"> ● Sensitivity of proposed development to effects of operation of safeguarded infrastructure/facility can be mitigated satisfactorily; or ● If loss of site or capacity, or constraint on operation, evidence it is not required or can be re-located or provided elsewhere

A WIIA is expected to be evidence based and informed by quantified information. It is recognised that the requirements of a WIIA may be addressed through other evidence base documents, such as those addressing transport, odour and noise issues. In these instances, it would be acceptable for the WIIA to signpost to the relevant section of complementary evidence supporting the planning application. The MWPA welcomes early engagement to clarify the requirements of WIIA.

6. SOCIO ECONOMICS

The Joint Council's make the following comments on the Socio-Economic element of the SR.

Ref	Comment
Generic intro statement on skills and jobs	The offshore wind industry does indeed present an opportunity to utilise and further develop the UK's maritime engineering skills as other industries decline, and we welcome the supply chain and other employment opportunities this will offer Essex County. We are keen to highlight the importance of maximising opportunities for the involvement of local businesses and communities in offshore wind as much as possible and using

	<p>this project to increase the skills base of our residents and employers as part of our local levelling up agenda.</p>
1.3.6	<p>The document makes reference to job numbers in other developments. However, there is no mention of numbers expected at this development specifically.</p> <p>One of the outcomes of the scoping exercise should be generation of a timetable which clearly sets out the assumptions about the number of workers required and the skills profile. This will inform engagement with local skills providers, educators and ECC.</p> <p>Therefore, a construction and operational workforce profile would also need to be scoped, with information on the numbers of specific skilled workers required at each stage.</p>
2.4	<p>We welcome the clear reference to the UK's Industrial Strategy (developed by BEIS in 2017), and the national ambition to maximise economic opportunities from energy infrastructure investment. ECC is keen to realise this ambition via this and other projects, provided the economic impacts, especially around skills, jobs, and supply chain opportunities are clearly evidenced.</p>
Table 27.1	<p>As well as the Essex Open data source, we would expect the developer to review other key data that does not seem to appear on this list - Table 27.1. This includes Skills for Essex Strategy and Action Plan (2021), the Essex Prosperity and Productivity Plan - Success Essex Board (2020), the North Essex Economic Strategy (2019), the Construction Growth in Essex Report 2020-2040 (2020), the ECC Skills and Employment Principles for Major Projects and Developments, and the Essex Green Skills Infrastructure Review Report and Action Plan (due to be published in Dec 2021).</p> <p>It is our opinion that these documents will provide useful additional data and information about the locality and county, thereby enabling the developers to further align the project with the local, regional and national ambition.</p>
27.5	<p>The proposed assessment method is sound and the reference to the National Policy Statement for Energy (NPS) EN-1 is welcome. However, we would also welcome a specific skills and jobs theme for the impacts proposed to be scoped into the assessment for Socio-Economic, Tourism and Recreation. For example, an assessment of the likely skills shortages at the construction and operation stage would allow early-stage intervention plans to mitigate against this likelihood. This would be welcome, especially if the interventions are increasing the local skills base in preparation for this and other projects.</p>

	Though 27.5.12 does make reference to the cumulative effects from other projects, we think that the assessment method needs to also look at this project's specific expected impact on the local labour market, in addition to other developments.
27.6	As an additional next step, we would propose that the scoping process starts to sketch out data and/ or assumptions to populate an Employment, Skills and Education Strategy as part of the socio-economic modelling. This would support the developer's intend to work closely with us in order to maximise local recruitment across all skills levels, during the construction and post-construction phase.

7. HEALTH AND WELLBEING

ECC makes the following comments as to this topic and the implications of the same. Throughout the consultation process we have engaged with both the NHS and CCG who will be making their own response in consultation. Going forward it is the intent that the Joint Council's and both the NHS and CCG will conjoin in discussions on this topic. The joint Council's support and endorse any comments as made be made on this SR from both parties.

The SR at section 28.7 asks additional questions of consultees, our comments an on the Section 28 are as follows:

Chapter	Section	General response	Comments & further evidence
22 Traffic and Transport	Table 22.3	Agree	ECC agrees scoping in the matters at 22.1 – 22.5 inclusive and 22.6 during construction and decommissioning phases respectively, since it is considered that these matters are potentially significant in terms of impacts
22	Table 22.3 – row 22.6 – Decommissioning Impacts	Not supported	Whilst ECC accepts that there are some important unknowns around the future baseline conditions and future regulatory context, it is suggested that the proposed 'parking' of considering the decommissioning plans and impacts now does not appear prudent. This is

			<p>partly because considering how decommissioning is to be addressed may affect some matters during the construction stage, in line with a whole lifecycle approach that is increasingly required to ensure sustainability and durability in construction, future use / operation, maintenance and ultimately decommissioning of buildings, structures etc. ECC notes that a detailed assessment of decommissioning impacts is not proposed to be carried out but would wish to be reassured that the approach and exercise to be undertaken is sufficiently robust and comprehensive. The potential for disruption of transport networks at that stage is considered significant, particularly in view of the scale of this project</p>
23 Air Quality	Table 23.2	Agree	<p>ECC agrees scoping in the matters at 23.1; 23.2; 23.3; 23.4 during construction and decommissioning phases, since it is considered that these matters are potentially significant in terms of impacts</p>
23	Table 23.4		<p>In order for ECC to agree the scoping out of the matters at 23.5 – emissions from operation of non-road mobile machinery (NRMM) during a lengthy construction stage, reassurance is required that robust control measures will be implemented and enforced effectively, e.g. to prevent engine are switched off when stationary to prevent engine idling and generation</p>

			of additional, unnecessary pollution
27 Socio Economics and Tourism	Table 27.2		ECC agrees the matters at 27.1 – 27.7 inclusive proposed to be scoped into the EIA for the construction phase. For the operation phase, those matters at 27.9 – 27.10 are also agreed to be scoped in. These represent a range of important and sensitive receptors, such as the local economy. As will probably be known, the local economy for Tendring has various particular challenges and ensuring that economic impacts are avoided, mitigated where necessary and shaped as positively as possible are all points of particular interest for ECC and these may impact substantially on the health of the local population
27	27.5.11	Support	ECC considers that the assessment of cumulative impacts in respect of construction operations and workers / skills/ labour availability will be particularly important given the scale and number of large projects that may act in conjunction with each other across a similar geography and over similar timescales
28 Health	28.1.2 - 3	Support	ECC welcomes a broad / comprehensive approach towards PH matters as described here to reflect the broad scope of PH interests. This reflects the wider determinants of health, as recommended by PHE and various PH evidence sources
28	28.5.3		It is recognized that the NPS on Energy (EN-1) requires

			<p>identifying any adverse health impacts (together with responses to these. This dates from 2011 and good practice has developed since that date. A broader and fuller HIA approach would also include identifying positive / beneficial impacts with a view to harnessing, shaping and maximising these. An example is the potential for positive socio-economic impacts (such as contributions to local economies, employment, incomes etc.). The potential for unintended (possibly indirect) impacts also need to be considered in this way. These considerations will affect the matters scoped into the assessment at Table 28.1</p>
28	Table 28.1		<p>It is noted, agreed and emphasized that the most significant impacts can be expected during the construction and decommissioning phases, with these impacts requiring the most consideration accordingly.</p> <p>It is also noted that transport derived air quality impacts cannot be identified clearly yet, since locations for onshore infrastructure locations have not yet been identified and further engagement with consultees on this will be necessary</p> <p>ECC agrees the scoping in of those matters at 28.1 – 28.5 inclusive during construction and decommissioning phases (plus 28.6 & 28.7 during operation stage)</p>

8. FLOODING AND WATER MANAGEMENT

Essex County Council as the Lead Local Flood Authority is consulted on Five Estuaries Wind Farm EIA Scoping opinion report. ECC welcome the preliminary assessment of water environment and flood risk is been considered as part of scoping opinion report. We would recommend all the information associated with surface water drainage should be included as part of any DCO application as this is a material consideration in the same. However, there isn't a need for additional information to be supplied as part of an EIA.

9. HIGHWAYS AND TRANSPORTATION

The Highways and Transportation makes the following detailed comments on the SR.

Ref.	Error/Data Issue /Clarification /Formatting /Comment	Joint Comment	Recommended Actions for 5E
22.6.2	Error	Table 22.2 should read table 22.3	Amend
Table 22.3/ Impact 22.1	Error	Final paragraph under proposed approach to assessment 'suers' should read 'users'	Amend
Table 22.3/ Impact 2.2	Clarification	A five-year period is required for collision data	Amend
Table 22.3	Comment	Impact 22.5 deals with users of PROW network. In a similar vein a similar impact be identified here for users of the highway network affected by the cable routeing. Once the cable route is known each road crossing will need to be dealt with on a case by case basis, this could potentially include temporary closure or formation of temporary road crossings/accesses	

		to accord with appropriate DMRB/MfS design standards and Road Safety Audit.	
22.11	Comment	Do you agree that the data sources identified are sufficient to inform the traffic and transport baseline for the VE PEIR and ES	ECC response: The data sources identified are appropriate, as a general rule data should be no more than 3 years old and any data falling with the Covid pandemic period from March 2020 to mid September 2021 would not be representative.
		Have all potential impacts resulting from VE been identified for traffic and transport receptors?	ECC Response: Yes subject to consideration of the above comments.
		Do you agree that the impacts described in Table 22.4 can be scoped out?	ECC Response: This seems reasonable in connection with 22.9, the key issue here being safe access to the highway network. Items 22.7 and 22.8 fall outside the control of the highway authority but appear to be reasonable statements.
		For those impacts scoped in (Table 22.3), do you agree that the methods described are sufficient to	ECC Response: Yes subject to the comments on table 22.3 above.

		inform a robust impact assessment?	
		Do you agree that the embedded mitigation measures described provide a suitable means for managing and mitigating the potential effects of VE on traffic and transport receptors?	ECC Response: Yes, it is noted these will evolve over the development process and once there is clarity over cable routing.
		Do you have any specific requirements for the traffic and transport modelling methodology	ECC Response: No specific requirements for the modelling methodology from that stated at this stage.

10. TOURISM

The Scoping submission correctly makes reference to the importance of this within the Tendring region, its key impact on providing jobs, as well as providing a leisure destination for thousands of tourists and day trippers. The coastline is dotted with holiday uses and includes the main town of Clacton as a traditional seaside destination, as well as other leisure-based uses. Tourism does, as it is correctly identified, represent a key component of the Tendring area, and there are ample tourism related accommodation and activities on the Tendring coast and in the hinterland for both indoor and outdoor activities.

This has resulted in a resurgence of tourism activity as people enjoy UK based “staycations” during/post the Covid Pandemic, seeing increased use of UK holiday destinations. It also has a significant influence in the visitor economy. Economically tourism accounts for about 15% of economic value and jobs. However, its effects are far wider as it supports visitor attractions, heritage assets, recreational activities, key organised events, and retail spent in the town centres and villages including hospitality, restaurants and cafes that rely on the increased and high value trade to survive. Accordingly, any damage to the area’s attractiveness for visitors would impact negatively on the food and drink sectors, and the brand and reputation of the District and would be considered an unacceptable risk. Further work is required to identify and assess how any impact on the tourism economy will be managed and mitigated as this is lacking at this time.

It is considered the actual construction work, the impacts of which are far from proven at this time with particular reference to traffic, road closures etc, could

have a detrimental impact on tourism, due to the disruption, volume of traffic, road closures, footpath and non-motorised users, noise and potential views of the construction site. However, the construction programme will have additional socio-economic impacts on tourism. A migrant construction workforce will need to be housed and this could reduce the availability of tourist accommodation. The size of the construction workforce is not yet known, however, with the number of other NISPS in the area such as Sizewell C and the Bramford to Twinstead National Grid Connection, plus the major development site at Bathside Bay in Harwich, the effect on the availability of tourist accommodation will be accumulative as these developments are within an easy 60-minute drive from the Clacton Area and are therefore inherently commutable. The impact of the same is commented upon in the SR, however it is clear that the impact of the workforce employed for this development should not be looked at in isolation from that of the other adjacent developments all of which are highly likely to be taking place at the same time placing pressure on the same accommodation.

The area's visitor offer also relies on the availability of its visitor accommodation offer (eg bed and breakfast, camping, caravan and static sites etc) which is in high demand especially during the peak summer months. Any short-term disruptions to this accommodation supply would be considered to have lasting effects on repeat visitor numbers. It is vital that this increased demand on certain types of accommodation during the peak construction period does not negatively impact on the visitor numbers and will need to be managed during the construction and operational phases. The Joint Councils seek the provision of legacy benefits through the provision of new and improved existing accommodation alongside create new, sustainable, quality visitor accommodation.

11. ARCHAEOLOGY

The proposed offshore windfarm is likely to have considerable archaeological impacts. Heritage is dealt with under a number of sections, 16.1: Seascape, Landscape and Visual Impact Assessment, 17 Marine Archaeology and Cultural Heritage and 20 Archaeology and Cultural Heritage. These comments are based on the assumption that the cable route is likely to require a 50m wide open strip.

Section 16

Table 16.1 The applicants should also be using the Historic Environment Characterisation study within this assessment.

Under 16.4.27 Should the historic town of Harwich be treated as separate entity within this section. It is also an important port as well as being an important historic asset.

16.4.32: This should include the Harwich redoubt.

16.5.3 This should also contain the setting guidance produced by Historic England if this is to be integrated with the heritage and cultural section.

Section 20

The document needs to ensure that the most up to date version of the NPPF is used (July 2021), note 20.4.17 as well as all other references to the NPPF.

Sections 20.3.2 to 20.3.4 needs to take into account the Tendring Historic Environment Characterisation and Tendring Geoarchaeological characterisation documents in assessing the study area.

Paragraph. 20.4.21 needs to include a separate Geoarchaeological Desk Based Assessment to assess the Palaeolithic/Pleistocene potential of the area due to the importance of these deposits within the study area. This should provide details of the scope for assessment of any significant geoarchaeological remains prior to any construction. The landfall area is the most sensitive area in the whole county for early archaeological deposits.

For information: Any ground investigation works carried out for engineering purposes would be of use and relevance to the geoarchaeological assessment and it is highly recommended that this be combined with the geoarchaeological assessment if possible. The results of any geotechnical boreholes should be made available to the specialist employed to carry out the assessment.

Section 20.4.20-22 Need to define an appropriate evaluation technique for those areas where there are direct impacts where no information is at present available. A programme of trial trenching will be needed to help define those deposits identified from aerial photographic assessment as well as blank areas on the route of the cable route. This information should be provided with the DCO submission.

20.4.36: The success of this mitigation will be dependant on the quality of the initial evaluation work completed for the DCO application.

20.5.2 This work should also include an Aerial photographic assessment and rectification which also includes an assessment and plotting of any available

Lidar data and provides a GIS dataset of all cropmark features within the study area. This would allow more accurate location of any targeted trenches.

20.5.2 Also there is a need for a Geoarchaeological Desk Based Assessment.

20.5.7 There will need to be separate written schemes of investigation for the evaluation work as this will need to be undertaken for the DCO. Only once this is completed can an appropriate understanding of the impact be agreed and a mitigation strategy designed.

20.6: There does need additional data sources comprising the characterisation work that has been undertaken in Tendring. There is also the Palaeolithic assessment undertaken by ECC for Essex which should be used to inform likely impacts, and help in the production of a geo-archaeological DBA.

A digital rectification of aerial photographic evidence will be necessary to accurately identify the location of cropmarks so that a programme of trial trenching can define extent and significance of these.

For those elements scoped in there under 20.1 there needs to be an assessment of potential for new sites within the DBA which should be gleaned from the various characterisation projects and reports available. Also it will be that all of the work described is completed and submitted with the DCO submission.

The Joint Councils raise no problem from a below ground archaeological viewpoint for those elements identified for scoping out.

The mitigation measures can only be agreed once the applicants have an understanding of the impact of the scheme. A range of options will be available once this detail is known.

Specific requirements for this section is to provide a clear understanding of the impacts on the known deposits (this will involve the addition to the present DBA of a geo-archaeological assessment and an arial photographic assessment), assess the impact of the route on previously unknown deposits (geophysics and trial trenching along the route and sub station), and agree a mitigation strategy that can be submitted with the DCO application.

It is noted that within Section 20 the potential cost of archaeological investigation is raised. However would works be conjoined, as is set out at the beginning of this response, this would reduce significantly.

12. BUILT HERITAGE

General Comments: The proposed offshore windfarm is likely to have considerable indirect impacts on built heritage assets through change within their settings. The chapters relevant to heritage include: 16. Seascape, Landscape and Visual Impact Assessment; 17. Marine Archaeology and Cultural Heritage; 20. Archaeology and Cultural Heritage; and 26. Landscape and Visual.

The proposed methodologies and impacts scoped in and scoped out of the Archaeology and Cultural Heritage chapter are generally acceptable. Further comments are provided below.

Section Specific Comments:

The following table provides more specific comments by section:

Section	Comment
Chapter 16	Figures 16.2, 16.3 and 16.4 are missing viewpoint locations 12-14 from the key.
Table 16.1	The key sources of information include the National Heritage List for England in regard to the Registered Parks and Gardens and UNSECO World Heritage Sites, but some listed buildings and scheduled monuments on the list may also be relevant considerations particularly those (as noted in Chapter 20) which have a historic functional link with the coast and views out to sea (forts, lighthouses, etc.).
Table 16.2	Is the Grade II Registered Park and Garden of Clacton Seafront Gardens (list entry no. 1001626) also a relevant consideration?
16.4.32	It is understood that the list of visual receptors may not be exhaustive, but there is potential to include the scheduled monuments of Dovercourt Lighthouses and Causeway (list entry no. 1017200) Beacon Hill Fort (list entry no. 1018958) and possibly the Harwich Redoubt (list entry no. 1017205) within the “visitors to historic environment assets” list.
16.5.3	Whilst the impact on the settings of heritage assets will be covered in a separate ES chapter, it is recommended that <i>Good Practice Advice in Planning 3: The Setting of Heritage Assets</i> (Historic England, 2017) is also considered in the technical guidance as there is some overlap between the two chapters with some visual receptors being visitors to heritage assets (with their settings contributing to how they are experienced).

Section	Comment
20.4.27	It is agreed that heritage assets with historic functional relationships with the coast and sea may be more susceptible to the change within their settings resulting from the proposal. The list in this paragraph includes port facilities, lighthouses and military sites but assets relating to leisure uses connected with the coast and seaside resorts could also be more susceptible than other assets. For example, the Registered Park and Garden at Clacton Seafront Gardens.
20.4.28	It would be helpful to agree a list of viewpoints requiring wirelines or photomontages to better assess the impact of the proposal on heritage assets.
Table 20-2	Harwich may be a potential addition to this table of “coastal asset clusters”, and potentially Clacton-on-Sea although this is just outside the Coastal Study Area.
20.4.32	Mitigation measures should be developed once the impact of the proposal is fully understood, as per step 4 of <i>Good Practice Advice in Planning 3</i> .
Table 26.1	Key sources of information should include the National Heritage List for England in regard to the identification of Registered Parks and Gardens.

13. HISTORIC ENVIROMENT

Historic Environment – Richard Havis

General Comments: The proposed offshore windfarm is likely to have considerable archaeological impacts. Heritage is dealt with under a number of sections, 16.1: Seascape, Landscape and Visual impact Assessment, 17 Marine Archaeology and Cultural Heritage and 20 Archaeology and Cultural Heritage. These comments are based on the assumption that the cable route is likely to require a 50m wide open strip.

Section Specific Comments:

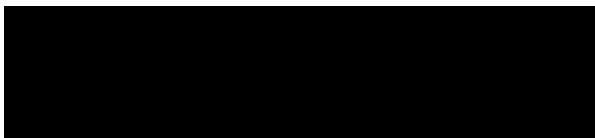
The following table provides more specific comments by section:

Section	Comment
Section 16	Table 16.1 The applicants should also be using the Historic Environment Characterisation study within this assessment.

Section	Comment
	<p>Under 16.4.27 Should the historic town of Harwich be treated as separate entity within this section. It is also an important port as well as being an important historic asset.</p> <p>16.4.32: This should include the Harwich redoubt.</p> <p>16.5.3 This should also contain the setting guidance produced by Historic England if this is to be integrated with the heritage and cultural section.</p>
<p>Section 20</p>	<p>Section 20</p> <p>The document needs to ensure that the most up to date version of the NPPF is used (July 2021), note 20.4.17 as well as all other references to the NPPF.</p> <p>Sections 20.3.2 to 20.3.4 needs to take into account the Tendring Historic Environment Characterisation and Tendring Geoarchaeological characterisation documents in assessing the study area.</p> <p>Paragraph. 20.4.21 needs to include a separate Geoarchaeological Desk Based Assessment to assess the Palaeolithic/Pleistocene potential of the area due to the importance of these deposits within the study area. This should provide details of the scope for assessment of any significant geoarchaeological remains prior to any construction. The landfall area is the most sensitive area in the whole county for early archaeological deposits.</p> <p>For information: Any ground investigation works carried out for engineering purposes would be of use and relevance to the geoarchaeological assessment and it is highly recommended that this be combined with the geoarchaeological assessment if possible. The results of any geotechnical boreholes should be made available to the specialist employed to carry out the assessment.</p> <p>Section 20.4.20-22 Need to define an appropriate evaluation technique for those areas where there are direct impacts where no information is at present available. A programme of trial trenching will be needed to help define those deposits identified from aerial photographic assessment as well as blank areas on the route of the cable route. This information should be provided with the DCO submission.</p> <p>20.4.36: The success of this mitigation will be dependant on the quality of the initial evaluation work completed for the DCO application.</p> <p>20.5.2 This work should also include an Aerial photographic assessment and rectification which also includes an assessment and plotting of any available Lidar data and provides a GIS dataset of all cropmark features within the study area. This would allow more accurate location of any targeted trenches.</p> <p>20.5.2 Also there is a need for a Geoarchaeological Desk Based Assessment.</p>

Section	Comment
	<p>20.5.7 There will need to be separate written schemes of investigation for the evaluation work as this will need to be undertaken for the DCO. Only once this is completed can an appropriate understanding of the impact be agreed and a mitigation strategy designed.</p> <p>20.6: There does need additional data sources comprising the characterisation work that has been undertaken in Tendring. There is also the Palaeolithic assessment undertaken by ECC for Essex which should be used to inform likely impacts, and help in the production of a geo-archaeological DBA. A digital rectification of aerial photographic evidence will be necessary to accurately identify the location of cropmarks so that a programme of trial trenching can define extent and significance of these.</p> <p>For those elements scoped in there under 20.1 there needs to be an assessment of potential for new sites within the DBA which should be gleaned from the various characterisation projects and reports available. Also it will be that all of the work described is completed and submitted with the DCO submission. I have no problem from a below ground archaeological viewpoint for those elements identified for scoping out. The mitigation measures can only be agreed once the applicants have an understanding of the impact of the scheme. A range of options will be available once this detail is known. Specific requirements for this section is to provide a clear understanding of the impacts on the known deposits (this will involve the addition to the present DBA of a geo-archaeological assessment and an arial photographic assessment), assess the impact of the route on previously unknown deposits (geophysics and trial trenching along the route and sub station), and agree a mitigation strategy that can be submitted with the DCO application.</p>

Yours sincerely



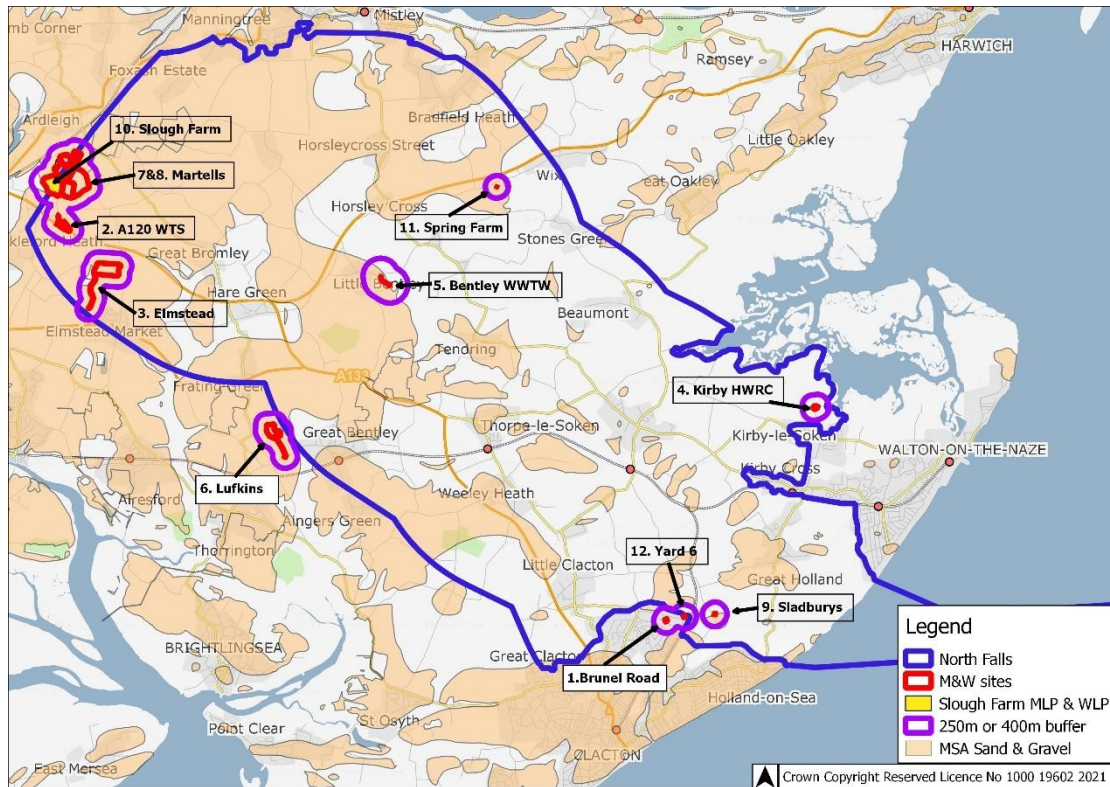
Graham Thomas
Head of Planning
Sustainable Growth Directorate

Enquiries to:
Mark Woodger, Principal Planner, Growth & Development

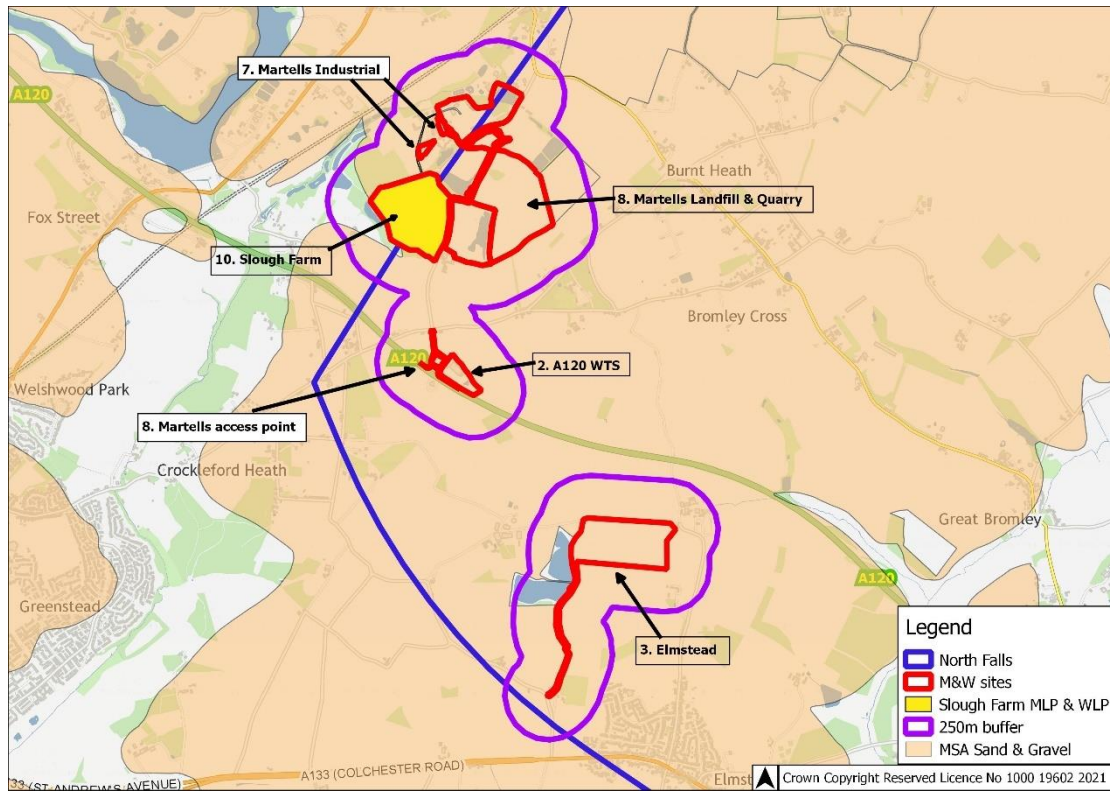
 [\[redacted\]@essex.gov.uk](mailto: [redacted]@essex.gov.uk)

Appendix One – Location of Mineral Safeguarding Areas in Relation to the Project Area (Project Area relates to data received for North Falls Windfarm)

Map 1 – Minerals and Waste Safeguarding Screening – Full Extent of Project Area



Map 2 – Minerals and Waste Safeguarding Screening – North West of Project Area



Appendix Two – Schedule of Safeguarding Designations and Safeguarded Minerals and Waste Infrastructure relevant to the Project Area (Project Area relates to data received for North Falls Windfarm)

Schedule of mineral infrastructure and designations within the project area

Details of planning applications can be viewed on the [ECC website](#), by accepting the disclaimer and then searching on the planning reference

Site type	Site name	Planning application number	Further Details
<p>Mineral Safeguarding Areas</p> <p>Policy implications set out under ‘Mineral Matters – Safeguarding Mineral Resources’. Subject to MSA designation – Policy 8 of the Essex Minerals Local Plan 2014</p> <p>Spatial extent shown in Appendix One.</p>	Sand and gravel	N/A	
<p>MLP Allocations or Safeguarded Mineral Development Sites</p> <p>Policy implications set out under ‘Mineral Matters – Safeguarding Mineral Infrastructure’. Subject to</p>	Martells Quarry	<p>Extant Permission – ESS/53/17/TEN - Extraction of minerals shall cease south of Slough Lane by 30 December 2026. Restoration shall be completed by 30 June 2033.</p> <p>Current Application(s) –</p>	

<p>MCA designations – Policy 8 of Essex Minerals Local Plan 2014.</p> <p>Spatial extent shown in Appendix One.</p>		ESS/27/20/TEN – Pending determination - continuation of permitted developments until 30 September 2040.	
	Elmstead Hall	Extant Permission – ESS/24/15/TEN – Construction of an irrigation reservoir involving the excavation, processing and removal of sand, gravel and soils, engineering works and ancillary buildings.	Site to be restored in accordance with planning permission not later than 48 months from the date of notification of the commencement of site preparation works.
	Lufkins Farm	<p>ESS/40/15/TEN - Construction of a temporary access onto Great Bently road (Lufkins Lane), internal road and ancillary works to enable the removal of surplus material arising from the construction of an agricultural reservoir.</p> <p>ESS/41/15/TEN - s.73 application of alteration of conditions 2,13,16,19,20,21,23 AND 48 of ESS/10/13/TEN Commenced January 2019 cessation of extraction 14 January 2022.</p>	
	Slough Farm	ESS/29/20/TEN – pending determination - Proposed western extension to Martells Quarry for the extraction, processing, sale and distribution of silica sand and gravel, and subsequent restoration using inert materials along with the creation of a new access.	MLP Allocation Site B1, MLP Policy S7 (silica sand extraction)

Schedule of waste infrastructure and designations within the project area

Site type	Site name	Planning application number	Further Details
Waste management infrastructure (subject to WCA designations – Policy 2 of Essex and Southend-on-Sea Waste Local Plan)	20 Brunel Road, Clacton-on-sea	ESS/05/13/TEN - Retrospective change of use to enable the recycling of material at the rear of Unit 20 Gorse Lane Industrial Estate, Clacton on Sea.	
	A120 Waste Transfer Station	ESS/16/13/TEN - Proposed development of a new waste management facility, with associated change of use of land. The facility comprises erection of a building for the transfer/bulking of municipal waste, together with ancillary development including dual weighbridge, weighbridge kiosk, office and staff welfare building, fire water holding tank and pumphouse, electricity substation, infiltration basin to manage surface waters and pipework, package sewage treatment plant, vehicle wash system, staff car parking, vehicle hardstanding, fencing, landscaping, formation of accesses to site and associated works.	
	Kirby Le Soken Household Waste Recycling Centre	CC/TEN/10/94 - Civic Amenity & recycling.	
	Little Bentley Waste Water Treatment Works	ESS/27/05/TEN - Construction of sewage pumping station, sewage treatment works, access road and site fencing.	

	Martells Industrial Estate	<p>ESS/08/08/TEN - Reception and decontamination of ferrous and non-ferrous metal goods (Mainly Vehicles). Preparation and processing of metal for export. Erection of new buildings associated with the proposed use. Provision of sealed working floor areas, associated drainage. Provision of weighbridge, parking and fencing.</p> <p>ESS/31/14/TEN - Erection of a storage building for mechanical plant and machinery.</p>	
	Martells Landfill	<p>ESS/30/16/TEN - Application for the continued restoration of former quarry void by means of landfill - site restored by 31st December 2023.</p> <p>ESS/27/20/TEN – Pending determination - continuation of permitted developments until 30 September 2040</p>	
	Sladburys Farm, Sladburys Lane	ESS/30/13/TEN - Retrospective application for use of the site as a storage and distribution facility for waste/reclaim materials and goods. Associated development includes amendments to the existing access, existing loading/unloading areas and the provision of additional signage.	
	Slough Farm	ESS/29/20/TEN – pending determination - Proposed western	Waste Local Plan Allocation L(n)1R

		extension to Martells Quarry for the extraction, processing, sale and distribution of silica sand and gravel, and subsequent restoration using inert materials along with the creation of a new access.	
	Spring Farm	ESS/04/18/TEN - Change of use of building to waste recycling centre (sui generis).	
	Yard 6, Telford Road, Clacton	ESS/16/19/TEN - Proposed construction of a waste transfer station for the sorting of non-putrescible commercial, domestic and construction waste.	



CEMHD Policy - Land Use Planning,
NSIP Consultations,
Building 1.2,
Redgrave Court,
Merton Road,
Bootle, Merseyside
L20 7HS.

HSE email: NSIP.applications@hse.gov.uk

FAO Stephanie Newman
The Planning Inspectorate
Temple Quay House
Temple Quay
Bristol
BS1 6PN
By email only

Dear Ms Newman

26 October 2021

**PROPOSED FIVE ESTUARIES OFFSHORE WIND FARM (the project)
PROPOSAL BY FIVE ESTUARIES OFFSHORE WIND FARM LIMITED (the applicant)
INFRASTRUCTURE PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2017 (as
amended) REGULATIONS 10 and 11**

Thank you for your letter of the 5 October 2021 regarding the information to be provided in an environmental statement relating to the above project. HSE does not comment on EIA Scoping Reports but the following information is likely to be useful to the applicant.

HSE's land use planning advice

Will the proposed development fall within any of HSE's consultation distances?

According to HSE's records the proposed DCO application boundary for this Nationally Significant Infrastructure Project is not within the consultation zones of any major accident hazard sites or major accident hazard pipelines.

This is based on the current configuration as illustrated in, for example, figure 1.2 'Site overview of scoping boundary – onshore' of the document FIVE ESTUARIES OFFSHORE WIND FARM ENVIRONMENTAL IMPACT ASSESSMENT: SCOPING REPORT Document Reference 003444569-01 Revision 1.0 Date 30 September 2021.

HSE's Land Use Planning advice would be dependent on the location of areas where people may be present. When we are consulted by the Applicant with further information under Section 42 of the Planning Act 2008, we can provide full advice.

Hazardous Substance Consent

The presence of hazardous substances on, over or under land at or above set threshold quantities (Controlled Quantities) will probably require Hazardous Substances Consent (HSC) under the Planning (Hazardous Substances) Act 1990 as amended. The substances, alone or when aggregated with others for which HSC is required, and the associated Controlled Quantities, are set out in The Planning (Hazardous Substances) Regulations 2015 as amended.

HSC would be required to store or use any of the Named Hazardous Substances or Categories of Substances at or above the controlled quantities set out in Schedule 1 of these Regulations.

Further information on HSC should be sought from the relevant Hazardous Substances Authority.

Consideration of risk assessments

Regulation 5(4) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 requires the assessment of significant effects to include, where relevant, the expected significant effects arising from the proposed development's vulnerability to major accidents. HSE's role on NSIPs is summarised in the following Advice Note 11 Annex on the Planning Inspectorate's website - [Annex G – The Health and Safety Executive](#). This document includes consideration of risk assessments on page 3.

Explosives sites

HSE has no comment to make as there are no licensed explosives sites in the vicinity.

Electrical Safety

No comment from a planning perspective.

At this time, please send any further communication on this project directly to the HSE's designated e-mail account for NSIP applications at nsip.applications@hse.gov.uk. We are currently unable to accept hard copies, as our offices have limited access.

Yours sincerely,

Monica

Monica Langton
CEMHD4 NSIP Consultation Team



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Direct Dial: [REDACTED]

Our ref: PL00667042

Your ref: EN010115

Date: 28 October 2021

fiveestuaries@planninginspectorate.gov.uk

BY EMAIL

Dear Ms Lancaster

ENVIRONMENT IMPACT ASSESSMENT (EIA) SCOPING REPORT – SEPTEMBER 2021

Application by Five Estuaries Offshore Wind Farm Limited (the Applicant) for an Order granting Development Consent for the Five Estuaries Offshore Wind Farm (the Proposed Development)

Thank you for your letter of 5th October with a formal request for a scoping opinion in relation to the above application. Historic England, as the government's lead advisor on the historic environment, would like to offer comments on this proposal, taking into consideration the information provided by the applicant: Five Estuaries Offshore Wind Farm Environmental Impact Assessment Scoping Report, No: 003444569-01 (20 September 2021).

We are aware that this EIA Scoping exercise for the proposed Five Estuaries Offshore Wind Farm project is in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and the requirements on Nationally Significant Infrastructure Project (NSIP) to consult interested parties, such as Historic England.

The Proposed Development

The overall aim of the proposed development is for an extension located immediately adjacent to the eastern boundary of the existing Galloper Offshore Wind Farm (OWF), approximately 37km off the coast of Suffolk. If consent is granted, construction is anticipated to commence in 2028 and the OWF will be operational in 2030.

The Five Estuaries Offshore Wind Farm Ltd (VE OWFL) wind turbine generators (WTGs) will be situated within two array areas to the east of the operational Galloper OWF.

Cables will connect the turbines to the offshore substation platforms and export the power generated to shore. It is expected that there will be a number of inter-array cables, up to four export cables and up to two offshore substation platforms.

A landfall area has been identified between Holland-on-Sea and Frinton-on-Sea. The precise landfall location between these two settlements will be subject to further assessment work. A new VE onshore substation will be needed and is likely to be constructed near to the National Grid's EACS.

Within these boundaries, WTGs, array cables and offshore platforms (substations) will be installed. The northern and southern array boundaries cover areas of approximately 6.1nm² (20.9km²) and 37.5nm² (128.6km²), respectively. The northern array boundary lies approximately 12.0nm from shore, and the southern boundary approximately 20.3nm from shore.

The project has the potential to consist of up to 79 WTGs, with a maximum rotor diameter of 337m and a maximum rotor tip height of 397m above Mean High Water Springs (MHWS), or up to 48 larger WTGs (specification estimates not provided). The design envelope for the array area is 149km². The division of WTGs across the two array boundaries and the overall layout will be informed by site investigation works post consent.

The Scoping Report indicates that the foundation design for WTGs or Offshore Substation Platforms (OSPs) could comprise any of the following:

- monopile;
- suction bucket monopile;
- gravity base monopile;
- pin-piled jacket;
- suction bucket jacket; and/or
- gravity base jacket.

The cables will be directly buried using the above techniques or pulled into a duct/pipe that will be installed using the above techniques. The design envelope for the width of seabed that will be disturbed during installation is 12m, and the cable corridor width is 1km. Inter-connector cables between the two array areas will be required.

The electricity will be connected to the shore by export cables which will be located within an offshore export cable corridor which is currently proposed to run from the southern WTG array area and is proposed to make landfall between Holland-on-Sea and Frinton-on-Sea. The precise landfall location between these two settlements will be subject to further assessment work. Through a site selection study, a preferred offshore export cable route has been identified through constraints analysis and consultation with stakeholders.

The following installation methodologies may be used for the installation of inter-array cables:

- ploughing;
- jet-trenching;
- pre-cut and post-lay;
- mechanical trenching;
- dredging (trailing hopper suction dredger and backhoe dredger);
- mass flow excavation;
- rock cutting; and/or

- burial sledge.

Cables will be installed at the landfall using trenchless (HDD) or open-cut trenching techniques.

The offshore elements of VE OWFL are now well defined. It is anticipated that the connection to the National Grid will be at a new substation, the East Anglia Coastal Substation (EACS). The location of the EACS has not yet been confirmed by National Grid. The VE onshore export cables will be installed (underground) between the landfall and the grid connection point. There are currently several options being explored for the onshore export cable route. To progress with the development of the project, VE OWFL has defined an onshore geographical broad area (the 'onshore area of study', AoS).

The onshore scoping area comprises a large area of land located within the Tendring district, because the onshore transmission substation location has yet to be confirmed. VE OWFL will apply the following key principles for the selection of the onshore cable route and associated onshore infrastructure:

- Avoid close proximity to residential dwellings;
- Avoid close proximity to historic buildings;
- Avoid designated sites;
- Minimise impacts to local residents in relation to access to services and road usage, including footpath closures;
- Wherever possible the cable route will seek to utilise open agricultural land;
- Minimise requirement for complex crossing arrangements, (e.g. road, river and rail crossings);
- Avoid areas of important habitat, trees, ponds and agricultural ditches;
- Install cables in flat terrain maintaining a straight route where possible;
- Avoid other services (e.g. gas pipelines) but aim to cross at right angles where crossings are required;
- Minimise the number of hedgerow crossings, utilising existing gaps in field boundaries if possible; and
- Minimise impacts on agricultural practices and access, avoid rendering parcels of agricultural land inaccessible during construction and installing cables along field boundaries where possible.

We note that all onshore cables will be buried in order to minimise permanent visual impact, as opposed to using overhead lines to connect the landfall to the project substation and between the project substation and the National Grid substation. It is the intention to hold a formal consultation on the site selection and alternatives in Q1/2 2022.

The design envelope for the maximum site area for the substation is 50,000m². The proposed building substructures (for five buildings in total) are typically predominantly composed of steel and cladding materials although brick/block and modular structures are sometimes employed. In addition, there could be unhoused equipment, such as compensation transformers, water tanks and a distribution network operators substation. Noise enclosers and lightning masts may also be constructed.

Historic England Advice

The historic environment is a finite and non-renewable environmental resource which includes designated and non-designated heritage assets, conservation areas, historic landscapes and sites of historic and evidential interest. It is a rich and diverse part of England's cultural heritage and makes a valuable contribution to our cultural, social and economic life.

We confirm that historic environment represents a potentially significant issue in EIA terms, for both onshore and offshore elements, and confirm our view the historic environment should be 'scoped in' to the assessment. We agree that 'marine archaeological and cultural heritage' receptors are fully scoped into the EIA exercise, including any Preliminary Environmental Information Report (PEIR), for this proposed project.

We acknowledge in Chapter 6 (Consultation process) that during preparation of the EIA Scoping Report the project team did meet with Historic England, as listed in Tables 6.1 and 6.2.

We welcome the commitment to engage professional, accredited and experienced built heritage and archaeological consultants in the preparation of the ES, so that full consideration can be taken of known and presently unknown heritage assets.

We are aware that a project design Rochdale Envelope approach is being used to provide flexibility in any consent obtained to take account of changes in available electricity generation and transmission technology. We understand that such flexibility should enable the Applicant to use the most up-to-date, efficient and cost-effective technology and techniques in the construction, operation, maintenance and decommissioning of the proposed wind farm.

The adoption of a realistic worst-case scenario will enable the Project's stakeholders and the Secretary of State to be confident that the environmental impacts of the Project would be no greater than those identified in the Environmental Statement (ES).

We understand that Five Estuaries and the nearby North Falls Offshore Wind Farm are two distinct projects with separate ownership/shareholders. We welcome the co-ordination of stakeholder engagement, construction, infrastructure and operations plans with the adjacent, proposed North Falls Offshore Wind Farm project for the project development phase, where this is practicable and feasible. We would encourage a co-ordinated approach, which has the potential to minimise environmental impacts for both projects.

We acknowledge that the location of the EACS has not yet been confirmed by National Grid. As a result, VE OWFL has defined a very large onshore area of study, covering more than half the Tendring peninsula. This approach limits the response, in terms of onshore works, to only very general comments at this stage. In our opinion, the submission is premature and we would recommend that the scoping exercise for onshore work is repeated once the grid access has been determined.

To assist any further planning of the proposed NFOW project we offer the following link to the Historic England Advice Note 15 *Commercial Renewable Energy Development and the Historic Environment* (2021):

<https://historicengland.org.uk/images-books/publications/commercial-renewable-energy-development-historic-environment-advice-note-15/>

Comments in relation to the Scoping Report: Physical Processes (Chapter 7)

We note that data to inform the PEIR will be based on available grey literature associated with various developments together with geophysical data and survey reports produced by the Galloper and Greater Gabbard OWF projects, as may be available. We also note that site specific geophysical surveys for the VE OWFL array areas and wider offshore Area of Search (AoS) are to be conducted in 2021, so that those data generated should support site characterisation, such as detailing the seabed and associated sediment properties as necessary to produce a PEIR.

We understand that the bathymetry within the VE OWFL array areas is generally between -35 to -55m below lowest astronomical tide (LAT), with the deepest areas generally found in the south array. For much of the offshore AoS, depths are in the range -15 to -35m LAT, although less than -10m LAT in locations close to bank systems.

Paragraph 7.4.8 describes the presence of ‘...eroded, relict land surfaces [that] have formed in response to the growth and decay of Pleistocene ice sheets and associated changes in relative sea level.’ We would want to see data interpretation fully cross-referenced between this chapter and the chapter (17) on marine cultural heritage in any subsequent PEIR, as alluded to in para. 7.5.7.

The coastline within the study largely consists of soft cliffs and shingle or sand beaches (7.4.13). The Shoreline Management Plan for much of the coastline is ‘no active intervention’ but with preferred policies of ‘hold the line’ or ‘managed realignment’ in place for parts of the coastline.

We are pleased to see that the information on the changes to the physical processes pathways will be used to inform other EIA topic assessment, including archaeology and cultural heritage offshore (7.5.7). A summary of the impacts has been presented in Table 7.3 and includes issues such as the increased erosion or disturbance of sediments. The issues may have either a positive or negative impact on heritage, which needs to be fully considered.

Comments in relation to the Scoping Report: Historic environment settings assessment (Chapter 16)

We appreciate that attention will be given to assessment of the setting of heritage assets and will be addressed within respective chapters of the ES for onshore and offshore archaeology and cultural heritage.

We note the initial proposed SLVIA assessment (Chapter 16) and recommend the SLVIA is supplemented with heritage specific viewpoints (photographs, photomontages and wirelines) that illustrate the ES and support the results of the heritage assessment. If these are to be presented in the seascape, landscape and visual chapter, the assessment needs to be clearly set out and cross-referenced with the heritage chapter.

We note that para. 16.4.34 states that consultation on the viewpoint locations proposed in Table 16.3 has been undertaken with stakeholders to agree these viewpoints, including Historic England. At this stage, however, we have provided no detailed feedback on specific heritage viewpoints.

We recommend Historic England is consulted on viewpoints prior to the production of the PEIR, and we look forward to constructive engagement with the applicant, to agree the proposed key viewpoints for visualisations to assess the impact of offshore infrastructure on designated heritage assets.

We note that a precautionary approach is taken in defining a 60km search radius around the study area (16.2.6, 20.2.3 and Figure 16.2). Given the estimated maximum rotor tip height of 397m, which is very high, we would recommend that the search radius for cultural heritage is extended to 70km, and should include highly-graded heritage assets, for example, on the Dengie Peninsula.

We note that para. 16.4.7 mentions the seascape character assessment published by the MMO and we add that the MMO seascape data does include Historic Seascape Characterisation (HSC) data as a means to derive a sense of character. It is important to add that the effectiveness of HSC as a means to understand how seascape can accommodate change will depend on how the available methodology is used.

It is likely that the proposed onshore substation will have an impact on the significance of designated and non-designated heritage assets, in terms of the changes to their settings and their relationships to the wider landscape. We recommend a ZTV is produced in relation to the designated heritage assets, and any significant historic landscape elements, and used to inform the selection of potential viewpoints to assess the impact of the proposed substation on the setting of heritage assets. The assessment should define a study area according to the sensitivity of the receiving environment and the potential impacts of the project.

Please note our concerns with the approach taken to the lack of detail with regards to the sub-station location. Once available, we would be pleased to advise on the area of study for designated heritage assets, and the extent of ZTV, once the scoping area has been narrowed down. We note that a 2km buffer has been proposed (20.2.6) but the zone of theoretical visibility could be considerably larger – and this cannot be agreed until the location of the proposed substation has been published. We also look forward to constructive engagement with the applicant to agree the proposed key viewpoints for visualisations.

The setting of heritage assets is not just restricted to visual impacts and other factors should be considered, in particular noise, vibration, light, odour, traffic assessments, during construction and operation. Where relevant, the cultural heritage chapter should

also be cross-referenced to other relevant chapters, and we advise that all supporting technical heritage information is included as appendices.

In terms of the assessment of setting, we consider the analysis of setting (and the impact upon it) as a matter of qualitative and expert judgement which cannot be achieved solely by use of systematic matrices or scoring systems. Historic England, therefore, recommends these should be in an appendix and seen only as material to support a clearly expressed and non-technical narrative argument within the cultural heritage chapter. The EIA should use the ideas of benefit, harm and loss to set out 'what matters and why' in terms of the heritage assets' significance and setting, together with the effects of the development upon them.

In addition, the appreciation of the value of the historic environment should not rely solely on an appreciation of the location of designated heritage assets but consider the interactions with the wider landscape.

The assessment should be prepared and submitted following the approach set out in Historic Environment Good Practice Advice in Planning Note 3, *The Setting of Heritage Assets* (2017):

<https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/>

Comments in relation to the Scoping Report: Marine archaeology and cultural heritage (Chapter 17)

We note Chapter 17 relating to marine archaeology and cultural heritage that has been submitted in the Scoping Report. On the basis of the information presented in the Scoping Report, we concur with the statement made in para. 17.5.3 that no impacts have been scoped out for the assessment of marine archaeology and cultural heritage.

We note Table 17.1 includes 'England's Historic Seascapes Marine HLC Pilot Study: Southwold to Clacton', which was produced in 2007 with a summary that states it is a 'Description of palaeolandscape and marine archaeological potential.' The appropriate Historic Seascape Characterisation (HSC) reference to be used, however, is the *National Historic Seascape Characterisation Consolidation* (Land Use Consultants, 2018). This provides the methodological approach to be used for HSC in any PEIR subsequently produced (as mentioned in 17.6.1).

It is also important that the applicant is aware that HSC is not a means to describe *per se*. HSC is a means to derive a perception of historic character based on disparate spatial data in different spatial dimensions as relevant to the marine environment. Consequently, a key aspect of its inclusion within an Environmental Statement is to determine how perceptions of historic character may accommodate change as proposed by the development project in question.

We also recommend that the following reference is used and added: Sturt, Fraser and Dix, Justin K., EMU Ltd. (2009) *The Outer Thames Estuary Regional Environmental Characterisation* (09/J/1/06/1305/0870) London, GB. ALSF/MEPF (DEFRA) 145pp.

Table 17.2 contains useful information regarding the possibility of encountering known and unknown elements of the historic environment, which is particularly relevant for the location of this proposed development. For example, archaeological materials associated with merchant trade conducted over centuries; periods of warfare, such as mentioned in para. 17.4.14 regarding a battle in the Second Anglo-Dutch Wars in July 1666; and aviation losses (allied and enemy), especially from the Second World War. Paragraph 17.5.1 should be expanded to include: Gribble, J. and Leather, S. for EMU Ltd. (2011) *Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector*. Commissioned by COWRIE Ltd (project reference GEOARCH-09).

We note para. 17.4.10 states that, although there are no recorded peats at the landfill site, peat has been recorded in adjacent areas. There is, therefore, the potential for peat to be present which is of archaeological interest, and this will need to be assessed.

We note the detail provided in Table 17.5 regarding the direct and indirect impacts that may occur during the construction, operation and decommissioning of the proposed development. We are pleased this has included the potential for physical damage, compression and scour of archaeological deposits.

Paragraph 17.5.6 states that the mitigation measures adopted will focus on the implementation of Archaeological Exclusion Zones (AEZs), the development of a Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) and the commitment to undertake a full archaeological review of geophysical and geotechnical data, which is welcomed. Regarding the proposed approach to assessment, however, we consider it important that the following matters are clarified, below.

The Scoping Report implies that marine archaeological materials ('receptors') '...will be identified during the archaeological assessment of geophysical and geotechnical data ahead of PEIR...' (Table 17.5). The use of AEZs or 'appropriate buffer areas' are identified as a mitigation mechanism to inform the project design stage (17.5.6 and Table 17.5). It is important to note that the primary purpose of a marine archaeological WSI is to set out methodological approaches for survey data analysis, such as geophysical, geotechnical and visual inspection techniques. The use of the WSI is most effectively employed at the early stage of survey commissioning to maximise the potential for data acquisition that supports archaeological analysis and interpretation.

Subject to any agreed programme of analysis (supported by detailed method statements), it may be that sites, features and/or other anomalies of possible or known archaeological interest should be protected *in situ* by adopting an avoidance strategy. In this case, it will be necessary to identify AEZs. The extent to which it is possible to inform any subsequent PEIR is dependent on what survey work is conducted to corroborate desk-based sources of information, e.g. UK Hydrographic Office and Historic England records (as listed in Appendix B and C).

Furthermore, the use of a PAD is solely a means to deal with a situation when consented works are being conducted and previously unknown marine archaeological receptors are discovered, so that key stakeholders take the necessary action with minimum of delay. The cross-reference to a marine WSI should be to ensure that

agreed methodologies for examination are conducted to assist determination of archaeological interest.

We note the reference to ‘designed-in measures’ (17.5.4). We would recommend that the EIA explains how an ‘Outline Marine WSI’ will be designed to inform any and all programmes of survey investigation, as may occur after consent (should permission be obtained) and prior to any defined phase of ‘construction’ as may require the production of a ‘final’ WSI (as mentioned in para. 17.5.6).

It is essential that the commissioning of any pre-construction surveys is informed by the methodological approach contained within a WSI. It is insufficient if the Outline WSI is only used to indicate the presence of AEZs, especially if primarily based on low-resolution geophysical survey data and/or other pre-existing survey data and reports. In this regard, we welcome the statement made in para. 17.5.7 and the agreement of a methodological approach with advisors, such as Historic England.

We note para. 17.5.12 regarding determination of cumulative impacts (e.g. other offshore wind farms as shown in Figure 14.7) and we look forward to receiving further details about this aspect of the assessment exercise during pre-application.

In reference to ‘potential transboundary impacts’, para. 17.5.20 mentions the possibility that ‘...paleochannels and palaeolandscapes...stretch beyond international boundaries.’ Although we appreciate the logic that impact is expected to be within the proposed VE OWFL project area, we are interested in the remark regarding mitigation based on ‘...archaeological assessments of available geophysical and geotechnical data.’ It is important that the EIA explains the methodological approach which underpins an effective mitigation programme based on geoarchaeological processing of survey data. We recommend this is clarified.

It is also important that research questions are included in the EIA as demonstrated by the following references: *North Sea Prehistory Research and Management Framework* (H. Peeters et al. 2009) and *People and the Sea: a maritime archaeological research agenda for England* (J. Ransley et al. 2013).

Paragraph 17.6.1 states, ‘archaeological assessments of available marine geophysical and geotechnical survey data’. We consider it important to explain that the maximum benefit is for survey campaigns to be commissioned inclusive of archaeological objectives, especially to inform early stage planning. We are aware that developers are keen to maximise benefits from survey campaigns and that it is good practice for engineers, geo-scientists and archaeological consultants to coordinate accordingly.

We would recommend a joined-up approach to the assessment so that the geoarchaeologists and geophysicists can be included in the design of these elements of the assessment to maximise opportunities, reduce the need for duplication of effort, and to ensure that the information obtained is also suitable for archaeological assessments. In particular, we would recommend that the line spacings used in the different geophysical campaigns are revised so that they are in accordance with that recommended in Historic England document ‘*Marine Geophysics*’ (2013).

We would also recommend that the geoarchaeologist is given direct access to the core sequences rather than just the core logs. For example, providing isolated physical

'samples' are likely to be of limited use compared with having direct access to geotechnical core material on extraction and at time of cutting and prior to any destructive testing. It is essential that maximum value is obtained from any such analysis and, therefore, we recommend that geo-archaeological considerations and requirements are built into the planning of any geotechnical survey campaign. A continuous sequence of deposits is needed to examine deposit characteristics and interfaces between them, i.e. to record and assess continuous core sequences rather than isolated deposits, as this allows for greater reliability and confidence in the resulting conclusions. We look forward to seeing the WSIs for the proposed mitigation strategies in due course.

Comments in relation to the Scoping Report: onshore archaeology and cultural heritage (Chapter 20)

We note Chapter 20 relating to onshore archaeology and cultural heritage that has been submitted in the Scoping Report. We agree that the scoping report has taken into consideration both designated and non-designated heritage assets and that the assessment methodologies are generally appropriate – and we offer the following specific comments below.

We acknowledge that the Planning Inspectorate (2018) Advice Note 9 (Paragraph 4.5) states the "Rochdale Envelope" approach may be employed where the developer may not know the full or exact specifications of infrastructure that will comprise the proposed project (3.2). As set out above, we are concerned by the very large size of the onshore area of study (Figures 1.2 and 20.1), which makes it impossible to offer any specific or meaningful comments. This approach limits the response, in terms of onshore works, to only very general comments at this stage.

In our opinion, the submission is premature and the onshore scoping area in covering more than half the Tendring peninsula is simply too large. No cable corridor has been defined and no substation location has been identified in the Scoping Report. The onshore study areas (comprising both the Archaeology and Coastal Study Areas) contain 50 Scheduled Monuments, 1888 Listed Buildings (including 41 at Grade I and 106 at Grade II*), and eight Registered Parks and Gardens (20.3.7). No breakdown has been provided for the designated heritage within each of these study areas. We note the data for non-designated heritage assets from the Historic Environment Record has not been acquired at this stage (20.5.2).

We would expect the scoping area to be narrowed down at an early stage in the project, prior to submission of the Scoping Report. Consequently, we would recommend that the scoping exercise for onshore work is repeated once the grid access has been determined.

We are aware that the location of the proposed substation will not be confirmed by National Grid until Q1/2 2022. Consequently, we are concerned to ensure there is adequate time to undertake, in particular, a programme of onshore archaeological assessment that we believe is necessary to support the DCO application (see below).

We want to re-iterate our concerns with regards to the prematurity of this aspect of the proposal and that the lack of information raises concerns with regards to the potential impact of the scheme upon the historic environment. Further information on site selection for the overhead connection should be shared with stakeholders at the earliest opportunity.

Comments in relation to the Scoping Report: onshore archaeology

We note the sources of information to inform the baseline for the study area (Chapter 20). No results have been presented at this stage, with the exception of Figure 20.1 (designated heritage assets). We note that no preliminary assessment of the value of cultural heritage assets within the study area has been undertaken, presumably because of the very large size of the scoping area. At this stage, no systematic archaeological investigation has been undertaken.

Table 20-1 lists the resources used as part of the assessment. It may be useful to include the Historic England Archaeology Mapping Explorer as well: <https://historicengland.org.uk/research/results/aerial-archaeology-mapping-explorer/>.

It should be noted that an updated version of the Regional Research Framework is available online (<https://researchframeworks.org/eoe/>).

The potential impacts of the proposed development have been provided in Table 20-3 and includes the direct and permanent impacts as a result of the construction. We would highlight that damage may also occur to waterlogged archaeological and palaeoenvironmental remains if there are changes to groundwater levels, or if heat is emitted from the buried cables.

In terms of below-ground heritage assets (20.4.20 - 22), we welcome the investigations that are proposed to assess cultural heritage. We look forward to reviewing the reports, which should be submitted in the ES.

The ES should provide a detailed archaeological baseline; only a detailed and comprehensive understanding of the below-ground archaeological resource will allow for impact to heritage to be properly mitigated. There is significant potential for further nationally important sites to be discovered within the scoping area. We also have concerns about the impact of the onshore cable route, the area of the proposed substation and in the areas of construction compounds and laydown areas.

We would recommend that the resolution of the baseline information is considered carefully. For example, a resolution of 1m is the basic minimum needed for archaeological assessments using LIDAR, but where greater detail is required, higher resolution is preferable (Historic England, *Using Airborne LIDAR in Archaeological Surveys*, 2018):

<https://historicengland.org.uk/images-books/publications/using-airborne-lidar-in-archaeological-survey/>.

For the ES desk-based assessment, this should also include the dataset from CITIZAN (<https://citizan.org.uk/>). In terms of aerial photographs, all potential archaeological

features recorded by aerial photography in the scoping area should be accurately plotted and assessed (20.4.21).

We welcome the proposed programme of archaeological evaluation, comprising geophysical survey followed by archaeological trial-trenching. We note, however, the proposal for only targeted geophysical survey and trial-trenched evaluation identified through desk-based baseline collation (20.4.22 and 20.5.2).

In our opinion, the geophysical survey should be undertaken across the DCO application area to ensure the nature, extent and survival of subsurface archaeological and geoarchaeological remains are established, and presented in the ES. This will enable an appropriate scheme of mitigation to be prepared. We recommend that all supporting technical heritage information (full survey reports) is included as appendices to allow the information to be critically assessed.

We also recommend trial-trenched evaluation should be carried out in the area of the proposed substation and in the areas of construction compounds, as well as in pinch-point locations along the proposed onshore cable route and to test the results of any significant concentrations of archaeological remains (defined by the other archaeological surveys).

We acknowledge that mitigation of unavoidable direct physical impacts will include archaeological investigation, recording, analysis and dissemination of the results. This will be designed following the EIA and detailed within a WSI (20.4.36). We are pleased to see that any required fieldwork will be designed in a WSI (20.5.7), and we look forward to commenting on these documents in due course.

We would also recommend specialist palaeoenvironmental assessment is undertaken where the desk-based assessment, and other surveys, indicate there is potential for the survival of palaeoenvironmental remains. This will enable the nature, extent and survival of subsurface archaeological and geoarchaeological remains to be adequately established, and presented in the ES. This will ensure that a detailed and informed archaeological mitigation strategy can be prepared and agreed.

We recommend that geoarchaeological considerations and requirements are built into any geotechnical investigations that are carried out to ensure that opportunities are maximised where possible. This should include providing the geoarchaeologist with direct access to the core material rather than just to the logs or to extruded samples.

The onshore scoping area also has potential for encountering Pleistocene and Holocene deposits of archaeological significance. Consequently, we recommend that a Palaeolithic desk-based assessment is also prepared. The nature and scope of specialist Palaeolithic survey and assessment should be devised through consultation with the archaeological advisors at Essex Place Services. This information may not be adequately represented in the Essex Historic Environment Record, by shallow geophysics or even by shallow evaluation trenches.

An effective method for identifying the potential depth and character of Palaeolithic archaeology would be to undertake a preliminary deposit model as part of the desk-based assessment. This should be prepared by a geoarchaeologist based on any

available stratigraphic information, including archaeological and geotechnical data. The deposit model will help to illustrate the depth, characteristics and potential of the deposits of archaeological interest and should inform any subsequent evaluation trenching, borehole sampling and/or geophysical survey. The deposit model will also help to guide elements of the proposed mitigation strategy, such as the choice of geophysical techniques that are utilised. For example, techniques that investigate deeper deposits of archaeological interest should be considered, such as electromagnetic induction (EMI) or electrical resistivity (ERT).

It is noted that the VE connection cables will be underground (buried) between the landfall and the grid connection point and it stated that VE OWFL is committed to considering trenchless technologies such as HDD (3.5.2). If this technique is to be used, the potential issues associated with bentonite slurry outbreak will need to be considered in terms of the impact (both direct and indirect) that this may have on any buried archaeological remains. This needs to be considered in the ES, and mitigation included in the WSI for archaeological mitigation.

It is noted that several sections within the scoping report contain information that may also aid the assessment of the archaeological potential of the development area, for example, information about the hydrology, flooding and geology (Chapters 24 and 25).

In particular, it is important to understand how changes to the groundwater levels, water quality or the movement of water through deposits may impact the historic environment. For example, changes to groundwater levels or the mobilisation of contaminants along different pathways may impact the preservation of archaeological structures, features or remains, including palaeoenvironmental remains. In addition, compression of deposits or the creation of pathways for contaminants or oxygen could potentially damage deposits/remains of archaeological interest or alter the preservation conditions on the site (Tables 24.3 and 25.4).

Additional works are planned to investigate the hydrology/hydrogeology and geology (Tables 24.3 and 25.4) of the development area; we would recommend that the value of this information to inform the assessment of the historic environment should be considered and discussed with the project archaeological team. This will allow any opportunities to be maximised where possible, and it will also hopefully reduce any duplication of effort. For example, any intrusive works such as boreholes that are collected for ground investigation works, and the conceptual model (Table 25.4) will potentially add to the understanding of the historic environment, as well as the likely preservation conditions that may be present on the site. The conceptual model will also add to the understanding of how the proposed development may impact the historic environment.

The nature and scope of the archaeological evaluation should be devised through consultation with the archaeological advisors at Essex Place Services. We would be pleased to provide any further advice, and comment on the proposed methodology, as well as advising on the significance of the results. In our view, this will provide the Examining Authority with the appropriate level of information to determine the application, confident that the historic environment has been adequately assessed and that the proposed mitigation measures will be effective and proportionate to the significance of heritage assets.

Considering the amount of evaluation fieldwork that is likely to be required, we strongly recommend that discussions about this fieldwork commence at the earliest opportunity. We also advise that a timetable is agreed for each stage of the assessment process, especially because onshore transmission substation location has yet to be confirmed by National Grid.

Some of the work associated with the proposed Project may impact on the groundwater levels or movement of water through deposits. For example, the need for foundations for the substation, compression of deposits through the construction of elements or the movement of vehicles, the reduction in recharge values, or the need to dewater areas during construction. The impact that this work may have on the historic environment needs to be considered as any changes may affect preservation conditions within the area of the proposed project or in nearby deposits, which in turn may result in the damage and/or loss of archaeological remains. For example, the potential impact of dewatering on any well-preserved, waterlogged archaeological and palaeoenvironmental remains needs to be investigated along the onshore cable corridor.

We would recommend that the Historic England document *Preserving Archaeological Remains* (2016) is referred to aid the discussions of the potential impacts to the historic environment as well as the approaches used to investigate them: <https://historicengland.org.uk/images-books/publications/preserving-archaeological-remains/>.

The Historic England document *Piling and Archaeology* (2019) should be also referred to as some of the elements of the development will involve piling: <https://historicengland.org.uk/images-books/publications/piling-and-archaeology/>

Historic England's Regional Science Advisor will be pleased to provide technical advice and guidance concerning the appropriate techniques for archaeological and palaeoenvironmental assessment.

Comments in relation to the Scoping Report: Cumulative impacts

We note the proposed cumulative impact assessment (4.6 and 20.4.39 - 43). This will need to be considered in terms of cultural heritage once the study area has been narrowed down. We look forward to constructive engagement with the applicant, at an early stage, to agree the proposed key viewpoints for visualisations to assess the cumulative impact of the Project on designated heritage assets.

By following planning policy and guidance we would expect the project to be creative in how it might offer opportunities for the enhancement of heritage assets, and how the project might deliver public (heritage) benefit. The ES should aim to make clear public heritage benefits and outreach as part of planned mitigation.

We would advise the ES should put forward proposals for the use, display and interpretation of archaeological evidence that will be revealed by the development and to provide enhancement to heritage assets and secure wide heritage benefits as part

of the Project and we would be pleased to provide advice about potential heritage schemes.

Conclusion

As set out in our detailed advice above, we have serious concerns about the proposed strategy for assessment of onshore archaeology in the Scoping Report. In our opinion, this strategy could fail to adequately assess the full extent and significance of archaeological remains within the DCO application area. There is a considerable risk that nationally important heritage assets, in the form of previously unknown buried archaeological deposits, could be missed by the proposed strategy.

We strongly recommend that the geophysical survey should be undertaken across the whole DCO application area, rather than targeted or priority areas. This should be followed by trial-trenched evaluation in the area of the proposed substation and in the areas of construction compounds, as well as in pinch-point locations along the corridor route. Palaeoenvironmental assessment should be undertaken where the desk-based assessment, and other surveys, indicate there is potential for the survival of palaeoenvironmental remains.

We also have serious concerns about the prematurity of the submission in terms of the onshore scoping area, covering more than half the Tendring peninsula. No cable corridor has been defined and no substation location has been identified in the Scoping Report. We have, therefore, been unable to provide any specific comments at this stage. We would recommend that the scoping exercise for onshore work is repeated once the grid access has been determined.

We should like to stress that this response is based on the information provided in this consultation. For the avoidance of doubt, this does not affect our obligation to provide further advice and, potentially, to object to specific proposals which may subsequently arise where we consider that the scale, massing and detailed design would have an adverse effect upon the immediate and wider historic environment.

If you have any queries about any of the above, or would like to discuss anything further, please contact me.

Yours sincerely,

Dr Jess Tipper MCifA FSA

Inspector of Ancient Monuments (Essex and Hertfordshire)

Email: [REDACTED]@HistoricEngland.org.uk

From: [JNCC Offshore Industries Advice](#)
To: [Five Estuaries OSWF](#)
Subject: RE: Five Estuaries Offshore Wind Farm - Scoping Consultation
Date: 12 October 2021 09:16:03
Attachments: [image002.jpg](#)
[image004.gif](#)
[image005.gif](#)
[image007.jpg](#)
[image008.jpg](#)
[image009.jpg](#)

Good morning Stephanie,

Thank you for consulting JNCC on the above application for the Five Estuaries Offshore Wind Farm, which we received on 05 Oct 2021. JNCC's role in relation to offshore renewables in English waters has been delegated to Natural England. Natural England is now authorised to exercise the JNCC's functions as a statutory consultee in respect of certain applications for offshore renewable energy installations in inshore and offshore waters (0-200nm) adjacent to England. Therefore, Natural England should provide a full response. As such JNCC have not reviewed this application and will not be providing further comment.

Kind regards,
Jillian

Jillian Whyte | Offshore Industries Adviser | JNCC

Inverdee House, Baxter Street, Aberdeen, AB11 9QA | [\[REDACTED\]@jncc.gov.uk](#) | Direct Dial:

+ [\[REDACTED\]@jncc.gov.uk](#)

BSc(Hons)



-



From: [planning_appeals](#)
To: [Five Estuaries OSWF](#)
Subject: RE: Five Estuaries Offshore Wind Farm - Scoping Consultation
Date: 07 October 2021 17:40:37

Hello

Thank-you for your email below

We have no comments on this site.

Regards

Business Services Support

London Borough of Havering | Development & Building Control Mercury House, Mercury Gardens, Romford, RM1 3SL

t [REDACTED]
e planning@havering.gov.uk
w www.havering.gov.uk
text relay [REDACTED]

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From: [lpc2](#)
To: [Five Estuaries OSWF](#)
Subject: Little Clacton Parish Council Response
Date: 01 November 2021 14:32:33

The parish of Little Clacton would like to make the following comments in relation to the proposed access point for cabling on the Tendring Coast Line.

Tendring combines an array of conservation areas, sites of special scientific interest, historical and ecological corridors. There is no doubt, that this project would cause significant harm to the natural landscapes, habitats, endangered species and people's way of life in this small rural pocket of East Anglia.

There are currently two projects that are being presented to the people of Tendring and the most critical point to make is as follows: it should be part of the agreement for both projects, **that a combined cable routing and shared onshore sub station is fully investigated** and feasibility studies undertaken to ensure only one cable route is designated and all cabling laid at the same time. We do not want to have two huge disruptions when the cabling could and should be all put into one trench.

Dan Land - Clerk

Little Clacton Parish Council



<https://littleclacton-pc.org.uk/>

<https://www.facebook.com/LittleClactonParishCouncil/>

From: [REDACTED]
To: [Five Estuaries OSWF](#)
Subject: Five Estuaries Offshore Wind Farm - ref: EN010115
Date: 18 October 2021 16:19:21
Attachments: [image001.png](#)
[image002.png](#)

Dear Helen Lancaster,

I have referred to the ES and the site location and Waltham Forest Council do not intend to comment on the scoping opinion request any more than this email going forward.

Please confirm receipt for our e-file.

Regards,

Scott Hackner

Principal Planner– Majors Team | Development Management

Economic Growth and Housing Delivery

London Borough of Waltham Forest | 1/F The Magistrates | 1 Farnan Avenue | Walthamstow | London | E17 4NX

E-mail: [REDACTED]@walthamforest.gov.uk

www.walthamforest.gov.uk Follow us @wfcouncil

Our ambition is that everybody in Waltham Forest enjoys a quality life.

Any views or opinions expressed in this email are made at officer level and without prejudice, and whilst given in good faith, do not represent a formal decision of the Local Planning Authority.



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1 November 2021
Your Ref: EN010115

MALDON DISTRICT COUNCIL

Princes Road
Maldon
Essex CM9 5DL

www.maldon.gov.uk



The Planning Inspectorate
Environmental Services
Central Operations
Temple Quay House
2 The Square
Bristol
BS1 6PN

Enquiries to: Planning Services
Email: dc.planning@maldon.gov.uk

fiveestuaries@planninginspectorate.gov.uk

Dear Sir/Madam

Application No: 21/03232/PACON
Proposal: PINS consultation on Scoping Opinion request
Location: Five Estuaries Off Shore Wind Farm, Off Suffolk Coast

I refer to your letter dated 5 October 2021, regarding the above.

The Scoping Report submitted has been reviewed and the Council does not have any comments to make on the information to be provided in an Environmental Statement relating to the above proposed development.

If you have any queries do not hesitate to contact us.

Yours faithfully

A large black rectangular box redacting the signature of Alex Taylor.

Alex Taylor
Senior Specialist Coordinator - Development Management



Marine Management Organisation

Marine Management Organisation response to Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11 Scoping consultation and notification of the Applicant’s contact details and duty to make available information to the Applicant if requested

Title: The Five Estuaries Offshore Wind Farm (VE)

Applicant: North Falls Offshore Wind Farm Ltd

PINS Reference: EN010115

MMO Reference: DCO/2019/00008

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1. Proposal

The Five Estuaries Offshore Wind Farm (VE)

1.1. Project Background

The Five Estuaries Offshore Windfarm (VE) is a proposed extension to the operational Galloper Offshore Windfarm (OWF). In February 2017, The Crown Estate launched an opportunity for existing wind farms to apply for project extensions and The Five Estuaries Offshore Windfarm (hereafter 'The Applicant' or 'VE') applied for a lease to develop an extension located 37 km off the coast of Suffolk. In August 2019, The Crown Estate consulted on and then concluded a plan-level Habitats Regulations Assessment (HRA) for the proposed extension projects and confirmed that The Galloper Extension project, now named The Five Estuaries Offshore Wind Farm (hereafter 'VE' or 'the project') would be among seven that would be awarded an Agreement for Lease (AfL).

Since award of the AfL, VE has been undertaking offshore desktop constraint mapping exercises, offshore aerial bird surveys, onshore ecological surveys, and offshore geophysical and benthic sampling whilst engaging in an offshore cable corridor site selection process regarding the offshore cable corridor to landfall. The offshore elements of VE are now well defined.

2. Scoping Opinion

The MMO's role in Nationally Significant Infrastructure Projects

The MMO was vested under the Marine and Coastal Access Act, 2009 (the 2009 Act) to make a contribution to sustainable development in the marine area and to promote clean, healthy, safe, productive and biologically diverse oceans and seas. The responsibilities of the MMO include the licensing of construction works, deposits and removals in English inshore and offshore waters and Northern Ireland offshore waters by way of a marine licence¹. Inshore waters include any area which is submerged at mean high water spring (MHWS) tide. They also include the waters of every estuary, river or channel where the tide flows at MHWS tide. Waters in areas which are closed permanently or intermittently by a lock or other artificial means against the regular action of the tide are included, where seawater flows into or out from the area.

In the case of NSIPs, the 2008 Act enables Development Consent Orders (DCO) for projects which affect the marine environment to include provisions which deem marine licences².

As a statutory consultee under the 2008 Act, the MMO advises developers during pre-application on those aspects of a project that may have an impact on the marine area or those who use it. In addition to considering the impacts of any construction,

¹ Under Part 4 of the 2009 Act

² Section 149A of the 2008 Act

deposit or removal within the marine area, this includes assessing any risks to human health, other legitimate users of the sea and any potential impacts on the marine environment from terrestrial works.

Where a marine licence is deemed within a DCO, the MMO is the delivery body responsible for post-consent monitoring, variation, enforcement and revocation of provisions relating to the marine environment. As such, the MMO has a keen interest in ensuring that provisions drafted in a deemed marine licence (DML) enable the MMO to fulfil these obligations.

Further information on licensable activities can be found on the MMO's website³.

Further information on the interaction between the PINs and the MMO can be found in our joint advice note⁴.

MMO comments

The MMO has reviewed the VE Environmental Impact Assessment Scoping Report (30/09/2021) in consultation with our scientific advisors at Centre for Environment, Fisheries and Aquaculture Science (Cefas). Please find the MMO's comments provided below. All comments are observations unless stated:

2.1. Benthic Ecology

- 2.1.1. The proposed approach to characterising the baseline environment against which impacts on benthic ecology receptors will be assessed is appropriate (see Section 9.3 of the Scoping Report). This will involve the use of existing data sources (see Table 9.1) and the collection of additional site-specific subtidal data (grab samples and drop-down video) and intertidal data (Phase I biotope mapping and Phase II core sampling survey) (see paragraphs 9.3.2-9.3.4 of the Scoping Report).
- 2.1.2. The proposed general approach to assessing impacts follows best practice and is appropriate (see Section 4 of the Scoping Report). The proposed approach to assessing the potential impacts of specific pressures on benthic ecology receptors is also appropriate (see Table 9.3 of the Scoping Report).
- 2.1.3. It is stated that sampling stations (for grabs and drop-down video) will be selected based on interpretation of geophysical survey data collected as part of the benthic survey campaign (see paragraph 9.3.3 of the Scoping Report). The possible presence of biogenic reef within the footprint of the proposed development is indicated within the Scoping Report (see paragraphs 9.4.18-9.4.24 & Figure 9.5), so MMO presume that any evidence of potential biogenic reef would help guide the selection of sampling stations. However, it does not appear to be explicitly stated anywhere in the Scoping Report that the baseline benthic surveys will be designed to confirm (or otherwise) the presence of biogenic reef. The Applicant should therefore clarify how the

³ <https://www.gov.uk/planning-development/marine-licences>

⁴ <http://infrastructure.planningportal.gov.uk/wp-content/uploads/2013/04/Advice-note-11-v2.pdf>

geophysical data will be used to select baseline benthic sampling stations and state whether biogenic reef will be targeted at the characterisation stage (to inform the impact assessment) or only at the pre-construction survey stage (to inform micro-siting).

- 2.1.4. The Applicant has identified potential impacts on benthic ecology receptors during the construction, operation, and decommissioning phases of the proposed development (see Table 9.3 of the Scoping Report). MMO agree with the potential impacts that have been screened in and have no recommendations for additional potential impacts that require consideration.
- 2.1.5. The Applicant has also screened out two impacts on benthic ecology receptors: noise/vibration and accidental pollution (see Table 9.4 of the Scoping Report). MMO also agree that that these impacts can be screened out based on the justifications provided.
- 2.1.6. The proposed mitigation measures are outlined in paragraph 9.5.6 of the Scoping Report. MMO agree with these measures and have no additional measures to propose at this stage.
- 2.1.7. The Applicant states that the requirement and feasibility of any additional mitigation measures will depend on the significance of the effects on benthic and intertidal ecology and will be consulted upon with statutory consultees throughout the EIA process (see paragraph 9.5.7 of the Scoping Report). This is appropriate.
- 2.1.8. The preferred offshore cable route would have a small overlap with the Margate and Long Sands Special Area of Conservation (SAC) (see Table 9.2 and Figure 9.6 in the Scoping Report). As a small adjustment to the route would prevent any overlap with the site, it would seem sensible that such an adjustment is made if practicable. That said, MMO will defer to Natural England to comment on whether the overlap between the preferred cable route and the SAC is a concern from a conservation perspective.
- 2.1.9. Potential cumulative impacts will be considered with respect to each of the potential project-specific impacts that have been identified (see paragraph 9.5.8 of the Scoping Report). This is appropriate.
- 2.1.10. Specific inter-related impacts on benthic ecology receptors are not identified at this stage; however, it is stated that the assessment of inter-related impacts will consider the potential for all effects on a receptor to interact (see paragraph 4.7.2 of the Scoping Report). This is appropriate.
- 2.1.11. MMO agree with the Applicant that impacts will generally be localised (see paragraph 9.5.9 of the Scoping Report), though there may be potential for non-local, cumulative impacts if infrastructure from various projects acts as steppingstones for the spread of non-native species.
- 2.1.12. It is proposed that transboundary impacts are screened out due to the localised nature of any potential impacts (see paragraph 9.5.10 of the

Scoping Report). MMO agree that this will be appropriate for most impacts, but the Applicant should consider whether the project could have transboundary effects by facilitating the spread of non-native species.

- 2.1.13. No specific monitoring measures are proposed for benthic ecology receptors in the Scoping Report, though it is stated that there will be a Project Environmental Management and Monitoring Plan (PEMP) (see paragraph 9.5.6 of the Scoping Report). This is appropriate at this stage, as potential impacts on benthic ecology receptors have not yet been assessed.

2.2. Coastal Processes

- 2.2.1. Section 7 of the EIA report comprehensively outlines the approach to identify and assess the physical processes of the VE project. Section 7.3 discusses the baseline data to be used for the assessment including existing data sources (Table 7.1) and the intention of site-specific geophysical surveys to be undertaken in 2021 (Section 7.3.3) to detail the seabed and sediment properties. The approach to assessing impacts in general follows best practice (Section 4) and the assessment into the impacts onto the physical and sedimentary processes are also detailed and appropriate (Table 7.3).
- 2.2.2. The geophysical survey outlined in Section 7.3.3 is brief with little detail into what data are to be acquired from this survey and no mention of these data is made within Section 7.5.3 to 7.5.6, which details the proposed approach to the EIA. This section emphasises the heavy reliance on modelling provided by the adjacent Galloper and Greater Gabbard OWF sites from 2011, which is an acceptable method, but emphasis should be made on the importance of these new data in regard to the sediment impacts of the area. The applicant should therefore clarify the geophysical data to be collected and be explicit in detailing where this data will be used within their approach.
- 2.2.3. Table 7.3 of the Scoping Report outlines all of the potential impacts for the physical processes throughout the construction, operation and decommissioning phases. The table is detailed, and MMO have no recommendations for any further impacts to be assessed.
- 2.2.4. Section 7.5.11 to 7.5.14 of the Scoping report outlines the mitigations considered at this stage; including a Cable Specification and Installation Plan and use of scour and cable protection. Further requirements of mitigation measures are to be considered and consulted on throughout the EIA process. MMO agree with these proposals given that the project is currently at the scoping stage.
- 2.2.5. Potential cumulative impacts have been outlined through Section 7.5.15 to 7.5.20 and are detailed, with the report concluding that a large range of impacts (including changes to sediment, tidal and wave climates) will be scoped in, and opting to scope out the effects of scour from the cumulative assessment due to the localised nature. MMO agree with this conclusion.

- 2.2.6. There is acknowledgement to the inter-related impacts between changes to physical processes (geomorphologic changes) and the impacts it may have on other habitats and biological environments (Section 7.4.16 and Section 4), which is correct and will need to be considered throughout the process.
- 2.2.7. There is no mention of monitoring measures that are to be put in place regarding the physical processes (Section 7), however a Project Environment Management Plan (PEMP) is intended (Section 4.5.6) to monitor and mitigate potential impacts. It is acceptable to introduce the monitoring measures at a later stage once potential impacts have been assessed.
- 2.2.8. The Scoping Report has outlined a detailed approach that is sufficient to identify and assess physical and coastal processes impacts for the VE development.

2.3. Fish Ecology and Fisheries

- 2.3.1. The proposed areas of activities incorporate ICES rectangles 32F1 and 32F2 and legitimate commercial fisheries are covered within section 13 of the Scoping Report. The rectangles are fished by UK vessels predominantly from ports from the River Thames north to Lowestoft. As stated, the Dutch fleets operating in this area will no longer use pulse fishing methods, and many have now converted to the use of seine nets.
- 2.3.2. The proposed activities may interfere with other legitimate users of the sea and this has been covered within sections 13-15 of Scoping Report. The whelk fishery is likely to be most impacted as the proposed areas of activity are those in which (static) whelk pots are placed. These are large 'fleets' of pots being put down by the larger (15m+) vessels who will stay out fishing over many days. UK fishermen have become ever more reliant on the whelk fishery throughout Covid and Brexit. Sufficient notice will need to be considered to allow removal of relevant fleets of pots by these vessels if they are in the area of operations.
- 2.3.3. With many of the UK vessels being under 10m in length, weather can influence their ability to fish. With a general preponderance of better weather in the summer months, this is when most of the fishing effort will occur. As stated in Sect 13.4.2, bass is a high value species, and with declining cod stocks, is vital to UK inshore fisheries. There is a closed season for bass in February and March, and on 1st April when the bass fishery re-opens, there will be significant effort towards this species. Sole is another high value species that will be followed around the Southern North Sea, particularly by the Dutch and Belgian trawler fleets, but also by UK fishermen.
- 2.3.4. Much of the data relating to commercial fishing has been obtained pre covid and pre Brexit. Many of the UK under 10m fleet are now using Catch Recording, which captures species caught and ICES rectangle caught within. This information is held by MMO.

- 2.3.5. The larger UK whelking vessels are not all from east coast, they are from south coast. Any fisheries liaison should aim to include these vessels as they are the most likely to be impacted.
- 2.3.6. In 2014, policy was introduced to ensure that all existing and potential commercial fishing operations are managed in line with Article 6 of the Habitats Directive. Under that policy, the Margate and Long Sands European Marine Site (Specified Areas) Bottom Towed Fishing Gear Byelaw 2017 was introduced in order to protect subtidal sandbank communities by prohibiting the use of bottom towed fishing gear in two specified areas. The MMO assessment of fishing in Margate and Long Sands SAC concluded that management is required to mitigate the interaction between bottom towed fishing gears and the parts of the sandbank feature identified as being particularly sensitive to pressures exerted by those gears. Adverse effects from towed fishing activities as a result of the following pressures could not be ruled out in the most sensitive parts of the site:
- i. Abrasion/disturbance of the substrate on the surface of the seabed AND Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion;
 - ii. Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion;
 - iii. Removal of non-target species;
 - iv. Changes in suspended solids (water clarity); and
 - v. Siltation rate changes (low), including smothering (depth of vertical sediment overburden). Details of the byelaw, including maps of the closed areas, can be found by following this link.
- 2.3.7. MMO agree that the data sources and approach proposed by the Applicant to characterise fish and fisheries baselines and potential impacts are appropriate. However, to complement the baseline data, MMO recommend the following points to be taken into consideration for the PEIR and ES reports.
- 2.3.8. Baseline Environment, the report provides a high-level fish ecology baseline and correctly identifies that the proposed windfarm array and offshore export cable corridor (ECC) are within or near to spawning and nursery grounds for several fish species (e.g., plaice, sole, cod, herring and sandeel). MMO recognise that migratory fish species (e.g., Atlantic salmon, sea trout and European eel) and elasmobranchs (sharks, skates and rays), have also been discussed and will be further considered within the EIA which is appropriate.
- 2.3.9. MMO note that European seabass *Dicentrarchus labrax* have not been identified within the baseline environment for fish species. Please note that the wider Thames estuary supports bass populations as important Bass

Nursery Areas (BNAs)⁵. Seabass are a slow growing species that have suffered a long-term decline in population due to overfishing. As a result of declining stocks, seabass have been put under special protection measures since 2015 (MMO, 2017). MMO would expect the assessment to consider potential impacts to seabass within the context of the proposed activities i.e., activities likely to disturb or potentially impact juvenile fish and nursery grounds. The Applicant might wish to consider additional data sources to support the baseline description for this species (see comment 2.3.16).

2.3.10. Regarding commercial fishing, fisheries in the vicinity of the wind farm have been defined using ICES rectangles 33F2, 33F1, 32F2 and 32F1. Appropriate data sources to inform commercial fisheries are included in Table 13.1 of the scoping report including, but not limited to, landings data and Vessel Monitoring System (VMS) data.

2.3.11. In terms of using landings data, I recommend that any conservation or management measures for species captured in the vicinity of the windfarm should be considered and acknowledged, as this may affect the species abundance and distribution not only within the windfarm area, but also within the fisheries dependant and interdependent data. For example, seabass conservation measures include spatial and temporal fishing restrictions during the spawning season⁶ (e.g., ban on commercial pelagic trawlers fishing for bass from 1st Jan to 30 Jun 2016).

2.3.12. Potential impacts, A summary of potential impacts on fish receptors scoped in/out is shown in Table 1 below. Highlighted in yellow are those impact pathways further discussed in comments 2.3.7 – 2.3.10

Table 1. Summary of Potential Impacts - Fish Ecology (scoped in (✓) and scoped out (x)) extracted from Table 10.3 and 10.4 (Scoping report, para 4)).

Potential Impact	Construction	Operation and Maintenance	Decommissioning
Mortality, injury, behavioural changes and auditory masking arising from noise and vibration	✓	x	✓
Increase in suspended sediment concentration (SSC) and sediment deposition	✓	x	✓
Direct and indirect seabed disturbances leading to the release of sediment contaminants	✓	x	✓
Impacts on fishing pressure due to displacement	✓	✓	✓
Long-term habitat loss due to the presence of turbine foundations, scour protection and cable protection.	x	✓	x
Increased hard substrate and structural complexity as a result of the introduction of turbine	x	✓	x

⁵ Hyder *et al.*, 2018. Presence of European sea bass (*Dicentrarchus labrax*) and other species in proposed bass nursery areas available at: <https://www.gov.uk/government/publications/presence-of-european-sea-bass-and-other-species-in-proposed-bass-nursery-areas>

⁶ House of Commons Library, UK and European Sea Bass Conservation Measures. Available at: <https://researchbriefings.files.parliament.uk/documents/SN00745/SN00745.pdf>; GOV.UK, Seabass Fishing Guidance. Available at: <https://www.gov.uk/government/publications/bass-industry-guidance-2021/bass-fishing-guidance-2021>

foundations, scour protection and cable protection			
Direct damage and disturbance to mobile demersal and pelagic fish and shellfish species arising from construction activities	x	x	x
Accidental pollution events resulting in potential effects on fish and shellfish receptors	x	x	x
Electromagnetic fields (EMF) effects arising from cables during operational phase	x	✓	x

2.3.13. Impacts arising from underwater noise and vibration (UWN) have been scoped out for further assessment during the operational phase. MMO consider that at this early stage, the rationale provided for scoping out these impacts is ambiguous and does not clearly identify the magnitude of UWN generated during operation and maintenance activities. Activities during maintenance work such as the use of jack-up barges and vessels will generate UWN which must be considered in the assessment in the absence of such a rationale.

2.3.14. MMO recommend that increases in suspended sediment concentrations (SSC) and sediment deposition should also be scoped in during operation and maintenance phase. Activities such as the repair/replacement of inter-array and export cables and other windfarm infrastructures are likely to cause disturbance to seabed habitats, and temporarily increase SSC and sediment deposition.

2.3.15. Direct damage and disturbance to mobile demersal and pelagic fish species has been scoped out of all phases of the development on the basis that affected species are likely to move away from disturbance. Figures 10.3, 10.4 and 10.5 of the scoping report show that the proposed works will occur in spawning areas for mackerel, plaice, cod, herring, lemon sole, sandeel and whiting. Whilst MMO agree that fish are generally a mobile receptor, those species with a close affiliation with the seabed (i.e., sandeel and herring) or those that exhibit philopatric behaviour (i.e., returning to an area to spawn) may be reliant on a specific habitat for part or all of their life stages. MMO therefore recommend that direct damage and disturbance to mobile demersal and pelagic fish species is scoped into to all phases of the development.

2.3.16. MMO note that temporary habitat loss/physical disturbance has not been included for further assessment. Construction activities such as sandwave clearance, ploughing and jetting for seabed preparation and cable laying activities will cause temporary habitat loss and physical disturbance to benthic fish habitats. Similar effects are likely to occur as a result of maintenance work and decommissioning activities, therefore MMO recommend that temporary habitat loss/physical disturbance is scoped in for assessment for all phases of the development.

2.3.17. MMO recognise that potential impacts from accidental pollution have been scoped out for fish receptors. The Applicant has adequately justified that these potential effects can be scoped out based on the implementation of an

Environmental Monitoring Programme (PEMP) and a Marine Pollution Contingency Plan (MPCP).

2.3.18. MMO note that the effects of EMF of fishes and elasmobranchs have been scoped into the EIA for the operational phase of the project only, which is appropriate.

2.3.19. A summary of potential impacts on commercial fisheries scoped in/out is shown in Table 2 below:

Table 2. Summary of Potential Impacts - Commercial fisheries (scoped in (✓) and scoped out (x)) extracted from Table 13.2 and 13.3 (Scoping report, para 4)).

Potential Impact	Construction	Operation and Maintenance	Decommissioning
Reduction in access to, or exclusion from established fishing grounds	✓	✓	✓
Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	✓	✓	✓
Displacement or disruption of commercially important fish and shellfish resources	✓	✓	✓
Increased vessel traffic associated with VE within fishing grounds leading to interference with fishing activity	✓	✓	✓
Physical presence infrastructure leading to gear snagging	x	✓	✓
Additional steaming to alternative fishing grounds for vessels that will otherwise fish within the VE area	x	x	x

2.3.20. Regarding commercial fisheries, MMO agree that the impacts scoped in/out for further assessment are appropriate, providing that early engagement with the relevant fisheries associations such as Kent & Essex Inshore Fisheries and Conservation Authorities (KEIFCA) is undertaken to address key potential socio-economic impacts such as displacement and loss of fishing grounds resulting for multiple developments co-existing in the same area.

2.3.21. MMO is content that previous recommendations¹ (e.g. 10 years of International Herring Larvae Survey (IHLS) survey data to be used to inform the assessment for Atlantic Herring) have been taken into account to inform the EIA. In MMO opinion, data sources outlined in section 10.3 (Table 10.1) of the scoping report and the proposed approach for data analysis are appropriate.

2.3.22. Regarding seabass, the Applicant might wish to consider the Thames and Solent Bass Survey (Pickett et al., 2002; Walmsley 2005; 2006) and Young Fish Survey (Rogers et al., 1998) extracted from the Cefas Fishing Surveys System⁷ to support the identification of this species in the vicinity of VE. Additional data sources that could be used to inform the baseline for fish species can be found in **Annex 1**.

⁷ <https://data.cefas.co.uk/view/19682>

- 2.3.23. Furthermore, benthic sediment survey data will be collected across the VE array area. Sediment samples will be collected and analysed for Particle Size Analysis (PSA) and will be used to determine habitat suitability for spawning herring and sandeel. Data from benthic ecology surveys and PSA analysis for the North Falls Offshore Wind Farm will also be reviewed, if available. MMO agree with this approach and using PSA data to support the characterisation of fish habitats.
- 2.3.24. MMO support the use of the noise exposure thresholds identified in Popper *et al.* (2014) to underpin the EIA underwater noise assessment for fish. MMO recommend that fish are treated as a stationary receptor in any modelling used to make predictions for noise propagation on fish spawning and nursery grounds. MMO do not support the use of a fleeing animal model for fish the reasons outlined below:
- i. MMO know that fish will respond to loud noise and vibration, through observed reactions including schooling more closely; moving to the bottom of the water column; swimming away, and; burying in substrate (Popper *et al.* 2014). However, this is not the same as fleeing, which would require a fish to flee directly away from the source over the distance shown in the modelling. MMO are not aware of scientific or empirical evidence to support the assumption that fish will flee in this manner.
 - ii. The assumption that a fish will flee from the source of noise is overly simplistic as it overlooks factors such as fish size and mobility, biological drivers, and philopatric behaviour which may cause an animal to remain/return to the area of impact. This is of particular relevance to herring, as they are benthic spawners which spawn in a specific location due to its substrate composition.
 - iii. Eggs and larvae have little to no mobility, which makes them vulnerable to barotrauma and developmental effects. Accordingly, they should also be assessed and modelled as a stationary receptor, as per the Popper *et al.* (2014) guidelines.
- 2.3.25. The outputs of modelling should be presented in map-form depicting the predicted noise impact range contours. 10 years of IHLS data should be presented in the form of a 'heat map' which should be overlaid with the mapped noise contours. This will provide a better understanding of the likely extent of noise propagation into herring spawning grounds and allow for a more robust assessment of impacts to be made.
- 2.3.26. The Applicant should clearly state in their ES (and PEIR if applicable) whether they propose to undertake simultaneous piling, i.e., the installation of more than one pile at a time, for the installation of WTGs or other offshore platform structures. If simultaneous piling is proposed, then underwater noise modelling for impacts to fish should be based on this scenario.

- 2.3.27. As previously suggested, data limitations should be acknowledged within the ES e.g., the age of the data, fishing gear selectivity, and timing of surveys in relation to seasonal presence/absence/abundance of species.
- 2.3.28. MMO agree with the Applicant that given the amount of existing data available and the usefulness of sporadic fish surveys undertaken in the area, no site-specific fisheries surveys will be undertaken for VE.
- 2.3.29. MMO note that a number of mitigation measures such as following industry best practice to cover accidental spills and contaminant release are proposed to reduce the potential impacts on fish receptors. MMO agree these are appropriate at this early stage.
- 2.3.30. The Applicant proposes the use of soft start procedures on commencement of piling which MMO support. It is recommended that a 20-minute soft-start in accordance with Joint Nature Conservation Committee (JNCC) protocol for minimising the risk of injury to marine mammals and other fauna from piling noise (JNCC 2010). Should piling cease for a period greater than 10 minutes, then the soft-start procedure must be repeated.
- 2.3.31. The scoping report states that the minimum cable burial depth for inter-array and export cables is 0.5m. We recommend electrical transmission cables are buried to a minimum depth of 1.5m (subject to local geology and obstructions) to minimise the effects of EMF, as recommended in the Department of Energy and Climate Change report (2011).
- 2.3.32. Species-specific mitigation has not been proposed at this stage for fish receptors, which is to be expected as these can only be identified, as necessary, once the EIA has been completed.
- 2.3.33. Cumulative, inter-related and transboundary impacts have been properly identified in Chapters 4.6-4.8 and 10.5 (for fish) and these will be considered for further assessment within the scoping report. Although no specific projects have been included at this stage, MMO agree the methodology to be used is appropriate and fit for purpose.
- 2.3.34. Monitoring measures have not been discussed in the context of fish receptors at this early stage of the planning process. The need for any additional monitoring should be determined upon the outcomes of the EIA.
- 2.3.35. There are some minor and typographic errors within the scoping report which have been detailed below;
- i. The correct reference for the *Spawning and nursery grounds of selected fish species in UK waters* is “Ellis *et al.* 2012” and not “Ellis *et al.*, 2010” as referred to throughout Section 10 (Fish and Shellfish resource).
 - ii. Coull *et al.*, 1998 is not referenced within Table 10.1 (section 10) though is properly cited throughout the document and reference list.

- iii. Section 10.4.13 - *Atherina presbyter* should be referenced as sand smelt, rather than smelt, as this could be confused with the European smelt *Osmerus eperlanus*, unless the latter is the intended species referred to in the scoping report. Especially as *O. eperlanus* has several conservation designations including being listed as species of principal importance under section 41 (England) of the NERC Act (2006).
 - iv. European seabass *Dicentrarchus labrax*, although mentioned as a commercial species within Section 13, has not been further described in the fish baseline section.
- 2.3.36. Overall, appropriate fish receptors, potential impacts on fish receptors and commercial fisheries have been identified within the scoping report. Nonetheless, MMO recommend that direct damage and disturbance to mobile demersal and pelagic fish species and UWN and vibration during the operational phase are considered further or that evidentiary support is provided to justify scoping these impacts out of the assessment. Additionally, MMO recommend that temporary habitat loss/physical disturbance during construction, operation and decommissioning is included for further assessment in the PEIR and ES.
- 2.3.37. We advise that seabass is given detailed consideration in the context of the current special protection measures for seabass stocks, in relation to potential impacts on juvenile fish.
- 2.3.38. Additional evidence sources have been recommended which may provide additional local and regional data on fish and elasmobranch populations.

2.4. Shellfish

- 2.4.1. The approach provided by the applicant is in line with what would be expected for this type of development and therefore is expected to be sufficient to fully identify and assess potential impacts.
- 2.4.2. Direct removal from the fishery should be scoped into the impact assessment; this will apply to any phase of development that may potentially crush shellfish. This is particularly important in sedentary shellfish species which have limited capabilities to move in order to avoid danger. All other potential impacts have been identified.
- 2.4.3. There are no identified data gaps that need highlighting, the applicant has appropriately used a combination of desk-based sources, previous site-specific surveys and landing statistics for identifying the baseline characteristics of the proposed site. The information sources identified are expected to provide sufficient baseline information, though please refer to “Additional comments” (point 2.4.6) concerning data timeliness.
- 2.4.4. The applicant has provided information of project level mitigations. Shellfish specific mitigations are not expected at this stage of the application. Mitigations are only required if a species of shellfish is found to be significantly

impacted when assessed against the potential impacts, which cannot be determined at the scoping stage.

- 2.4.5. The potential for cumulative and inter-related impacts and effects is not expected to be fully considered at this stage as shellfish have not been assessed against the potential impacts which identifies individual impact. The applicant has outlined likely potential cumulative impacts if species are identified as being susceptible, which is appropriate.
- 2.4.6. The applicant has identified data sources to be used and is heavily reliant on data which are greater than 5 years old. MMO would only consider data collected within the last 5 years to be representative of the species composition at the proposed site. When reviewing the impact of the proposed development on shellfish, emphasis should be put on the survey data collected in the last 5 years. MMO would also note that when using data collected using gear not designed to capture shellfish (e.g., beam trawl), any conclusions made about shellfish should be caveated with this information and data from these surveys should only be used for presence/absence and not abundance estimates.
- 2.4.7. The applicant has provided a well outlined approach that is expected to be sufficient to identify and assess impacts. Direct removals from the fishery should be scoped into the impact assessment for shellfish.

2.5. Underwater Noise

- 2.5.1. Table 9.4 states that 'particle motion will dissipate in close proximity to the noise source (in the order of metres). In addition, the noise will be temporary in nature and conditions will return to baseline following cessation of piling'. It is proposed that this impact is therefore scoped out of the benthic and intertidal ecology assessment – MMO agree with this approach.
- 2.5.2. For fish and shellfish receptors (Section 10.2.1 and Table 10.3) it is proposed that site-specific predictive noise modelling will be undertaken to assess the potential for mortality, recoverable injury and behavioural disturbance of noise on sensitive fish and shellfish receptors based on impact thresholds reported in Popper et al. (2014). Impacts scoped into the assessment for fish and shellfish receptors are construction activities (pile driving and unexploded ordnance (UXO) clearance) and decommissioning activities (increased vessel movements and removal of the turbine foundations) (Table 10.3). The worst-case scenario will be based on WTG foundation type and size, and water depths in which they will be deployed (Section 10.6). This approach is appropriate to identify and assess the potential underwater noise impacts on fish and shellfish receptors, however, please see points 2.5.7 and 2.5.8 below regarding additional potential impacts to be scoped into the assessment.
- 2.5.3. For marine mammal receptors (Section 11.5.1) the proposed assessment methodology is the Permanent Threshold Shift (PTS)-onset noise exposure criteria recommended in Southall et al. (2019). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour

porpoise SACs (England, Wales & Northern Ireland) JNCC Report No. 654 (JNCC, 2020); and Guidance on mitigation protocols to minimise the risk of injury to marine mammals from piling noise (JNCC, 2010). The proposed assessment methodology and guidance documents are appropriate.

- 2.5.4. Impacts scoped into the assessment for marine mammal receptors are detailed in Table 11.3. Underwater noise modelling will be undertaken to quantitatively assess the risk of PTS from impact piling using Southall et al. (2019) thresholds (cumulative sound exposure level (SEL_{cum}) and peak sound pressure level (SPL_{peak})). If required, population level modelling will be conducted using the iPCoD model. A species-specific dose response approach using site-specific density estimates is proposed to assess disturbance rather than a fixed behavioural threshold approach. Underwater noise modelling will also be undertaken to assess the risk of PTS from other construction activities (e.g., dredging, trenching, rock dumping, UXO clearance), again using Southall et al. (2019) thresholds. For disturbance impacts from UXO clearance the methodology will incorporate an effective deterrence range approach using site-specific density estimates. Operational impacts have been scoped into the assessment, which will be based on any available data on the operational noise produced by similar sized WTGs. This approach is appropriate to identify and assess the potential under water noise impacts on marine mammal receptors, however, please see point 2.5.6 below recommending that Temporary Threshold Shift (TTS) also be scoped into the assessment for marine mammals.
- 2.5.5. Operational barrier effects have been scoped out of the assessment (Table 11.4) due to previous reviews concluding that operational wind farm noise will have negligible barrier effects for marine mammal receptors (Madsen et al., 2006; Teilmann et al., 2006a; Teilmann et al., 2006b; CEFAS, 2010; Brasseur et al., 2012) – we have no major concerns with this approach.
- 2.5.6. Temporary threshold shift (TTS) has been scoped out of the assessment for marine mammal receptors (Table 11.4). A reduction in individual foraging capability as a result of exposure to pile driving noise will be included in the assessment and potential reductions in fitness as a result of noise exposure is proposed to be captured by the assessment of disturbance. The impact assessment will present TTS ranges and areas based on underwater noise modelling and published thresholds, as well as number of animals within these areas, but no assessment of the magnitude of TTS, marine mammal sensitivity to TTS or of the overall significance of the impact of TTS will be presented. The approach to present TTS areas without a significance assessment has been agreed (VE OWF Marine Mammals Expert Topic Group Meeting Minutes dated 20/07/21), however, we would expect that TTS be scoped into the assessment as temporary reductions in hearing sensitivity for marine mammals should still be considered in the assessment rather than being scoped out.
- 2.5.7. Section 3.4 states that dredging (Trailing hopper suction Dredger (THSD) and backhoe dredger) may also be required for the installation of the inter-array and export cables. Underwater noise modelling is proposed to assess the risk

of PTS from dredging, trenching, rock dumping for marine mammal receptors (Table 11.3) but this should also be scoped into the potential impacts for fish and shellfish receptors. Overall, the potential effects of underwater noise (including TTS) from other (non-piling) construction activities should be appropriately assessed for all relevant marine mammal and fish receptors, in keeping with similar OWF developments.

- 2.5.8. Although there are many uncertainties regarding the effects of dredging noise on marine wildlife, the literature suggests that dredging noise is unlikely to cause direct mortality or instantaneous injury. However, the (predominantly) low-frequency sounds produced by dredging overlap with the hearing range of many fish and marine mammal species, which may pose a risk for temporary threshold shifts, auditory masking, and behavioural effects (McQueen et al., 2019), as well as increased stress-related cortisol levels in fish species (Wenger et al., 2017). Furthermore, it is important to note that the biological significance of such responses is largely unknown.
- 2.5.9. Another source of information regarding marine mammal noise criteria is the 2018 revision to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (National Marine Fisheries Service, 2018).
- 2.5.10. The approach to identifying any mitigation measures needed is detailed in Section 4.5, which includes the proposed mitigation hierarchy to be adopted in the EIA. This hierarchy is based on the ‘Guidelines For Ecological Impact Assessment In The UK And Ireland’ (CIEEM, 2018) and is a sequential process to minimise the residual effects through the various potential stages until adverse significant effects are appropriately mitigated or remediated. This approach is considered to be appropriate.
- 2.5.11. Section 4.5.6 details the key mitigation plans. MMO would expect that a ‘Marine Mammal Mitigation Protocol’ would be included in these key plans as set out in the Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise (JNCC, 2010).
- 2.5.12. The potential spatial and temporal cumulative effects on fish and finfish receptors have been adequately described in Section 10.5.10.
- 2.5.13. For marine mammal receptors the approach to cumulative impact assessment is adequately described in Sections 11.5.8-9 and will include pile driving of OWFs together with disturbance and collision risk from vessels at OWFs, UXO detonations, seismic surveys and any other offshore construction developments where information is available within the relevant MUs for each species for the anticipated periods of construction, O&M and decommissioning of VE OWF. A range of realistic scenarios for cumulative underwater noise impacts will be developed for the CIA, based on publicly available information, liaison with other developers where possible, as well as consultation with the regulators and stakeholders.

- 2.5.14. Potential transboundary impacts (direct and indirect) on marine mammal receptors have been considered and adequately described in Sections 11.5.13-14 and will be subject to assessment in the EIA.
- 2.5.15. Section 4.4.3 details that VE OWF has collated a significant amount of existing data from a number of sources including the surveys undertaken to support the EIA for the Galloper Offshore Wind Farm project as well as subsequent studies undertaken for pre-construction and construction monitoring and operational monitoring. In addition, VE OWFL will also undertake new surveys both offshore and onshore to ensure that the baseline is up to date. Site specific underwater noise monitoring is not proposed for VE OWF.

2.6. Dredge and Disposal

- 2.6.1. Information presented and discussed in Chapter 8 (Water and Sediment Quality). The applicant proposes to scope in all major impact pathways relevant to sediment quality, including remobilisation of contaminated sediments. To determine the significance of this impact pathway, they intend to test a “suite of contaminants” as part of the planned benthic survey. In MMO opinion this is appropriate, and in line with the usual practice for offshore wind farm consenting.
- 2.6.2. In checking both Chapter 8 and Chapter 9 (Benthic Ecology), MMO could not ascertain the particulars of the intended survey or sampling regime. It is not essential that this be known ahead of the EIA, however MMO recommend pre-survey consultation in regards to dredge and disposal (including potentially benthic ecology) to comment on what should be included within the survey in terms of ecology and contaminants.
- 2.6.3. MMO would also expect that the survey be sufficiently representative of the arrays, cable route(s) and, if appropriate, any onshore (below mean high water) or nearshore areas. With regard to sediment quality, specifically dredge and disposal, the number and placement of sampling stations should correspond with the likely volumes of material which might be dredged or disturbed (though MMO recognise that such information may either not be accurate or not be available at this stage).
- 2.6.4. The Scoping Report indicates that there will be a description and assessment of potential cumulative and inter-related impacts. This seems acceptable, though MMO are not aware of all such projects which would be relevant for a cumulative assessment in the area.
- 2.6.5. Chapter 8 contains some inaccuracies which MMO recommend be noted when compiling the resultant ES.
- I. 8.4.5: The applicant states that “*Sediments with larger particle sizes (e.g. sands) are not associated with anthropogenic contaminants.*” This is not correct; all sediments can be associated with both naturally occurring and man-made contaminants. The nuance in this distinction is that there is an

inverse relationship between the potential for contaminant particles to sorb to sediment and that sediment's total surface area. Further, there is a wide range of potential "sands": concentrations can differ largely between fine and coarse sands for example.

- II. 8.4.8: The applicant states "*Hydrocarbons (such as PAHs, PCBs and TBT)...*". PCBs (polychlorinated biphenyls) and TBT (tributyltin) are not hydrocarbons. A more accurate descriptor would be "organic" contaminants.
 - III. In 8.4.7 the applicant states that the potential for anthropogenic contaminants in the area of search is considered to be low-risk, however, in 8.4.10 they note that levels of arsenic in the GOWF contaminants survey were upto 135 mg/kg, which is above Action Level 2 (AL2). As such, MMO disagree with the former claim in 8.4.7.
- 2.6.6. In Chapter 10, the applicant indicates that they will consider designated disposal sites as part of their assessment of marine infrastructure. This is appropriate, and the applicant may wish to ensure that their proposed arrays and offshore cable routes do not overlap with any open designated disposal sites. Further, it is usually the case that arrays, and cable routes be designated as disposal sites themselves (and in this case, the cable route and array(s) disposal site(s) cannot overlap).
- 2.6.7. The scoping report is well-detailed, and MMO agree with the proposed approach heading into the EIA, though MMO recommend pre-survey consultation or agreement to confirm how many samples will be taken and which contaminants will be tested for.

3 Conclusion

The items highlighted in this letter should be considered in the initial scope of the ES, however please note that this letter is not a definitive list of all ES requirements and other subsequent work may prove necessary. The MMO reserves the right to make further comments on the Project throughout the pre-application process and may modify its present advice or opinion in view of any additional information that may subsequently come to our attention.



se Officer
Marine Management Organisation



Nick Salter
Maritime and Coastguard Agency
UK Technical Services Navigation

www.gov.uk/mca
28 October 2021

The Planning Inspectorate
Environmental Services
Central Operations
Temple Quay House
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Dear Sir/Madam

EN010115 – Five Estuaries Offshore Wind Farm Limited

EIA Scoping Report Consultation Response

Thank you for the opportunity to comment on the Scoping Report for the Five Estuaries Offshore Wind Farm. The MCA has reviewed the report provided by Five Estuaries Offshore Wind Farm Ltd, as detailed in your letter dated 5 October 2021. The MCA's remit for offshore renewable energy development is to ensure that safety of navigation is preserved whilst progress is made towards government targets for renewable energy.

The Environmental Impact Assessment report should supply detail on the possible impact on navigational issues for both commercial and recreational craft, specifically:

- Collision Risk
- Navigational Safety
- Visual intrusion and noise
- Risk Management and Emergency response
- Marking and lighting of site and information to mariners
- Effect on small craft navigational and communication equipment
- The risk to drifting recreational craft in adverse weather or tidal conditions
- The likely squeeze of small craft into the routes of larger commercial vessels.

The development area carries a significant amount of through traffic to major ports, with a number of important shipping routes in close proximity. Attention needs to be paid to routing, particularly in heavy weather ensuring shipping can continue to make safe passage without large-scale deviations. The likely cumulative and in combination effects on shipping routes should also be considered, the impact on nearby IMO routeing, the Sunk Vessel Traffic Services and navigable sea room. It should include an appropriate assessment of the distances between wind farm boundaries and shipping routes as per MGN 654.

A Navigational Risk Assessment (NRA) will need to be submitted in accordance with MGN 654 (and MGN 372) and the MCA's Methodology for Assessing the Marine Navigation Safety & Emergency Response Risks of Offshore Renewable Energy Installations (OREI). It is noted that the proposed

traffic survey data collection will consist of two 14-day surveys (AIS, radar and visual observation) to cover seasonal variation supplemented by 12-months AIS data. The additional analysis of traffic within the 'Routeing Study Area' is welcomed. This NRA should be accompanied by a detailed MGN 654 Checklist which can be downloaded from the MCA website at

<https://www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping>

Attention should be paid to cabling routes and where appropriate burial depth for which a Burial Protection Index study should be completed and subject to the traffic volumes, an anchor penetration study may be necessary. If cable protection measures are required e.g. rock bags or concrete mattresses, the MCA would be willing to accept a 5% reduction in surrounding depths referenced to Chart Datum. This will be particularly relevant where depths are decreasing towards shore and potential impacts on navigable water increase, such as at the HDD location.

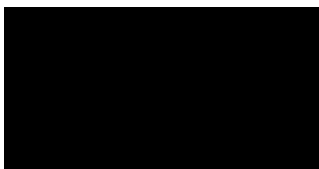
Particular consideration will need to be given to the implications of the site size and location on SAR resources and Emergency Response Co-operation Plans (ERCoP). Attention should be paid to the level of radar surveillance, AIS and shore-based VHF radio coverage and give due consideration for appropriate mitigation such as radar, AIS receivers and in-field, Marine Band VHF radio communications aerial(s) (VHF voice with Digital Selective Calling (DSC)) that can cover the entire wind farm sites and their surrounding areas. A SAR checklist will also need to be completed in consultation with MCA.

The turbine layout design will require MCA approval prior to construction to minimise the risks to surface vessels, including rescue boats, and Search and Rescue aircraft operating within the site. Any additional navigation safety and/or Search and Rescue requirements, as per MGN 654 Annex 5, will be agreed at the approval stage.

MGN 654 Annex 4 requires that hydrographic surveys should fulfil the requirements of the International Hydrographic Organisation (IHO) Order 1a standard, with the final data supplied as a digital full density data set, and survey report to the MCA Hydrography Manager. Failure to report the survey or conduct it to Order 1a might invalidate the Navigational Risk Assessment if it was deemed not fit for purpose.

On the understanding that the Shipping and Navigation aspects are undertaken in accordance with MGN 654 and its annexes, along with a completed MGN checklist, MCA is likely to be content with the approach. As this project progress, we would welcome engagement with the developers, and early discussion on the points raised above.

Yours faithfully,



Nick Salter
Offshore Renewables Lead

Decision Notice

MC/21/2898



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Town and Country Planning Act 1990

Location: Five Estuaries Offshore Wind Farm, , , ,

Proposal: Town and Country Planning Act (Environmental Impact Assessment)
(England and Wales) Regulations 2017 (as amended) - request for a scoping opinion
for Five Estuaries Offshore Wind Farm

I refer to your letter of consultation regarding the above and would inform you that the Council **RAISES NO OBJECTION** to it.

Your attention is drawn to the following informative(s) :-

- 1 This comment relates to the PINs Consultation letter received 5 October 2021.

David Harris
Head of Planning
Date of Notice 1 November 2021

TOWN & COUNTRY PLANNING (APPEALS) (WRITTEN REPRESENTATIONS) (ENGLAND) (AMENDMENT) (REGULATIONS 2013)

TOWN AND COUNTRY PLANNING ACT 1990

Appeals to the Secretary of State

- If you are aggrieved by the decision of your Local Planning Authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State under section 78 of the Town and Country Planning Act 1990.
- If you want to appeal against your Local Planning Authority's decision then you must do so within **12 weeks** from the date of this notice for appeals being decided under the **Commercial Appeals Service** and **6 months** from the date of this notice for all other **minor and major applications**.
 - However, if an enforcement notice has been served for the same or very similar development within the previous 2 years, the time limit is:
 - **28 days** from the date of the LPA decision if the enforcement notice was served before the decision was made yet not longer than 2 years before the application was made.
 - **28 days** from the date the enforcement notice was served if served on or after the date the decision was made (unless this extends the appeal period beyond 6 months).
 - Appeals must be made using a form which you can obtain from the Planning Inspectorate by contacting Customer Support Team on 0303 444 50 00 or to submit electronically via the Planning Portal at

https://www.planningportal.co.uk/info/200207/appeals/110/making_an_appeal

Commercial Appeals Service

- This type of appeal proceeds by way of written representations, known as the "Commercial Appeals Service". Third parties will not have the opportunity to make further representations to the Planning Inspectorate on these.

All other Minor and Major Applications

- The Secretary of State can allow a longer period for giving notice of an appeal, but he will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.
- The Secretary of State need not consider an appeal if it seems to him that the Local Planning Authority could not have granted planning permission for the

proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.

- In practice, the Secretary of State does not refuse to consider appeals solely because the Local Planning Authority based on their decision on a direction given by him.

Purchase Notes

- If either the Local Planning Authority or the Secretary of State refuses permission to development land or grants it subject to conditions, the owner may claim that he can neither put the land to a reasonably beneficial use in its existing state nor render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted.
- In these circumstances, the owner may serve a purchase notice on the Council (District Council, London Borough Council or Common Council of the City of London) in whose area the land is situated. This notice will require the Council to purchase his interest in the land in accordance with the provisions of Part VI of the Town and Country Planning Act 1990.

From: [REDACTED]
To: [Five Estuaries OSWE](#)
Subject: RE: Five Estuaries Offshore Wind Farm - Scoping Consultation
Date: 01 November 2021 15:34:39
Attachments: [image001.png](#)
[image002.jpg](#)

Thank you for consulting Babergh District Council on the scoping report.

Whilst we have no comments on the specific content of the report the council has concerns generally about the timing and impacts of the project in context and interaction with other large scale energy projects in the region, particularly having regard to impacts on infrastructure and tourism. The council also reinforces the need for adequate assessment of potential cumulative impacts.

Kind regards,
Bron

Bron Curtis BA(Hons), MA, MRTPI

Principal Planning Officer, Strategic Projects and Delivery - Development
Management **** Mondays, Wednesdays and Thursdays only ****
Sustainable Communities
Mid Suffolk and Babergh District Councils - Working Together

Pronouns: She/Her ([Why is this here](#))

Telephone: [REDACTED]

For general enquiries email: planningadmin@midsuffolk.gov.uk

Websites: www.babergh.gov.uk or www.midsuffolk.gov.uk

[Click Here](#) for the latest planning news and changes to the service coming up this year.

For our latest Coronavirus response please visit click the following link-

<https://www.midsuffolk.gov.uk/features/our-covid-19-response/>





Defence Infrastructure Organisation

Teena Oulaghan
Ministry of Defence
Safeguarding Department
St George's House
DIO Headquarters
DMS Whittington
Lichfield
Staffordshire
WS14 9PY

Your Ref: ENO10115

Telephone [MOD]: [REDACTED]

Our Ref: DIO10053076

E-mail: [REDACTED]@mod.gov.uk

Helen Lancaster
The Planning Inspectorate
Temple Quay House,
Temple Quay,
BS1 6PN.

02 November
2021

By email only

Dear Helen,

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) - Regulation 10 and 11.

Application by Five Estuaries Offshore Wind Farm Limited (the Applicant) for an Order granting Development Consent for Five Estuaries Offshore Wind Farm (the Proposed development).

Scoping consultation and notification of the Applicant's contact details and duty to make available information to the Applicant if requested.

Thank you for consulting the Ministry of Defence (MOD) on the above Scoping Opinion request in respect of the Five Estuaries Offshore Wind Farm development. The consultation was received by this office on 5 October 2021. I write to confirm the safeguarding position of the MOD regarding information that should form part of any Environmental Statement submitted in support of an application.

The applicant has prepared an Environmental Impact Assessment Scoping Report for the proposed development. The Scoping Report recognises some of the principal defence issues relevant to MOD consideration of the proposed development.

The use of airspace in the vicinity of the proposed development for defence purposes has been appropriately identified. The Scoping Report highlights some of the aviation and radar systems that may be affected by the proposed wind farm and the MOD is identified as a relevant receptor in Chapter 15 Military and Civil Aviation of the Scoping Report.

The report identifies that the proposed turbines have the potential to affect and be detectable to Primary Surveillance Radars (PSR), both military and civilian systems, in the wider region. The report also notes that the development has the potential to have an impact on the operation and capability of the Air Defence Radars (ADR) at RAF Trimingham. The impact on these radars should be considered in the preparation of any application for this scheme. The impact on radar systems may require technical mitigation(s) which would be provided by the applicant.

Impact on military activity has been recognised in Table 15.6 of the Scoping Report. The designated site area, as shown on drawing no. 1.1, overlaps four military Practice and Exercise Areas (PEXA). At this time, it is not anticipated that the development would have any substantial impact though further assessment will take place when additional information is available.

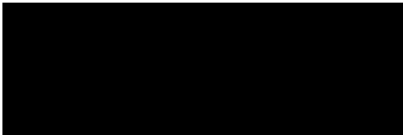
The potential presence of unexploded ordnance (UXO) has been identified as a relevant consideration in section 3.4.25. The potential presence of UXO and disposal sites is also a relevant consideration to the installation of cables and other intrusive works that may be undertaken in the maritime environment.

Impact on military low flying has been scoped in and the applicant states in the Scoping Report that they are committed to lighting and charting the turbines. In the interests of air safety, the MOD would request that the development be fitted with MOD accredited aviation safety lighting in accordance with the Civil Aviation Authority, Air Navigation Order 2016.

In relation to the Onshore element of the proposed development, section 3.5 of the Scoping report identifies the landfall zone to be on the shoreline of Holland Haven although this will be refined and presented in the PEIR. The MOD hope to be consulted to determine any impact on MOD assets. A map of the corridor which will contain the Offshore cable route is included in the Scoping Report (Array, Offshore and Onshore Export Cable Route Search Areas and Onshore Substation Search Area Drawing) we request that we are consulted once the cable route and Onshore landfall location is finalised.

I trust this is clear however should you have any questions please do not hesitate to contact me.

Yours sincerely



Teena Oulaghan
Safeguarding Manager



Your Ref: EN010115
Our Ref: A120 – DCO: Five
Estuaries Offshore Wind Farm

Dr Shamsul Hoque
National Highways
Operations - East
Woodlands
Manton Lane
Bedford MK41 7LW

Helen Lancaster
Senior EIA Advisor
The Planning Inspectorate
Environmental Services
Central Operations
Temple Quay House
2 The Square
Bristol, BS1 6PN

Date: 02 November 2021

Sent via email

Dear Helen Lancaster,

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11.

Application by Five Estuaries Offshore Wind Farm Limited (the Applicant) for an Order granting Development Consent for the Five Estuaries Offshore Wind Farm (the Proposed Development)

Consultation on the Environmental Impact Assessment EIA Scoping Report

Thank you for your letter, dated 05 October 2021, about a Development Consent Order application for the Five Estuaries Offshore Wind Farm and your request for comments on the enclosed Scoping Opinion which is to inform an Environmental Statement (ES) relating to the Proposed Development.

As you may be aware National Highways is a strategic highway company under the provisions of the Infrastructure Act 2015 and is the highway authority, traffic authority and street authority for the Strategic Road Network (SRN). As such, we have responsibilities for managing the SRN in accordance with the requirements of its licence and in general conformity with the requirements of the Highways Act 1980, and

to satisfy the reasonable requirements of road safety. In respect to this application, our interest lies with any impact on the safe operation of the A12 and A120 trunk roads.

We have engaged our consultants AECOM to review the submitted EIA Scoping Report, and I attach a copy of the Briefing Note 01 for your information. This note sets out the basis of National Highways view of requirements for the Environmental Statement (ES). In summary, those requirements include:

The Traffic and Transport Study Area (TTSA) identifies the expected study area which may have an impact on the A120 and A12 trunk roads. Further information will be required on the

- Location for the onshore Sub-station
- Location for the Seaport they will be using; the Landfall and
- The preferred onshore cable route which will be impacting A120 SRN;

to determine the extent of study area boundaries on any traffic impact on the strategic road network (SRN).

In assessing the transport impact, the ES will need to include:

- The Five-years Traffic Collision for each SRN junction within the TTSA
- The traffic flow data on the SRN in the study area
- The traffic surveys for any SRN junction within (or outside) the TTSA that may have a material number of new trips generated by the development construction traffic.
- The expected construction routeing, including the abnormal load routeing, to each site is established to determine the impact of construction on the SRN.

From the provided information, there will be an assessment on where mitigation may be required to facilitate delivery of the development, and if so, demonstration that any mitigation can be provided to Design Manual for Roads and Bridges standards and that the SRN can continue safely and in accordance with requirements of the Highways Act.

The transport assessment identified above will need to be undertaken in accordance with the requirements of DfT Circular 02/2013: The Strategic Road Network and the Delivery of Sustainable Development.

Please contact me if you require any clarification of the above points.

Yours Sincerely

S. H.
Dr Shamsul Hoque
Assistant Spatial Planner
PlanningEE@highwaysengland.co.uk

Project:	National Highways Spatial Planning Arrangement 2021-2024	Job No:	60659714 / DX139.001
Subject:	Five Estuaries Offshore Wind Farm Environmental Impact: Scoping Report Review		
Prepared by:	Catherine Durbin	Date:	27/10/2021
Checked by:	Liz Judson	Date:	29/10/2021
Verified by:	Andrew Cuthbert	Date:	01/11/2021
Approved by:	Andrew Cuthbert	Date:	01/11/2021

Executive Summary

Following a review of the September 2021 Environmental Impact Assessment: Scoping Report prepared by Five Estuaries Offshore Wind Farm Limited, in support of the proposed Five Estuaries Offshore Wind Farm project, AECOM make the following recommendations:

Recommendations regarded as important to the acceptability of this scoping document and potentially critical to the acceptability of the DCO application:

1. The Traffic and Transport Study Area (TTSA) should be confirmed once more details are available as to the volume of construction traffic anticipated. (Paragraph 4)
2. Collision analysis data should be obtained for each Strategic Road Network (SRN) junction within the TTSA. This should cover a recent five-year period, excluding any time periods where traffic flows may have been affected by Covid-19 pandemic. In the case of the recently-installed roundabout at the A120/ Harwich Road junction at Little Bentley, this should only include the period after the roundabout opened to traffic during the summer of 2019. Should the TTSA widen, then collision analysis data should also be obtained for junctions in the area covered by the widened scope. (Paragraph 7)
3. National Highways should be included as a source for traffic flow data on the SRN. (Paragraph 8)
4. Full traffic surveys should be undertaken in a neutral month as well as August 2022 in order to better understand the baseline conditions and they should be utilised in any assessments. To ensure that the data collected represents a reliable picture of post-Covid traffic flows, the data should be collected in accordance with the National Highways document 'CAD Guidance on traffic data collection from September 2021' dated 30th July 2021. (Paragraph 8)
5. Traffic surveys should be undertaken at any SRN junction within (or outside) the TTSA that may have a material number of new trips generated by the development construction traffic. (Paragraph 9)
6. The expected construction routeing, including the abnormal load routeing, to each site should be established in order to determine the impact of construction traffic on the SRN. The identified port location, for example, could require the scope of the TTSA to widen. (Paragraph 12)
7. The routeing on the SRN of construction traffic to the landfall location should be established, including the number of trips associated with the proposals that are expected to use each junction. (Paragraph 13)

This document has been prepared by AECOM Limited for the sole use of our clients ("Highways England") and in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM Limited and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM Limited, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM Limited.

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8. The routing on the SRN of construction traffic to the onshore substation location should be established, including the number of trips at each junction. (Paragraph 14)
9. The routing on the SRN of construction traffic to the onshore export cables should be established, including the number of trips at each junction. (Paragraph 15)
10. Upon establishing the location of the port, all trips associated with the construction and post-construction periods that would use any of the SRN junction should be identified. If this is not possible before DCO consent, then the number of trips using each SRN junction in the study area for each of the potential port options should be identified to inform National Highways of potential impacts. (Paragraph 16)
11. Highways England's (now National Highways) Strategic Road Network: Planning for the Future document should be referred to. (Paragraph 17)
12. SRN junctions which form part of the access to construction sites should be assessed whether the traffic flow impacts exceed the GEART thresholds referred to or not (Paragraph 18)
13. National Highways should be consulted upon any measures that may affect the SRN during the construction phase, including access to work sites, particularly if HDD is to be used to place cables under the carriageways of the A120 within the onshore area of search. (Paragraph 21)
14. The trip distribution and assignment for the trip generation of the proposals should be calculated to establish the impact that the proposals will have on the SRN. (Paragraph 23)
15. Junction capacity assessments should be undertaken using industry standard software such as Junctions9 or LinSig so as to examine in more detail the performance of the junction under the traffic flows predicted. (Paragraph 24)
16. The expected start and end year of the construction phase of the wind farm should be confirmed and used to define an assessment year for use in the Transport Assessment. (Paragraph 25)

Introduction

1. This Briefing Note provides a response to the Five Estuaries Offshore Wind Farm Environmental Impact Assessment: Scoping Report (SR) produced by Five Estuaries Offshore Wind Farm Limited (FEOWFL) dated 30 September 2021, which relates to the proposed Five Estuaries Offshore Wind Farm (FEOWF) project. AECOM have been commissioned by National Highways to ensure that the information provided in the Scoping Report gives confidence that the Environmental Impact Assessment and supporting Transport Assessment, when produced, will enable National Highways to understand the impacts of the proposed development on the SRN, and in the case that it is not, to identify any further information / analysis that is required.
2. AECOM have also received from National Highways the presentation document and meeting minutes associated with the Five Estuaries Offshore Wind Farm Project Onshore Human Environment Expert Topic Group meeting on 11th August 2021.
3. FEOWF would be an extension of the operational Galloper Offshore Wind Farm, which is currently operated by a 60-person team at Harwich International Port. The Wind Farm would be located off the coast of Essex and Suffolk. An offer was accepted in late 2020 to connect the grid to a new substation called East Anglia Coastal Substation (EACS). The location of EACS is undecided at present as it is currently subject to an ongoing National Grid site selection exercise. The SR notes that it is anticipated that the substation and landfall would be located within the Onshore Area of Search, as shown in Figure 1. The Wind Farm itself is expected to be located approximately 37km offshore from Suffolk, off the East Coast of England. The offshore study area is shown in Figure 2.

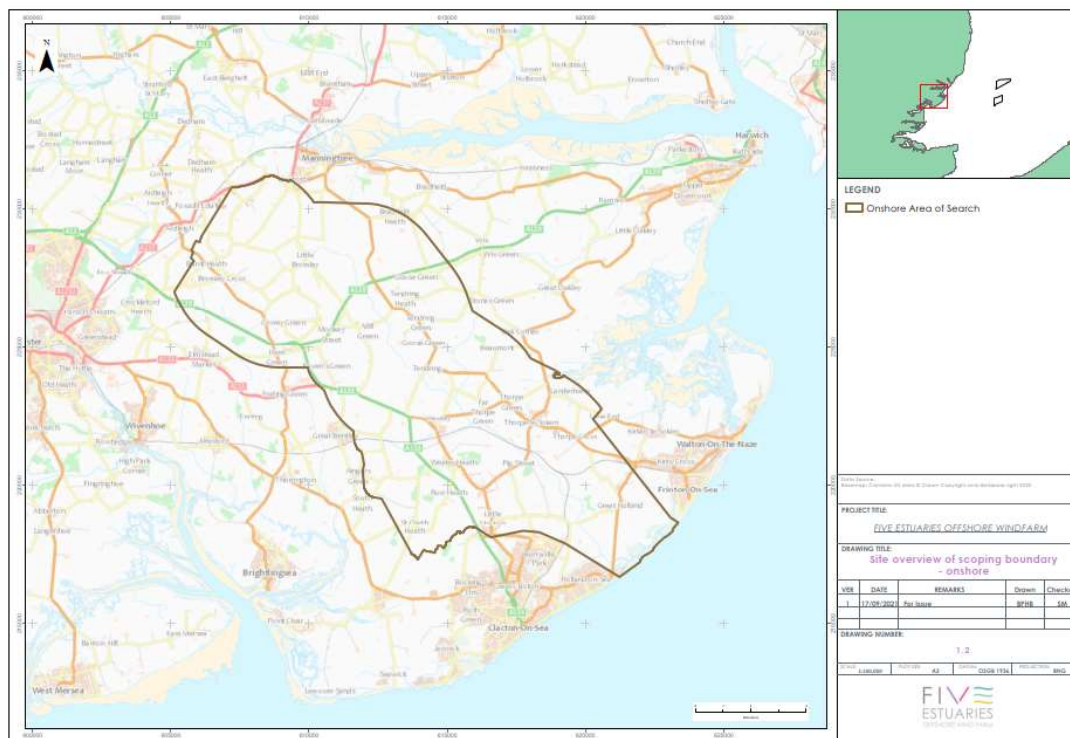


Figure 1: Onshore Area of Search¹

¹ Five Estuaries Offshore Wind Farm Environmental Impact Assessment: Scoping Report, September 2021

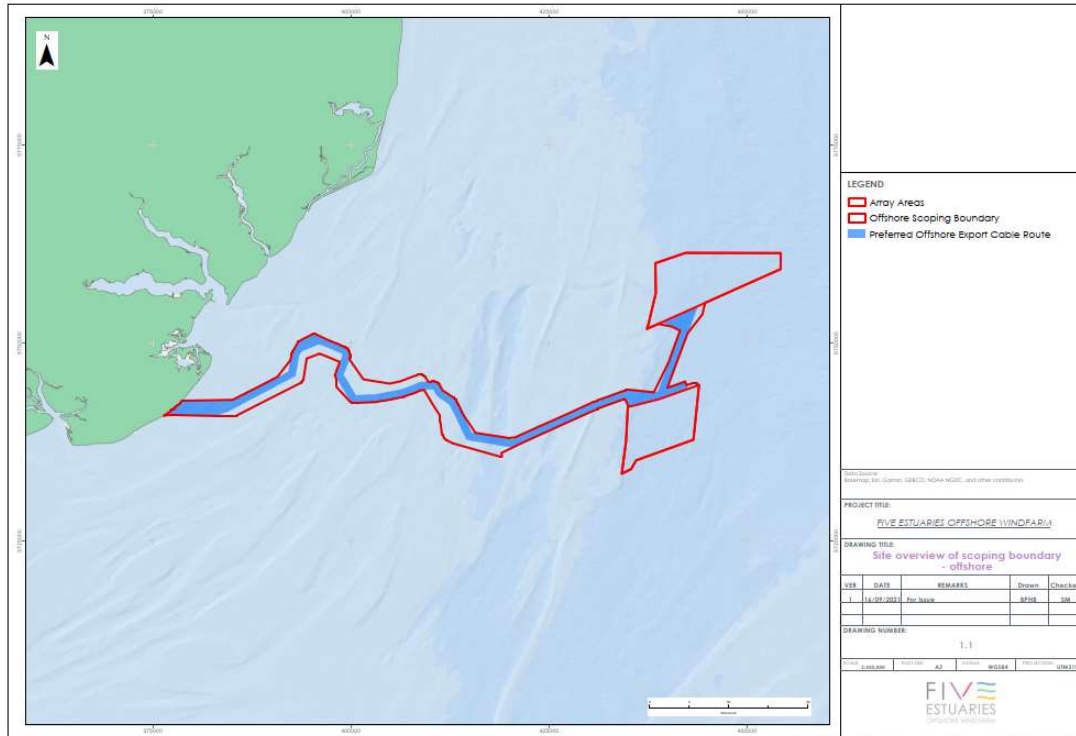


Figure 2: Offshore Area of Search¹

- The SRN within the Traffic and Transport Study Area (TTSA) as established in the SR is shown below in Figure 1. The TTSA, with regards to the SRN, consists of the section of the A120 from A12 Junction 29 in Colchester, where the A120 meets the A12, to west of the village of Wix, with the junction with Cansey Lane as the last junction in the TTSA to the east. The A120 is a key east to west route in the East of England, running between M11 Junction 8 in the west to Harwich on the Essex coast to the east. AECOM welcome the inclusion of this section of the SRN in the TTSA. However, depending on the predicted impact of FEOWF construction traffic on the wider SRN the scope of the TTSA may need to increase. **This should be confirmed once more details are available as to the volume of construction traffic anticipated.**

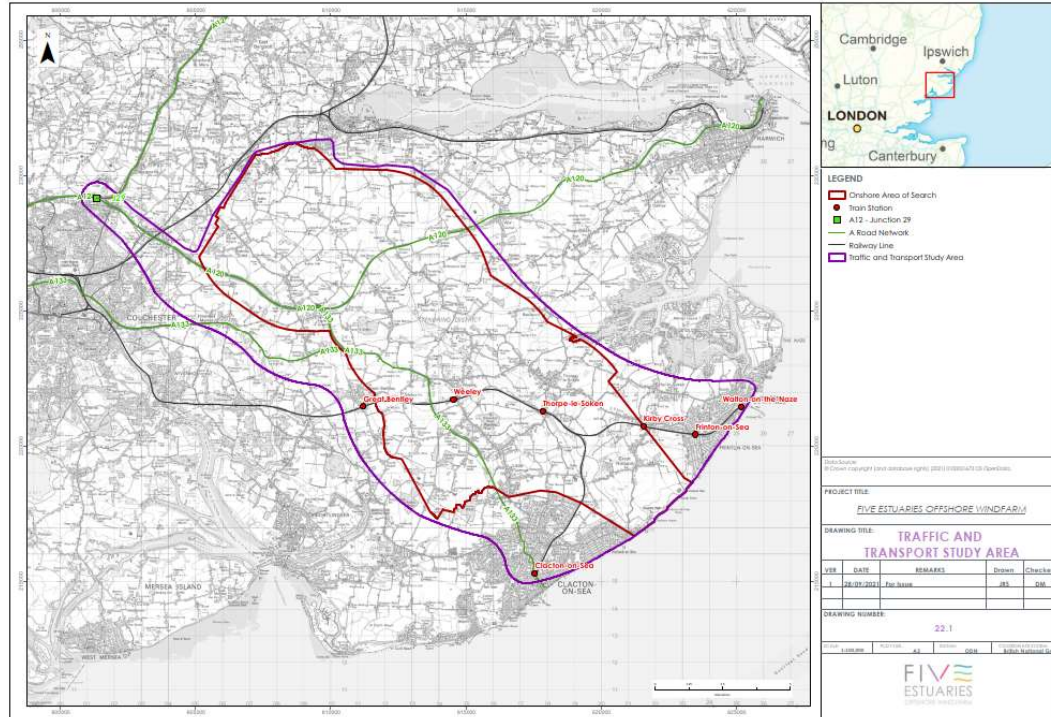


Figure 3: Traffic and Transport Study Area²

5. The SR states that the TTSA will be reviewed and amended upon the identification of the final landfall location, the preferred onshore cable route, the onshore substation, as well as any additional constraints identified through consultation and incorporating the responses from Stakeholders for the Preliminary Environmental Information Report (PEIR). This is welcomed by AECOM. Reference is made throughout the SR to the PEIR, and also to the Environmental Statement (ES), both of which will accompany the developer’s application for Development Consent Order (DCO) to the Secretary of State.
6. A timeframe for the DCO process it yet to be established, although it is mentioned in the SR that the DCO process is as shown in Figure 4.

² Five Estuaries Offshore Wind Farm Environmental Impact Assessment: Scoping Report, September 2021

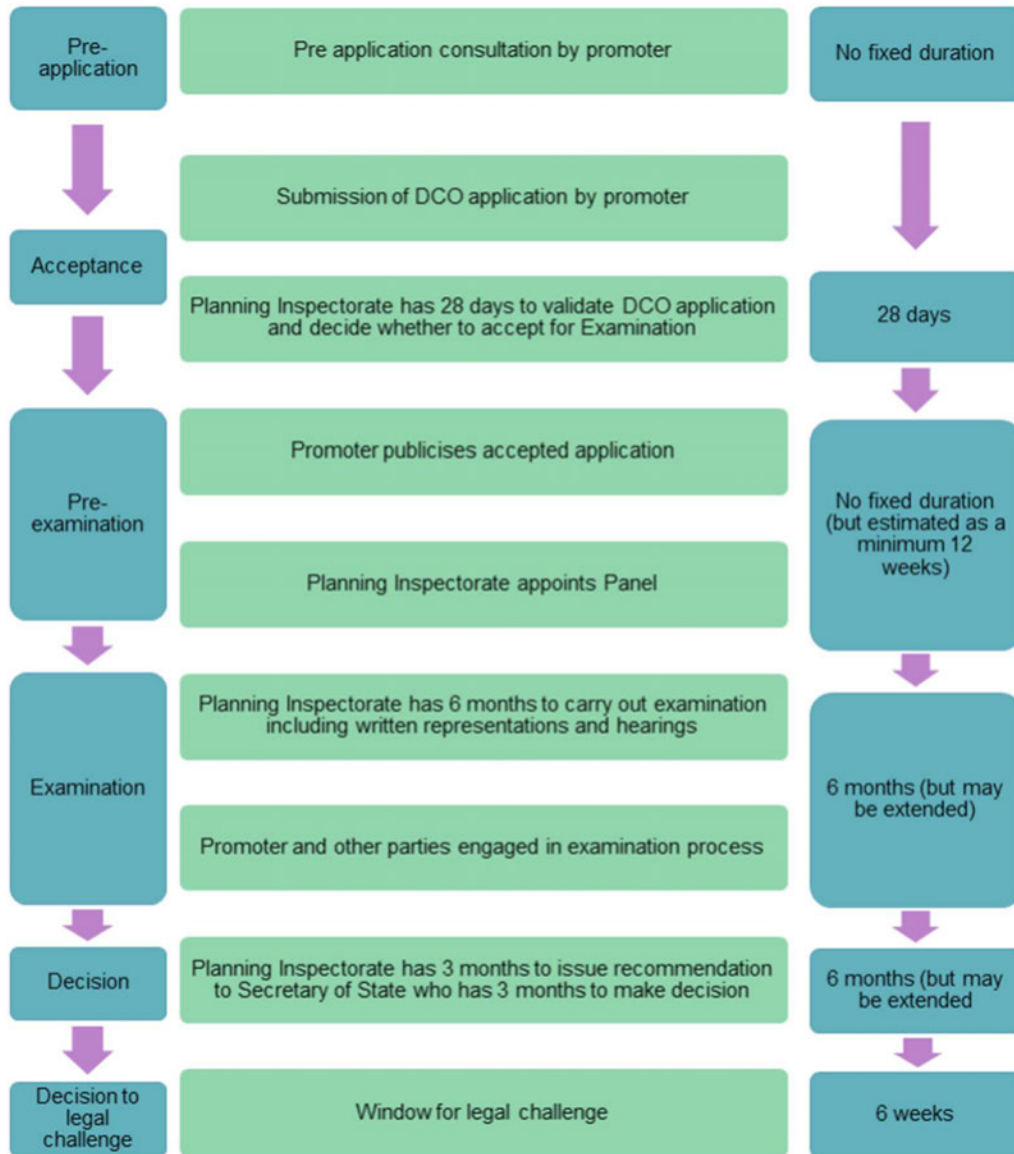


Figure 4: DCO Application Process

Collision Analysis

- The SR states that collision data would be obtained from National Highways for the SRN. AECOM welcome this and note that in order to determine whether there are any existing collision patterns on the SRN, **it is recommended that collision analysis data is obtained for each SRN junction within the TTSA. This should cover a recent five-year period, excluding any time periods where traffic flows may have been affected by Covid-19 pandemic. In the case of the recently installed roundabout at the A120/ Harwich Road junction at Little Bentley, this should only include the period after the roundabout opened to traffic during the summer of 2019. Should the TTSA widen then collision analysis data should also be obtained for junctions in the area covered by the widened scope.**

Baseline Data and Environment

8. Key sources of baseline data, such as traffic flow data on the SRN in the study area, are identified in the SR as the Department for Transport (DfT) and Essex County Council. AECOM notes that with regards to the SRN junctions, traffic flow data may also be available from National Highways, and **it is recommended that they are included as a source for traffic flow data on the SRN.** To inform the PEIR, it is proposed in the SR that Automatic Traffic Counts (ATC) data on highway links will be used to establish the classified, 24-hour seven-day counts, which includes speed, as well as obtaining classified turning count data and queue lengths at junctions during the periods of 07:00 to 10:00 and 16:00 to 19:00 on weekdays. It is proposed that these traffic surveys to inform the assessment in PEIR and the DCO submission will be undertaken in August 2022. It is noted that several sample surveys in a neutral month will be used to understand how inflated the baseline conditions are associated with holiday tourism. AECOM welcome the use of neutral month survey data; however, **it is recommended that full traffic surveys are undertaken in a neutral month as well as August 2022 in order to better understand the baseline conditions and they should be utilised in any assessments. To ensure that the data collected represents a reliable picture of post-Covid traffic flows, the data should be collected in accordance with the National Highways document 'CAD Guidance on traffic data collection from September 2021' dated 30th July 2021.**
9. It is stated that one of the next steps for the process is to agree the locations of the traffic surveys. As mentioned above, **AECOM recommend that traffic surveys are undertaken at any SRN junction within (or outside) the TTSA that may have a material number of new trips generated by the development construction traffic.**
10. It is stated in the SR that details of committed development and the associated traffic flows on the SRN in the study area will be identified once the locations of the various onshore sites, including landfall, the onshore substation, onshore cables, and the port location have been identified. AECOM welcome this approach.
11. Additionally, the SR states that details of sensitive receptors such as junctions operating over capacity will also be identified once the locations of the various onshore sites, including landfall, the onshore substation, onshore cables, and the port location have been identified. AECOM welcome this approach.
12. The SR states that the A120 and the A133 would provide the core accesses for construction traffic for the wind farm. It stated that all deliveries by HGV will originate from the A12. It is stated that details of the Abnormal Indivisible Load routes would be established once the location of the substation, cable routes, and landfall has been decided. AECOM welcome this. Exact construction routeing is not possible at this stage as this depends on the locations of the various onshore sites, including landfall, the onshore substation, onshore cables, and the port location. **It is recommended that the expected construction routeing, including the abnormal load routeing, to each site is established in order to determine the impact of construction traffic on the SRN. The identified port location, for example, could require the scope of the TTSA to widen.**

Onshore Site Locations

13. The location at which landfall would occur is yet to be decided. The SR states that there is a landfall zone on the shoreline at Holland Haven within the Onshore Area of Search, as shown in Figure 1, the stretch of shoreline between Holland-on-Sea and Frinton-on-Sea. It is stated that techniques at landfall may consist of either trenchless or open-cut trenching. **AECOM recommend that the routeing on the SRN of construction traffic to the landfall location is established, including the number of trips associated with the proposals that are expected to use each junction.**
14. As mentioned above, an onshore substation (EACS) is also required by FEOWFL for the equipment associated with the wind farm to be built. It is stated that the onshore substation would be located

within the Onshore Area of Search, although the exact location of which is subject to ongoing consultation with National Grid. The meeting minutes from 11th August 2021 state that the EACS is likely to be located adjacent to the 132 kV line from Clacton 132kV Substation to Ardleigh Road Substation. This therefore has meant that the refined area of search considers a 3km buffer along the 132 kV line excluding some constrained areas. It is expected that the location of the EACS would be determined in 2022. **AECOM recommend that the routeing on the SRN of construction traffic to the onshore substation location is established, including the number of trips at each junction.**

15. Onshore Export Cables and associated infrastructure would also need to be installed. The location of which would be within the Onshore Area of Search, although the location of which depends on the locations of EACS and landfall. **AECOM recommend that the routeing on the SRN of construction traffic to the onshore export cables is established, including the number of trips at each junction.**
16. It is stated in the SR that the construction of the offshore infrastructure would be supported by both UK and overseas ports (referred to in the SR as 'offshore construction hubs'). The SR states that the port facilities required for construction, operations, and maintenance are currently unknown, stating that typically agreements with ports are made post DCO consent. AECOM note that the location of ports is crucial to National Highways' understanding of the impact that the proposed wind farm would have on the SRN. **It is therefore recommended that, upon establishing the location of the port, that all trips associated with the construction and post-construction periods that would use any of the SRN junctions are identified. If this is not possible before DCO consent, then it is recommended that the number of trips using each SRN junction in the study area for each of the potential port options is identified to inform National Highways of potential impacts.**

Proposed Approach to Traffic Assessment

17. The SR states that reference will be made to policy documents when assessing the potential traffic impacts of the proposals. This includes the Department for Transport (DfT) Circular 02/2013, Guidance for Environmental Assessment of Road Traffic (GEART), Department for Communities and Local Government (DCLG) Planning Practice, and Design Manual for Roads and Bridges (DMRB) LA112 Population and Human Health, National Highways (2019). AECOM welcome the inclusion of these documents and **recommend that Highways England's (now National Highways) Strategic Road Network: Planning for the Future document is also referred to.**
18. **The** thresholds defined in para 22.5.3 of the SR relate to the environmental impact of traffic flow changes. Increases on traffic flow significantly smaller than these can result in impacts on road safety and junction capacity and road safety which need to be addressed. **AECOM therefore recommend that SRN junctions which form part of the access to construction sites are assessed whether the traffic flow impacts exceed these thresholds or not.**
19. The SR states that a number of mitigation measures will be considered in order to reduce traffic and transport impacts, and that these will evolve as the EIA progresses and in response to consultation with stakeholders. The measures proposed to be adopted in the SR include the following:
 - HDD under key infrastructure, such as any sections of railway track and major roads.
 - The consideration of maximising the length of temporary haul roads at construction sites, to remove as much HGV traffic from the local highway network as possible, whilst taking into account ecological and archaeological issues.
 - Development of, and adherence to, a Construction Traffic Management Plan (CTMP) for each construction site.
 - Development of, and adherence to a PROW Management Plan.
 - Preparation of an Outline Travel Plan (OTP) to endeavour to minimise the impact of vehicle movements associated with construction workers, including the promotion of public transport and car sharing.

20. It is also stated in the SR that additional mitigation measures that may be considered, where appropriate, to include:
- Construction Consolidation Sites (CSS) to increase efficiency of HGV vehicle movements to and from construction sites.
 - Minibuses for construction workers.
21. AECOM welcome these measures and **recommend that National Highways are consulted upon any measures that may affect the SRN during the construction phase, including access to work sites, particularly if HDD is to be used to place cables under the carriageways of the A120 within the onshore area of search.**
22. It is stated in the SR that the relevant trips associated with committed developments would be added to the forecast vehicular trips, which is welcomed by AECOM.
23. With regards to understanding the traffic impacts at each SRN junction, no details are given at this stage. As mentioned above, AECOM are recommending that all vehicular trips associated with the construction phase of the proposals (or any other stage) are calculated and the number of trips estimated to use each SRN junction in the TTSA should be identified. **It is also recommended that the trip distribution and assignment for the trip generation of the proposals are calculated to establish the impact that the proposals will have on the SRN.**
24. For any junction on the SRN in which a material increase in traffic flows is identified through the trip distribution and trip assignment process, **it is recommended that junction capacity assessments are undertaken using industry standard software such as Junctions9 or LinSig so as to examine in more detail the performance of the junction under the traffic flows predicted.**
25. AECOM **recommend that the expected start and end year of the construction phase of the wind farm are confirmed and used to define an assessment year for use in the Transport Assessment.**

Conclusions

26. Following the review of the SR, AECOM have a number of key recommendations for the assessment of the construction phase of the proposed development. These are highlighted by the use of bold, underlined text in the main body of this TN and summarised in the Executive Summary at the start of the document.
27. Since this project is at such an early stage, AECOM have not sought to distinguish between 'critical' and 'non-critical' recommendations because it is not yet clear which issues are likely to be critical to the acceptability of the proposals.

Technical and Operational Assessment (TOPA)

For Five Estuaries Offshore
Wind Farm Development

NATS ref: SG32213
LPA ref: EN010115

Issue 1

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Publication History

Issue	Month/Year	Change Requests and summary
1	Nov 2021	Pre-planning application

Document Use

External use: Yes

Referenced Documents

1. Background

1.1. En-route Consultation

NATS en-route plc is responsible for the safe and expeditious movement in the en-route phase of flight for aircraft operating in controlled airspace in the UK. To undertake this responsibility it has a comprehensive infrastructure of RADAR's, communication systems and navigational aids throughout the UK, all of which could be compromised by the establishment of a wind farm.

In this respect NATS is responsible for safeguarding this infrastructure to ensure its integrity to provide the required services to Air Traffic Control (ATC).

In order to discharge this responsibility NATS is a statutory consultee for all wind farm applications, and as such assesses the potential impact of every proposed development in the UK.

The technical assessment sections of this document define the assessments carried out against the development proposed in section 3.

2. Scope

This report provides NATS En-Route plc's view on the proposed application in respect of the impact upon its own operations and in respect of the application details contained within this report.

Where an impact is also anticipated on users of a shared asset (e.g. a NATS RADAR used by airports or other customers), additional relevant information may be included for information only. While an endeavour is made to give an insight in respect of any impact on other aviation stakeholders, it should be noted that this is outside of NATS' statutory obligations and that any engagement in respect of planning objections or mitigation should be had with the relevant stakeholder, although NATS as the asset owner may assist where possible.

3. Application Details

National Infrastructure Planning submitted a request for a NATS technical and operational assessment (TOPA) for the development at Five Estuaries Offshore Wind Farm. The assessments in this report are based on 397m turbines contained within the following boundary points

Boundary Point	East	North
Northern Area		
A	688410	235567
B	688410	235568
C	694296	238722
D	697617	240491
E	697485	242497
F	685526	241715
G	681808	240138
H	682119	236389
I	681324	231770
Southern Area		
T	679653	217395
U	679400	213307
V	680531	213983
W	681084	215121
X	688119	218207
Y	688357	225173
Z	679662	221845

Table 1 – Development Details

4. Assessments Required

The proposed development falls within the assessment area of the following systems:

RADAR	Lat	Long	nm	km	Az (deg)	Type
Claxby Radar	53.4501	-0.3083	124.3	230.2	135.3	CMB
Clee Hill Radar	52.3983	-2.5975	175.3	324.6	98.0	CMB
Cromer Radar	52.9104	1.3496	61.9	114.7	153.9	CMB
Debden Radar	51.9902	0.2638	67.4	124.8	94.4	CMB
Pease Radar	51.0834	-0.2143	93.9	173.8	60.6	CMB
Nav	Lat	Long	nm	km	Az (deg)	Type
None						
AGA	Lat	Long	nm	km	Az (deg)	Type
None						

Table 2 – Impacted Infrastructure

4.1. En-route RADAR Technical Assessment

4.1.1. Predicted Impact on NATS RADAR

The turbines do not fall within direct line of sight of any NATS operated radar however experience has shown that offshore turbines, including those neighbouring the proposed site, are regularly visible despite lying over the horizon.

For this reason an assessment based on the ITU452 propagation modelling has been undertaken which predicts that the turbines will be visible on occasion to Cromer and Debden PSR. It is difficult to quantify this exactly but it is expected to be more regularly than 15% of days.

4.1.2. En-route operational assessment of RADAR impact

Where an assessment reveals a technical impact on a specific NATS' RADAR, the users of that RADAR are consulted to ascertain whether the anticipated impact is acceptable to their operations or not.

Unit or role	Comment
London Area Control Centre	Acceptable
London Terminal Control Centre	Acceptable

Note: The technical impact, as detailed above, has also been passed to non-NATS users of the affected RADAR, this may have included other planning consultees such as the MOD or other airports. Should these users consider the impact to be unacceptable it is expected that they will contact the planning authority directly to raise their concerns.

4.2. En-route Navigational Aid Assessment

4.2.1. Predicted Impact on Navigation Aids

No impact is anticipated on NATS' navigation aids.

4.3. En-route Radio Communication Assessment

4.3.1. Predicted Impact on the Radio Communications Infrastructure

No impact is anticipated on NATS' radio communications infrastructure.

5. Conclusions

5.1. En-route Consultation

The proposed development has been examined by technical and operational safeguarding teams. A technical impact is anticipated however, this has been deemed to be acceptable.

Appendix A – Background RADAR Theory

Primary RADAR False Plots

When RADAR transmits a pulse of energy with a power of P_t the power density, P , at a range of r is given by the equation:

$$P = \frac{G_t P_t}{4\pi r^2}$$

Where G_t is the gain of the RADAR's antenna in the direction in question.

If an object at this point in space has a RADAR cross section of σ , this can be treated as if the object re-radiates the pulse with a gain of σ and therefore the power density of the reflected signal at the RADAR is given by the equation:

$$P_a = \frac{\sigma P}{4\pi r^2} = \frac{\sigma G_t P_t}{(4\pi)^2 r^4}$$

The RADAR's ability to collect this power and feed it to its receiver is a function of its antenna's effective area, A_e , and is given by the equation:

$$P_r = P_a A_e = \frac{P_a G_r \lambda^2}{4\pi} = \frac{\sigma G_t G_r \lambda^2 P_t}{(4\pi)^3 r^4}$$

Where G_r is the RADAR antenna's receive gain in the direction of the object and λ is the RADAR's wavelength.

In a real world environment this equation must be augmented to include losses due to a variety of factors both internal to the RADAR system as well as external losses due to terrain and atmospheric absorption.

For simplicity these losses are generally combined in a single variable L .

$$P_r = \frac{\sigma G_t G_r \lambda^2 P_t}{(4\pi)^3 r^4 L}$$

Secondary RADAR Reflections

When modelling the impact on SSR the probability that an indirect signal reflected from a wind turbine has the signal strength to be confused for a real interrogation or reply can be determined from a similar equation:

$$P_r = \frac{\sigma G_t G_r \lambda^2 P_t}{(4\pi)^3 r_t^2 r_r^2 L}$$

Where r_t and r_r are the range from RADAR-to-turbine and turbine-to-aircraft respectively. This equation can be rearranged to give the radius from the turbine within which an aircraft must be for reflections to become a problem.

$$r_r = \sqrt{\frac{\lambda^2}{(4\pi)^3}} \sqrt{\frac{\sigma G_t G_t P_t}{r_t^2 P_r L}}$$

Shadowing

When turbines lie directly between a RADAR and an aircraft not only do they have the potential to absorb or deflect, enough power such that the signal is of insufficient level to be detected on arrival.

It is also possible that azimuth determination, whether this done via sliding window or monopulse, can be distorted giving rise to inaccurate position reporting.

Terrain and Propagation Modelling

All terrain and propagation modelling is carried out by a software tool called ICS Telecom (version 11.1.7). All calculations of propagation losses are carried out with ICS Telecom configured to use the ITU-R 526 propagation model.

Appendix B – Diagrams

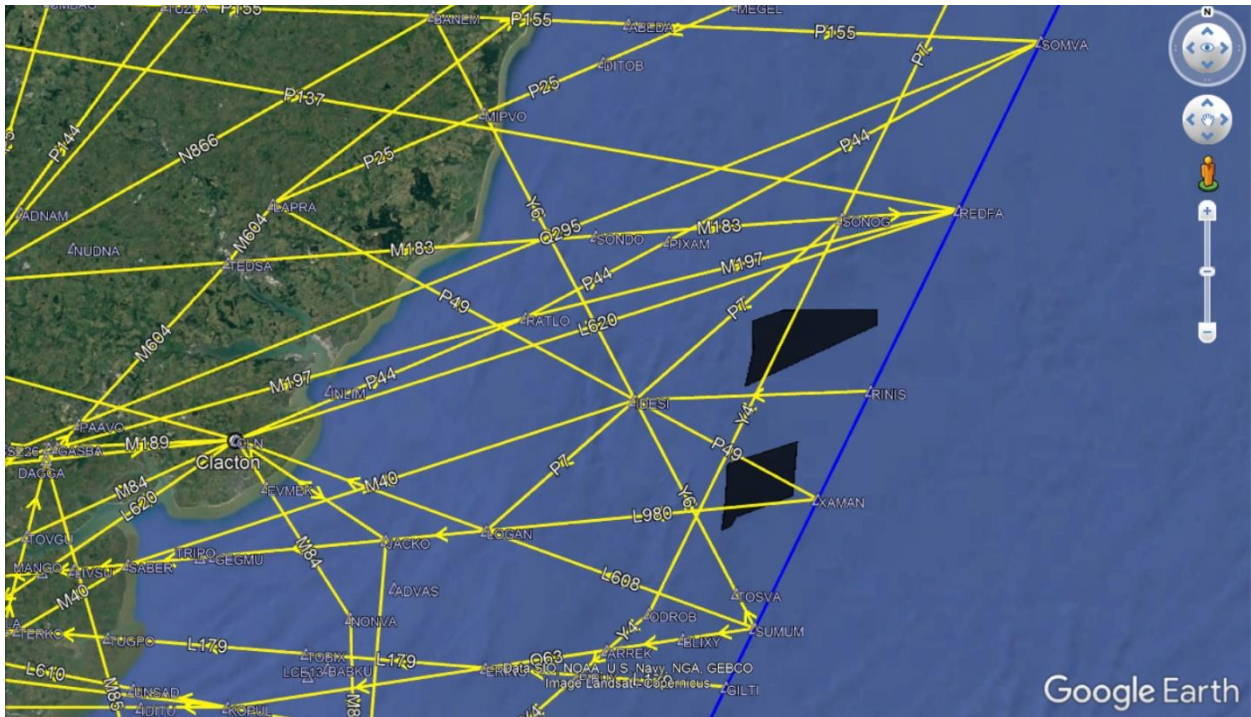
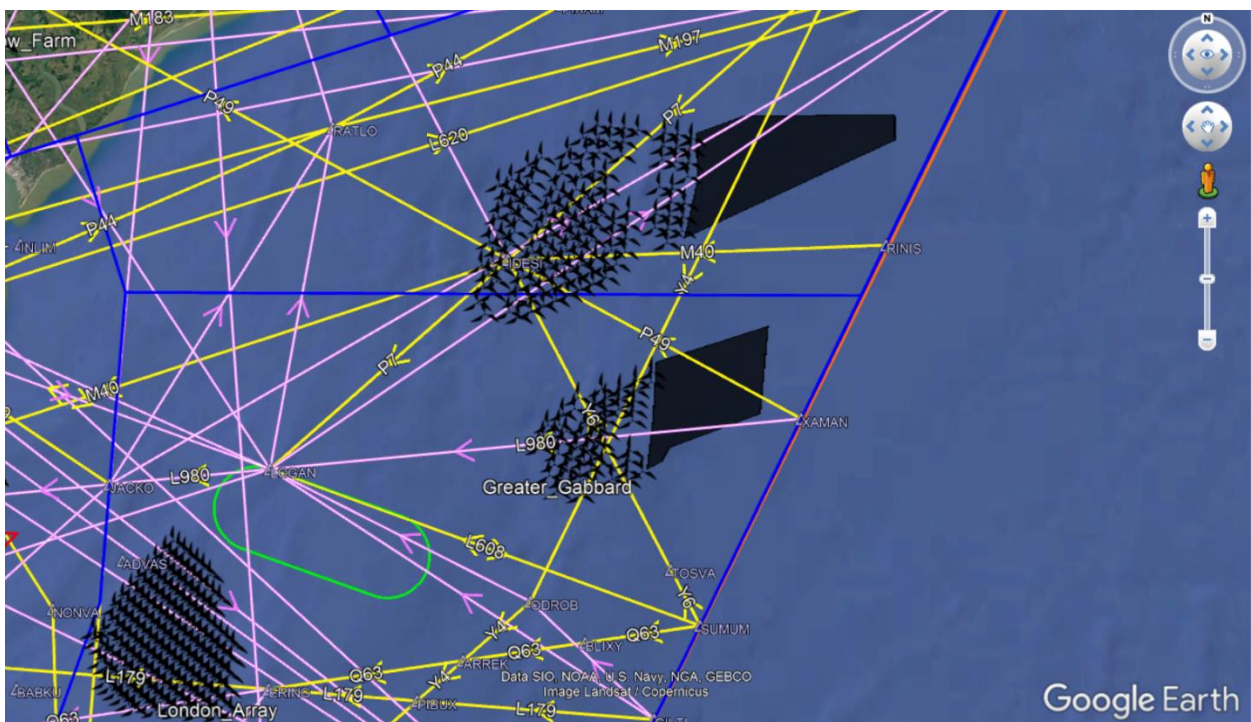


Figure 1: Proposed development location shown on an airways chart



Figures 2: Proposed development shown alongside other recently assessed applications



Date: 02 November 2021
Our ref: 14393/370020
Your ref: EN010115



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1LD

T [REDACTED]

BY EMAIL ONLY

Dear Ms Lancaster,

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11

Application by Five Estuaries Offshore Wind Limited (the Applicant) for an Order granting Development Consent for the Five Estuaries Offshore Wind Farm (the Proposed Development)

Thank you for your letter dated 05 October 2021 consulting Natural England on the Five Estuaries Offshore Wind Farm Environmental Impact Assessment Scoping Report (Revision 1.0, 30 September 2021). The following constitutes Natural England's formal statutory response; however, this is without prejudice to any comments we may wish to make in light of further submissions or on the presentation of additional information.

Summary of Main Points

• **Physical Processes**

Natural England advises that the data sources identified by the Five Estuaries Project are currently insufficient to inform the Physical Processes baseline for the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES). We would, therefore, advise that the existing physical environment will need to be fully investigated and adequately characterised across the study area. This assessment should consider both the near- and far-field, and for a range of temporal scales for the entire lifespan of the proposed development (and/or the maximum duration of the seabed lease). We also advise that cumulative impacts of the proposed Five Estuaries, and North Falls OWF projects, and existing Galloper and Greater Gabbard OWFs, should also be fully investigated, characterised and, if necessary, modelled.

• **Benthic and Intertidal Ecology**

Natural England is generally content with the approach to evidence gathering and/or data collection, however, we would wish the applicant to ensure that robust site-specific data is collected. In addition, we would wish to see more detail on the benthic survey plans to supplement existing data. We are broadly content with the approach to the assessment. However, we advise that consideration be given to the impacts from repeated maintenance activities over the lifetime of the project. This is key when considering whether impacts are temporary or lasting. We also advise that cumulative ecosystem effects need to be taken into consideration. One key area that has been omitted, but should be included, are SPA designations in the Benthic and Intertidal Ecology section, with regards to the

benthic habitats acting as supporting habitats for bird features.

- **Fish and Shellfish Resource**

Natural England advises that Herring and sandeel are important prey components for many designated SAC and SPA species. Spawning grounds (for herring, cod, lemon sole, sole, plaice, sandeel, whiting and cod) all overlap with the area where the turbines are proposed to be built, and would be exposed to greater impacts from noise due to the vicinity of the turbine construction and operation to spawning areas. This should be made clearer in the text and include known temporal spawning information as well.

- **Marine Mammals**

Natural England is content with the proposed approach to evidence gathering and data collection to inform the marine mammal baseline. However, we have suggested additional sources for consideration by the applicant.

In respect to the assessment, we require further information in order to confirm our agreement with the approach, especially regarding the underwater noise assessment, and the impact assessment methodology specifically regarding marine mammals (although we anticipate that more information and agreement will be sought during the Evidence Plan Process (EPP)). We advise that the Cumulative Impact Assessment (CIA) assesses the worst-case scenario (WCS), with some consideration of realistic scenarios. We also advise that insufficient information has been provided to scope out barrier effects due to underwater noise, and advise that Temporary Threshold Shift (TTS) should be scoped in (whilst acknowledging the limitations of the assessment), rather than scoped out.

- **Ornithology**

Natural England are broadly content with the approach to data collection, and we welcome that 24 months of at sea surveys have been undertaken. However, we have raised questions over the rationale for coverage of the aerial survey design, and associated concerns regarding whether the design will appropriately characterise the baseline remain.

We are also broadly content with the approach to the assessment, although the cable route through the Outer Thames Estuary SPA will need to be assessed, and impacts from barrier effects will need consideration. Furthermore, we note that the information and detail provided in the scoping report is limited and is focussed on the high-level aims of the EIA. We would welcome further information on the specific methodologies to be adopted for assessment of impacts, and for a preliminary assessment of key potential impacts associated with the development and in-combination with other plans/projects to be presented. We anticipate that this material will be presented during the EPP.

- **Collision Mortality to SPA Lesser Black-Backed Gull (LBBG) and Kittiwake**

The Five Estuaries OWF is located within the mean-maximum foraging range of lesser black-backed gull (LBBG) of the Alde-Ore Estuary SPA. There is also the potential for kittiwakes from the Flamborough and Filey Coast SPA (FFC SPA) to interact with Five Estuaries outside of the breeding season (e.g. on migration). Therefore, the Five Estuaries proposal will likely contribute collision mortality to the in-combination totals predicted to affect these features. During the recent Norfolk Vanguard, Norfolk Boreas, East Anglia One North and East Anglia Two offshore wind farm examinations, we have advised that an Adverse Effect on Integrity (AEoI) cannot be ruled out in respect of lesser black-backed gull at Alde-Ore Estuary SPA and kittiwake from FFC SPA in-combination with other plans and projects. We strongly advise that the developer begin developing in principle compensatory measures to address impacts on these receptors.

Natural England considers that, given the ongoing pressure from multiple North Sea offshore windfarms on seabirds, raising turbine draught height should be considered as standard mitigation practice for all relevant future projects. We, therefore, strongly advise that Five Estuaries consider at an early stage raising the draught height of their turbines by as much as possible, in order to minimise their contribution to the cumulative/in-combination collision totals and reduce the scale of compensatory measures required.

- **Seascape and Landscape Visual Impact**

Natural England welcomes the use of a 60km Zone of Theoretical Visibility (ZTV) study area due to the use of turbines up to ~400m tall. However, notes that there is a potential for in-combination effects with the proposed East Anglia Two (EA2) and East Anglia One North (EA1N) Offshore Wind Farm developments.

- **Terrestrial Ecology and Nature Conservation**

Natural England continues to raise concerns regarding the lack of a confirmed grid connection location. Should this be located outside the areas considered within the scoping report, it may be necessary to rescope the project. The decision to request a scoping opinion from PINS is one the applicant has undertaken at their own risk, and Natural England reserves the right to amend or update our opinion based on the final grid location, once it is known. We also note the large onshore scoping area and reserve the right to make future detailed comments once the onshore transmission substation location has been confirmed. In this meantime, we will endeavour to provide the best advice available with the information currently provided, noting that it can be challenging to provide specific scoping advice in this context.

We also continue to advise that a 400m survey buffer should be adopted for the wintering bird surveys. We would also wish the applicant to consider soil quality, light pollution, Stewardship and Countryside Stewardship Agreements, climate change adaptation, Biodiversity Net Gain (BNG), District Level Great Crested Newt (GCN) Licensing, and access to Public Rights of Way (PRoW).

We have provided our detailed comments specific to sections of the Five Estuaries Scoping Report in the following annexes to this letter:

Annex 1 Introductory Chapters

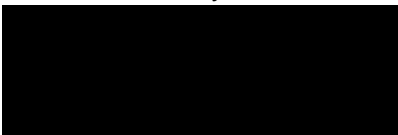
Annex 2 Offshore Environment

Annex 3 Onshore Environment

Please note that for some of the topics discussed, there is a summary highlighting key concerns for that topic and this is followed by the detailed comments.

If you have any questions regarding these comments, or want to discuss further any of the issues we have raised, please do not hesitate to contact Natural England using the details provided below.

Yours sincerely,



Yolanda Foote
Sussex and Kent Team

E-mail: [redacted]@naturalengland.org.uk

Telephone: [redacted]

Annex 1 Introductory Chapters

Executive Summary			
Section	Paragraph/Table	Comment	Recommendations
Page 4	Paragraph 5	<i>"The location of the EACS has not yet been confirmed by National Grid."</i>	Should the grid connection point be located outside the areas considered within the Scoping Report, it may be necessary to rescope the project. The decision to request a scoping opinion from PINS is one the applicant has undertaken at their own risk, and Natural England reserves the right to amend or update our opinion based on the final grid location, once it is known. We are also concerned that this uncertainty could affect the adequacy of the baseline characterisation of the onshore area. This matter requires careful attention during the EPP.
Page 4	Paragraph 5	<i>"The landfall point is yet to be determined but will be located within this area of coastline."</i>	As above, we are concerned that the, as yet unconfirmed, landfall location could affect the adequacy of the baseline characterisation of the onshore area.

Chapter 1 – Introduction			
Section	Paragraph/Table	Comment	Recommendations
1.1	1.1.14 & 1.1.15	Opportunities for coordination between VE OWFL and North Falls Offshore Wind Farm project.	Natural England welcomes the commitment to identifying opportunities for coordination and shared infrastructure between these two projects.
	1.1.5	Natural England note the large onshore scoping area and reserve the right to make future detailed comments once the onshore transmission substation location has been confirmed but will endeavour to provide the best advice available with the information currently provided.	For information only.
	1.1.9	<i>"VE and the nearby North Falls Offshore Wind Farm are currently being developed as two distinct projects with separate ownership/shareholders."</i>	It would be helpful for the Environmental Statement (ES) to provide a map showing the location of not only the North Falls Offshore Wind Farm (OWF) project relative to the VE project, but also the other operational, under construction, consented and submitted OWFs within 40km of VE.

Chapter 3 – Project Description			
Section	Paragraph/Table	Comment	Recommendations

3.4	3.4.23	Cable protection: Natural England advises, as with Hornsea Project Three and Norfolk Boreas OWFs, that a cable trenching/burial assessment document is provided as part of the Application to assess the likely need and location for cable protection.	The submission should provide a comprehensive cable burial assessment as part of the Application using relevant geotechnical survey data, including use of geotechnical data from the Galloper project where appropriate.
3.5	3.5.2 & 5.7.5	<u>Landfall</u> The locations for exit pits/jointing bays will need to be thoroughly considered to minimise impacts. In addition, whilst open cut trenching through designated sites is our least preferred option, thorough consideration should be given to all of the potential impacts from landfall options, and geotechnical data provided to demonstrate the Horizontal Directional Drilling (HDD) is achievable at this location.	The submission should provide geotechnical information to support the technical feasibility of HDD, and in parallel consider the merits of all landfall options from an ecological perspective and identify the scale and significance of any likely impacts. We have previously advised the developer (10 June 2021) on the difficulties of using HDD under marsh areas due to the nature of the marsh sediment, and we will continue to engage with them on this matter through the EPP.
3.5	3.5.3	<i>“Landfall installation may also require beach access for particular construction vehicles, equipment and materials.”</i>	We would wish to understand to what extent sensitive areas of beach/coastal frontage might be disturbed due to construction activities at landfall. An assessment should be discussed during the EPP and presented in the ES

Chapter 4 – Environmental Impact Assessment Approach and Methodology			
Section	Paragraph/Table	Comment	Recommendations
	4.4.18	<u>The Magnitude of the Impact</u> <ul style="list-style-type: none"> Extent – This should be broken down into Transboundary, National, Regional, Local and Site-Specific. Duration – This should be broken down into more specific timescale, for example, short-term < 1 year, medium-term 1-5 years, etc. Frequency - This should be broken down into High (i.e. continuous during construction, operation and/or decommissioning) etc. 	Definitions for magnitude of change should be provided in the ES and made more specific. The stages of the lifecycle of the project should also be considered.

Chapter 5 – Site Selection and Alternatives			
Section	Paragraph/Table	Comment	Recommendations
	5.7	We welcome the inclusion of a chapter on site selection and alternatives, as this is likely to be a key issue for the Examination. Natural England notes that discussions are	Natural England notes that there remain issues with securing an onshore grid connection and that within the current area of search for landfall, onshore cable route and

		<p>focused on avoiding designated sites along the Essex coast where possible, which we support. However, there is no consideration of alternative options for transmitting electricity from the array to the National Grid system; such options have the potential to lead to reduced environmental impacts, including impacts on coastal designations.</p>	<p>substation there are likely to be significant nature conversation and landscape challenges. Therefore, we strongly advise that the project seriously considers utilising alternative transmission options such as National Grid Ventures Nautilus Interconnector (listed on the PINS website) as means to address these issues.</p>
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Annex 2 Offshore Environment

Chapter 7: Physical Processes

We are content that the data sources listed will help inform the Physical Processes baseline, but we do not agree that those listed will be sufficient alone to inform the Physical Processes baseline for the Five Estuaries PEIR and ES. We would advise the Applicant that the existing physical environment will need to be fully investigated and adequately characterised across the study area, in terms of the wave-current climate, sediment transport regime, seabed morphology, and sensitive receptors, before the potential impacts of the project can be assessed and quantified. This assessment should consider both the near- and far-field, and for a range of temporal scales for the entire lifespan of the proposed development (and/or the maximum duration of the seabed lease). We also advise that cumulative impacts of the proposed Five Estuaries, and North Falls OWF projects, and existing Galloper and Greater Gabbard OWFs, should also be fully investigated, characterised and, if necessary, modelled. Justification should also be provided as to why further numerical modelling will not be necessary.

Chapter 7– Physical Processes			
Section	Paragraph/Table	Comment	Recommendations
7.2	7.2.1	<i>“The physical processes study area was defined based on a precautionary zone of influence informed by expert judgement, based on (amongst other things) physical process understanding developed from work undertaken for the nearby (operational) Galloper and Greater Gabbard OWFs and analysis of prevailing wave direction and tidal excursion distance.”</i>	<p>The tidal excursion distance should specify Spring tidal excursion ellipses.</p> <p>Establishing the anticipated maximum Zone of Influence (Zol) could draw on information from numerical modelling and field evidence from analogous developments. These data could be used to inform understanding of the overall spatial extent of changes to wave conditions, whilst taking account of prevailing conditions and the likelihood of exposure of distant areas to the potential effect.</p> <p>In addition, the anticipated maximum Zol could also be informed by examining littoral sub-cell boundaries to determine the potential spatial extent of changes to adjacent coastlines.</p>
7.2	7.2.1	<i>Figure 7.1. Designated sites are shown on the map, but are not named.</i>	Please name the designated sites shown on the map in Figure 7.1.
7.2	7.2.2	<i>“The study area overlaps with a number of nationally and internationally designated nature conservation sites, some of which are designated on the basis of the geological and geomorphological features contained within them.”</i>	Please specify which designated nature conservation sites overlap.
7.2	7.2.3	The landfall for the offshore AoS including the preferred offshore export cable route (preferred OECR) is to be located somewhere between Frinton-on-Sea and Clacton-	We understand that the nature of the intertidal works is not confirmed at this time. Consequently, the worst-case scenario should be considered for construction and

		on-Sea, on the Essex coast.	operation until refinement of the landfall and intertidal works has been decided.
7.3	Table 7.1, Column 3	Partial coverage of the physical processes study area	Where partial spatial coverage of data occurs, it would be very helpful if the location/extent of this coverage could be indicated in the ES.
7.3	7.3.1, Table 7.1, Row 1	<p>Galloper Wind Farm Project, Environment Statement – Chapter 9 (2011): geophysical, geotechnical, benthic and metocean data.</p> <p>We understand that site-specific geophysical surveys for the VE array areas and offshore Area of Search (AoS) are currently being undertaken. We welcome the opportunity to review these new geophysical data alongside existing geophysical data from Galloper OWF and Greater Gabbard OWF. However, the Galloper OWF ES metocean data that will be used to help form the baseline characterisation of the wave-current climate across the Five Estuaries Physical Processes study area, are now 10 years old and pre-date the construction of the Galloper OWF.</p>	<p>Whilst we appreciate that other modelled/observed hydrodynamic data may be used (as stated in Table 7.1), it needs to be shown that these data will provide an adequate understanding of the wave-current climate and sediment transport regime across the Physical Processes study area. In turn, the magnitude of change to both hydrodynamics and sediment transport due to the proposed development, will need to be adequately understood, within the near- and far-field. This characterisation should consider a range of spatial (near- and far-field) and temporal scales for the entire lifespan of the proposed development.</p> <p>The combined influence of the proposed development, existing adjacent offshore windfarms (i.e. GGOW and GWF) and the planned North Falls OWF, on the hydrodynamics and sediment transport regime will need to be sufficiently investigated and characterised. In turn, this investigation will need to consider cumulative impacts on the integrity of coastal and offshore receptors.</p>
7.3	7.3.1, Table 7.1, Row 9	Summary – Sea level rise predictions	For the assessment of changes to Physical Processes under a different climate in the future, VE will need to consider projections of not only sea level rise, but also increased storminess over the lifespan of the project.
7.3	7.3.1, Table 7.1	Coastal sub-cells	Please consider our comment on 7.2.1 above.
7.3	7.3.1, Table 7.1	Metocean survey data	The project should consider examining metocean survey data from locations near to, or within, the project study area. For example, the wave buoy at West Gabbard, and the South Knock waverider buoy. Data from these wave buoys could help validate and calibrate existing datasets and also help any numerical model construction for the project.
7.3	7.3.3	<i>“Site specific geophysical surveys for the VE array areas and offshore AoS are being undertaken in 2021. Data</i>	We welcome the collection of site-specific contemporary geophysical surveys being carried out. However, there is

		<i>derived from these surveys will provide a more detailed site characterisation, detailing the seabed and associated sediment properties.”</i>	no mention of site-specific geotechnical surveys being carried out. Adequate baseline characterisation of the seabed sediment type is vital to enable careful selection of the cable route and to aid cable burial. Therefore, we advise that careful consideration be given as to whether the existing and new geophysical data will need to be ground-truthed with new site-specific geotechnical data.
7.4	Figure 7.2	Figure 7.2 is an Admiralty Chart which provides basic bathymetric information.	A high-resolution bathymetry map (e.g. MBES) covering the full extent of the development and anticipated maximum ZOI would be more useful, as this would show micro- and meso-scale seabed morphological features. Significant seabed features, such as sandbanks and troughs/channels should also be identified and labelled. This is particularly important along the export cable route and within or near to the anticipated array areas.
7.4	7.4.8	Geology	We recommend that a regional geology map(s) be provided in the ES, including Quaternary Geology, Solid Geology etc.
7.4	7.4.9	Seabed sediment	We recommend that maps of seabed sediment type and sub-seabed sediment be provided in the ES.
7.4	7.4.10 & 7.4.11	Geomorphology	As per our comment above regarding Figure 7.2, a high-resolution bathymetry map (e.g. MBES) covering the Physical Processes study area should be provided in order to clearly show micro- and meso-scale seabed morphological features. This should also consider Holocene evolution, isostatic readjustment etc.
7.4	7.4.11	“Active sandbanks are a characteristic feature of this region, with the offshore AoS crossing the northern end of Galloper Bank immediately to the west of the VE array areas...”	We advise that the ES should present an adequate baseline characterisation of the morphology and morphological evolution of active sandbanks within or in the vicinity of, the VE array. This is important to evaluating and quantifying the impact of the proposed development on these sandbank systems.
7.4	7.4.12	Seabed sediment transport	Descriptions of suspended and bedload sediment transport across the Physical Processes study area should be provided in the ES, including the source of sediment across the area, sediment transport pathways, partings, sources and sinks. A map showing these features in the ES would be useful, as would a map of seabed mobility.
7.4	7.4.13	<u>Coastal characteristics</u>	We would advise the Applicant to consider whether

		A key part of the baseline characterisation process will be establishing historic and more recent trends in morphological change at the coast, in order to help provide an understanding of its potential sensitivity to any scheme impacts, and how it may evolve naturally, over the life time of the project.	changes to the wave regime (if any) due to the development could extend to the coast and whether they could influence coastal morphology through modification of rates of erosion, sediment transport and accretion. Furthermore, we would wish the Applicant to consider the coast at the landfall and how it may alter throughout the lifetime of the development.
7.4	7.4.14	Shoreline management policy	The implications of the proposed project on strategies for managing the coast as set out in Shoreline Management Plans (SMP) should be considered in the ES.
7.5	7.5.5	<i>“The adjacent Galloper and Greater Gabbard OWF projects were consented based on several project-specific studies which included the use of numerical modelling to quantify the environmental baseline, and the scheme impacts on the physical processes and environment for the realistic worst-case development options at the time. The modelling results remain valid, with the scheme scenarios providing a conservative representation of the as-built developments. As a broadly similar OWF development in a similar environmental setting, the Galloper and Greater Gabbard OWF EIAs will likely provide a sufficient range of existing evidence to inform similar assessments for VE.”</i>	<p>We advise that the existing physical environment will need to be fully investigated and adequately characterised across the study area, in order to form a robust understanding of the potential impacts of the proposed development on the wave-current climate, sediment transport regime, seabed morphology, and sensitive receptors. This characterisation should form the basis for a thorough understanding and quantification of the effects of the proposed development on the physical environment in both the near- and far-field, and for a range of temporal scales for the entire lifespan of the proposed development (and/or the maximum duration of the seabed lease).</p> <p>The near-field should encompass the effect on the local environment from individual turbines, and any localised cumulative or overlapping impacts between adjacent turbines within the immediate vicinity of the development site. The far-field should encompass the effects from the proposed development that extend beyond the project boundary, including up to the shoreline.</p> <p>A detailed analysis of the existing physical environment of the Five Estuaries area, using site-specific data should examine the bathymetry, seabed sediment cover, seabed morphology, seabed mobility, physical oceanographic processes (waves, tides and storm events), and the sediment transport regime (for both suspended sediment and bedload pathways).</p>

			The cumulative impacts due to the proposed North Falls OWF project, and existing Galloper and Greater Gabbard OWFs, should also be investigated, characterised and, if necessary, modelled. Justification should also be provided as to why further numerical modelling will not be necessary.
7.5	7.5.6	<i>“New numerical modelling is presently considered not to be required...A detailed rationale for this position will be provided...”</i>	This rationale will need to provide a robust justification for the use of existing data only. It will also need to show how the proposed approach will provide an adequate characterisation of the environmental baseline for the hydrodynamic and sediment transport regimes across the Zol, and to quantify scheme impacts both alone and in-combination with other projects or plans (including Galloper OWF, Greater Gabbard OWF, and North Falls OWF).
7.5	Table 7.3	<u>Construction</u> 7.1 Potential changes to suspended sediment concentrations (SSC), bed levels and sediment type <u>Description</u> Other construction activities that could have a significant impact on SSC include sediment disposal.	The assessment will also need to consider the implications of: <ul style="list-style-type: none"> - SSC and bed level changes both inside and outside of the development. - Thickness of deposited sediment. - The fate of dredged material.
	Table 7.3	<u>Construction</u> 7.2 Potential impacts to seabed morphology (sandbanks and sandwaves)	The assessment should carefully map seabed morphology and bedform distribution across the project study area. It should establish which seabed features are mobile and also how these large-scale bedforms are likely to respond to seabed preparation activities and cable trenching. It will also need to consider whether modification or removal of sandwaves (or other significant bedforms) could adversely impact adjacent sandbank systems, including in relation to the fate of any disposed material.
	Table 7.3	<u>Construction</u> 7.3 Potential impacts to landfall morphology	The assessment should consider to what extent sensitive areas of seabed/substratum will be disturbed during cable installation not only in subtidal areas, but also intertidal and supratidal areas at landfall. It will also need to consider whether the presence of ancillary infrastructure present during construction (e.g. cofferdams) could give rise to changes in waves and/or current flows, affecting sediment transport and leading to morphological change.
	Table 7.3	<u>Operation</u>	The assessment should consider whether the presence of

		Cable protection Cable crossings	any cable protection measures in shallow nearshore areas could cause morphological change through modification of the nearshore hydrodynamic regime or through diversion of sediment transport pathways. Furthermore, the applicant will need to consider whether cable exposure and/or protection measures could result in scour and, therefore, removal of seabed sediments. Lastly, the applicant will also need to show consideration of whether cable protection measures could interrupt seabed sediment transport and thus, result in morphological change (noting that this also applies to cable crossings).
	Table 7.3, Column 3, Proposed Approach to Assessment	<u>Operation</u> 7.4 Potential changes to the tidal regime The first sentence and three bullet points belong in the middle column 'Description' as they do not describe the proposed approach to assessment.	Please see our earlier comments on the need for further numerical modelling, particularly in regard to 7.5.5 and 7.5.6 above.
	Table 7.3	<u>Operation</u> 7.5 Potential changes to the wave regime	Please see our earlier comments on the need for further numerical modelling, particularly in regard to 7.5.5 and 7.5.6 above.
	Table 7.3	<u>Operation</u> 7.6 Potential changes to the sediment transport regime	Please see our earlier comments on the need for further numerical modelling, particularly in regard to 7.5.5 and 7.5.6 above.
	Table 7.3	<u>Operation</u> 7.7 Potential impacts to seabed morphology (sandbanks and sandwaves)	The assessment should consider sandbanks located within or adjacent to the proposed array with respect to impacts from changes to waves, hydrodynamics and sediment transport.
	Table 7.3, Column 3, Proposed Approach to Assessment	<u>Operation</u> 7.9 Scour The second sentence in Column 3 does not provide any information on the Proposed Approach to Assessment. It is worth mentioning here that the potential extent of scour around foundations can be used to assess the amount of scour protection that will be required.	The approach to the assessment should be presented during the EPP for discussion.
	General comment	Storm Surges	The North Sea is subject to the influence of storm surges, consequently they will need to be considered in the EIA.
	General comment	Climate Change	Consideration of climate change impacts over the

			operational period of Five Estuaries OWF will need to be included in the ES. These impacts will become important if they cause an alteration in the baseline conditions and become detectable above natural inter-annual variations. See also our comments on this matter for Table 7.1.
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Chapter 9: Benthic and Intertidal Ecology

We are generally content with the approach to evidence gathering and/or data collection, however, we would wish the Applicant to ensure that robust site-specific data is collected. In addition, we would wish to see more detail on the benthic survey plans to supplement existing data. We are broadly content with the approach to the assessment. However, we advise that consideration be given to the impacts from repeated maintenance activities over the lifetime of the project. This is key when considering whether impacts are temporary or lasting. We also advise that cumulative ecosystem effects need to be taken into consideration. One key area that we feel has been omitted, is inclusion of SPA designations in the Benthic and Intertidal Ecology section, with regards to the benthic habitats acting as supporting habitats for bird features.

Chapter 9 – Benthic and Intertidal Ecology			
Section	Paragraph/Table	Comment	Recommendations
9	Table 9.1	Applicability of data: There is no consideration of the gravitas which can be afforded to each data set. Consideration has only been given to the extent in which the data points overlap with VE. Age of data, type of data is also important, with the age of the data and, therefore, applicability becoming a key factor.	Ensure there is robust site-specific data collected.
9	Section 9.4.6-16 & Figure 9.4	It would be helpful if the biotope codes listed here could be presented in their EUNIS format as the Level 4 habitats have been done so. Using two different classification systems is confusing and whilst we understand that the data are taken from surveys from 2005 and 2009, it would allow for easier comparison with more recent data if they were converted. This shouldn't take too long as correlation tables are readily available.	Convert biotope codes into EUNIS equivalents.
9	9.4.19	For all Annex I habitats there must be clear demonstration of how impacts will be avoided, reduced and mitigated. In addition, cable protection should also be avoided in areas identified for reef management	There will need to be an assessment of the impacts for Margate and Long Sands SAC.
9	Table 9.2	We would have expected to have seen mention of the Outer Thames Estuary SPA in this table and section as several of the supporting habitats for Red-throated diver are present within the area of search: A5.1 Subtidal	Include an assessment of impacts on SPA designations in this section where the benthic habitats serve as supporting habitats for SPA bird features.

		coarse sediment, A5.2 Subtidal sand, and A5.4 Subtidal mixed sediments.	
9	Table 9.3, Point 9.6	Advice on Operations (AOO)	Natural England advises that advice on operations and conservation objectives for designated sites are key to determining sensitivity of features. Please refer to Conserving Marine Protected Areas JNCC - Adviser to Government on Nature Conservation
9	Table 9.3, Point 9.5	<u>Lasting Impacts</u> Natural England uses the terminology 'lasting' change for features which are likely to recover post decommissioning.	We recommend that the applicant carefully review Natural England's advice provided during the Norfolk Boreas examination in relation to impacts to Haisborough Hammond and Winterton SAC.
9	Table 9.3, Point 9.10	<u>Recoverability</u> Consideration of the impacts from repeated maintenance activities over the lifetime of the project is key when considering if impacts are temporary, or whether recovery is likely to be hindered further.	The assessment should consider the effects of ongoing perturbations to benthic receptors as a result of maintenance activities.
9	Table 9.4	We do not agree that impact 9.11: 'Accidental pollution' should be scoped out. In our experience, we see quite regular pollution reports concerning leaks and spillages from support vessels and windfarm turbines.	This impact should be scoped into the HRA assessment.
9	9.5.6	Measures adopted as part of the project	As per advice provided on Norfolk Boreas, Natural England advises that the ability to microsite may not be feasible given all the other constraints, including Archaeology. Therefore, consideration of other constraints should be undertaken during the consenting phase.
9	9.5.9	Potential cumulative impacts	Natural England advises that cumulative ecosystem effects should be taken into consideration i.e. on supporting habitats for overlapping designations.
9	9.7	<u>Questions</u> Natural England notes that site preparation works and impacts from UXO detonation are not mentioned in the scoping report. These will need to be fully considered in the ES. In addition, we highlight that there is limited information to answer all of the questions at this time.	UXO will need to be fully considered in the ES.

Chapter 10: Fish and Shellfish Resource

Chapter 10 – Fish and Shellfish Resource			
Section	Paragraph/Table	Comment	Recommendations
10	10.1	The International Herring Larval Survey (IHLS) data (ICES, 2007-2021)44;	NE welcome that more than 10 years of data are now included.
10	10.3	Invasive Non-Native Species (INNS)	The assessment should consider the potential for INNS spread via turbine structures within the region.
10	10.4.3	The only migratory species sampled during the Galloper OWF surveys were twaite shad <i>Alosa fallax</i> , of which three were caught.	Not capturing species during sampling could be due to the design and timing of a survey. It does not indicate which species are not present, rather confirms which are. We therefore recommend that clarification is provided on whether the survey was carried out during a similar seasonal period as the proposed construction period for Five Estuaries, so its relevance can be determined.
10	10.4.7	Herring spawning grounds also overlap with the proposed array areas, on the far western side of the Study Area (Coull <i>et al</i> , 1998), and the far northern edge of the Study Area.	Herring and sandeel are important prey components for many designated SAC and SPA species. Spawning grounds (for herring, cod, lemon sole, sole, plaice, sandeel, whiting and cod) all overlap with the area where the turbines are proposed to be built and would be exposed to greater impacts from noise due to the vicinity of the turbine construction and operation to spawning areas This should be made clearer in the text and include known temporal spawning information as well.
10	10.4.8	Sandeel are demersal spawners and are therefore considered sensitive to increased SSC and subsequent sediment deposition.	The area of study also includes large areas of sand which may be important for this species, which should be considered in the ES.
10	10.4.13	Of these species only twaite shad (three individuals) were recorded during the autumn 2008 Galloper OWF fish surveys.	Please see our comment on 10.4.3 above.
10	10.4.15	No Atlantic Salmon, Sea Trout or European eels were recorded in site specific sampling of the Galloper OWF, although it is possible that these species will pass through the site on their migrations.	Please see our comment on 10.4.3 above.

Chapter 11: Marine Mammals

Natural England is content with the proposed approach to evidence gathering and data collection to inform marine mammal baseline. However, we have suggested additional sources for consideration by the applicant. In respect to the assessment, we require further information in order to confirm our agreement with the approach, especially regarding the underwater noise assessment, and the impact assessment methodology specifically regarding marine mammals (although we anticipate that more information and agreement will be sought during the Evidence Plan Process (EPP)). We advise that the CIA assesses the WCS, with some consideration of realistic scenarios. We also advise that insufficient information has been provided to scope out barrier effects due to underwater noise. Furthermore, we consider that Temporary Threshold Shift (TTS) should be scoped in (whilst acknowledging the limitations of the assessment), rather than scoped out.

Chapter 11 – Marine Mammals			
Section	Paragraph/Table	Comment	Recommendations
11.2	11.2.1	Natural England agrees with the proposed Management Units (MUs) as the reference populations.	No further action on this point.
11.2	11.2.1	We understand that the reference to the ornithological chapter should be to Chapter 12, rather than Chapter 13 (Commercial Fisheries).	Please correct this error.
11.3	11.3.1	Natural England are satisfied with the datasets listed to inform the marine mammal baseline. However, it is recommended that further references are added to strengthen the information provided in the baseline (please see them listed in the Recommendations column). We advise that the applicant check for any new relevant literature that may be published prior to submission of the ES.	<ul style="list-style-type: none"> - A new paper on harbour porpoise density (Nielsen et al, 2021. Spatio-temporal patterns in harbour porpoise density: citizen science and conservation in UK seas) might be a useful reference to add. - Cucknell et al, 2020. Confirmation of the presence of harbour porpoise (<i>Phocoena phocoena</i>) within the tidal Thames and Thames Estuary. Mammal Communications 6: 21-28, London.
11.4	11.4.2	Natural England agrees that the three key species are harbour porpoise, harbour seal and grey seal, for which a detailed assessment needs to be conducted.	We note that the applicant proposes to use information from surveys undertaken for nearby offshore wind farms. Should any other marine mammal species have been observed in these surveys, we request that a rationale is provided to confirm the appropriateness of scoping them out.
11.4	Table 11.2	Natural England agrees that all relevant marine mammal protected areas have been identified.	We advise that there is an area of the Southern North Sea SAC where the winter and the summer areas overlap; this is not captured in Figure 11.5., which should be updated.
11.4	11.4.12	The applicant should include details of the location of the nearest breeding colony/region for harbour seals in relation to the proposed development site, as they have done for grey seal.	Present information on nearest harbour seal breeding colonies/region in the ES.
11.5.	11.5.1	Although we welcome the list of guidance documents, we	

		do not consider this the same as a description of the proposed assessment methodology. More information on the assessment summary is required (or a cross-reference to where else it is detailed in the scoping report).	
11.5	Table 11.3	Natural England are satisfied with the list of impact pathways proposed to be scoped into the assessment, with the exception of barrier effects from underwater noise as detailed in the below comments.	
11.5	Table 11.3	Natural England is not aware of any other data currently available on operational noise of wind turbines of a similar size to those proposed. We therefore query the likelihood of having this data at the time of submission, and request further information on how else the applicant may undertake the assessment if this data does not become available.	This matter should be discussed in the EPP.
11.5	Table 11.4	Natural England considers that TTS should be <u>scoped in</u> , albeit only for context, as opposed to being scoped out. We agree with the justification provided as to not undertaking a meaningful assessment of impact significance.	Include TTS in the ES.
11.5	Table 11.4	<p>Natural England agrees that the impact pathways to be scoped out are suitable, other than the impact of barrier effects – see below.</p> <p>Impact number 11.14 – Natural England agrees that the barrier effects due to the physical presence of the OWF should be scoped out.</p> <p>However, we consider that insufficient information has been presented to scope out barrier effects due to underwater noise. Barrier effects do not have to be permanent to require assessment; temporary barrier effects from underwater noise could also arise and affect marine mammals that would normally transit through the area. For this specific project location this is of relevance to grey and harbour seals, which are present in significant numbers in the Thames Estuary and may transit through</p>	Further information is required to justify the scoping out of barrier effects from underwater noise.

		the AoS and array area on foraging trips.	
11.5	11.5.5	The applicant has included the statement that, in reference to the mitigation measures listed in paragraph 11.5.6, that “ <i>these measures are inherently part of the design of VE and hence have been considered in the judgments as to which impacts can be scoped in/out presented in Table 11.3 and Table 11.4.</i> ” This statement in itself is of concern as there are many mitigation measures listed here which we do <u>not</u> considered embedded mitigation and should <u>not</u> be considered when determining whether an impact can be scoped out e.g. having a MMMP for piling does not mean impacts can be scoped out. However, our understanding is that none of the mitigation measures listed have led to the scoping out of any key impact pathways, which we agree with, therefore this is an observation only.	
11.5	11.5.6	We understand that the applicant has also relied on the Project Environmental Management Plan (PEMP) as a mitigation measure to scope out the impact pathway of accidental pollution to marine mammals. We query why this measure has not been included in the bullet point list.	Consider whether the PEMP should be referred to in the ES chapter.
11.5	11.5.6	We note that bullet point 6 in this list appears incomplete.	Please specify the mitigation measure that was meant to be listed here.
11.5	11.5.6	Natural England agrees that all relevant embedded mitigation protocols are listed. We reserve the right to comment on the suitability of these documents in mitigating impacts when they are submitted as part of the consultation process.	
11.5	11.5.9	As part of the CIA, we advise that the applicant considers the <u>worst-case scenario</u> , alongside realistic scenarios.	

Chapter 12: Ornithology

Natural England are broadly content with the approach to data collection, and we welcome that 24 months of at sea surveys have been undertaken. However, we have raised questions over the rationale for coverage of the aerial survey design, and associated concerns regarding whether the design will appropriately characterise the baseline remain.

We are also broadly content with the approach to the assessment, although the cable route through the Outer Thames Estuary SPA will need to be assessed, and impacts from barrier effects will need consideration.

We note that the information and detail provided is limited and is focussed on the high-level of aims of the EIA. We would welcome further information on the specific methodologies to be adopted for assessment of impacts and for a preliminary assessment of key potential impacts associated with the development and in-combination with other plans/projects. We anticipate discussing this level of detail during the preparation of Evidence Plans for the project, and we welcome that the Applicant has begun an Evidence Plan process and engaged with Natural England already in the first Offshore Ornithology ETG Meeting on 18 August 2021.

Key Issues/Risks regarding the Five Estuaries proposal

The Five Estuaries site is located within the mean-maximum foraging range of lesser black-backed gull (LBBG) of the Alde-Ore Estuary SPA and there is the potential for kittiwakes from the Flamborough and Filey Coast (FFC SPA) to interact with Five Estuaries outside of the breeding season (e.g. on migration). Therefore, the Five Estuaries proposal will likely contribute collision mortality to the in-combination totals predicted to affect these features. During the recent Norfolk Vanguard, Norfolk Boreas, East Anglia One North and East Anglia Two offshore wind farm examinations, we have advised that:

- An AEol cannot be ruled out in respect of lesser black-backed gull at Alde-Ore Estuary SPA in-combination with other plans and projects. Therefore, any additional mortality arising from this proposal would be considered adverse;
- The in-combination total of collision mortality across consented plans/projects has already exceeded levels which are considered to be of an AEol to kittiwake at FFC SPA. Therefore, any additional mortality arising from the Five Estuaries proposal to these features of these sites would therefore be considered adverse.

We have also raised concerns about predicted levels of EIA scale cumulative collision impacts on North Sea seabirds during recent examinations e.g. for EIA scale gannet, kittiwake and great black-backed gull.

These EIA and HRA concerns have intensified given the three further offshore wind farm NSIPs now submitted to PINS (Norfolk Boreas, East Anglia One North, East Anglia Two) and with further projects planned to submit in the future (Hornsea 4, Dudgeon Extension, Sheringham Extension, North Falls and Five Estuaries). Therefore, Natural England considers that without major project-level mitigation being applied to all relevant projects coming forward, there is a significant risk of large-scale impacts on seabird populations. Natural England therefore recommends that for all relevant future projects located in the North Sea, raising turbine draught height should be considered as standard mitigation practice, and that, where appropriate, relevant proposals should include this measure in order to minimise their contributions to the cumulative/in-combination collision totals by as much as is possible. As a result, we strongly advise that Five Estuaries consider at an early stage raising the draught height of their turbines by as much as possible in order to minimise their contribution to the cumulative/in-combination collision totals by as much as is possible.

We note that in the Secretary of State's (SoS) decision letter for Vanguard, the SoS stated: *'that it is important that potential AEol of designated sites are identified during the pre-application period and full consideration is given to the need for derogation of the Habitat Regulations during the Examination. He expects Applicants and statutory nature conservation bodies ("SNCBs") to engage constructively during the pre-application period and provide all necessary evidence on these matters, including possible compensatory measures, for consideration during the Examination.'* Therefore, based on the points above, we strongly recommend that NFOW give consideration to this and to development of in principle compensation measures for the Alde-Ore Estuary SPA and FFC SPA before submission of their application to the Planning Inspectorate.

Chapter 12 – Ornithology			
Section	Paragraph/Table	Comment	Recommendations
12.3	12.3.1	Natural England welcomes the 24 months of digital aerial baseline survey data have been collected. However, the applicant should note the issues we have already raised regarding the survey design and % coverage.	Please note the issues already raised by Natural England.
12.3	Table 12.1	The actual Five Estuaries 24 months of digital aerial baseline survey data collected between Mar 2019-Feb 2021 will be the key source of information for the quantified impacts assessments within the PEIR and the ES. Yet these are not actually listed in Table 12.1.	Please include reference to Five Estuaries digital aerial surveys in Table 12.1.
12.3	Table 12.1, Column 1, Row 2 Galloper OWF lesser black-backed gull tagging	With regard to the tagging of lesser black-backed gulls from Alde-Ore, the date (i.e. the years) should be specified, as the tagging covers pre- and post-construction periods. There has also been tagging work at Alde-Ore Estuary SPA funded by BEIS that can be considered. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/657524/BTO Research Report 649 - Interactions between SPA features and offshore wind farms final report.pdf	Please clarify the datasets referenced.
12.3	Table 12.1, Column 1, Row 3, Greater Gabbard OWF baseline, pre-construction and post-construction	We note that the North Falls Scoping Report suggested that there are aerial surveys of Greater Gabbard OWF from June 2012 - May 2013.	These surveys should be considered in the ES for context.
12.3	Table 12.1, Column 1, Row 5,		The ES should draw on the conservation advice packages for the relevant SPAs to determine conservation objectives,

	Information on SPAs		targets etc.
12.3	Table 12.1, Column 1, Row 6, Essex Wildlife Trust, Landguard Bird Observatory etc	We agree movements from ringing recoveries will be useful. Colony population counts will be on the SMP database.	Please draw on and refer to the SMP database in the ES
12.3	Table 12.1, Column 1, Row 8, 2004-05, 2005-06, 2007-08 aerial surveys etc	Reference to Marine Ecosystems Research Programme (MERP) – data can be accessed from: https://datadryad.org/stash/dataset/doi:10.5061/dryad.mw6m905sz	Please draw on and refer to MERP data in the ES.
12.3	Table 12.1, Column 1, Row 10, Mitchell et al., 2004 etc	Include SMP database	See comment on 12.3
12.3	Table 12.1, Column 1, Row 12, Stone et al., 1995 etc		Include Wakefield et al. 2013 & Cleasby et al. 2018, 2020 and consider the findings of these in the ES
12.3	Table 12.1, Column 1, Row 13, Wernham et al., 2002 etc		Include Wright et al. 2012 - SOSS-05 project and consider the findings of these in the EA.
12.4	12.4.6	As the offshore export cable route (as shown on Fig 12.1) passes through the OTE SPA, consideration will need to be given as to the RTD densities within the area of overlap (this can be done using the OTE 2018 survey data, which NE can supply). Will also need to consider whether there is overlap of the cable area with foraging areas of the breeding tern features of the SPA.	Disturbance/displacement impacts from cable route on OTE SPA need to be considered.

12.4	12.4.6	<p>We note that full consideration of connectivity of European Sites (SPAs and Ramsar sites) is being provided in a separate Habitats Regulations Assessment (HRA) Screening report. Whilst the proposed array areas may be located outside of foraging range of kittiwakes breeding at the Flamborough and Filey Coast (FFC) SPA, there is the potential for birds from this site to interact with the proposal outside of the breeding season (e.g. on migration). We highlight that the in-combination total of collision mortality across consented plans/projects has already exceeded levels which are considered to be of an AEol to kittiwake at FFC SPA, and that any additional mortality arising from the proposal would therefore be considered adverse.</p> <p>The array areas are located within the mean-maximum foraging range of lesser black-backed gull (Woodward et al. 2019) of the Alde-Ore Estuary SPA. Therefore, there is the potential that birds recorded within the proposal site during the breeding season will be breeding birds from this colony. Birds from the colony may also interact with the proposal outside the breeding season (e.g. on migration). During the recent Norfolk Vanguard, Norfolk Boreas, East Anglia One North and East Anglia Two offshore wind farm examinations, we have advised that an AEol cannot be ruled out in respect of lesser black-backed gull at Alde-Ore Estuary SPA in-combination with other plans and projects. Therefore, any additional mortality arising from this proposal would be considered adverse.</p>	<p>Given the level of concern regarding in-combination collision mortality for these features of these SPAs, we strongly advise that Five Estuaries consider, at an early stage, raising the draught height of their turbines by as much as possible in order to minimise their contribution to the cumulative/in-combination collision totals by as much as is possible. We would also recommend that Five Estuaries provide evidence/justification (e.g. engineering or technological constraints) for the draught heights proposed.</p> <p>Furthermore, given that it is likely that any additional mortality arising from the Five Estuaries proposal would be considered adverse, we note that in the Secretary of State's (SoS) decision letter for Vanguard, the SoS stated: <i>'that it is important that potential AEol of designated sites are identified during the pre-application period and full consideration is given to the need for derogation of the Habitat Regulations during the Examination. He expects Applicants and statutory nature conservation bodies ("SNCBs") to engage constructively during the pre-application period and provide all necessary evidence on these matters, including possible compensatory measures, for consideration during the Examination.'</i> Therefore, based on the above advice regarding AEol for FFC SPA and Alde-Ore Estuary SPA, we strongly recommend that Five Estuaries give consideration to this, and to development of in principle compensation measures for these SPAs before submission of their application to the Planning Inspectorate.</p>
12.4	12.4.7, Table 12.2, Column 2, Row 3, Gannet	Feature of FFC SPA and potential for connectivity on spring/autumn passage	Impacts on the FFC SPA feature should be considered in the ES.
12.4	12.4.7, Table 12.2, Column 2, Row 7, Kittiwake	Feature of FFC SPA and potential for connectivity on spring/autumn passage	Impacts on the FFC SPA feature should be considered in the ES.
12.4	12.4.7, Table 12.2, Column 2, Row 11, Lesser black-	Feature of Alde-Ore Estuary SPA and potential for connectivity	Impacts on the Alde-Ore Estuary SPA feature should be considered in the ES.

	backed gull		
12.4	12.4.7, Table 12.2, Column 2, Row 15, Guillemot	Feature of FFC SPA and potential for connectivity in non-breeding season	Impacts on the FFC SPA feature should be considered in the ES.
12.4	12.4.7, Table 12.2, Column 2, Row 16, Razorbill	Feature of FFC SPA and potential for connectivity in non-breeding season	Impacts on the FFC SPA feature should be considered in the ES.
12.5	12.5.1	This section and the potential impacts section are brief and high level. We anticipate that the detail on the approaches that will be taken for collision risk modelling and the displacement assessments will be based on SNCB advice.	We would welcome further information on the specific methodologies to be adopted for assessment of each potential impact that has been scoped in, and for a preliminary assessment of key potential impacts associated with the development and in-combination with other plans/projects. We anticipate discussing this level of detail during the Evidence Plan Process for the project.
12.5	Table 12.4	<p><u>Construction</u> We welcome that the potential impacts during construction will cover displacement and disturbance of birds due to construction activities and vessel movements and indirect impacts on birds through changes in prey or habitat availability.</p> <p>We welcome that the assessment of construction indirect impacts will consider impacts via underwater noise and generation of suspended sediments through activities such as piling and seabed preparation for installation of foundations.</p>	The assessment of indirect impacts on habitats and prey should also consider such impacts resulting from cable laying activities.
12.5	Table 12.4	Operation	We advise that barrier effects should also be scoped into the ES for operational impacts.
12.5	Table 12.4	<p><u>Operation</u> 12.3 Operational Disturbance and Displacement – <u>Proposed Approach to Assessment</u> This does not give any indication of the methodology they will use for the displacement assessment (not does paras 12.5.1-12.5.7) - the approach to be used here should</p>	For assessment of construction phase displacement, we advise Five Estuaries consider the pragmatic method employed at Dogger Bank Creyke Beck A&B and Teesside A&B (section 4.3.5.1. in Appendix A to Chapter 11 in Dogger Bank Creyke Beck A&B) of calculating operational displacement per species and reducing by 50% during the construction period (to broadly reflect reduced spatial and

		<p>follow that set out in SNCBs 2017 (i.e. the SNCB displacement advice note).</p> <p>Note that for construction, the construction phase presents a range of potential drivers that may cause displacement of seabirds. This includes vessel movement and construction activities (which may be both spatially and temporally limited), however, the physical presence of the constructed turbines is also likely to cause a displacement response. As the construction phase progresses, more turbines are built and the spatial scale increases, until a point when the entire array is constructed, yet not operational, and may present the same displacement stimulus as an operational farm. Therefore, it should not be asserted that displacement will only occur where vessels and construction activities are present; instead we consider that displacement is likely to occur within and around the constructed array area (due to the presence of turbines) and where construction activities are ongoing. This will represent an increasing spatial impact as construction progresses.</p>	<p>temporal scale) across the range of displacement mortality advised by Natural England for a particular species. We recommend this approach is taken for construction displacement assessments for red-throated diver, gannet, and auk species.</p>
12.5	Table 12.4	<p><u>Decommissioning</u></p> <p>We agree that decommissioning impacts will likely be similar to those for the construction phase.</p>	
12.5	Table 12.5, Impact No. 12.7	<p>We agree that for Construction Indirect Impacts Through Effects on Prey Species and habitats, provided an appropriate Project Environmental Management Plan (PEMP) is agreed and implemented then the risk of mortality from a major incident that may impact any species at a population level is considered very unlikely.</p>	
12.5	Table 12.5, Impact No. 12.8	<p>We agree that the construction collision risk with installed but no commissioned turbines is low.</p>	
12.5	Table 12.5, Impact No. 12.9	<p>Operational Disturbance and Displacement (Offshore AoS). We agree that if a commitment is secured to undertake best practice operation and maintenance vessel movements. This is particularly important if the O&M port once decided means that O&M vessels will have to travel to the site by passing through an SPA, for</p>	<p>The DCO/dML submission should secure a best practice commitment for operation and maintenance vessel movements through an appropriate condition. This is key if the O&M port, once decided, will result in O&M vessels travelling to the site by passing through an SPA with sensitive receptors.</p>

		example the Outer Thames Estuary SPA/Greater Wash SPA.	
12.5	Table 12.5, Impact No. 12.10	<u>Barrier Effects</u> Whilst migratory species would be likely to encounter the turbine array only once during a given migration journey, if Five Estuaries is situated within their flight corridor, meaning they could potentially encounter the site and hence any barrier effect up to twice per year. The energetic costs of such one-off avoidance events are likely to be negligible for the Five Estuaries project alone. However, we recommend that the impact of <u>cumulative</u> barrier effects on migratory species is not scoped out of the assessment at this stage.	We advise that barrier effects should be considered at least for species with relevant migratory corridors.
12.5	12.5.13	<i>“Use of larger and more widely spaced WTGs than older developments, following advances in wind turbine technology, to achieve the required overall maximum export capacity, which typically reduces collision risks, and is also likely to reduce displacement effects;”</i> We question whether there is any evidence that fewer larger turbines mean reduced displacement. Unless other evidence can be brought forward, we question the assertion that displacement is likely to reduce displacement effects.	Please provide empirical evidence that fewer larger turbines are likely to reduce displacement effects.
12.5	12.5.13	<i>“Development of, and adherence to, a PEMP to reduce direct and indirect disturbance displacement effects.”</i> Does this refer to reducing displacement effects from vessel movements?	Please clarify the scope of the PEMP in the submitted ES.
12.5	12.5.14	With regard to mitigation, and as noted above, Natural England considers that without major project-level mitigation being applied to all relevant projects coming forward, there is a significant risk of large-scale impacts on North Sea seabird populations from OWF.	Please see our advice on 12.4.6 above.
12.5	12.5.17	Impacts proposed to be scoped into the cumulative assessment	We advise that cumulative barrier effects should also be scoped into the impact assessment.
12.5	12.5.23	Impacts proposed to be scoped out of the cumulative assessment	Natural England recommends that consideration should be given to cumulative impacts from construction if the construction phases of Five Estuaries and North Falls were to overlap.

12.6	12.6.2	It should be noted that Natural England have raised concerns over the approach used in the survey coverage analysis report presented to us. Therefore, at present our questions regarding the rationale for coverage of the aerial survey design to appropriately characterise the baseline remain.	Please provide an explanation as to why 10% coverage for some months was considered adequate.
12.7		<i>“Do you agree that the data sources identified are sufficient to inform the offshore ornithological baseline for the VE PEIR and ES?”</i> No, please see our recommendations to Table 12.1	Please incorporate our recommended additions to Table 12.1.
12.7		<i>“Do you agree that the impacts described in Table 12.5 can be scoped out?”</i> No, we would advise that barrier effects should not be scoped out at this stage (esp. cumulative barrier effects)	Please consider cumulative barrier effects in the ES.
12.7		<i>“For those impacts scoped in (Table 12.4), do you agree that the methods described are sufficient to inform a robust impact assessment?”</i> The methods presented here are very high level and there is no mention of how displacement assessments will be undertaken. However, we understand these approaches will be discussed further during the EPP at future ETGs.	The displacement methods need to be discussed and agreed at future ETGs. Natural England advises that the SNCB displacement advice note (SNCBs, 2017) should be used in assessments.
12.7		<i>“Do you agree that the embedded mitigation measures described provide a suitable means for managing and mitigating the potential effects of VE on offshore ornithology IOFs?”</i> We broadly agree, however, please see our comments on the mitigation section. We also advise considering the raising of the turbine draught heights by as much as possible, as this should be considered best practice mitigation going forward, to reduce the project’s contribution to cumulative/in-combination collisions.	Natural England advises consideration of raising of the turbine draught heights by as much as possible to reduce the project’s contribution to cumulative/in-combination collisions.
12.7		<i>“Do you have any specific requirements for the CRM methodology?”</i> The SNCBs are in the process of updating our advice in relation to collision risk modelling, which will consider various aspects of collision risk modelling including avoidance rates, nocturnal activity, use of deterministic/stochastic models. We will share this with	We advise that the SNCB advice on Collision Risk Modelling is incorporated into the Assessment process. This will be provided to the Applicant as soon as it is available

		<p>Five Estuaries once it is available. With regard to avoidance rates, we recommend that the avoidance rates in the 2014 SNCB note are used in impact assessments.</p> <p>It is recommended that robust site-specific flight height data is utilised, if available. However, we are uncertain of whether robust site-specific flight height data will be available for the Five Estuaries site for use in the CRM. Methods as described in a recent review of methods by Largey <i>et al.</i> (2021), or where validation has been undertaken and accepted by NE should be used. In cases where insufficient site-specific data is available, it may be more appropriate to use the generic flight height information in (Johnston et al. 2014& b) for Band (2012) and/or MacGregor (2018) sCRM. We advise that outputs from Option 2 of the Basic Band model are presented alongside any Option 1 outputs that are site or region specific, for comparison.</p> <p>We recommend the use of generic flight speeds in CRM.</p>	
12.7		<p>Although there is a question about CRM requirements, there is no specific question about the advice on displacement assessment.</p>	<p>In terms of displacement, as already set out to the Applicant in the ETG meeting in August 2021, direct displacement assessments should be undertaken following the matrix approach as set out in the 2017 SNCB displacement advice note.</p> <p>Displacement assessments should be based on:</p> <ul style="list-style-type: none"> - Displacement rates of 90-100% for red throated diver, 60-80% for gannet, and 30-70% for auks; and, - Mortality rates of 1-10% for all species. <p>For HRA assessment of red throated divers from the Outer Thames Estuary SPA assuming displacement extends only up to 4km is not appropriate where a plan or project is located within 10km of a red throated diver SPA. An update to the 2017 SNCB displacement note to reflect this updated advice, is in preparation and can be provided to Five Estuaries once available. Mapping of a 10km displacement</p>

			<p>buffer with respect to the Outer Thames Estuary SPA will help understand the potential for Five Estuaries to contribute to in-combination displacement effects.</p> <p>For the assessment of construction phase displacement, we advise Five Estuaries consider the pragmatic method NE advised for PEIR at Hornsea 4 of calculating operational displacement per species and reducing by 50% during the construction period (to broadly reflect reduced spatial and temporal scale) across the range of displacement mortality advised by NE for a particular species (as set out above). We recommend this approach is taken for construction displacement assessments for red-throated diver, gannet, and auks.</p>
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Chapter 16: Seascape, Landscape and Visual Impact Assessment

i) Height and location of turbines

Natural England advises that there is the potential for an in-combination effect with the proposed EA2 and EA1N OWFs. This may result in an extensive 'curtaining effect' on the entirety of the Suffolk Coast and Heaths AONB seascape setting. Natural England has concerns for the northern portion of the extension site of:

- *the erection of large turbines (likely maximum height 300m) closer to the coastline of the AONB and in front of the existing Greater Gabbard OWF; and*
- *the potential for the creation a curtaining effect when viewed in conjunction with the EA1N and EA2 OWF proposals.*

NE advises that to prevent these visual effects any future OWF proposed within this extension site should not be located within the northern portion of the extension site and further development is directed towards the southern portion.

We note that that the impacts from the proposed ~400m high turbines are more likely to have significant impacts on a wider field of receptors (and potentially designated landscapes) and not just from turbines located to the west of the northern proportion. **Therefore, we support the use of a minimum 60km ZTV for 400m turbines**

ii) Recent SLVIA/LVIA advice on OWF NSIPs

Natural England refers the Applicant to the advice we provided as part of the EA1N and EA2 relevant and written representations (Appendix E) and at Deadlines 1, 3, 6 and 8 of examination, which can be found on the PINS website

iii) LVIA

Construction and Operation of onshore infrastructure may impact on designated landscapes depending on locations, but currently this remains unknown as cable corridor and substation are not yet determined. Neither is any mitigation. Therefore, Natural England advises that this requires further consideration during pre-application.

Chapter 16 – Seascape, Landscape and Visual Impact Assessment			
Section	Paragraph/Table	Comment	Recommendations
16	Table 16.1	Natural England advises caution in relation to potential over reliance on assessments undertaken for the original OWF projects. Lessons have been learnt from the now built projects especially in relation to the scale and significance of the impacts compared to the predicted impacts at the time of consent.	Please see Natural England advice on the EA1N and EA2 applications.
	16.4.9	Whilst existing windfarms will be part of the baseline, they do continue to have ongoing impacts on the special qualities of the Suffolk Coast and Heaths AONB. Therefore, this will need to be taken into consideration in the assessment.	Please see Natural England advice on the EA1N and EA2 applications.

Chapter 18: Infrastructure and Other Marine Users

Chapter 18 – Infrastructure and Other Marine Users			
Section	Paragraph/Table	Comment	Recommendations
18	Figures 18.1 & 18.2	Neither figure shows designated sites.	Please add designated sites to these maps.
	18.4.3	North Falls OWF export cables	Natural England would also like to encourage the Five Estuaries OWF project to explore coordinating infrastructure with the North Falls OWF project in order to reduce environmental impacts. The feasibility of this should be considered in the alternatives section of the ES.
	18.4.10	Interconnector and Telecommunication Cables	The ES will need to carefully assess the potential impact of cable crossings and, thus, cable protection in or near designated sites.
	18.4.17	<u>Marine Disposal</u> The proposed Five Estuaries array areas and export cable corridor overlap closed disposal sites. Therefore, construction (and decommissioning) activities could potentially release contaminated sediment or sediment	Offshore surveys should be considered for the Five Estuaries OWF site and offshore export cable corridor to determine if any contaminants from previous disposal activities are present.

		that is not the same as the surrounding seabed during construction.	
	18.4.20	<u>Aggregate Sites</u> Mineral aggregate extraction areas adjacent to the southern array and/or export cable corridor	Please consider the cumulative effects of Five Estuaries OWF construction and aggregate extraction activities on the release of suspended sediments into the water column, sediment transport processes and nearby designated sites.

Annex 3 Onshore Environment

Chapter 19: Terrestrial Ecology and Nature Conservation

Natural England note the large onshore scoping area and reserve the right to make future detailed comments once the onshore transmission substation location has been confirmed, but will endeavour to provide the best advice available with the information currently provided. We also continue to advise that a 400m survey buffer should be adopted for the wintering bird survey. We would also wish the applicant to consider soil quality, light pollution, Stewardship and Countryside Stewardship Agreements, climate change adaptation, Biodiversity Net Gain (BNG), District Level Great Crested Newt (GCN) Licensing, access to Public Rights of Way (PRoW).

Chapter 19 – Terrestrial Ecology and Nature Conservation			
Section	Paragraph/Table	Comment	Recommendations
	General Comment	Natural England note the large onshore scoping area and reserve the right to make future detailed comments once the onshore transmission substation location has been confirmed, but will endeavour to provide the best advice available with the information currently provided.	
Chapter 19		<u>Higher Level Stewardship Agreements and Countryside Stewardship schemes</u> There are several schemes within the Area of Search. Natural England recommend that the applicant consults with Natural England, RPA and landowners at the earliest opportunity to discuss possible interaction with these schemes.	Natural England recommend that the applicant consults with Natural England, RPA and landowners at the earliest opportunity to discuss possible interaction with these schemes.
Chapter 19	Table 19.2	Recommend contact 'Operation Turtle Dove' for records in the area.	We recommend the developer contact Operation Turtle dove for records in the area, and present these where relevant in the ES.
Chapter 19	19.4.1	There may also be a number of Candidate Local Wildlife Site (CLWS) throughout the scoping area and these should be illustrated within Figures and given due consideration in EIA.	Include CLWS in relevant ES figures and consider impacts to these sites within any EIA.
Chapter 19	Table 19.5	Would welcome consideration of light pollution effects on sensitive ecological receptors.	Natural England recommends consideration of light pollution effects on sensitive ecological receptors.
Chapter 19		<u>Licensing</u> Natural England recommend that the applicant contact Natural England as soon as possible to discuss licensing and potential Letters of No Impediment (LoNIs).	We recommend that the applicant contact Natural England as soon as possible to discuss licensing and potential LoNIs.
Chapter	19.5.7	Natural England welcome that the cable route selection	We recommend the applicant consults Natural England

19		<p>will avoid impacts to designated sites and features of conservation importance. Natural England welcome the use of the avoid, reduce, mitigate hierarchy.</p> <p>We would welcome being consulted as early as possible in the route selection and siting of the East Anglia Coastal Substation process once grid connections have been announced.</p>	<p>early in the route selection process once grid connection locations have been determined.</p>
Chapter 19	19.5.7	<p>Natural England would welcome the development of an Outline Landscape and Ecological Management Strategy (OLEMS), and consultation on the measures within.</p>	<p>Recommend develop an Outline Landscape and Ecological Management Strategy (OLEMS), alongside an Outline Code of Construction Practice (OCoCP).</p>
Chapter 19	19.5.7	<p>Ancient Woodland The S41 list includes six priority woodland habitats, which will often be ancient woodland, with all ancient semi-natural woodland in the South East falling into one or more of the six types.</p> <p>Information about ancient woodland can be found in Natural England's standing advice http://www.naturalengland.org.uk/Images/standing-advice-ancient-woodland_tcm6-32633.pdf.</p> <p>Ancient woodland is an irreplaceable resource of great importance for its wildlife, its history and the contribution it makes to our diverse landscapes. Local authorities have a vital role in ensuring its conservation, in particular through the planning system. The ES should have regard to the requirements under the NPPF which states:</p> <p>When determining planning applications, local planning authorities should apply the following principles:</p> <ul style="list-style-type: none"> a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts)... c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) 	<p>The ES should carefully consider potential impacts on ancient woodland and demonstrate that these have been avoided wherever possible.</p>

		should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.	
Chapter 19	19.6.4	Wintering bird survey Natural England note and welcome that wintering bird surveys will cover the full Area of Search as indicated in Figure 19.1.	
Chapter 19	19.6.4	Wintering bird survey We note that the proposed surveys cover an Area of Search plus 250 m buffer. Natural England recommend that a 400 m buffer be adopted around area of search.	Natural England recommend that a 400m buffer be adopted around area of search.
Chapter 19	19.6.8	Great Crested Newt (GCN) There is a district level licensing scheme for great crested newt in Essex. The applicant can apply to join the scheme Great crested newts: district level licensing schemes - GOV.UK (www.gov.uk)	We recommend applicant considers district level licensing for GCN.
Chapter 19	19.6.9	Natural England look forward to being consulted on the detailed scope of surveys once the Area of Search is amended.	
Chapter 19		Soil and Agricultural Land Quality Impacts from the development should be considered in light of the Government's policy for the protection of the Best and Most Versatile (BMV) agricultural land as set out in paragraph 170 of the NPPF. We also recommend that soils should be considered in the context of the sustainable use of land and the ecosystem services they provide as a natural resource, as also highlighted in paragraph 170 of the NPPF. Soil is a finite resource that fulfils many important functions and services (ecosystem services) for society, for example as a growing medium for food, timber and other crops, as a store for carbon and water, as a reservoir of biodiversity and as a buffer against pollution. It is therefore important that the soil resources are protected and used sustainably. The applicant should consider the following issues as part	We recommend applicant considers Soil and Agricultural Land Quality in the Preliminary Environmental Information Report (PEIR) and ES as described.

		<p>of the Environmental Statement:</p> <ol style="list-style-type: none"> 1. The degree to which soils are going to be disturbed/harmed as part of this development and whether ‘best and most versatile’ agricultural land is involved. This may require a detailed survey if one is not already available. For further information on the availability of existing agricultural land classification (ALC) information see www.magic.gov.uk. Natural England Technical Information Note 049 - <u>Agricultural Land Classification: protecting the best and most versatile agricultural land</u> also contains useful background information. 2. If required, an agricultural land classification and soil survey of the land should be undertaken. This should normally be at a detailed level, e.g. one auger boring per hectare, (or more detailed for a small site) supported by pits dug in each main soil type to confirm the physical characteristics of the full depth of the soil resource, i.e. 1.2 metres. 3. The Environmental Statement should provide details of how any adverse impacts on soils can be minimised. Further guidance is contained in the <u>Defra Construction Code of Practice for the Sustainable Use of Soil on Development Sites</u>. 	
Chapter 19		<p>Climate Change Adaptation The <u>England Biodiversity Strategy</u> published by Defra establishes principles for the consideration of biodiversity and the effects of climate change. The ES should reflect these principles and identify how the development’s effects on the natural environment will be influenced by climate change, and how ecological networks will be maintained. The NPPF requires that the planning system should contribute to the enhancement of the natural</p>	We recommend applicant consider Climate Change adaptation in the ES as described.

		<p>environment 'by establishing coherent ecological networks that are more resilient to current and future pressures' (NPPF Para 174), which should be demonstrated through the ES.</p>	
<p>Chapter 19</p>		<p>Biodiversity Net Gain (BNG) There is currently no mention of net gain within the scoping and Natural England recommend that the applicant consider this within the proposal from an early stage in order to future proof and proposals.</p> <p>Net gain is an approach to development on land or marine management activities that leaves the natural environment (both terrestrial & marine) in a measurably better state than it was before. Net gain is often referred to in terms of Biodiversity Net gain (BNG). BNG is expected to become mandatory for most terrestrial and intertidal developments in the second half of 2023. Biodiversity net gain uses the habitat features found in the biodiversity metric as a proxy for wider biodiversity.</p> <p>Biodiversity net gain works with and does not replace the mitigation hierarchy. Biodiversity net gain does not replace existing legal or licensing habitat or species requirements and should not be applied to compensate for impacts on irreplaceable habitat features.</p> <p>Biodiversity net gain must be measured using a recognised biodiversity metric. The metric should be used to calculate before and after habitat value in terms of 'biodiversity units' to ensure net gains are measurable. In 2019 Natural England published a beta biodiversity metric (the Biodiversity Metric 2.0) which can be used for all terrestrial and intertidal habitat types. The biodiversity metric 2.0 was updated in 2021 with the Biodiversity Metric 3 which incorporated updates and feedback from partners and specialists.</p> <p>As proposed in the Environment Bill, biodiversity net gain</p>	<p>We recommend applicant considers Net Gain in the ES as described.</p>

		<p>must be measured using a recognised metric, as published by the Secretary of State. Natural England anticipates recommending the most up to date version of the Biodiversity Metric, currently Biodiversity Metric 3 to Defra after the Environment Bill achieves Royal Assent, which will then be subject to a formal consultation process prior to publication.</p> <p>The Environment Bill covers Town and Country Planning Act (TCPA) developments and following Government's response to the Dasgupta Review, Nationally Significant Infrastructure Projects (NSIPs) down to the mean low water mark. There is however the development of an approach for marine net gain and marine developments, which will be consulted on in the near future.</p> <p>The Environmental Benefits from Nature Tool (EBN - formerly known as the eco-metric) has been developed by Natural England to work with the Biodiversity Metric and help projects highlight changes in ecosystem service values when delivering biodiversity net gain. It is a voluntary tool designed to help step towards environmental net gain. A 'beta' version is out for out for consultation during summer 2021.</p> <p>The Environment Bill will mandate biodiversity net gains for developments which fall under the Town and Country Planning Act (TCPA) and for Nationally Significant Infrastructure Projects. Once royal assent is given, there will be a two-year transition period before biodiversity net gain becomes mandatory for TCPA schemes. We currently anticipate mandatory biodiversity net gain will come into effect in autumn 2023. Details are awaited on when BNG will become mandatory for NSIPs.</p> <p>In line with Government advice, the use of a Biodiversity Metric will become mandatory for use by all developments covered by the Environment Bill. It is anticipated that the full calculation will need to be submitted alongside planning applications (not just the outputs or results of a</p>	
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		<p>calculation).</p> <p>Under mandatory biodiversity net gain, if net gains cannot be delivered on or off-site, they can alternatively be achieved through the purchase of statutory biodiversity credits. Statutory biodiversity credits will become available for purchase, where needed, in advance of the introduction of mandatory biodiversity net gain. The costs associated with achieving the delivery of the mandatory biodiversity net gain outcomes, capital and revenue, should be reflected in the biodiversity unit sale price.</p> <p>Under mandatory biodiversity net gain, developments will be required to achieve a minimum 10% net gain. Mandatory net gain will require all BNG sites to be secured for at least 30 years and appropriate management/monitoring should be undertaken during that period.</p> <p>As part of the process, all developments will be required to submit a Biodiversity Net Gain Plan. Further details on these plans will be set out in secondary legislation. The BNG plan sets out the development's strategy for ensuring habitats are managed, maintained and monitored by the, or 3rd party management bodies for the required 30 years.</p>	
		<p>Much of the scoping area is being considered for woodland creation and we suggest that the Applicant contact the Forestry Commission for further information regarding this and possible consideration within the EIA.</p>	<p>We recommend the applicant contact Forestry Commission to provide more details on potential woodland creation sites.</p>
		<p>Recommend consideration of Public Rights of Way (PRoW). We would expect consideration for techniques for crossing the Coast path and Public Rights of Way to be included in the EIA.</p>	<p>Provide details on how significant impacts on PRoW will be avoided in the ES.</p>

Chapter 25: Geology and Ground Conditions

Chapter 25 – Geology and Ground Conditions			
Section	Paragraph/Table	Comment	Recommendations
25.4.13	Table 25.3	Geological designations	Natural England advises that it is preferable to avoid potential impacts to designated sites due to the proposed development, if possible.

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Tel: [REDACTED]

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28th October 2021

Your Ref: EN010115

By email only: fiveestuaries@planninginspectorate.gov.uk

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11
Application by Five Estuaries Offshore Wind Farm Limited (the Applicant) for an Order granting Development Consent for the Five Estuaries Offshore Wind Farm (the Proposed Development)

This is an integrated Healthcare system response on behalf of the following organisations;

East Suffolk North Essex Foundation Trust (ESNEFT)
Essex Partnership University Trust (EPUT)
East of England Ambulance Service NHS Trust (EEAST)
North East Essex Clinical Commissioning Group (NEECCG)

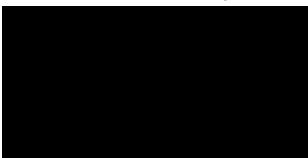
In response to the scoping option notification for the development of an Environmental Statement (ES) it is acknowledged that there is reference to the following areas of concern and that further detail should be explored in the development of the ES;

- Under the proposed approach to the Environmental Impact Assessment on travel impact, there is a high level understanding of how the review of the potential impact of the number of HGV's will be undertaken and acknowledges that the impact will be felt on the A12 and minor A roads to the construction site.
- There is a need to consider impact of road closures, diversion routes, increase in traffic volumes and movement of AILs on emergency services response times (both in terms of reaching the site of the incident and onward conveyance to an acute hospital or other health setting as required).
- Tables 27.2 - Impacts proposed to be scoped in to the assessment for Socio-Economic, Tourism and Recreation Impact No 27.4 and Table 28.1 - Impacts proposed to be scoped in to the assessment for public health Impact No 28.5 (disruption to local road network) 4 should include impact on emergency ambulance services and potentially non-emergency patient transport delivery of nationally set response times and mitigation measures.

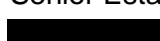
- Table 22.3 - Impacts proposed to be scoped in to the assessment for traffic and transport – add proposals to assess for impact on emergency services (fire, police and ambulance) - Driver severance and delay (22.1) Hazardous and dangerous loads (22.4)
- The report also acknowledges the cumulative effect of multiple schemes such as North Falls Windfarm and the East Anglia coast national grid substation. This is an important area which we would like to be part of the exploration of reducing the impact by working in partnership
- There is a minor point to note in relation to noise, vibration and air quality is that the nearest Air Quality Management Area is Colchester which would not produce comparable data on potential impacts.
- We are particularly interested in understanding more around the opportunities to work with the developer on turning the potential impacts on Socio Economics, Tourism and Recreation into opportunities to improve the offer of local skills, education, training and jobs for local people.
- We are keen to encourage links to local schools, colleges and universities as well as businesses to develop training, education and skills for local young people or those retraining in the years prior to construction start date as this would provide a local workforce who could work on this project during construction (estimated start date of 2030) and once operational.
- We are keen to ensure that the ES provides further detail to the acknowledgement in the scoping options report to the potential demand on healthcare services during the construction period including Primary and Secondary Care (including mental health) and ambulance emergency and non-emergency patient transport services with influx of additional temporary residents.

To this end this is to confirm that NEECCG (or its successor body) will be the lead contact, we will want to be acknowledged as an Interested Party and act as a consultee moving forward on behalf of all of the organisations listed above who will provide advice and support to NEECCG. Contact details are as per the signature below.

Yours Faithfully



Jane Taylor
Senior Estates Development Manager

 [@nhs.net](mailto: [redacted]@nhs.net)

Mobile: 

Our Ref: SCC/CON/4587/21
Date: 02 November 2021
Enquiries to: Andy Rutter
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By email only: fiveestuaries@planninginspectorate.gov.uk

Dear Helen,

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11.

Application by Five Estuaries Offshore Wind Farm Limited (the applicant) for an Order Granting Development Consent for the Five Estuaries Offshore Wind Farm (the Proposed Development)

Scoping consultation and notification of the Applicant's contact details and duty to make available information to the applicant if requested.

Thank you for consulting Suffolk County Council.

The information provided below are the views of Suffolk County Council Landscape, Skills and Highways.

SCC Landscape

1) Do you agree that the data sources identified in Table 16.1 are sufficient to inform the baseline for the VE PEIR and ES?

In addition to the comprehensive baseline material identified we note the following:

- Designation History Series <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010078/EN010078-004113-SCC%20The%20Designation%20History%20of%20the%20Suffolk%20Coast%20and%20Heaths%20AONB%20220221.pdf>
- Development in the setting of the Suffolk Coast & Heaths Area of Outstanding Natural Beauty (AONB): <https://www.suffolkcoastandheaths.org/wp-content/uploads/2021/01/ENDORSED-SCH-AONB-Position-Statement-on-Development-in-Setting-of-AONB-2015.pdf>

2) Do you agree that all the designated areas within the ZTV have been identified?

The relevant designated areas within Suffolk have been identified.

3) Do you agree with the proposed viewpoint list in Table 16.3 or have any proposed additions or alternatives?

A representative viewpoint further north at Covehithe should also be considered to understand the potential curtaining effects, and to properly inform consideration of cumulative impacts, and their implications for the Suffolk Coast and Heaths AONB. This would also be consistent with the scoping in of the LCT Wooded Fens at 16.6.

In addition to the representative (assessed) and illustrative (not assessed) viewpoints identified in table 16.3 for the SLVIA, *Specific Viewpoints* (assessed) may also be required to deal with some locations for the assessment of impacts on coastal heritage assets including Landguard Fort and Bawdsey Manor for example, and we would suggest that discussions with relevant cultural heritage consultees, including Historic England take place, to explore these issues in terms of the level of assessment required.

4) Have all potential impacts resulting from VE been identified for seascape, landscape and visual receptors?

Yes, subject to inclusion of and assessment of specific heritage assets in the Heritage Assessment that may be required by the relevant consultees. We note paragraph 20.5.1 in this regard.

5) Do you agree that the impacts described in Table 16.5 can be scoped out?

The Scoping out of SCT02: International Ports and Approaches appears to be inconsistent with inclusion of both SCT03: Nearshore Waters SCT05: Coastal Waters

6) For those impacts scoped in (Table 16.4), do you agree that the methods described are sufficient to inform a robust impact assessment?

Yes.

7) Do you have any specific requirements for the SLVIA methodology

Assessment of sequential impacts on the Suffolk/ England coast path

As part of the LVIA the applicant should also consider sequential visual effects on users of the Suffolk / England coast path. Furthermore, we note that the accumulation of non-significant visual effects along such a route *may* together be of significance. This assessment will also need to consider the cumulative and in-combination sequential visual effects with other projects and proposals.

Approach to consideration of visibility of the turbines

The seasonality of adverse impacts and the concentration of highest visibility days in certain period of the year, some of which coincide with peak visitor period, should also be a consideration and we refer the applicant to the following published material, as a guide to carrying out their own research and gathering baseline information.

<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-001586-6.3.28.8%20EA2%20ES%20Appendix%2028.8%20Offshore%20Windfarm%20Visibility.pdf>

<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010078/EN010078-001587->

The significance of setting in emerging Planning Policy

Finally, we draw the applicant's attention of the significant changes and amendments in the consultation draft of National Policy Statement EN3 from section 2.34 onwards, I respect of the setting of designated landscapes and related SLVIA matters.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015236/en-3-draft-for-consultation.pdf

SCC Skills

SCC Socio Economics and Tourism

Chapter 27 identifies the potential socio-economic and tourism consequences of the project during construction, operation and maintenance.

SCC welcomes the use of two spatial levels (27.2.2) when assessing socio-economics, tourism and recreation.

The use of a Wider Study Area (WSA) is of particular importance when considering effects on employment, tourism and supply chain as identified by the applicant.

A large proportion of tourism is associated with the natural and historic beauty of the area as a whole. Therefore, it is imperative that the applicant seeks to quantify the impact onshore construction and any subsequent infrastructure will have on the landscape, if it detracts from the environmental quality for recreational activity more broadly and the perception and propensity of people to visit the area, including the cumulative impact of this project as one of many energy infrastructure projects within the WSA.

Table 27.1 sets out key sources of information for collecting baseline data for assessment purposes. SCC understands that this is not an exhaustive list and encourages the applicant to work with all authorities to identify further data sets that will ensure robust assessment.

The wider study area baseline environment (27.4), particularly for labour market impact, should consider a wider travel to work radius for residential workers. This is alongside a supply chain assessment, that would identify local supply for construction, operation and maintenance, being conducted over a far greater geography ensuring areas where a significant supply chain supporting other energy infrastructure projects, is located. Maximising the use of local and regional supply chains should be a priority for the applicant.

The approach to Environmental Impact Assessment (EIA) and the impacts proposed to be scoped in (Table 27.2) is welcomed. However, we would further expect the assessment to consider the cumulative perception and propensity impacts on tourism receptors alongside the proposed approach.

It should also set out clearly the expected number and nature of employment opportunities during each phase of the development. It should relate this to the availability of labour in the area, its cumulative impact alongside other infrastructure projects, not just similar offshore wind farm projects and identify how any mismatch between supply and demand can be addressed.

SCC does not agree with the scoping out of impacts to socio-economic and tourism impacts during decommissioning. If, as the applicant explains in table 27.3, impact 27.14, these are likely to be of a similar nature as the effects occurring and experienced during construction there is no justification to scope out.

SCC welcomes the approach to potential cumulative impacts as set out.

It is vital that all cumulative assessments consider the different demands of the different phases of the project and assesses these cumulatively with other potential major infrastructure projects.

The cumulative tourism impact will need to consider perception and propensity receptors and subsequent impact upon tourism from the cumulative impact set out in chapters:

- Seascape, Landscape and Visual
- Marine Archaeology and Cultural Heritage
- Archaeology and Cultural Heritage
- Airborne Noise and Vibration
- Traffic and Transport
- Air Quality
- Landscape and Visual

SCC Highways

While SCC is not the local highway authority directly affected by this project we wish to make the following comments as a neighbouring local highway authority.

Although SCC would defer to ECC and National Highways regarding the geographical scope of the Traffic and Transport Study shown in Drawing 22.1 SCC would have expected that the A137 through Manningtree to have been included, specifically the rail crossing and underbridge which is known to be under pressure in terms of capacity and delay. The scoping of the study should remain flexible so that as more detailed information is made available, for example the sources of aggregates, the assessments limits can then be expanded or contracted as appropriate. SCC would reserve the right to comment if this required the transport scope to be extended into Suffolk.

Applying GEART and LA112 methodology in the assessment of transport (22.5.1) in recent DCO's has, in SCC's opinion, required greater flexibility in the approach particularly in terms of sensitivity of receptors and application of thresholds to reflect local circumstances. Greater detail can be found in SCC's responses to Sizewell C, EA1(N) and EA2.

SCC would defer to ECC as the local highway authority but if this were a project in Suffolk, SCC would request that fear and anxiety is also a consideration in Table 22.3. SCC's experience is that this is a factor when construction routes pass through local communities. Similarly, amenity of PRoW can be another locally sensitive factor.

If any abnormal loads use SCC maintained roads the authority would require structural assessments in addition to swept path analysis.

As presented SCC does not consider that the port related transport impacts associated with construction and operation activities, both project specific and cumulative impacts, will be robustly assessed to the detail accepted in similar NSIPs. Although the location of the port was unknown at the time of the examination for EA1(N) and EA2 an Outline Port Construction Traffic Management and Travel Plan was developed.

<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010077/EN010077-005402-ExA.AS-5.D12.V5%20EA1N%20Outline%20Port%20Construction%20Traffic%20Management%20and%20Travel%20Plan.pdf>

The proposed assessment methodology does not refer to use of NATA/WebTAG139 methodology stipulated in Department for Transport guidance.

Nor does the transport chapter of the document reference National Planning Statement 1 (NPS1) specifically 5.13.8 to 5.13.12. As a neighbouring authority SCC would be keen to see that the

policy statement '*water-borne or rail transport is preferred over road transport at all stages of the project, where cost-effective*' is applied to freight and AIL movements.

The cumulative impacts should include other regional NSIPs where it is likely that they will have an impact within the study area. SCCs specific concern would be the impacts on the A12 in combination with projects on the east coast such as Sizewell C as this will have a direct impact on economic connectivity between Suffolk and London. If the applicant selects to use a port in Suffolk for construction and / or operation the cumulative impact with other energy projects should be considered.

In terms of further consideration (22.11) SCC would defer to ECC and NH.

If you have any questions in relation to the above then please do get in contact.

Yours sincerely,

A solid black rectangular box used to redact the signature of the sender.

Andy Rutter
Planning Officer
Growth, Highways & Infrastructure

From: [REDACTED]
To: [Five Estuaries OSWF](#)
Subject: Your Ref: EN010115 Application by Five Estuaries Offshore Wind Farm Limited (the Applicant)
Date: 26 October 2021 12:05:02

Dear Sir/Madam

Your ref: EN010115

Application by Five Estuaries Offshore Wind Farm Limited (the Applicant) for an Order granting Development Consent for the Five Estuaries Offshore Wind Farm (the Proposed Development)

I am emailing in respect of the above mentioned planning consultation relating to the Scoping Opinion for the Five Estuaries Offshore Wind Farm development.

Having read the submitted Scoping Opinion, I can confirm that in this instance, Tendring District Council have no comments to make upon the Scoping Opinion as submitted.

Kind regards,

Katherine Hales
Planner
Planning Department
Tendring District Council
Council Offices, Thorpe Road, Weeley, Essex CO16 9AJ
Email: [REDACTED]@tendringdc.gov.uk
Web: www.tendringdc.gov.uk

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Tendring District Council does not accept service of legal documents by e-mail.

Tendring Parish Council

Response to request for input to the Five Estuaries Environmental Survey

Tendring Parish Council discussed the request for input to the Environmental Survey scope at our meeting on 25th October 2021 and this is our agreed response.

The Parish Council fully understand that renewable electricity must form a significant part of the UK's future electricity needs and that offshore wind will be a major part of that. Therefore, we support the new field proposal as a whole, but with the proviso that on-shore infrastructure is not detrimental to the rural landscape and wildlife around villages and settlements in this part of Essex.

Looking at Tendring village and its immediate surroundings, there are a number of factors that the Parish Council would ask to be taken into account as part of the Environment Survey scope, as follows:

1. Part of Tendring village is designated a Conservation Area and, from a residential and commercial planning perspective, its character is recognised as important historically, architecturally and environmentally.
2. Tendring village is rural – and in fact quite remote, surrounded by farmland and with limited good roads. The only classified road is the B1035, which passes through the whole length of the village including the conservation area. The impact of vehicular access to/from sites for surveys or any future construction should be considered.
3. Tendring is a dark part of the area, by which I mean there is no street lighting in the village (again related to the conservation area). The effect of any light pollution should therefore be a high consideration in the scope of the survey.
4. Related to the above, there is an abundance of wildlife in the area – water vole, owls, bats, otters, stoats, deer and so on – so we would request the survey incorporate the impact any work would have on natural habitats. These sites are recorded as part of Tendring District Council's planning policy and are taken into account when applying the National Planning Policy Framework to planning applications.

<https://www.tendringdc.gov.uk/sites/default/files/documents/planning/planning%20policy/LocalWildlifeSiteReview.pdf>

These sites are:

- Home Wood, Crow Lane
- Simon's Wood, Thorpe Road
- Shairwood, Crown Lane
- Hillands Wood, Crown Lane
- Tendring Grove, The Street
- Gravel Woods, Lodge Lane
- Goose Green Verge, Goose Green
- Pilcox Wood, Pilcox Hall Lane
- Stonehall Wood, Wolveshall Lane
- The Thorpe side of Tendring Brook

From: [REDACTED]
To: [Five Estuaries OSWF](#)
Cc: clr.dland@tendringdc.gov.uk
Subject: EN010115 - Five Estuaries offshore wind farm
Date: 02 November 2021 15:08:12

Dear Sir/Madam

Thank you for consulting Thorpe Le Soken Parish Council on the Environmental Survey content for the proposed five estuaries offshore wind farm.

Having reviewed the scoping report, we are pleased to see that paragraph 5.10 refers to coordination with other projects, particularly that of the North Falls wind farm. However, as there is no indication of where the proposed EACS is likely to be located, it is difficult to gauge how much potential disruption such projects may cause to the village of Thorpe Le Soken, although given that the northern eastern edge of the village borders Hamford Water at Beaumont and Landermere Quays and the reference in section 5.7.3 of the scoping document which states that Hamford Water is a constraint that has been specifically avoided in the landfall search area, we would hope that this therefore precludes any sites bordering the village as a potential cable corridor.

We would, however, like to draw the inspector's attention to Low Carbon's plans to install a solar farm to the south of the village along the southern side of the railway between Little Clacton and Thorpe Le Soken (please see <https://thorpepark.commonplace.is/about>) as this may also require some degree of cabling to connect the energy farm to the national grid and, as such, may need to be given consideration in section 5.10 as a potential project to be coordinated with.

Kind regards,
Jessica Ball

Clerk to the Parish
Thorpe Le Soken Parish Council
[REDACTED]



UK Health
Security
Agency

Environmental Hazards and Emergencies Department
Seaton House, City Link
London Road
Nottingham, NG2 4LA

nsipconsultations@phe.gov.uk
www.gov.uk/ukhsa

Your Ref: EN010115
Our Ref: CIRIS 58239

Ms Helen Lancaster
Senior EIA Advisor
The Planning Inspectorate
Temple Quay House
2 The Square
Bristol BS1 6PN

2nd November 2021

Dear Ms Lancaster

**Nationally Significant Infrastructure Project
Five Estuaries Offshore Wind Farm
Scoping Consultation Stage**

Thank you for including the UK Health Security Agency (UKHSA) and the Office for Health Improvement and Disparities (OHID) (formerly Public Health England) in the scoping consultation phase of the above application. Advice offered by UKHSA and OHID is impartial and independent.

The health of an individual or a population is the result of a complex interaction of a wide range of different determinants of health, from an individual's genetic make-up, to lifestyles and behaviours, and the communities, local economy, built and natural environments to global ecosystem trends. All developments will have some effect on the determinants of health, which in turn will influence the health and wellbeing of the general population, vulnerable groups and individual people. Although assessing impacts on health beyond direct effects from for example emissions to air or road traffic incidents is complex, there is a need to ensure a proportionate assessment focused on an application's significant effects.

Having considered the submitted scoping report, we wish to make the following specific comments and recommendations:

Environmental Public Health

We recognise the promoter's proposal to include a health section. We believe the summation of relevant issues into a specific section of the report provides a focus which ensures that public health is given adequate consideration. The section should summarise key information, risk assessments, proposed mitigation measures, conclusions and residual impacts, relating to human health. Compliance with the requirements of National Policy Statements and relevant guidance and standards should also be highlighted.

In terms of the level of detail to be included in an Environmental Statement (ES), we recognise that the differing nature of projects is such that their impacts will vary. The attached appendix summarises UKHSA's requirements and recommendations regarding the content of and methodology used in preparing the ES. Please note that where impacts relating to health and/or further assessments are scoped out, promoters should fully explain and justify this within the submitted documentation.

Recommendation

Our position is that pollutants associated with road traffic or combustion, particularly particulate matter and oxides of nitrogen are non-threshold; i.e., an exposed population is likely to be subject to potential harm at any level and that reducing public exposures of non-threshold pollutants (such as particulate matter and nitrogen dioxide) below air quality standards will have potential public health benefits. We support approaches which minimise or mitigate public exposure to non-threshold air pollutants, address inequalities (in exposure), maximise co-benefits (such as physical exercise). We encourage their consideration during development design, environmental and health impact assessment, and development consent.

Human Health and Wellbeing

This section of the response is provided by OHID, and identifies the wider determinants of health and wellbeing we expect the ES to address, to demonstrate whether they are likely to give rise to significant effects. OHID has focused its approach on scoping determinants of health and wellbeing under four themes, which have been derived from an analysis of the wider determinants of health mentioned in the National Policy Statements. The four themes are:

- Access
- Traffic and Transport
- Socioeconomic
- Land Use

Having considered the submitted scoping report OHID wishes to make the following specific comments and recommendations:

Methodology

Vulnerable populations

An approach to the identification of vulnerable populations has not been provided. The impacts on health and wellbeing and health inequalities of the scheme may have a particular effect on vulnerable or disadvantaged populations, including those that fall within the list of protected characteristics.

The identification of vulnerable populations and sensitive receptors such as community facilities, public open space should be considered.

Recommendation

Baseline health data should be provided, which is adequate to identify any local sensitivity or specific vulnerable populations. The identification of vulnerable populations should reference the list provided by the Welsh Health Impact Assessment Support Unit¹

Construction work force - Housing affordability and availability / health care demands

¹ [WHIASU \(2020\). Health Impact Assessment – A Practical Guide](#)

The scoping report proposes to scope in potential effects from non-home-based construction workers on health care services. It also proposed to scope out construction worker effects on accommodation demand, but with no evidenced justification.

The presence of significant numbers of non-home-based workers could foreseeably have an impact on the local availability of affordable housing, particularly that of short term tenancies and affordable homes for certain communities. The cumulative effect assessment will need to consider this across the wider study area, due to other large schemes. There effects on access to accommodation for residents with the least capacity to respond to change (for example, where there may be an overlap between construction workers seeking accommodation in the private rented sector, and people in receipt of housing benefit seeking the same lower-cost accommodation).

The scoping report does not identify the peak number of non-home based construction workers.

Recommendation

The peak numbers of construction workers and non-home-based workers should be established and a proportionate assessment undertaken on the impacts for housing availability and affordability and impacts on any local services.

Any cumulative impact assessment should consider the impact on demand for housing by construction workers and the likely numbers of non-home-based workers required across all schemes.

Note: The information in the attached appendix remains extant and will be updated to reflect the new public health system in due course.

Yours sincerely

For and on behalf of UK Health Security Agency
nsipconsultations@phe.gov.uk

Please mark any correspondence for the attention of National Infrastructure Planning Administration.

Appendix: PHE recommendations regarding the scoping document

Introduction

The Planning Inspectorate's Advice Note 11: Working with Public Bodies covers many of the generic points of interaction relevant to the Planning Inspectorate and Public Health England (PHE). The purpose of this Annex is to help applicants understand the issues that PHE expect to see addressed by applicants preparing an Environmental Statement (ES) as part of their Nationally Significant Infrastructure Planning (NSIP) submission.

We have included a comprehensive outline of the type of issues we would expect to be considered as part of an NSIP which falls under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations). PHE encourages applicants to contact us as early in the process as possible if they wish to discuss or clarify any matters relating to chemical, poison, radiation or wider public health.

General Information on Public Health England

PHE was established on 1 April 2013 to bring together public health specialists from more than 70 organisations into a single public health service. We are an executive agency of the Department of Health and are a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the National Health Service (NHS) in a professionally independent manner.

We work closely with public health professionals in Wales, Scotland and Northern Ireland, and internationally.² We have specialist teams advising on specific issues and the potential impacts arising from environmental public health including chemicals, noise, air quality, ionising and non-ionising radiation.

PHE's NSIP roles and responsibilities

PHE is a statutory consultee in the NSIP process for any *applications likely to involve chemicals, poisons or radiation which could potentially cause harm to people and are likely to affect significantly public health.*³ PHE will consider potential significant effects (direct and indirect) of a proposed development on population and human health and the impacts from chemicals, radiation and environmental hazards. We also consider other factors which may have an impact on public health, such as the wider determinants of health, health improvement and health inequalities (where PHE has a legal duty specified in the Health and Social Care Act 2012)⁴.

Under certain circumstances PHE may provide comments on radiation on behalf of the Scottish Government. If a proposer is submitting a planning application in Scotland which may require advice on radiation you are recommended to contact the appropriate Scottish Planning Authority for advice on how to proceed.

In the case of applications in Wales, PHE remains a statutory consultee but the regime applies to a more limited range of development types. For NSIP applications likely to affect land in Wales, an applicant should still consult PHE but, additionally will be required to consult the Welsh Government.

Environmental Impact Assessments – PHE Responsibilities

PHE has a statutory role as a consultation body under the EIA Regulations. Where an applicant has requested a scoping opinion from the Planning Inspectorate⁵, PHE will be consulted regarding the scope, and level of detail, of the information to be provided in the ES. PHE has a duty to make information available to the applicant.

² <https://www.gov.uk/government/organisations/public-health-england/about#priorities>

³ The Infrastructure Planning (Interested Parties and Miscellaneous Prescribed Provisions) Regulations 2015

⁴ <http://www.legislation.gov.uk/ukpga/2012/7/contents/enacted>

⁵ The scoping process is administered and undertaken by the Planning Inspectorate on behalf of the Secretary of State

PHE provides advice relating to EIA within this document and during the NSIP consultation stages. PHE encourages applicants to discuss the scope of the ES with us at an early stage to explore, for example, whether careful site selection or other design issues could minimise or eliminate public health impacts or to outline the requirement for, scope and methodology of any assessments related to public health. PHE's standard recommendations in response to EIA scoping consultations are below.

PHE's recommendations to applicants regarding Environmental Impact Assessments

General approach

PHE provides advice relating to EIA within this document and during the NSIP consultation stages. It is the role of the applicant to prepare the ES.

When preparing an ES the applicant should give consideration to best practice guidance such as the Government's Handbook for scoping projects: environmental impact assessment⁶, and Guidance: on Environmental Impact Assessment⁷

The [Planning Inspectorate's Advice Note Seven](#): Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements also provide guidance to applicants and other persons with interest in the EIA process as it relates to NSIPs. It is important that the submitted ES identifies and assesses the potential public health impacts of the activities at, and emissions from, the development.

Applicants are reminded that Section 5(2)(a) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 specifically includes a requirement that the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on population and human health.

PHE is of the opinion that this requirement encompasses the wider determinants of public health, as well as chemicals, poisons and radiation. Further information on PHE's recommendations and requirements is included below.

PHE understands that there may be separate sections of the ES covering the assessment of impacts on air, land, water and so on, but expects an ES to include a specific section summarising potential impacts on population and health. This section should bring together and interpret the information from other assessments as necessary. The health, wellbeing and population impacts section should address the following steps.

1. Screening: Identify any significant effects.
 - a. Summarise the methodologies used to identify health impacts, assess significance and sources of information
 - b. Evaluate any reference standards used in carrying out the assessment and in evaluating health impacts (e.g., environmental quality standards)
 - c. Where the applicant proposes the 'scoping out' of any effects a clear rationale and justification should be provided along with any supporting evidence.

2. Baseline Survey:

⁶ <https://www.gov.uk/government/publications/handbook-for-scoping-projects-environmental-impact-assessment>

⁷ <https://www.gov.uk/guidance/environmental-impact-assessment#the-purpose-of-environmental-impact-assessment>

- a. Identify information needed and available, evaluate quality and applicability of available information
 - b. Undertake assessment
3. Alternatives:
- a. Consideration of alternatives (including alternative sites, choice of process, and the phasing of construction) is widely regarded as good practice. Ideally, the EIA process should start at the stage of site selection, so that the environmental merits of practicable alternatives can be properly considered. Where this is undertaken, the main alternatives considered should be outlined in the ES⁸.
4. Design and assess possible mitigation
- a. Consider and propose suitable corrective actions should mitigation measures not perform as effectively predicted.
5. Impact Prediction: Quantify and Assess Impacts:
- a. Evaluate and assess the extent of any positive and negative effects of the development. Effects should be assessed in terms of likely health outcomes, including those relating to the wider determinants of health such as socio-economic outcomes, in addition to health outcomes resulting from exposure to environmental hazards. Mental health effects should be included and given equivalent weighting to physical effects.
 - b. Clearly identify any omissions, uncertainties and dependencies (e.g., air quality assessments being dependant on the accuracy of traffic predictions)
 - c. Evaluate short-term impacts associated with the construction and development phase
 - d. Evaluate long-term impacts associated with the operation of the development
 - e. Evaluate any impacts associated with decommissioning of the development
 - f. Evaluate any potential cumulative impacts as a result of the development, currently approved developments which have yet to be constructed, and proposed developments which do not currently have development consent
6. Monitoring and Audit
- a. Identify key modelling predictions and mitigation impacts and consider implementing monitoring and audit to assess their accuracy / effectiveness.

Any assessments undertaken to inform the ES should be proportionate to the potential impacts of the proposal, therefore we accept that, in some circumstances particular assessments may not be relevant to an application, or that an assessment may be adequately completed using a qualitative rather than quantitative methodology. In cases where this decision is made, the applicant should fully explain and justify their rationale in the submitted documentation.

Human and environmental receptors

The applicant should clearly identify the development's location and the distance of the development to off-site receptors that may be affected by emissions from, or activities at, the development. Off-site receptors may include people living in residential premises; people working in commercial, and industrial premises and people using transport infrastructure (such as roads and railways), recreational areas, and publicly-accessible land.

Identify and consider impacts on residential areas and sensitive receptors (such as schools, nursing homes and healthcare facilities, as well as other vulnerable population groups such as those who are young, older, with disabilities or long-term conditions, or on low incomes) in the area(s) which may be affected by emissions, this should include consideration of any new receptors arising from future development

⁸ DCLG guidance, 1999 <http://www.communities.gov.uk/documents/planningandbuilding/pdf/155958.pdf>

Consideration should also be given to environmental receptors such as the surrounding land, watercourses, surface and groundwater, and drinking water supplies such as wells, boreholes and water abstraction points.

Impacts arising from construction and decommissioning

Any assessment of impacts arising from emissions or activities due to construction and decommissioning should consider potential impacts on all receptors and describe monitoring and mitigation during these phases. Construction and decommissioning will be associated with vehicle movements and cumulative impacts should be accounted for.

We would expect the applicant to follow best practice guidance during all phases from construction to decommissioning to ensure appropriate measures are in place to mitigate any potential negative impact on health from emissions (point source, fugitive and traffic-related) and activities. An effective Construction Environmental Management Plan (CEMP) (and Decommissioning Environmental Management Plan (DEMP)) will help provide reassurance that activities are well managed. The applicant should ensure that there are robust mechanisms in place to respond to any complaints made during construction, operation, and decommissioning of the facility.

Emissions to air and water

PHE has a number of comments regarding the assessment of emissions from any type of development in order that the ES provides a comprehensive assessment of potential impacts.

When considering a baseline (of existing environmental quality) and in the assessment and future monitoring of impacts these should:

- include an evaluation of the public health benefits of development options which reduce air pollution – even below limit values – as pollutants such as nitrogen dioxide and particulate matter show no threshold below which health effects do not occur;^{9, 10}
- consider the construction, operational, and decommissioning phases;
- consider the typical operational emissions and emissions from start-up, shut-down, abnormal operation and accidents when assessing potential impacts and include an assessment of worst-case impacts;
- fully account for fugitive emissions;
- include appropriate estimates of background levels (i.e., when assessing the human health risk of a chemical emitted from a facility or operation, background exposure to the chemical from other sources should be taken into account);
- encompass the combined impacts of all pollutants which may be emitted by the development with all pollutants arising from associated development and transport, considered in a single holistic assessment (i.e., of overall impacts);
- identify and consider impacts on residential areas and sensitive receptors (such as schools, nursing homes and healthcare facilities) in the area(s) which may be affected by emissions. This should include consideration of any new receptors arising from future development;
- identify cumulative and incremental impacts (i.e., assess cumulative impacts from multiple sources), including those arising from associated development, other existing and proposed development in the local area, and new vehicle movements associated with the proposed development; associated transport emissions should include consideration of non-road impacts (i.e., rail, sea, and air);
- compare predicted environmental concentrations to the applicable standard or guideline value for the affected medium. Where available, the most recent UK standards for the appropriate media

⁹ <https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution>

¹⁰

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/795185/Review_of_interventions_to_improve_air_quality.pdf

- (i.e., air, water, and/or soil) and health-based guideline values should be used when quantifying the risk to human health from chemical pollutants;
- where UK standards or guideline values are not available, or other reputable International bodies e.g. European Union or OECD:
 - If no standard or guideline value exists, the predicted exposure to humans should be estimated and compared to an appropriate health-based value (e.g., a Tolerable Daily Intake or equivalent);
 - This should consider all applicable routes of exposure (e.g., include consideration of aspects such as the deposition of chemicals emitted to air and their uptake via ingestion).
 - include appropriate screening assessments and detailed dispersion modelling where this is screened as necessary;
 - include Chemical Abstract Service (CAS) numbers alongside chemical names, where referenced in the ES;
 - include consideration of local authority, Environment Agency, Natural Resources Wales, Defra national network, and any other local site-specific sources of monitoring data;
 - when quantitatively assessing the health risk of genotoxic and carcinogenic chemical pollutants, PHE does not favour the use of mathematical models to extrapolate from high dose levels used in animal carcinogenicity studies to well below the observed region of a dose-response relationship. When only animal data are available, we recommend that the Committee on Carcinogenicity of Chemicals approach¹¹ is used.

Whilst screening of impacts using qualitative methodologies is common practice (eg, for impacts arising from fugitive emissions such as dust), where it is possible to undertake a quantitative assessment of impacts then this should be undertaken.

PHE's view is that the applicant should appraise and describe the measures that will be used to control both point source and fugitive emissions and demonstrate that standards, guideline values or health-based values will not be exceeded due to emissions from the installation, as described above. This should include consideration of any emitted pollutants for which there are no set emission limits. When assessing the potential impact of a proposed installation on environmental quality, predicted environmental concentrations should be compared to the permitted concentrations in the affected media; this should include both standards for short and long-term exposure. Further to assessments of compliance with limit values, for non-threshold pollutants (ie, those that have no threshold below which health effects do not occur) the **benefits** of development options which reduce population exposure should be evaluated.

Additional points specific to emissions to air

When considering baseline conditions (of existing air quality) and the assessment and future monitoring of impacts, these should include:

- consideration of impacts on existing areas of poor air quality e.g. existing or proposed local authority Air Quality Management Areas (AQMAs) or Clean Air Zones (CAZ). The applicant should demonstrate close working/consultation with the appropriate local authorities
- modelling using appropriate meteorological data (i.e. from the nearest suitable meteorological station and include a range of years and worst-case conditions)
- modelling taking into account local topography, congestion and acceleration

Additional points specific to emissions to water

When considering baseline conditions (of existing water quality) and the assessment and future monitoring of impacts, these should:

- include assessment of potential impacts on human health and not focus solely on ecological impacts
- identify and consider all routes by which emissions may lead to population exposure (e.g., surface watercourses, recreational waters, sewers, geological routes etc.)

¹¹ <https://www.gov.uk/government/publications/cancer-risk-characterisation-methods>

- assess the potential off-site effects of emissions to groundwater (eg, on aquifers used for drinking water) and surface water (used for drinking water abstraction) in terms of the potential for population exposure
- include consideration of potential impacts on recreational users (eg, from fishing, canoeing etc.) alongside assessment of potential exposure via drinking water

Land quality

We would expect the applicant to provide details of any hazardous contamination present on site (including ground gas) as part of a site condition report and associated risk assessment.

Emissions to and from the ground should be considered in terms of the previous history of the site and the potential of the site, during construction and once operational, to give rise to issues. Public health impacts associated with ground contamination and/or the migration of material off-site should be assessed in accordance with the Environment Agency publication Land Contamination: risk management¹² and the potential impact on nearby receptors; control and mitigation measures should be outlined.

Waste

The applicant should demonstrate compliance with the waste hierarchy (e.g. with respect to re-use, recycling or recovery and disposal).

For wastes arising from the development the ES should assess:

- the implications and wider environmental and public health impacts of different waste disposal options
- disposal route(s) and transport method(s) and how potential impacts on public health will be mitigated

If the development includes wastes delivered to the installation:

- Consider issues associated with waste delivery and acceptance procedures (including delivery of prohibited wastes) and should assess potential off-site impacts and describe their mitigation

Other aspects

Within the ES, PHE would expect to see information about how the applicant would respond to accidents with potential off-site emissions (e.g., flooding or fires, spills, leaks or releases off-site). Assessment of accidents should: identify all potential hazards in relation to construction, operation and decommissioning; include an assessment of the risks posed; and identify risk management measures and contingency actions that will be employed in the event of an accident in order to mitigate off-site effects.

PHE would expect the applicant to consider the COMAH Regulations (Control of Major Accident Hazards) and the Major Accident Off-Site Emergency Plan (Management of Waste from Extractive Industries) (England and Wales) Regulations: both in terms of their applicability to the development itself, and the development's potential to impact on, or be impacted by, any nearby installations themselves subject to these Regulations.

There is evidence that, in some cases, perception of risk may have a greater impact on health than the hazard itself. A 2009 report¹³, jointly published by Liverpool John Moores University and the Health Protection Agency (HPA), examined health risk perception and environmental problems using a number of case studies. As a point to consider, the report suggested: "*Estimation of community anxiety and stress should be included as part of every risk or impact assessment of proposed plans that involve a potential environmental hazard. This is true even when the physical health risks may be negligible.*" PHE supports the inclusion of this information within ES' as good practice.

Electromagnetic fields (EMF)

¹² Available from <https://www.gov.uk/guidance/land-contamination-how-to-manage-the-risks>

¹³ Available from: http://allcatsrgrey.org.uk/wp/download/public_health/Health-Risk-Perception-Env-Probs.pdf

This advice relates to electrical installations such as substations and connecting underground cables or overhead lines. PHE advice on the health effects of power frequency electric and magnetic fields is available on the Gov.UK website.¹⁴

There is a potential health impact associated with the electric and magnetic fields around substations, overhead power lines and underground cables. The field strengths tend to reduce with distance from such equipment.

The following information provides a framework for considering the health impact associated with the electric and magnetic fields produced by the proposed development, including the direct and indirect effects of the electric and magnetic fields as indicated above.

Policy Measures for the Electricity Industry

A voluntary code of practice is published which sets out key principles for complying with the ICNIRP guidelines.¹⁵ Companion codes of practice dealing with optimum phasing of high voltage power lines and aspects of the guidelines that relate to indirect effects are also available.^{16, 17}

Exposure Guidelines

PHE recommends the adoption in the UK of the EMF exposure guidelines published by the International Commission on Non-ionizing Radiation Protection (ICNIRP). Formal advice to this effect, based on an accompanying comprehensive review of the scientific evidence, was published in 2004 by the National Radiological Protection Board (NRPB), one of PHE's predecessor organisations¹⁸

Updates to the ICNIRP guidelines for static fields have been issued in 2009 and for low frequency fields in 2010. However, Government policy is that the ICNIRP guidelines are implemented as expressed in the 1999 EU Council Recommendation on limiting exposure of the general public (1999/519/EC):¹⁹

Static magnetic fields

For static magnetic fields, the ICNIRP guidelines published in 2009 recommend that acute exposure of the general public should not exceed 400 mT (millitesla), for any part of the body, although the previously recommended value of 40 mT is the value used in the Council Recommendation. However, because of potential indirect adverse effects, ICNIRP recognises that practical policies need to be implemented to prevent inadvertent harmful exposure of people with implanted electronic medical devices and implants containing ferromagnetic materials, and injuries due to flying ferromagnetic objects, and these considerations can lead to much lower restrictions, such as 0.5 mT.

Power frequency electric and magnetic fields

At 50 Hz, the known direct effects include those of induced currents in the body on the central nervous system (CNS) and indirect effects include the risk of painful spark discharge on contact with metal objects exposed to electric fields. The ICNIRP guidelines published in 1998 give reference levels for public exposure to 50 Hz electric and magnetic fields, and these are

¹⁴ <https://www.gov.uk/government/collections/electromagnetic-fields#low-frequency-electric-and-magnetic-fields>

¹⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/37447/1256-code-practice-emf-public-exp-guidelines.pdf

¹⁶ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48309/1255-code-practice-optimum-phasing-power-lines.pdf

¹⁷ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/224766/powerlines_vcop_microshocks.pdf

¹⁸ <http://webarchive.nationalarchives.gov.uk/20140629102627/http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd1502/>

¹⁹ http://webarchive.nationalarchives.gov.uk/+www.dh.gov.uk/en/PublicHealth/Healthprotection/DH_4089500

respectively 5 kV m⁻¹ (kilovolts per metre) and 100 µT (microtesla). The reference level for magnetic fields changes to 200 µT in the revised (ICNIRP 2010) guidelines because of new basic restrictions based on induced electric fields inside the body, rather than induced current density. If people are not exposed to field strengths above these levels, direct effects on the CNS should be avoided and indirect effects such as the risk of painful spark discharge will be small. The reference levels are not in themselves limits but provide guidance for assessing compliance with underlying basic restrictions and reducing the risk of indirect effects.

Long term effects

There is concern about the possible effects of long-term exposure to extremely low frequency electric and magnetic fields, from power lines. In the NRPB advice issued in 2004, it was concluded that the studies that suggest health effects, including those concerning childhood leukaemia in relation to power frequency magnetic fields, could not be used to derive quantitative guidance on restricting exposure. However, the results of these studies represented uncertainty in the underlying evidence base, and taken together with people's concerns, provided a basis for providing an additional recommendation for Government to consider the need for further precautionary measures, particularly with respect to the exposure of children to power frequency magnetic fields.

The Stakeholder Advisory Group on ELF EMFs (SAGE)

SAGE was set up to explore the implications for a precautionary approach to extremely low frequency electric and magnetic fields (ELF EMFs), which include power frequency fields, and to make practical recommendations to Government:²⁰

Relevant here is SAGE's 2007 First Interim Assessment, which made several recommendations concerning high voltage power lines. In responding, Government supported the implementation of low cost options such as optimal phasing to reduce exposure; however it did not support the option of creating corridors around power lines in which development would be restricted on health grounds, which was considered to be a disproportionate measure given the evidence base on the potential long term health risks arising from exposure. The Government response to SAGE's First Interim Assessment is available on the national archive website.²¹

The Government also supported calls for providing more information on power frequency electric and magnetic fields, which is available on the PHE web pages.

Ionising radiation

Particular considerations apply when an application involves the possibility of exposure to ionising radiation. In such cases it is important that the basic principles of radiation protection recommended by the International Commission on Radiological Protection²² (ICRP) are followed. PHE provides advice on the application of these recommendations in the UK. The ICRP recommendations are implemented in the Euratom Basic Safety Standards²³ (BSS) and these form the basis for UK legislation, including the Ionising Radiation Regulations 1999, the Radioactive Substances Act 1993, and the Environmental Permitting Regulations 2016.

As part of the EIA process PHE expects applicants to carry out the necessary radiological impact assessments to demonstrate compliance with UK legislation and the principles of radiation protection. This should be set out clearly in a separate section or report and should not require any

²⁰ <http://www.emfs.info/policy/sage/>

²¹

http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_107124

²² These recommendations are given in publications of the ICRP notably publications 90 and 103 see the website at <http://www.icrp.org/>

²³ Council Directive 96/29/EURATOM laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation.

further analysis by PHE. In particular, the important principles of justification, optimisation and radiation dose limitation should be addressed. In addition compliance with the Euratom BSS and UK legislation should be clear.

When considering the radiological impact of routine discharges of radionuclides to the environment PHE would, as part of the EIA process, expect to see a full radiation dose assessment considering both individual and collective (population) doses for the public and, where necessary, workers. For individual doses, consideration should be given to those members of the public who are likely to receive the highest exposures (referred to as the representative person, which is equivalent to the previous term, critical group).

Different age groups should be considered as appropriate and should normally include adults, 1 year old and 10 year old children. In particular situations doses to the fetus should also be calculated²⁴.

The estimated doses to the representative person should be compared to the appropriate radiation dose criteria (dose constraints and dose limits), taking account of other releases of radionuclides from nearby locations as appropriate. Collective doses should also be considered for the UK, European and world populations where appropriate.

The methods for assessing individual and collective radiation doses should follow the guidance given in 'Principles for the Assessment of Prospective Public Doses arising from Authorised Discharges of Radioactive Waste to the Environment August 2012'²⁵

It is important that the methods used in any radiological dose assessment are clear and that key parameter values and assumptions are given (for example, the location of the representative persons, habit data and models used in the assessment).

Any radiological impact assessment, undertaken as part of the EIA, should also consider the possibility of short-term planned releases and the potential for accidental releases of radionuclides to the environment. This can be done by referring to compliance with the Ionising Radiation Regulations and other relevant legislation and guidance.

The radiological impact of any solid waste storage and disposal should also be addressed in the assessment to ensure that this complies with UK practice and legislation; information should be provided on the category of waste involved (e.g. very low level waste, VLLW). It is also important that the radiological impact associated with the decommissioning of the site is addressed.

Of relevance here is PHE advice on radiological criteria and assessments for land-based solid waste disposal facilities²⁶. PHE advises that assessments of radiological impact during the operational phase should be performed in the same way as for any site authorised to discharge radioactive waste. PHE also advises that assessments of radiological impact during the post operational phase of the facility should consider long timescales (possibly in excess of 10,000 years) that are appropriate to the long-lived nature of the radionuclides in the waste, some of which may have half-lives of millions of years.

²⁴ HPA (2008) Guidance on the application of dose coefficients for the embryo, fetus and breastfed infant in dose assessments for members of the public. Doc HPA, RCE-5, 1-78, available at <https://www.gov.uk/government/publications/embryo-fetus-and-breastfed-infant-application-of-dose-coefficients>

²⁵ The Environment Agency (EA), Scottish Environment Protection Agency (SEPA), Northern Ireland Environment Agency, Health Protection Agency and the Food Standards Agency (FSA).

Principles for the Assessment of Prospective Public Doses arising from Authorised Discharges of Radioactive Waste to the Environment August 2012.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296390/geho1202bklh-e-e.pdf

²⁶ HPA RCE-8, Radiological Protection Objectives for the Land-based Disposal of Solid Radioactive Wastes, February 2009

The radiological assessment should consider exposure of members of hypothetical representative groups for a number of scenarios including the expected migration of radionuclides from the facility, and inadvertent intrusion into the facility once institutional control has ceased.

For scenarios where the probability of occurrence can be estimated, both doses and health risks should be presented, where the health risk is the product of the probability that the scenario occurs, the dose if the scenario occurs and the health risk corresponding to unit dose.

For inadvertent intrusion, the dose if the intrusion occurs should be presented. It is recommended that the post-closure phase be considered as a series of timescales, with the approach changing from more quantitative to more qualitative as times further in the future are considered.

The level of detail and sophistication in the modelling should also reflect the level of hazard presented by the waste. The uncertainty due to the long timescales means that the concept of collective dose has very limited use, although estimates of collective dose from the 'expected' migration scenario can be used to compare the relatively early impacts from some disposal options if required.

Noise from National Networks and Airports

Public Health England's mission is to protect and improve the nation's health and wellbeing and reduce health inequalities. Environmental noise can cause stress and disturb sleep, which over the long term can lead to a number of adverse health outcomes.^{27 28}

The Noise Policy Statement for England (NPSE)²⁹ sets out the government's overall policy on noise. Its aims are to:

- avoid significant adverse impacts on health and quality of life;
- mitigate and minimise adverse impacts on health and quality of life; and
- contribute to the improvement of health and quality of life.

These aims should be applied within a broader context of sustainable development, where noise is considered alongside other economic, social and environmental factors. PHE expects such factors may include³⁰:

- Ensuring healthy lives and promoting well-being for all at all ages;
- promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
- building resilient infrastructure, promoting inclusive and sustainable industrialisation and fostering innovation;
- reducing inequality; and
- making cities and human settlements inclusive, safe, resilient and sustainable.

PHE's consideration of the effects of health and quality and life attributable to noise is guided by the recommendations in the 2018 Environmental Noise Guidelines for the European Region²⁷ published by the World Health Organization, and informed by high quality systematic reviews of the scientific evidence^{28 31 32} The scientific evidence on noise and health is rapidly developing, and PHE's

²⁷ World Health Organisation, *Environmental Noise Guidelines for the European Region*. 2018.

²⁸ Lercher, P., G. Aasvang, and Y.e. de Kluizenaar, *WHO Noise and Health Evidence Reviews*.

²⁹ DEFRA, *Noise Policy Statement for England*. 2010.

³⁰ United Nations. *Sustainable Development Goals*. 2020 [01/06/2020]; Available from:

<https://sustainabledevelopment.un.org/?menu=1300>.

³¹ Clark, C., C. Crumpler, and A.H. Notley, *Evidence for Environmental Noise Effects on Health for the United Kingdom Policy Context: A Systematic Review of the Effects of Environmental Noise on Mental Health, Wellbeing, Quality of Life, Cancer, Dementia, Birth, Reproductive Outcomes, and Cognition*. Int J Environ Res Public Health, 2020. **17**(2).

³² van Kamp, I., et al., *Evidence Relating to Environmental Noise Exposure and Annoyance, Sleep Disturbance, Cardio-Vascular and Metabolic Health Outcomes in the Context of IGCB (N): A Scoping Review of New Evidence*. Int J Environ Res Public Health, 2020. **17**(9).

recommendations are also informed by relevant studies that are judged to be scientifically robust and consistent with the overall body of evidence.

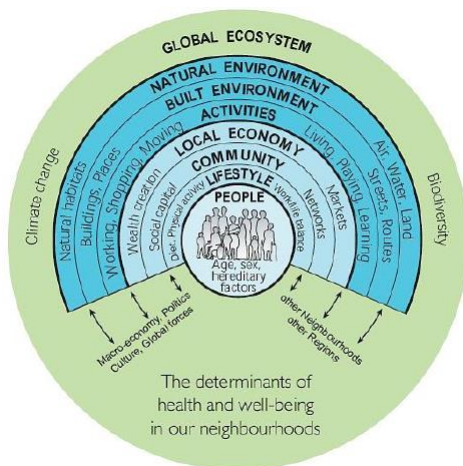
In line with its mission, PHE believes that Nationally Significant Infrastructure Projects (NSIP) should not only limit significant adverse effects, but also explore opportunities to improve the health and quality of life of local communities and reduce inequalities.

PHE also recognises the developing body of evidence showing that areas of tranquillity offer opportunities for health benefits through psychological restoration. NSIP applications need to demonstrate that they have given due consideration to the protection of the existing sound environment in these areas.

Wider Determinants of Health

The World Health Organization (WHO's) defines health as “a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity” (WHO, 1948).

The health and wellbeing of an individual or a population is the result of a complex interaction of a wide range of different determinants of health, from an individual's genetic make-up, to lifestyles and behaviours, and the communities, local economy, built and natural environments to global ecosystem trends. All developments will have some effect on the determinants of health, which in turn will influence the health and wellbeing of the general population, vulnerable groups and individual people.



Barton and Grant³³

PHE recognises that evaluating an NSIP's impacts on health through the wider determinants is more complex than assessing a project's direct impacts against clearly defined regulatory protections. The 2017 EIA Regulations clarify that the likely significant effects of a development proposal on population and human health must be assessed.

PHE's expectations are that the proponent of an NSIP will conduct a proportionate and evidence-based assessment of the anticipated direct and indirect effects on health and wellbeing in line with the relevant regulatory and policy requirements. Consideration should be given to impacts during the construction, operation and decommissioning phase of NSIPs. Consideration should be given to the avoidance or mitigation of any negative impacts, as well as to how the NSIP could be designed to maximise potential positive benefits.

³³ Barton H, Grant M. A health map for the local human habitat. *The Journal of the Royal Society for the Promotion of Health* 2006; 126(6): 252-3.

We accept that the relevance of wider determinants and associated impacts will vary depending on the nature of the proposed development. PHE has focused its approach on scoping determinants of health and wellbeing under four themes, which have been derived from an analysis of the wider determinants of health mentioned in the National Policy Statements.

The four themes are:

- Access
- Traffic and Transport
- Socioeconomic
- Land Use

PHE has developed a list of 21 determinants of health and wellbeing under these four broad themes. These determinants should be considered within any scoping report and if the applicant proposes to scope any areas out of the assessment, they should provide clear evidence-based reasoning and justification. Appendix 2 provides greater detail on the nature of each determinant.

Methodology

PHE will expect assessments to set out the methodology used to assess impacts on each determinant included in the scope of the assessment. In some instances, the methodologies described may be established and refer to existing standards and/or guidance. In other instances, there may be no pre-defined methodology, which can often be the case for the wider determinants of health; as such there should be an application of a logical evidence based impact assessment method that:

- identifies the temporal and geographic scope of assessment
- identifies affected sensitive receptors (general population and vulnerable populations) to impacts from the relevant determinant
- establishes the current baseline situation
- identifies the NSIP's potential direct and indirect impacts on each population
- if impacts are identified, evaluates whether the potential effect is likely to be significant in relation to the affected population
- identifies appropriate mitigation to eliminate or minimise impacts or the subsequent effects on health and inequalities
- identifies opportunities to achieve benefits from the scheme for health and inequalities
- considers any in combination or cumulative effects
- identifies appropriate monitoring programmes

Currently there is no standard methodology for assessing the population and human health effects of infrastructure projects, but a number of guides exist, including:

- Institute of Environmental Management and Assessment, 2017: Health in Environmental Assessment, a primer for a proportionate approach;³⁴
- NHS London Healthy Urban Development Unit (HUDU), 2015. Healthy Urban Planning Checklist and Rapid Health Impact Assessment Tool;³⁵
- Wales Health Impact Assessment Unit, 2012: HIA a practical guide;³⁶
- National Mental Wellbeing Impact Assessment Development Unit 2011: Mental Wellbeing Impact Assessment Toolkit;³⁷

³⁴

https://www.researchgate.net/publication/316968065_Health_in_Environmental_Impact_Assessment_a_primer_for_a_proportionate_approach

³⁵ <https://www.healthyurbandevlopment.nhs.uk/our-services/delivering-healthy-urban-development/health-impact-assessment/>

³⁶ https://whiasu.publichealthnetwork.cymru/files/1415/0710/5107/HIA_Tool_Kit_V2_WEB.pdf

³⁷ <https://q.health.org.uk/document/mental-wellbeing-impact-assessment-a-toolkit-for-wellbeing/>

PHE expects assessments to follow best practice from these guides and from methodologies adopted within other successful health/environmental impacts assessments.

Determining significant effects

Neither the EIA regulations nor the National Policy Statements provide a definition of what constitutes a 'significant' effect, and so PHE have derived a list of factors which it will take into consideration in the assessment of significance of effects, as outlined below. These list of factors should be read in conjunction with guidance from the above guides.

1. Sensitivity:

Is the population exposed to the NSIP at particular risk from effects on this determinant due to pre-existing vulnerabilities or inequalities (for example, are there high numbers in the local population of people who are young, older, with disabilities or long-term conditions, or on a low income)? Will the NSIP widen existing inequalities or introduce new inequalities in relation to this determinant?

2. Magnitude:

How likely is the impact on this determinant to occur? If likely, will the impact affect a large number of people / Will the impact affect a large geographic extent? Will the effects be frequent or continuous? Will the effects be temporary or permanent and irreversible?

3. Cumulative effects:

Will the NSIP's impacts on this determinant combine with effects from other existing or proposed NSIPs or large-scale developments in the area, resulting in an overall cumulative effect different to that of the project alone?

What are the cumulative effects of the impacts of the scheme on communities or populations. Individual impacts individually may not be significant but in combination may produce an overall significant effect.

4. Importance:

Is there evidence for the NSIP's effect on this determinant on health? Is the impact on this determinant important in the context of national, regional or local policy?

5. Acceptability:

What is the local community's level of acceptance of the NSIP in relation to this determinant? Do the local community have confidence that the applicants will promote positive health impacts and mitigate against negative health effects?

6. Opportunity for mitigation:

If this determinant is included in the scope for the EIA is there an opportunity to enhance any positive health impacts and/or mitigate any negative health impacts?

Vulnerable groups

Certain parts of the population may experience disproportionate negative health effects as a result of a development. Vulnerable populations can be identified through research literature, local population health data or from the identification of pre-existing health conditions that increase vulnerability.

The effects on health and wellbeing and health inequalities of the scheme will have particular effect on vulnerable or disadvantaged populations, including those that fall within the list of protected characteristics. Some protected groups are more likely to have elevated vulnerability associated with social and economic disadvantages. Consideration should be given to language or lifestyles that influence how certain populations are affected by impacts of the proposal, for example non-English speakers may face barriers to accessing information about the works or expressing their concerns.

Equality Impact Assessments (EqIA) are used to identify disproportionate effects on Protected Groups (defined by the Equality Act, 2010), including health effects. The assessments and findings of the Environmental Statement and the EqIA should be cross referenced between the two documents, particularly to ensure the assessment of potential impacts for health and inequalities and that resulting mitigation measures are mutually supportive.

The Wales Health Impact Assessment Support Unit (WHIASU), provides a suggested guide to vulnerable groups

Age related groups

- Children and young people
- Older people

Income related groups

- People on low income
- Economically inactive
- Unemployed/workless
- People who are unable to work due to ill health

Groups who suffer discrimination or other social disadvantage

- People with physical or learning disabilities/difficulties
- Refugee groups
- People seeking asylum
- Travellers
- Single parent families
- Lesbian, gay or transgender people
- Black and minority ethnic groups
- Religious groups

Geographical groups

- People living in areas known to exhibit poor economic and/or health indicators
- People living in isolated/over-populated areas
- People unable to access services and facilities

Mental health

PHE supports the use of the broad definition of health proposed by the World Health Organisation (WHO). Mental well-being is fundamental to achieving a healthy, resilient and thriving population. It underpins healthy lifestyles, physical health, educational attainment, employment and productivity, relationships, community safety and cohesion and quality of life. NSIP schemes can be of such scale and nature that they will impact on the over-arching protective factors, which are:

- Enhancing control
- Increasing resilience and community assets
- Facilitating participation and promoting inclusion.

There should be parity between mental and physical health, and any assessment of health impact should include the appreciation of both. A systematic approach to the assessment of the impacts on mental health, including suicide, is required. The Mental Well-being Impact Assessment (MWIA) could be used as a methodology. The assessment should identify vulnerable populations and provide clear mitigation strategies that are adequately linked to any local services or assets

Perceptions about the proposed scheme may increase the risk of anxiety or health effects by perceived effects. “Estimation of community anxiety and stress should be included as part of every risk or impact assessment of proposed plans that involve a potential environmental hazard.

Evidence base and baseline data

Baseline population / community health data (quantitative and qualitative) should be sufficient to represent current health status and identify areas or groups with poor health or inequalities. This

should provide sufficient information on the physical and mental health and wellbeing and social determinants of health for the affected populations and any vulnerable groups identified.

A baseline health assessment could include:

- General population data (including size, density, age, gender, income and employment, socio-economic status, crime and disorder etc, health status.)
- Environmental information (housing, transport, access to services, provision and access to green space, tranquillity or sound environment)
- Data on behaviour, such as levels of physical activity, smoking, car usage, walking and cycling
- Surveys of local conditions
- Local concerns and anxieties (where documented)
- Secondary analysis of existing local data
- Resident surveys or consultations
- Health status, particularly of the population groups already identified as vulnerable and likely to benefit or be harmed by the proposal. This should include mental health and suicide.
- Quality of life indicators (if available / relevant)
- Local people's views of the area and of the services provided (community engagement exercises)

There will be a range of publicly available health data including:

- National datasets such as those from the Office of National Statistics,
- PHE, including the fingertips data sets,
- Non-governmental organisations,
- Local public health reports, such as the Joint Strategic Needs Assessment and Health and Wellbeing Strategies;
- Consultation with local authorities, including public health teams
- Information received through public consultations, including community engagement exercises

There should be a narrative which interprets the data collected in the context of the project. A list of tables and data is not sufficient, so the report should consider:

- Are particular groups or vulnerable groups likely to be impacted more than others and is this clearly described and explained?
- What indicators within the current health baseline that are worse than England average/ local ward or LSOA levels?
- What are the levels of inequality in the study area?
What are the potential inequalities in the distribution of impacts?

Mitigation

If the assessment has identified that significant negative effects are likely to occur with respect to the wider determinants of health, the assessment should include a description of planned mitigation measures the applicant will implement to avoid or prevent effects on the population.

Mitigation and/or monitoring proposals should be logical, feasible and have a clear governance and accountability framework indicating who will be responsible for implementation and how this will be secured during the construction and/or operation of the NSIP.

Any proposed mitigation should have sufficient detail to allow for an assessment of the adequacy of the proposed mitigation measures.

Positive benefits from the scheme

The scale of many NSIP developments will generate the potential for positive impacts on health and wellbeing; however, delivering such positive health outcomes often requires specific enabling or enhancement measures. For example, the construction of a new road network to access an NSIP site may provide an opportunity to improve the active transport infrastructure for the local community. PHE expects developments to consider and report on the opportunity and feasibility of positive impacts. These may be stand alone or be considered as part of the mitigation measures.

Replacement publicly accessible space or community assets

The replacement of community assets provides opportunity for positive impacts and the design, location and operation of the replacement asset should be considered in consultation with user, the local community and agencies.

Any replacement recreational land, open space or other community assets should be located and designed to:

- Not unreasonably extend journey times or increase transport costs, or result in too many people being prevented from travelling sustainably due to unsuitable walking or cycling routes.
- Ensure that accessibility planning has been properly taken into account and that the proposal will not adversely impact on disadvantaged groups.
- Meet identified community needs which may go beyond direct replacement but can be reasonably incorporated
- Provide acceptable recreational amenity, including noise environment, for outdoor spaces associated with the individual community facilities
- The design of the sites should be carried out in consultation with the local community. It should incorporate features and designs to enable access and use across the life course.
- The PEIR should contain sufficient detail regarding the location and design in order to determine the acceptability of the replacement facilities.
- Quality, quantity and accessibility should be determined against defined criteria agreed with stakeholders. The following evidence based assessment tools should be considered:

The quality of the provision of replacement green space should be assessed, for example by the use of:

[Building with Nature](#) - There are 6 wellbeing standards, which are:

- Accessible
- Inclusive
- Seasonal enjoyment
- Locally relevant
- Socially sustainable
- Distinctive

The [ANGSt standards](#) address amount, access and quality

The [ORVaL tool](#) - This tool works on areas that are currently publicly accessible and looks at welfare values for this area. The site functionality allows users to investigate how altering the land cover, features or the area of existing recreation sites will change usage and welfare values. This allows a comparison between existing and the proposed sites. Contact should be made with the ORVaL team to establish the functionality of the tool relevant to the DCO and interpretation of the findings³⁸.

³⁸ https://www.leep.exeter.ac.uk/orval/pdf-reports/ORVal2_User_Guide.pdf

[Green Flag Award](#)- a robust framework for assessing the quality of public green spaces of all types and sizes.

Employment

NSIP schemes have the potential to negatively impact through the relocation or loss of local businesses. Equally they can offer an opportunity for new business activity and employment both at the construction stage and operation of the development approved by the DCO.

There is clear evidence that good work improves health and wellbeing across people's lives and protects against social exclusion. Conversely, unemployment is bad for health and wellbeing, as it is associated with an increased risk of mortality and morbidity. For many individuals, in particular those with long-term conditions such as mental health problems, musculoskeletal (MSK) conditions and disabilities, health issues can be a barrier to gaining and retaining employment. Employment rates are lowest among disabled people, with only 51.3% in work, meaning there is a substantial employment rate gap in the UK between disabled and non-disabled people (81.4% in employment). Among these working age disabled people in the UK, 54% have a mental health or MSK condition as their main health condition³⁹. Enabling people with health issues to obtain or retain work, and be productive within the workplace, is a crucial part of the economic success and wellbeing of every community and industry.

It is important that people are supported to gain employment and maintain economic independence for themselves and their families, especially as they age. This is of particular importance for individuals with long-term conditions and disabilities, due to the barriers they face in gaining employment and retaining a job.

Where relevant any assessments should include:

- The impact of business relocation in order to identify the likely level of job losses within the study area
- The proposed support mechanisms to be established for business owners and employees
- A clear strategy and action plan that addresses barriers to employment within the local population and those that cease employment due to the DCO.

Compulsory purchase

NSIP schemes can involve the compulsory acquisition of property from land take. Mitigation will involve supporting home-owners and tenants in understanding and utilising the compensation and support offered through the compensation policies.

The impacts from compulsory acquisition of land and property can affect health and wellbeing, including mental health, for example from home, school and employment relocation and loss of employment. This will be particularly relevant to sensitive receptors within communities, many of which will form part of the private rented sector.

Compensation and support can be an important element of mitigation, but developers should consider opportunities to work through partners and local Voluntary, Community and Social Enterprise (VCSE) organisations. These organisations offer the potential for engagement with vulnerable groups and may gain greater acceptance by the wider community.

Any compulsory purchase support schemes should ensure sufficient competency in public health, including public mental health, in order to help support local communities. The aim would be to establish a workforce that is confident, competent and committed to:

- promote good physical and mental health across the population

³⁹ [PHE \(Jan 2019\). Guidance - Health matters: health and work \(https://publichealthmatters.blog.gov.uk/2019/01/31/health-matters-health-and-work/\)](https://publichealthmatters.blog.gov.uk/2019/01/31/health-matters-health-and-work/)

- prevent mental illness and suicide
- improve the quality and length of life of people living within affected communities

The Public mental health leadership and workforce development framework⁴⁰ published by PHE offers a skills framework for the wider public health workforce. As well as the competences in this framework. Health Education England (HEE) have published a course content guide entitled Public Mental Health Content Guide For introductory courses or professional development in mental health and wellbeing⁴¹.

Monitoring

PHE expects an assessment to include consideration of the need for monitoring and the ES should clearly state the principles on which the monitoring strategy has been established, including monitoring in response to unforeseen impacts or effects.

It may be appropriate to undertake monitoring where:

- Critical assumptions have been made in the absence of supporting evidence or data
- There is uncertainty about whether significant negative effects are likely to occur and it would be appropriate to include planned monitoring measures to track their presence, scale and nature.
- There is uncertainty about the potential success of mitigation measures
- It is necessary to track the nature of the impact or effect and provide useful and timely feedback that would allow action to be taken should negative effects occur

The monitoring strategy should set out:

- Monitoring methodologies
- Data sources, particularly if being obtained from third parties or open access data
- Assessment methods
- Publication methodology
- Reporting frequency
- Temporal and geographic scope

For very large controversial schemes it may be worth considering the need to have an independent organisation undertake / report on the monitoring and the need for academic robustness.

Community based reports

Large complex schemes that involve significant effects on communities or significant cumulative effects can benefit from identifying impacts and reporting at an individual community level. This assists in the identification of the overall potential effects across a range of impacts. These community level reports will also aid local communities to engage with consultations by providing relevant and accessible information.

How to contact PHE

⁴⁰ [Public mental health leadership and workforce development framework - Confidence, competence, commitment. PHE \(2015\)](#)

⁴¹ [Public Mental Health Content Guide for introductory courses or professional development in mental health and wellbeing. Health education England](#)

If you wish to contact us regarding an existing or potential NSIP application please email:
nsipconsultations@phe.gov.uk

Appendix 2

Table 1 – Wider determinants of health and wellbeing

Health and wellbeing themes			
Access	Traffic and Transport	Socioeconomic	Land Use
Wider determinants of health and wellbeing			
Access to : <ul style="list-style-type: none"> • local public and key services and facilities. • Good quality affordable housing. • Healthy affordable food. • The natural environment. • The natural environment within the urban environment. • Leisure, recreation and physical activities within the urban and natural environments. 	<ul style="list-style-type: none"> • Accessibility. • Access to/by public transport. • Opportunities for access by cycling and walking. • Links between communities. • Community severance. • Connections to jobs. • Connections to services, facilities and leisure opportunities. 	<ul style="list-style-type: none"> • Employment opportunities, including training opportunities. • Local business activity. • Regeneration. • Tourism and leisure industries. • Community/social cohesions and access to social networks. • Community engagement. 	<ul style="list-style-type: none"> • Land use in urban and/or /rural settings. • Quality of Urban and natural environments

1) Access

a. Access to local, public and key services and facilities

Access to local facilities can increase mobility and social participation. Body mass index is significantly associated with access to facilities, including factors such as the mix and density of facilities in the area. The distance to facilities has no or only a small effect on walking and other physical activities. Access to recreational facilities can increase physical activity, especially walking for recreation, reduce body weight, reduce the risk of high blood pressure, and reduce the number of vehicle trips, the distances travelled and greenhouse gas emissions.

Local services include health and social care, education, employment, and leisure and recreation. Local facilities include community centres, shops, banks/credit unions and Post Offices. Services and facilities can be operated by the public, private and/or voluntary sectors. Access to services and facilities is important to both physical and mental health and wellbeing. Access is affected by factors such as availability, proximity to people's place of residence, existence of transport services or active travel infrastructure to the location of services and facilities, and the quality of services and facilities.

The construction or operation of an NSIP can affect access adversely: it may increase demand and therefore reduce availability for the existing community; during

construction, physical accessibility may be reduced due to increased traffic and/or the blockage of or changes to certain travel routes. It is also possible that some local services and facilities are lost due to the land-take needed for the NSIP.

Conversely if new routes are built or new services or facilities provided the NSIP may increase access. NSIPs relating to utilities such as energy and water can maintain, secure or increase access to those utilities, and thereby support health and wellbeing.

b. Access to good-quality affordable housing

Housing refurbishment can lead to an improvement in general health and reduce health inequalities. Housing improvements may also benefit mental health. The provision of diverse forms and types of housing is associated with increased physical activity. The provision of affordable housing is strongly associated with improved safety perceptions in the neighbourhood, particularly among people from low-income groups. For vulnerable groups, the provision of affordable housing can lead to improvements in social, behavioural and health related outcomes. For some people with long term conditions, the provision of secure and affordable housing can increase engagement with healthcare services, which can lead to improved health-related outcomes. The provision of secure and affordable housing can also reduce engagement in risky health-related behaviours. For people who are homeless, the provision of affordable housing increases engagement with healthcare services, improves quality of life and increases employment, and contributes to improving mental health.

Access to housing meets a basic human need, although housing of itself is not necessarily sufficient to support health and wellbeing: it is also important that the housing is of good quality and affordable. Factors affecting the quality of housing include energy efficiency (eg effective heating, insulation), sanitation and hygiene (eg toilet and bathroom), indoor air quality including ventilation and the presence of damp and/or mould, resilience to climate change, and overcrowding. The affordability of housing is important because for many people, especially people on a low income, housing will be the largest monthly expense; if the cost of housing is high, people may not be able to meet other needs such as the need for heating in winter or food. Some proposals for NSIPs include the provision of housing, which could be beneficial for the health and wellbeing of the local population. It is also possible that some housing will be subject to a compulsory purchase order due to the land-take needed for an NSIP.

c. Access to affordable healthy food

Access to healthy food is related to the provision of public and active transport infrastructure and the location and proximity of outlets selling healthier food such as fruit and vegetables. For the general population, increased access to healthy, affordable food through a variety of outlets (shops, supermarkets, farmers' markets and community gardens) is associated with improved dietary behaviours, including attitudes towards healthy eating and food purchasing behaviour, and improved adult weight. Increased access to unhealthier food retail outlets is associated with increased weight in the general population and increased obesity and unhealthy eating behaviours among children living in low-income areas. Urban agriculture can improve attitudes towards healthier food and increase fruit and vegetable consumption.

Factors affecting access to healthy affordable food include whether it is readily available from local shops, supermarkets, markets or delivery schemes and/or there are opportunities to grow food in local allotments or community gardens. People in environments where there is a high proportion of fast-food outlets may not have easy access to healthy affordable food.

d. Access to the natural environment

Availability of and access to safe open green space is associated with increased

physical activity across a variety of behaviours, social connectedness, childhood development, reduced risk of overweight and obesity and improved physical and mental health outcomes. While the quantity of green space in a neighbourhood helps to promote physical activity and is beneficial to physical health, eg lower rates of mortality from cardiovascular disease and respiratory disease in men, the availability of green environments is likely to contribute more to mental health than to physical health: the prevalence of some disease clusters, particularly anxiety and depression, is lower in living environments which have more green space within a 1-km radius.

The proximity, size, type, quality, distribution, density and context of green space are also important factors. Quality of green space may be a better predictor of health than quantity, and any type of green space in a neighbourhood does not necessarily act as a venue for, or will encourage, physical activity. 'Walkable' green environments are important for better health, and streetscape greenery is as strongly related to self-reported health as green areas. Residents in deprived areas are more likely to perceive access to green space as difficult, to report poorer safety, to visit the green space less frequently and to have lower levels of physical activity. The benefits to health and wellbeing of blue space include lower psychological distress.

The natural environment includes the landscape, waterscape and seascape. Factors affecting access include the proximity of the natural environment to people's place of residence, the existence of public transport services or active travel infrastructure to the natural environment, the quality of the natural environment and feelings of safety in the natural environment. The construction of an NSIP may be an opportunity to provide green and/or blue infrastructure in the local area. It is also possible that green or blue infrastructure will be lost due to the land-take needed for the NSIP.

- e. Access to the natural environment within the urban environment
Public open spaces are key elements of the built environment. Ecosystem services through the provision of green infrastructure are as important as other types of urban infrastructure. It supports physical, psychological and social health, although the quality, perceptions of safety and accessibility of green space affects its use. Safe parks may be particularly important for promoting physical activity among urban adolescents. Proximity to urban green space and an increased proportion of green space are associated with decreased treatment of anxiety/mood disorders, the benefits deriving from both participation in usable green space near to home and observable green space in the neighbourhood. Urban agriculture may increase opportunities for physical activity and social connections.

A view of 'greenery' or of the sea moderates the annoyance response to noise. Water is associated with positive perceptive experiences in urban environments, with benefits for health such as enhanced contemplation, emotional bonding, participation and physical activity. Increasing biodiversity in urban environments, however, may promote the introduction of vector or host organisms for infectious pathogens, eg green connectivity may potentiate the role of rats and ticks in the spread of disease, and bodies of water may provide habitats for mosquitoes.

The natural environment within the urban environment includes the provision of green and blue space in towns and cities. Factors involved in access include the proximity of the green and/or blue space to people's place of residence, the existence of transport services or active travel infrastructure to the green and/or blue space, the quality of the green and/or blue space and feelings of safety when using the green and/or blue space. The construction of an NSIP may be an opportunity to provide green and/or blue infrastructure in the local urban environment. It is also possible that green or blue infrastructure in the urban environment will be lost due to the land-take needed for the NSIP.

- f. Access to leisure, recreation and physical activity opportunities within the urban and natural environments.

Access to recreational opportunities, facilities and services is associated with risk factors for long-term disease; it can increase physical activity, especially walking for recreation, reduce body mass index and overweight and obesity, reduce the risk of high blood pressure, and reduce the number of vehicle trips, the distances travelled and greenhouse gas emissions. It can also enhance social connectedness. Children tend to play on light-traffic streets, whereas outdoor activities are less common on high-traffic streets. A perception of air pollution can be a barrier to participating in outdoor physical activity⁴². However, the health co-benefits from physical activity outweigh the adverse effects of air pollution. There is a positive association between urban agriculture and increased opportunities for physical activity and social connectivity. Gardening in an allotment setting can result in many positive physical and mental health-related outcomes. Exercising in the natural environment can have a positive effect on mental wellbeing when compared with exercising indoors.

Leisure and recreation opportunities include opportunities that are both formal, such as belonging to a sports club, and informal, such as walking in the local park or wood. Physical activity opportunities include routine activity as part of daily life, such as walking or cycling to work, and activity as part of leisure or recreation, such as playing football. The construction of an NSIP may enhance the opportunities available for leisure and recreation and physical activity through the provision of new or improved travel routes, community infrastructure and/or green or blue space. Conversely, construction may reduce access through the disruption of travel routes to leisure, recreation and physical activity opportunities.

2) **Traffic and Transport**

- a. Accessibility

Walkability, regional accessibility, pavements and bike facilities are positively associated with physical activity and negatively related to body weight and high blood pressure, and reduce the number of vehicle trips, the distances travelled and greenhouse gas emissions. Body mass index is associated with street network accessibility and slope variability.

Accessibility in relation to transport and travel has several aspects including whether potential users can gain physical access to the infrastructure and access to the services the infrastructure provides. The design and operation of transport infrastructure and the associated services should take account of the travel needs of all potential users including people with limited mobility. People whose specific needs should be considered include pregnant women, older people, children and young people and people with a disability. Other aspects of transport infrastructure affecting accessibility include safety and affordability, both of which will affect people's ability to travel to places of employment and/or key local services and facilities and/or access their social networks.

- b. Access to / by public transport

Provision of high-quality public transport is associated with higher levels of active travel among children and among people commuting to work, with a decrease in the use of

⁴² Annear, M., Keeling, S., Wilkinson, T., Cushman, G., Gidlow, B., & Hopkins, H. (2014). Environmental influences on healthy and active ageing: A systematic review. *Ageing & Society*, 34 (4), 590-622. Available at https://www.academia.edu/34314864/Environmental_influences_on_healthy_and_active_ageing_a_systematic_review

private cars. Combining public transport with other forms of active travel can improve cardiovascular fitness. Innovative or new public transport interventions may need to be marketed and promoted differently to different groups of transport users, eg by emphasising novelty to car users while ensuring that the new system is seen by existing users as coherently integrated with existing services.

Transport facilitates access to other services, facilities and amenities important to health and wellbeing. Public transport is any transport open to members of the public including bus, rail and taxi services operated by the public, private or community sectors. For people who do not have access to private transport, access to public transport is important as the main agency of travel especially for journeys >1 mile. Access to public transport is not sufficient, however, and access by public transport needs to be taken into account: public transport services should link places where people live with the destinations they need or want to visit such as places of employment, education and healthcare, shops, banks and leisure facilities. Other aspects of access to public transport include affordability, safety, frequency and reliability of services.

c. Opportunities for / access by cycling & walking

Walking and cycling infrastructure can enhance street connectivity, helping to reduce perceptions of long-distance trips and providing alternative routes for active travel. Awareness of air pollution could be a barrier to participating in active travel, however those that choose to walk or cycle often experience lower exposure to pollution, and create less pollution than those in vehicles⁴³. Prioritising pedestrians and cyclists through changes in physical infrastructure can have positive behavioural and health outcomes, such as physical activity, mobility and cardiovascular outcomes. The provision and proximity of active transport infrastructure is also related to other long-term disease risk factors, such as access to healthy food, social connectedness and air quality.

Perceived or objective danger may also have an adverse effect on cycling and walking, both of which activities decrease with increasing traffic volume and speed, and cycling for leisure decreases as local traffic density increases. Health gains from active travel policies outweigh the adverse effects of road traffic incidents. New infrastructure to promote cycling, walking and the use of public transport can increase the time spent cycling on the commute to work, and the overall time spent commuting among the least-active people. Active travel to work or school can be associated with body mass index and weight, and may reduce cardiovascular risk factors and improve cardiovascular outcomes. The distance of services from cycle paths can have an adverse effect on cycling behaviour, whereas mixed land use, higher densities and reduced distances to non-residential destinations promote transportation walking.

d. Links between communities

Social connectedness can be enhanced by the provision of public and active transport infrastructure and the location of employment, amenities, facilities and services.

e. Community severance

In neighbourhoods with high volumes of traffic, the likelihood of people knowing and trusting neighbours is reduced.

f. Connections to jobs

The location of employment opportunities and the provision of public and active transportation infrastructure are associated with risk factors for long-term disease such as physical activity. Good pedestrian and cycling infrastructure can promote commuting

⁴³ Defra 2019, Clean Air Strategy 2019. Available at <https://www.gov.uk/government/publications/clean-air-strategy-2019>

physical activity. Improved transport infrastructure has the potential to shift the population distribution of physical activity in relation to commuting, although a prerequisite may be a supportive social environment. Mixed land use, higher densities and reduced distances to non-residential destinations promote transportation walking.

The ease of access to employment, shops and services including the provision of public and active transport are important considerations and schemes should take any opportunity to improve infrastructure to promote cycling, walking and the use of public transport

- g. Connections to services, facilities and leisure opportunities
Mixed land use, higher densities and reduced distances to non-residential destinations promote transportation walking. Access to recreational opportunities and the location of shops and services are associated with risk factors for long-term disease such as physical activity, access to healthy food and social connectedness. Increased distance of services from cycle paths can have an adverse effect on cycling behaviour.

3) **Socio Economic**

- a. Employment opportunities including training opportunities
Employment is generally good for physical and mental health and well-being, and worklessness is associated with poorer physical and mental health and well-being. Work can be therapeutic and can reverse the adverse health effects of unemployment for healthy people of working age, many disabled people, most people with common health problems and social security beneficiaries. Account must be taken of the nature and quality of work and its social context and jobs should be safe and accommodating. Overall, the beneficial effects of work outweigh the risks of work and are greater than the harmful effects of long-term unemployment or prolonged sickness absence. Employment has a protective effect on depression and general mental health.

Transitions from unemployment to paid employment can reduce the risk of distress and improve mental health, whereas transitions into unemployment are psychologically distressing and detrimental to mental health. The mental health benefits of becoming employed are also dependent on the psychosocial quality of the job, including level of control, demands, complexity, job insecurity and level of pay: transition from unemployment to a high-quality job is good for mental health, whereas transition from unemployment to a low-quality job is worse for mental health than being unemployed. For people receiving social benefits, entry into paid employment can improve quality of life and self-rated health (physical, mental, social) within a short time-frame. For people receiving disability benefits, transition into employment can improve mental and physical health. For people with mental health needs, entry into employment reduces the use of mental health services.

For vocational rehabilitation of people with severe mental illness (SMI), Supported Employment is more effective than Pre-vocational Training in helping clients obtain competitive employment; moreover, clients in Supported Employment earn more and work more hours per month than those in Pre-vocational Training.

- b. Local Business Activity
It is important to demonstrate how a proposed development will contribute to ensuring the vitality of town centres. Schemes should consider the impact on local employment, promote beneficial competition within and between town centres, and create attractive, diverse places where people want to live, visit and work

In rural areas the applicant should assess the impact of the proposals on a prosperous rural economy, demonstrate how they will support the sustainable growth and

expansion of all types of business and enterprise in rural areas, promoting the development and diversification of agricultural and other land based rural businesses.

c. **Regeneration**

Following rebuilding and housing improvements in deprived neighbourhoods, better housing conditions are associated with better health behaviours; allowing people to remain in their neighbourhood during demolition and rebuilding is more likely to stimulate life-changing improvements in health behaviour than in people who are relocated. The partial demolition of neighbourhoods does not appear to affect residents' physical or mental health. Mega-events, such as the Olympic Games, often promoted on the basis of their potential legacy for regeneration, appear to have only a short-term impact on mental health.

d. **Tourism and Leisure Industries**

The applicant should assess the impact of the proposed development on retail, leisure, commercial, office, tourism, cultural, community and residential development needed in town centres. In rural locations assessment and evaluation of potential impacts on sustainable rural tourism and leisure developments that benefit businesses in rural areas, communities and visitors should be undertaken.

e. **Community / social cohesion and access to social networks**

The location of employment, shops and services, provision of public and active transport infrastructure and access to open space and recreational opportunities are associated with social connectedness. Access to local amenities can increase social participation. Neighbourhoods that are more walkable can increase social capital. Urban agriculture can increase opportunities for social connectivity. Infrastructure developments, however, can affect the quality of life of communities living in the vicinity, mediated by substantial community change, including feelings of threat and anxiety, which can lead to psychosocial stress and intra-community conflict.

f. **Community engagement**

Public participation can improve environmental impact assessments, thereby increasing the total welfare of different interest groups in the community. Infrastructure development may be more acceptable to communities if it involves substantial public participation.

4) **Land Use**

a. **Land use in urban and / or rural settings**

Land-use mix including infrastructure:

Land use affects health not only by shaping the built environment, but also through the balance of various types of infrastructure including transport. Vulnerable groups in the population are disproportionately affected by decisions about land use, transport and the built environment. Land use and transport policies can result in negative health impacts due to low physical activity levels, sedentary behaviours, road traffic incidents, social isolation, air pollution, noise and heat. Mixed land use can increase both active travel and physical activity. Transportation walking is related to land-use mix, density and distance to non-residential destinations; recreational walking is related to density and mixed use. Using modelling, if land-use density and diversity are increased, there is a shift from motorised transport to cycling, walking and the use of public transport with consequent health gain from a reduction in long-term conditions including diabetes, cardiovascular disease and respiratory disease.

b. **Quality of urban and natural environments**

Long-term conditions such as cardiovascular disease, diabetes, obesity, asthma and

depression can be moderated by the built environment. People in neighbourhoods characterised by high 'walkability' walk more than people in neighbourhoods with low 'walkability' irrespective of the land-use mix. In neighbourhoods associated with high 'walkability' there is an increase in physical activity and social capital, a reduction in overweight and blood pressure, and fewer reports of depression and of alcohol abuse. The presence of walkable land uses, rather than their equal mixture, relates to a healthy weight. Transportation walking is at its highest levels in neighbourhoods where the land-use mix includes residential, retail, office, health, welfare and community, and entertainment, culture and recreation land uses; recreational walking is at its highest levels when the land-use mix includes public open space, sporting infrastructure and primary and rural land uses. Reduced levels of pollution and street connectivity increase participation in physical activity.

Good-quality street lighting and traffic calming can increase pedestrian activity, while traffic calming reduces the risk of pedestrian injury. 20-mph zones and limits are effective at reducing the incidence of road traffic incidents and injuries, while good-quality street lighting may prevent them. Public open spaces within neighbourhoods encourage physical activity, although the physical activity is dependent on different aspects of open space, such as proximity, size and quality. Improving the quality of urban green spaces and parks can increase visitation and physical activity levels.

Living in a neighbourhood overlooking public areas can improve mental health, and residential greenness can reduce the risk of cardiovascular mortality. Crime and safety issues in a neighbourhood affect both health status and mental health. Despite the complexity of the relationship, the presence of green space has a positive effect on crime, and general environmental improvements may reduce the fear of crime. Trees can have a cooling effect on the environment – an urban park is cooler than a non-green site. Linking road infrastructure planning and green infrastructure planning can produce improved outcomes for both, including meeting local communities' landscape sustainability objectives.